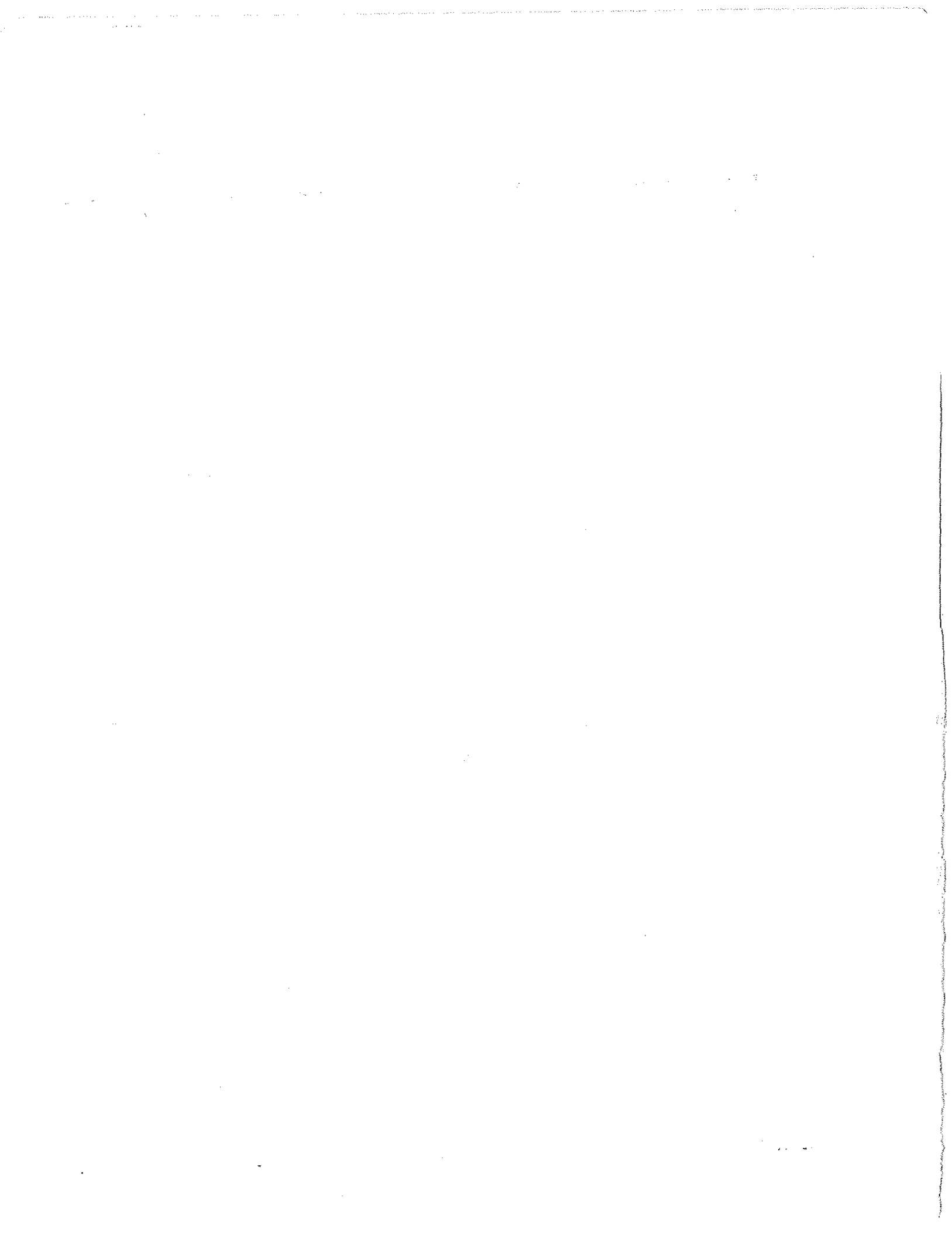


KIRKWOOD

COMMUNITY COLLEGE

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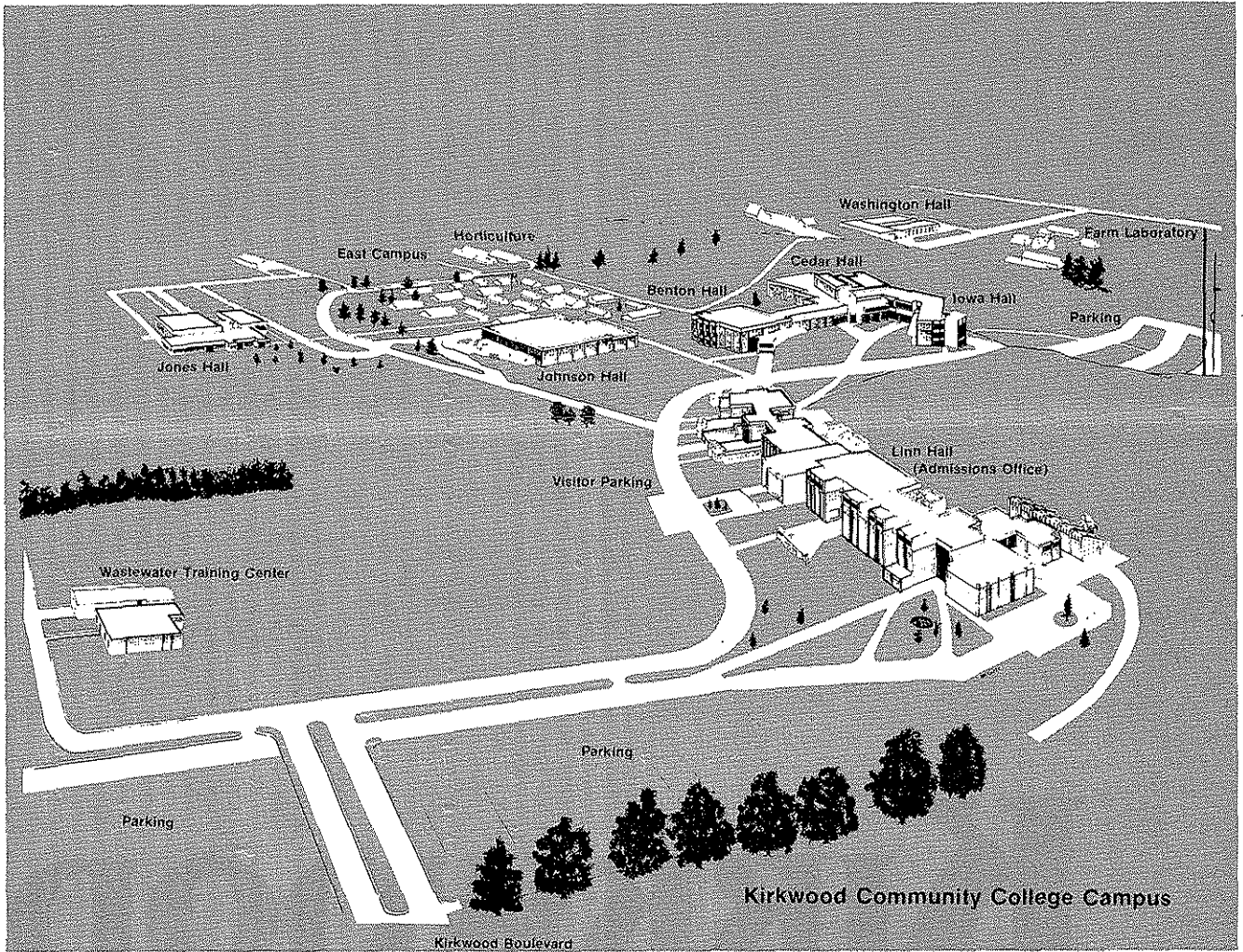




KIRKWOOD

COMMUNITY COLLEGE

**6301 KIRKWOOD BLVD. S.W.
CEDAR RAPIDS, IOWA**



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Kirkwood Community College does not discriminate on the basis of handicap, sex, race, color, religion, or national origin in its educational programs, activities, employment practices or admission procedures.



THE COLLEGE

20 YEARS OF SERVICE

Kirkwood Community College is reaching another important milestone, its twentieth year of service to students and the community. From its start in 1966, the college has expanded to become a full-service educational institution with a modern campus in southwest Cedar Rapids, and satellite learning centers linked to the campus via microwave in the other six counties we serve.

Kirkwood Community College is one of the finest in the country, recognized nationwide as a leader in innovation and excellence in education. In 1984, Kirkwood was cited by William Bennett, chairman of the National Endowment for the Humanities and now U.S. Secretary of Education, as a bright spot in the nation in humanities education. He distinguished only three colleges in the nation with that distinction. The recognition did not come without hard work. The faculty and staff at Kirkwood have been diligent in their efforts to make a Kirkwood education as good an education as a student can receive anywhere.

Through the years, Kirkwood has made higher education available to a greater number of people. Our telecommunications system allows non-traditional students from every part of our seven-county service area to participate in programs without having to travel to our campus. Kirkwood has led the effort by community colleges nationwide to bring education to the people, no matter where they live.

In spite of the obstacles presented by budget cuts and poor economy in the state, Kirkwood has stayed in step with rapidly advancing technology in the business world today.

At Kirkwood, we are committed to providing the highest quality of education and Vocational-Technical job training. We want to insure that today's youth will have the job skills necessary for tomorrow's changing job market. As the needs of the job market change, so do the continuing education and job retraining needs of our adult population. Kirkwood is striving to meet those needs as well.



Dr. Bill F. Stewart

Where traditional institutions set up a curriculum and offer it to their students, Kirkwood plans its curriculum around people, their needs and around the needs of their communities. Kirkwood is continually adapting to our changing times.

Recent changes in our Vocational-Technical programs reflect the latest developments in business and industry. Students are able to choose components of the curriculum that meet their most immediate needs. Our students have an advantage when they leave Kirkwood, an advantage that will help to make them a success, whether they are an 18-year-old high school graduate or a 50-year-old displaced worker.

Kirkwood has undergone many changes in its 20-year history. They are the result of work by a dedicated board of lay directors, a top-notch team of administrators, and one of the finest teaching faculties and staff to be found in a community college anywhere. These people are the heart of our college, and they form the best reason for you to consider continuing your education with us.

Let this catalog become the first step toward the future. We believe futures begin at Kirkwood. With 20 years behind us, we look forward to the challenges of the future and the opportunity to make the future brighter for the Kirkwood graduate.

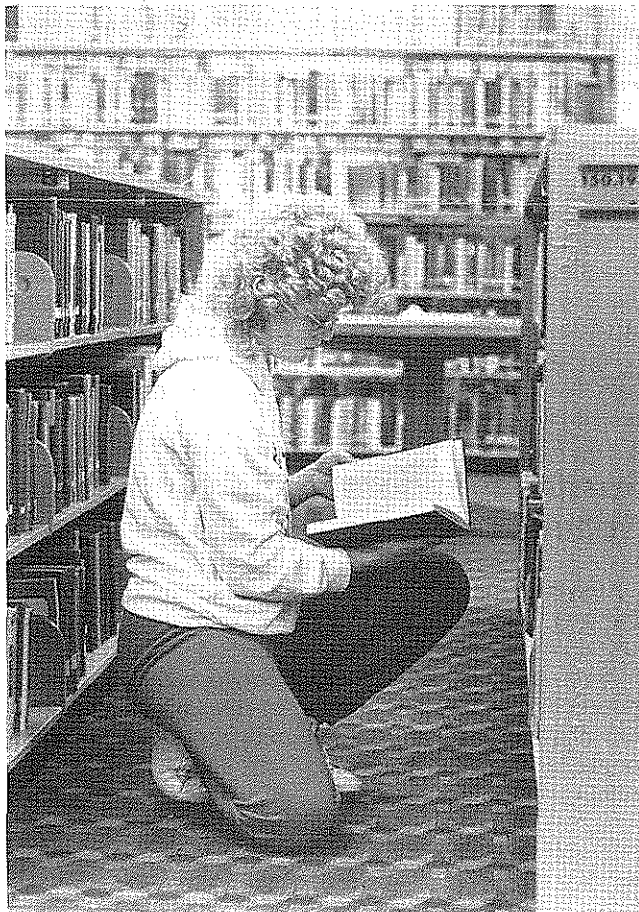
Dr. Bill F. Stewart
President

Kirkwood Community College is a publicly supported college serving the Iowa counties of Benton, Linn, Jones, Iowa, Johnson, Cedar and Washington as well as portions of nine adjacent counties which are part of the merged area. This represents a total population of 327,000 persons. The total land area of the seven major counties served is 4,292 square miles or 7.8 percent of the land area of the state of Iowa.

The college operates under the regulations of the Iowa State Board of Public Instruction with the Board of Directors of merged Area Ten as its governing board.

Area Ten

Merged Area Ten represents a prominent community in transition, mingling urban centers and rich farm lands dotted with small rural communities. Within its borders are many space-age industries, prosperous farms, a major state university, several private liberal arts colleges, and myriad supportive and service institutions and industries. In this setting of economic expansion and population growth, advancing technology has created unprecedented demands for formal education and training programs. This same technology simultaneously has placed greater demands upon the individual in his or her role of responsible citizen.



The Community College

For years, American society has taken for granted the importance of secondary schooling for the many and higher education for the few. It has only been in the past 20 years or so that recognition has been extended to the need for post-high school education for the majority of adults. Accordingly, institutions of higher education, although well suited to the service of a relatively select few, have not been prepared to satisfy the needs of the growing numbers of individuals who desire to participate in post-high school education. Thus, the citizens of Iowa have delegated this responsibility to the comprehensive community college.

Kirkwood Community College is charged by law with the responsibility of identifying the educational needs and desires of adult citizens and of designing educational programs which will help them fulfill their goals.

Philosophy and Mission

Philosophy

Kirkwood Community College believes that the opportunity to develop capacities consistent with one's needs and aspirations is every person's right. To recognize and foster the uniqueness of each individual and to meet diverse educational and related service needs, the college should apply available resources to provide accessible and comprehensive programs. These programs should respond to individuals who seek to understand, adapt to and appreciate the environment, and to the other constituencies who look to the college for assistance. Kirkwood Community College should contribute to a steadily improving quality of life for the people of the district by developing and maintaining a comprehensive range of outstanding educational offerings and services.

Education expands one's mind, spirit and abilities. The concepts of growth and change define education as a continuous process. Schools and colleges, therefore, must relate their programs and policies to lifelong learning. Kirkwood Community College believes education provides an important means for each person to grow toward greater self-fulfillment, as well as a means by which societies preserve and interpret their culture and global heritage. Learning is enhanced when people can apply what they learn. Similarly, the application of skills, values and attitudes is improved when people have an understanding of related theory. Education provides balance among these elements and thus contributes to success in the various aspects of an individual's life.

Due to the dynamic nature of community colleges, those institutions serve a unique and specialized function in higher education, with programs designed to reflect the most current educational practices and technological advances, as well as to promote innovation and progress in all offerings.

Kirkwood Community College should continue to foster creativity and flexibility in its programs and maintain its role as a state and national leader, while providing the highest quality instruction and services to the community it serves.

State Law

The law under which Kirkwood was established and continues to operate, Section 280A in the Code of Iowa, states in part that area community colleges offer, to the greatest extent possible, educational opportunities and services in each of the following, when applicable, but not necessarily limited to:

1. The first two years of college work including pre-professional education.
2. Vocational and technical training.
3. Programs for in-service training and retraining of workers.
4. Programs for high school completion for students of post-high school age.
5. Programs for all students of high school age who may best serve themselves by enrolling for vocational and technical training while also enrolled in a local high school, public or private.
6. Student personnel services.
7. Community services.
8. Vocational education for persons who have academic, socioeconomic or other handicaps which prevent succeeding in regular vocational education programs.
9. Training, retraining and all necessary preparation for productive employment of all citizens.
10. Vocational and technical training for persons who are not enrolled in a high school and who have not completed high school.

Mission

Consistent with the philosophy held by Kirkwood Community College and in accordance with the charge given it by the State of Iowa and in concert with other agencies, the mission of Kirkwood Community College is to serve the community and its people by identifying needs, providing and promoting accessible quality education, training and related services.

History

Kirkwood's history dates from January 1965, when a steering committee was formed to establish a vocational school to serve Area Ten. Work on the study began almost immediately and was completed by July 1965.

Soon after, the Iowa General Assembly passed enabling legislation which made possible the establishment of a system of community colleges and area vocational-technical schools throughout the state. Educators and laypersons in Area Ten recognized the need for a comprehensive community college which would provide college transfer and adult education curricula as well as vocational-technical curricula. Therefore, the nine-person board of directors, elected by the citizens of the area, asked for and received permission from the State Board of Public Instruction to establish Kirkwood Community College. The college was formally established on July 1, 1966.

The college immediately assumed responsibility for federally funded vocational-technical programs, which had been provided by the Cedar Rapids Community School District since 1964. The Arts and Sciences, Student Services and Community Education Divisions were established in 1967.

In the college's short history, the foundation has been established for expanded educational opportunities in vocational-technical education, college transfer and career-oriented programs, adult and continuing education, student services and community services.

Accreditation

Kirkwood Community College is accredited by, and is a member of, the North Central Association of Colleges and Secondary Schools. Kirkwood is also approved by the Board of Regents and the State Board of Public Instruction. Individual programs within the college are accredited by appropriate associations within their respective fields. Many programs are approved for veterans.

Servicemembers Opportunity Colleges

Kirkwood has been designated as an institutional member of Servicemembers Opportunity Colleges (SOC). As a SOC member, Kirkwood recognizes the unique nature of the military lifestyle and has committed itself to easing the transfer of relevant course credits, providing flexible academic residency requirements, and crediting earning from appropriate military training and experiences.

League for Innovation

Kirkwood is a member of the League for Innovation in the Community College, a select consortium of 18 leading two-year colleges. Activities of the League include experimentation in teaching, learning and administrative methods, information exchanges among member colleges, and national dissemination of information about educational methods. Kirkwood, the only Iowa college represented, was granted membership in 1982.

College Facilities

Located on the south edge of Cedar Rapids, Kirkwood's campus is set on a 420-acre rolling countryside site located near the geographic center of the seven counties served by the college. Its educational facilities contain modern, well-equipped classrooms and laboratories for both vocational-technical and arts and sciences programs. The beautiful campus provides a good environment for study and social activities. The first permanent building, Linn Hall, was completed in the fall of 1969. It houses more than 40 full-time vocational-technical offerings, plus the Computer Literacy Center, science laboratories and classrooms. Some day and evening adult Community Education classes also are offered in Linn Hall. The college's main administrative offices are located in Linn Hall in addition to the college's public radio station, KCKK-FM.

Iowa Hall, completed in January of 1975, was the second permanent building on the Kirkwood campus. It contains the college cafeteria, bookstore, Student Activities Office, games room, conference rooms, multi-purpose rooms, lounges and study areas.

Benton Hall is the college's Learning Resource Center or library. It was completed in the spring of 1977.

Linking Benton and Iowa Halls is a new fine arts center. Cedar Hall provides additional classrooms, laboratories, a lecture hall and a 476-seat auditorium geared to the performing arts. The facility was completed in 1983.

Just northeast of Iowa Hall is the East Campus, which consists of 16 relocatable buildings. This portion of the campus consists of classrooms, laboratories, a student lounge, and offices of the Community Education Division. The college's Horticulture and Natural Resources laboratory adjoins the East Campus.

Jones Hall houses Kirkwood's Skill Center, which offers a program of services for disadvantaged and handicapped persons. The building also serves as a trades center with facilities for Kirkwood's welding and building trades programs.

Johnson Hall, a physical education and recreation center, provides much needed space for both educational and community activities. A large central area contains seating for 1500 spectators at college commencement exercises, student assemblies, athletic



contests and other special events. Completed in 1982, Johnson Hall is located just north of Benton Hall.

Kirkwood's agricultural programs are located on the south side of the campus. Washington Hall provides facilities for Agricultural Production and Mechanization programs and other classes related to agriculture. Other programs having facilities on the farm site include Agribusiness Technology, Horse Science Technology (including barn, stall and arena) and Small Animal Services. There are also hog farrowing houses, beef feed lots and a feed mixing laboratory for the beef testing station.

Located to the west of the agriculture campus is the college's truck driving range.

On the north edge of the campus is the Environmental Training Center, constructed through a grant from the Environmental Protection Agency for the purpose of providing training and upgrading of skills for water and wastewater plant operators in Iowa. The center also houses the college's Analytical Lab Technology program.

Access for Handicapped

The college has undertaken an effort to remove architectural barriers and improve accessibility to campus facilities for handicapped and disabled persons. The college is committed to providing handicapped and disabled individuals with equal access to all college programs and services.

Benton Hall Learning Resource Center

The Learning Resource Center (LRC) is located in Benton Hall, situated in the center of Kirkwood's main campus. The LRC, a 33,000 square-foot area, is designed to be a multi-functional center. It houses the traditional functions of a library with the varied components of a learning resource center.

Public services are located on the first floor. These include the circulation department, the card catalog and the reference department. The 400-title periodical collection is housed here, as well as microforms and viewing area, a teacher-preparation room, archives, a copy machine and work space for the LRC staff.

The second floor contains a flexible arrangement of non-traditional learning spaces geared for individualized modular learning, and includes teacher stations and distribution centers for tapes and films. Also on the second floor are five typing carrels, videotape viewing areas, a classroom, and the legal reference collection.

The 46,000-volume book collection is located on both the first and second floors, as are the study and lounge areas for students. The LRC provides the services of professional librarians and a support team of technicians, clerical staff and work/study students.

KCKK-FM Public Radio

KCKK-FM is a 10,000-watt radio station which broadcasts to communities throughout the college's seven-county area. The station is affiliated with National Public Radio, a network of more than 275 stations across the nation. The station broadcasts daily from 5 a.m. to midnight at 88 on the radio dial. KCKK offers a variety of programming, including jazz, folk, and news and public affairs.

KCKK is a membership-supported organization. Membership information is available by calling 398-5446 or by writing to: P.O. Box 2068, Cedar Rapids, Iowa 52406.

KCKK's studio and offices are located in Room 216, Linn Hall, on the Kirkwood campus.

Computer Literacy Center

The Kirkwood Computer Literacy Center offers students and staff a modern lab with current hardware and software resources. A host of IBM and Apple microcomputers allow users to gain experience with electronic spreadsheet, wordprocessing, accounting and tutorial software. BASIC, Pascal, COBOL, Assembler, and FORTRAN programming languages are supported on the microcomputers. In addition, the lab contains several display terminals which are linked to a large IBM computer located in Kirkwood's Data Processing Department. The terminals are used by Data Processing students for



completing assigned projects and by the Kirkwood Registrar for computerized student registration.

The 3,300 square-foot facility is open to students, faculty, staff and the community for learning-related activities. Visit the Computer Literacy Center in Linn Hall or call 398-5606 for further details.

Off-Campus Facilities

Lincoln Community Education Center in southwest Cedar Rapids is the site of general interest classes, adult basic education and high school completion classes, the Right-to-Read and English for the Foreign Born programs, KEY classes, G.E.D. testing, Community Education offices, congregate meals and the college's infant/child care center.

Other Community Education Centers offer similar educational programs in Iowa City, Marion, Monticello, Washington and Williamsburg. (More information on off-campus programs and services is available in the Community Education section of this catalog.) As many as 1000 adult evening Community Education classes are offered each quarter in more than 100 locations in the seven counties, including schools, churches, factories, stores and community centers in cooperation with 39 local school districts.

College credit courses are offered at many off-campus sites. Classes are available both in the traditional classroom format and via the Kirkwood Telecommunications System (KTS). A wide variety of courses are taught through Telelink and ITFS which employ an interactive television system to link the main campus to classrooms in the seven-county area. Classes are also broadcast on cable and public television.

The state reformatory in Anamosa offers Kirkwood classes serving approximately 500 of the 700 inmates.

Kirkwood Park, located south of Cedar Rapids, is a

22-acre recreational area consisting of three lighted softball diamonds and a park area.

International Education

Study abroad programs are offered in both Arts and Sciences and Vocational-Technical areas, providing rich educational and cultural experiences. Students may also take advantage of the college's Off-Campus Study Center at the University of Konstanz, in Konstanz, West Germany. This program is coordinated by the Community Colleges for International Development, a nine-college organization to which Kirkwood belongs.

Economic Development Center

Through Kirkwood's Economic Development Center, the college provides customized training programs for area businesses and industries. Center staff work with local agencies to enhance the economic development of the region by identifying training monies and providing training services that will attract business and industry into the area and encourage expansion of existing business. Through the Center, business, government and education are brought together in a commitment to productivity, profitability and quality through a strong work force.

Kirkwood Foundations

The primary objective of the Kirkwood Community College Foundation and the Kirkwood Community College Facilities Foundation is the strengthening of Kirkwood's scientific, literary and educational pursuits. As two private non-profit corporations, the foundations are empowered to solicit and receive tax deductible gifts, bequests and trusts, all for the benefit of Kirkwood Community College. Any gift to Kirkwood, restricted or unrestricted, may be made through the foundations.

The foundations encourage voluntary giving to provide more funds for student activities, scholarships and loans, library acquisitions, faculty grants, instructional equipment and other college needs for which tax dollars are limited or unavailable.

Voluntary board members from Kirkwood's seven-county area assist in the many fund raising efforts.

Annual Fund Drives

The foundations serve to channel gifts from alumni, friends, corporations and foundations to the college through annual fund drives. Many gifts are received each year as a result of these campaigns. The foundations also coordinate planned giving in the form of deferred gifts through bequests, living trusts, testamentary trusts, life insurance agreements, life income contracts and gift annuities.

Memorial Funds

Permanent memorials on the campus, "named" scholarships, professorships, facilities or areas in buildings also are coordinated through the foundations.

Kirkwood Alumni Association

The Kirkwood Alumni Association is made up of two branches, the Alumni Board of Directors and the Alumni Social Clubs.

The 14-member Alumni Board of Directors meets monthly to plan and organize a comprehensive Alumni program. Some activities the Board initiates are fundraising projects such as chartered bus trips, raffles and phonathons. The Board also sponsors the annual Kirkwood Crafts and Collectors Show. Proceeds from these events are used for student scholarships and to buy needed equipment for campus buildings.

The Alumni Social Clubs are made up of those alumni wishing to make donations to the college. The Social Clubs have an activity planned each quarter to help them meet with other Kirkwood alumni. These members also help with the activities sponsored by the Board of Directors.

Kirkwood alumni remain visible and active on campus and in the community. Alumni have gone into all walks of life, using their Kirkwood experience as a catapult. Many of Kirkwood's graduates have a desire to remain aware of what is going on around campus and the Alumni Association strives to keep them informed.

Information regarding Alumni activities can be obtained from the Alumni Office in Iowa Hall.

Expanding Horizons for Women

Kirkwood offers special activities for adult women through its "Expanding Horizons for Women" program. The program features seminars and workshops on topics of interest to women, as well as career advising and counseling activities designed to assist women who are returning to school or entering careers. An information brochure is prepared quarterly listing college activities of interest to women, including information on Arts and Sciences courses, Vocational-Technical career programs, Community Education classes and other educational opportunities. The Expanding Horizons program sponsors Women's Assistance Sessions prior to each quarter for women who would like to continue their education and possibly pursue a career. These sessions provide information on counseling services, financial aid and registration procedures at Kirkwood.

ACADEMIC CALENDAR

Kirkwood's academic year begins during the last week in August and ends during the third week in August of the following year. The year is divided into four quarters, with both six-week and twelve-week classes held during the summer. Each quarter has an average of 60 instructional days, including finals and registration. No classes are held on Labor Day, Thanksgiving Day, Christmas Day, New Year's Day, Good Friday, the Fourth of July or Memorial Day. In addition, there are recesses centering around the Christmas and Easter holiday seasons.

The exact calendar for each year is recommended by the Academic Policies and Procedures Committee to the vice president of Academic Affairs and presented to the Board of Trustees in early spring. Once approved, the calendar is printed and made available to students.

The 1985-86 calendar is printed here. The calendars for 1986-87 and 1987-88 should be available in April 1986 and 1987 respectively.

1985-86

FALL 1985

August 26, 27
August 28
September 2

September 4

October 30
November 22

Registration
Classes begin
College holiday, no classes,
offices closed
Last day to register late or add
classes
Last day to drop classes
Quarter ends

WINTER 1985-86

November 25, 26, 27
November 28, 29

December 2
December 6

Dec. 23-Jan. 3
Dec. 25-Jan. 1

February 7
February 28

Registration
College holiday, no classes,
offices closed
Classes begin
Last day to register late or add
classes
Student recess days
College holiday, no classes,
offices closed
Last day to drop classes
Quarter ends

SPRING 1986

March 3, 4
March 5
March 11

March 24-28
March 28

May 6
May 26

May 30
May 31

Registration
Classes begin
Last day to register late or add
classes
Student recess days
College holiday, no classes,
offices closed
Last day to drop classes
College holiday, no classes,
offices closed
Quarter ends
Commencement

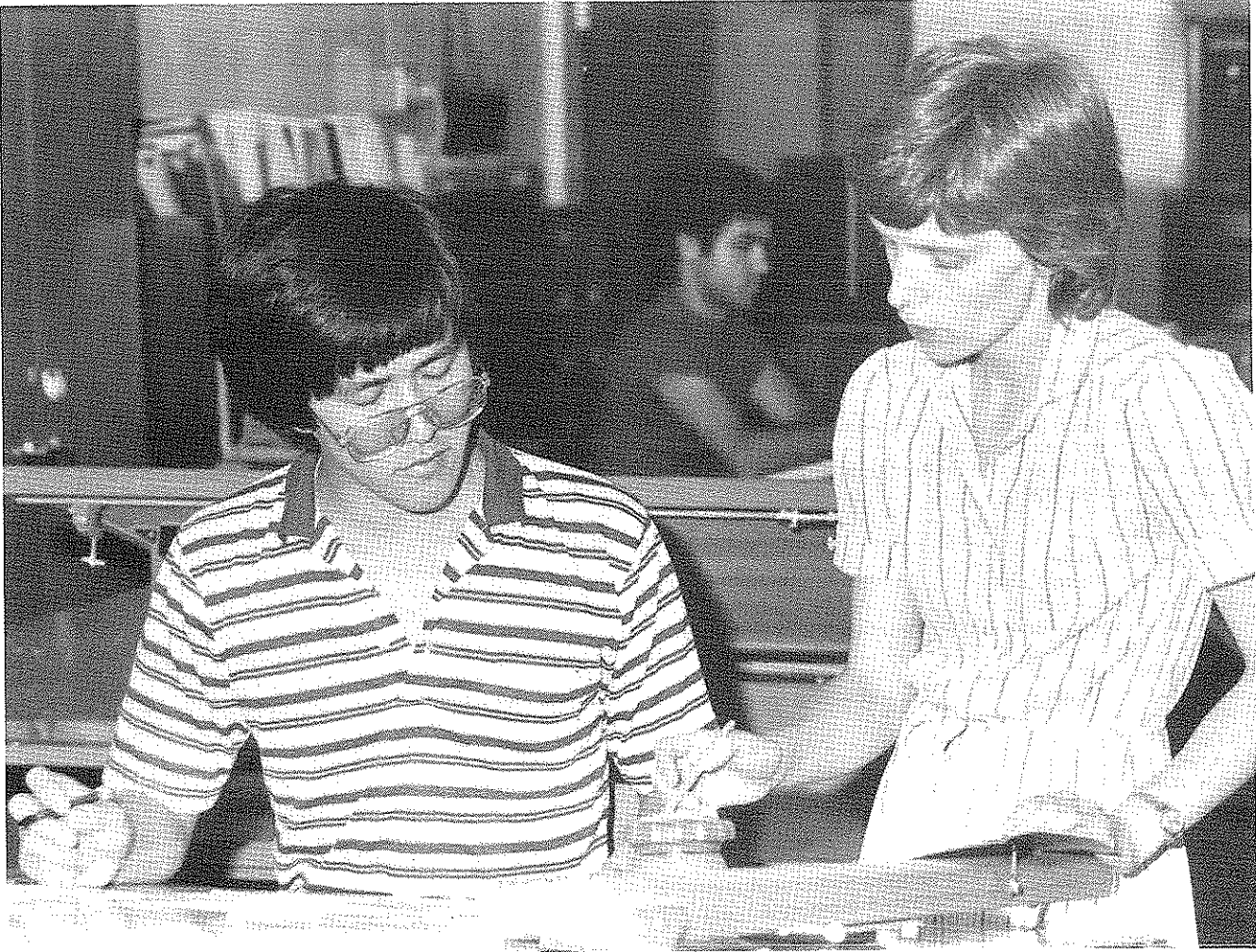
SUMMER 1986

June 2
June 3
June 9

July 4

August 4
August 22
August 23

Registration
Classes begin
Last day to register late or add
classes
College holiday, no classes,
offices closed
Last day to drop classes
Quarter ends
Commencement



INSTRUCTIONAL PROGRAMS

GUIDE TO COLLEGE PROGRAMS

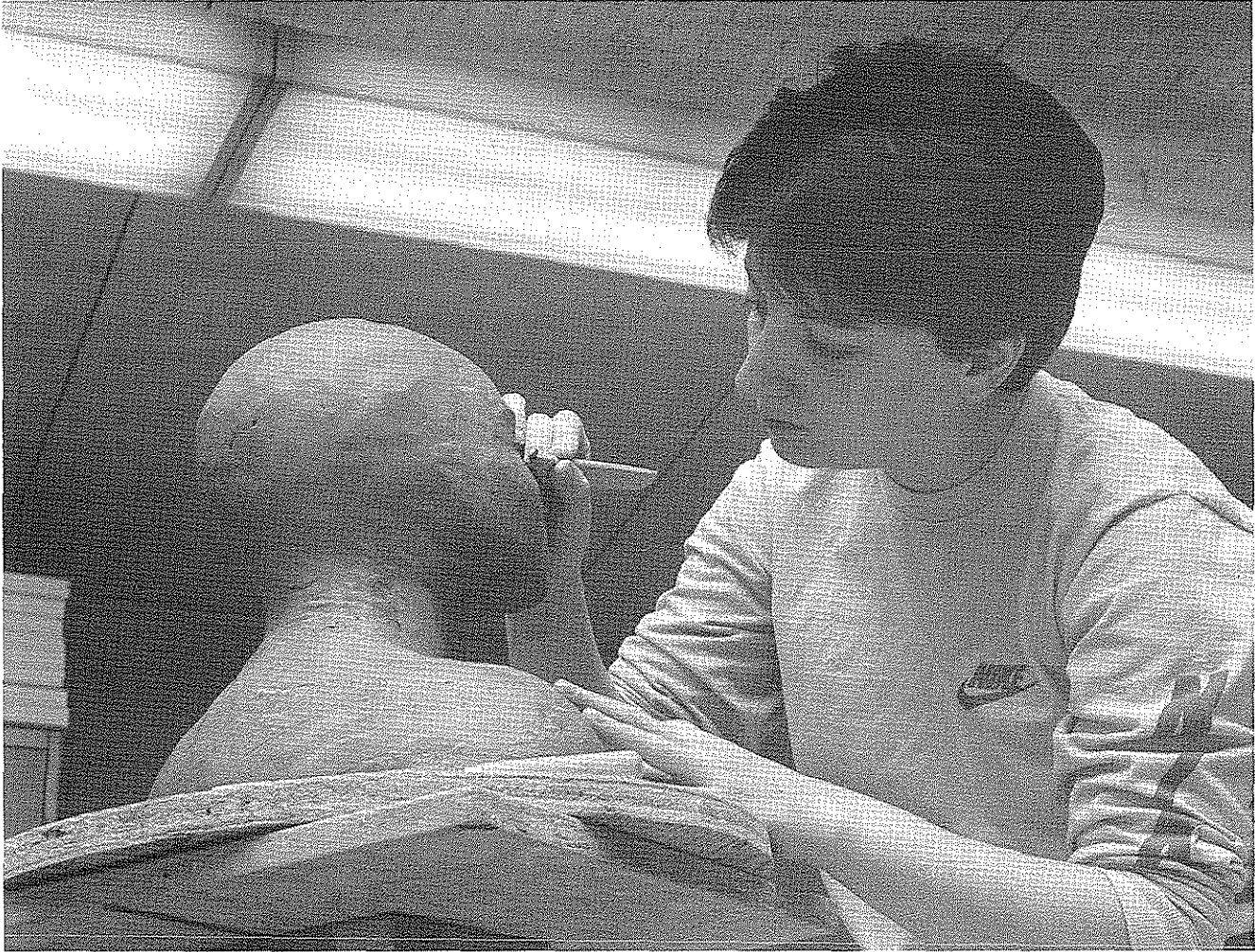
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ARTS AND SCIENCES DIVISION

The Arts and Sciences Division offers three degrees: the Associate of Arts, the Associate of Science and the Associate of Science/Career Option.

General Degree Requirements

1. Earn a minimum of 90 quarter hours of credit.
2. Earn the last 24 quarter hours in residence at Kirkwood.
3. Maintain a minimum cumulative grade point average of 2.0.
4. Satisfactorily complete 8 quarter hours in Composition and 4 quarter hours in Speech.

Specific Requirements for the Associate of Arts Degree

1. Complete general requirements described earlier.
2. Complete group requirements as follows:
 - A. Humanities — 12 quarter hours (at least 4 hours in Literature and at least 4 hours in Arts and Ideas);
 - B. Mathematics/Science — 12 quarter hours (at least 1 course in Math and at least 1 course in Science);
 - C. Social Sciences — 12 quarter hours;
 - D. Historical Cultural — 8 quarter hours;
 - E. Distributed requirements — 4 quarter hours from Communication Arts, Humanities, Math/Science, Social Sciences or Historical Cultural.

Specific Requirements for the Associate of Science Degree

1. Complete general requirements described earlier.
2. Complete group requirements as follows:
 - A. Humanities/Historical Cultural — 8 quarter hours;
 - B. Social Sciences — 8 quarter hours;
 - C. Mathematics/Science — 30 quarter hours.
3. The remaining 32 quarter hours will be taken from Arts and Sciences electives designed for transfer.

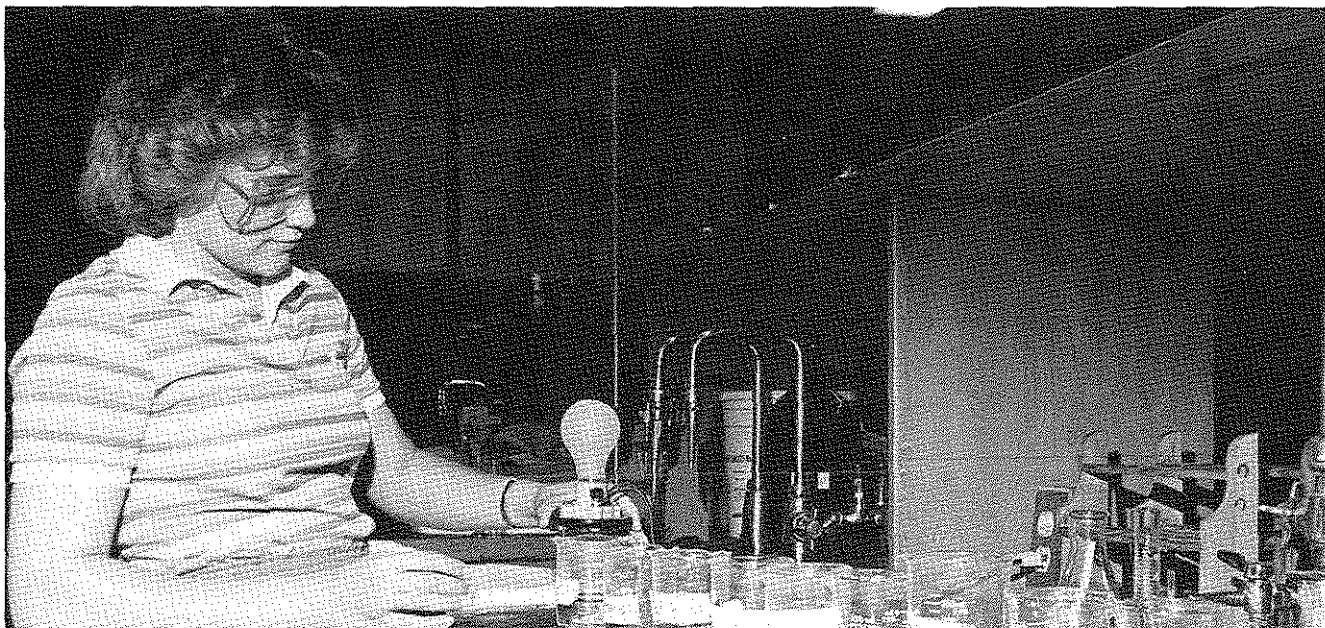
Specific Requirements for the Associate of Science/Career Option Degree

D.P.I. approved Career Option programs are authorized to offer the Associate of Science/Career Option degree with the following requirements.

1. Complete general requirements described earlier.
2. Complete group requirements as follows:
 - A. Humanities/Historical Cultural — 8 quarter hours;
 - B. Mathematics/Science — 8 quarter hours;
 - C. Social Sciences — 8 quarter hours;
 - D. Career Option emphasis (see specific programs)

Credit by Examination

Students in the Arts and Sciences Division may earn up to 32 quarter hours of credit through general examinations of the College Level Examination Program (CLEP). In addition, a wide variety of subject matter examinations are available to enable students to earn college credit for their knowledge in various subject areas, thereby allowing them to test out of individual courses. Information about these examinations may be obtained from the Counseling Office.



Arts and Sciences Core Courses

Applicable to A.A., A.S. and A.S./Career Option Degree Requirements

COMMUNICATION ARTS		Credits
CM101T	Composition I	4
CM102T	Composition II or	4
CM117T	Composition II: Technical Writing	
CM204T	Speech Communication or	4
CM201T	Public Communication	
JO101T	Introduction to Communications Media	4

HUMANITIES		
Literature		
LT004T	American Literature I	4
LT005T	American Literature II	4
IS042T	Encounters in Humanities (Lt. or A/I)	4
LT101T	Introduction to Fiction	4
LT102T	Introduction to Dramatic Literature	4
LT103T	Introduction to Poetry	4
LT201T	Masterpieces of Literature: Ancient World	4
LT202T	Masterpieces of Literature: Medieval, Renaissance and Neo-Classical Periods	4
LT203T	Masterpieces of Literature: 19th & 20th Centuries	4

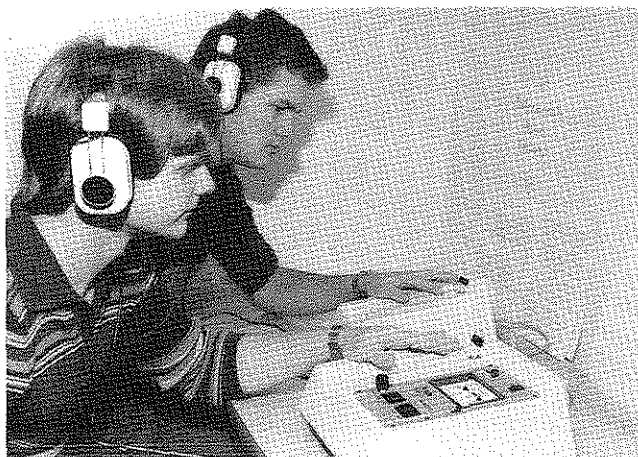
Arts & Ideas		
AT001T	Art Appreciation	4
AT002T	Art History: Pre-15th Century	4
AT003T	Art History: Pre-19th Century	4
AT004T	Art History: 20th Century	4
IS042T	Encounters in Humanities	4
HU007T	Encounters in Ethics	2
LT211T	Introduction to Film	4
PR001T	Introduction to Philosophy	4
PR002T	Introduction to Religion	4
DR101T	Introduction to Theater	4
CM319T	Legal and Ethical Issues in Communication	2
MU011T	Music Appreciation	4

SOCIAL SCIENCES		
EC016T	Contemporary Economic Problems	4
EC013T	Principles of Economics (Macro)	4
EC014T	Principles of Economics (Micro)	4
EV007T	Energy Today	1
EV001T	Man in the Environment: Atmosphere	1
EV002T	Man in the Environment: Hydrosphere	1
EV003T	Man in the Environment: Lithosphere	2
GE001T	Human Geography	4
LE009T	Introduction to Criminal Justice	4
PS002T	American Federal Government	4
PS008T	Comparative Governments	4
PS004T	International Relations	4
PS006T	Iowa Government	4
PY004T	Educational Psychology and Measurement	4
PY002T	General Psychology	4
PY020T	Psychology of Growth and Development	4
PY039T	Social Psychology	4
S0007T	Criminology	4



S0004T	Introduction to Sociology	4
S0011T	Juvenile Delinquency and Deviancy	4
S0005T	Marriage and the Family	4
S0006T	Social Problems	4
SW010T	Human Service Policies and Programs	4
PY024T	Exceptional Child	4

MATHEMATICS/SCIENCE		
MA034T	Analytic Geometry	5
MA051T	Business Calculus	4
MA035T	Calculus I	5
MA036T	Calculus II	5
MA037T	Calculus III	5
MA052T	Calculus IV	5
MA032T	College Algebra	5
MA053T	Differential Equations	5
MA043T	Finite Math	5
MA041T	Fundamentals of Statistics	5
MA031T	Intermediate Algebra	5
MA040T	Linear Algebra	5
MA050T	Mathematics for Liberal Arts	4
MA033T	Trigonometry	5
BY031T	Biology of Organisms	4
BY032T	Environmental Biology	4
BY019T	General Botany I	4
BY020T	General Botany II	4
BY039T	Human Anatomy and Physiology I	4
BY040T	Human Anatomy and Physiology II	4
BY041T	Human Anatomy and Physiology III	4
BY047T	Introductory Genetics	4
BY034T	Invertebrate Zoology I	4
BY035T	Invertebrate Zoology II	4
BY042T	Microbiology	5
BY030T	Principles of Biology	4
BY036T	Vertebrate Zoology I	4
BY037T	Vertebrate Zoology II	4
CH005T	General Chemistry I	5
CH006T	General Chemistry II	5
CH003T	Fundamentals of Biochemistry	4
CH002T	Fundamentals of Organic Chemistry	4
CH007T	Nutrition	4
CH008T	Organic Chemistry I	4
CH009T	Organic Chemistry II	4
CH010T	Organic Chemistry III	4



HY016T	Europe in the Age of Monarchy	4
HY017T	Europe in the Age of Revolution	4
HY018T	Europe in the Age of Nationalism	4
HY001T	U.S. History/17th & 18th Century	4
HY002T	U.S. History/19th Century	4
HY003T	U.S. History/20th Century	4
IS047T	Understanding Culture	4
SO008T	Introduction to Cultural Anthropology	4

College Parallel-Transfer Curricula

Career Areas

College parallel-transfer curricula permit completion of the first two years of a bachelor's degree program. Students can begin their preparation for post-baccalaureate careers by carefully selecting courses in their Associate of Arts or Associate of Science degree program. Kirkwood's Arts and Sciences curricula can provide the initial course work leading to any of the career areas listed below.

- Aviation
- Agriculture, Agribusiness and Natural Resources
- Business Administration
 - Management Development
 - Banking and Finance
 - Accounting
 - International Trade
 - Marketing
- Communication and Media
 - Broadcasting
 - Journalism
- Computer Science
- Consumer Affairs and Homemaking
- Engineering
- Environment
 - Fisheries and Wildlife Biology
 - Environmental Science and Forestry
- Fine Arts and Humanities
- Health
 - Dentistry
 - Medicine
 - Nursing (BSN)
 - Pharmacy
 - Medical Technology
 - Physical Therapy
- Personal Services
- Physical Education/Recreation
- Public Service
 - Social Work
 - Education
 - Law
 - Government
- Transportation

CH001T	Principles of Chemistry (lecture)	3
CH001T	Principles of Chemistry (lab)	1
CH004T	Quantitative Analysis	6
EA002T	Evolution of the Earth	4
EA004T	Evolution of the Earth (lab)	1
EA001T	Introductory Geology	4
EA003T	Introductory Geology (lab)	1
EG013T	Introduction to Electrical Science	5
EV007T	Energy Today	3
EV001T	Man in the Environment: Atmosphere	3
EV002T	Man in the Environment: Hydrosphere	3
EV003T	Man in the Environment: Lithosphere	2
IS010T	Man Evolving	4
IS008T	Science and Society	4
PH007T	Astronomy	4
PH001T	College Physics I	4
PH002T	College Physics II	4
PH003T	College Physics III	4
PH004T	General Physics I	4
PH005T	General Physics II	4
PH006T	General Physics III	4
PH011T	Medical Physics	4
PH008T	21st Century Introductory Physics	4

HISTORICAL/CULTURAL

FL001T	Elementary French I	4
FL002T	Elementary French II	4
FL003T	Elementary French III	4
FL004T	Intermediate French I	5
FL005T	Intermediate French II	5
FL007T	French Civilization I	3
FL008T	French Civilization II	3
FL009T	French Civilization III	3
FL010T	Elementary German I	4
FL011T	Elementary German II	4
FL012T	Elementary German III	4
FL023T	Intermediate German I	3
FL024T	Intermediate German II	3
FL025T	Intermediate German III	3
FL013T	Elementary Spanish I	4
FL014T	Elementary Spanish II	4
FL015T	Elementary Spanish III	4
FL016T	Intermediate Spanish: Conversation	5
FL017T	Intermediate Spanish: Reading	5
FL020T	Spanish American Civilization	3
FL019T	Spanish Civilization	3

College Majors

The Arts and Sciences curricula also provide students with courses appropriate to most baccalaureate majors. With careful planning, students can complete the first two years of most college majors listed below. Faculty advisors and counselors can provide valuable assistance to students planning to transfer. Students should consult with their advisor when making course selections.

Accounting	Foreign Language
Agricultural Science	Forestry
Airway Science	History
Anthropology	Industrial Safety
Art	Journalism
Biochemistry	Liberal Arts
Biology	Literature
Biophysics	Mathematics
Broadcasting	Music
Business Administration	Nursing
Chemistry	Physical Education
Computer Science	Political Science
Economics	Psychology
Education	Recreation
Engineering	Sociology
English	Speech
Environmental Studies	Statistics
Finance	

Special Programs

Pre-Airway Science

Kirkwood students who complete an Associate of Arts degree in Pre-Airway Science may transfer to Central Missouri State University or to Southern Illinois University to complete a bachelor's degree in Airway Science. Students may concentrate in Airway Science Management, Airway Electronics Systems or Aviation Maintenance Management. Specific program requirements are available from Kirkwood's Math/Science Department.

Pre-Computer Science

The Pre-Computer Science program is designed to prepare students for a baccalaureate degree program in computer science. By following the courses outlined for this program, students are able to transfer to many four-year colleges or universities as juniors in the computer science degree program of that school. Computer science is the study of methods of developing computer

software ranging from the simplest programs using a high level language such as PASCAL to the development of highly sophisticated programs that directly control computer hardware.

Pre-Engineering

Engineering remains a bright spot in the nation's job market, with good job and salary opportunities. Kirkwood offers the first two years of a four-year professional engineering degree. This program is designed for technician-level persons and recent high school graduates who would like to begin their engineering education in the Cedar Rapids-Marion area. Kirkwood offers a variety of classes for those requiring introductory courses in mathematics, physics, chemistry and engineering.

Kirkwood's Pre-Engineering program has been developed in cooperation with the University of Iowa and Iowa State University. Course credits in the program are transferable to either of the state universities. Officials at the University of Iowa have commented that the program permits Kirkwood students to complete a full two-year engineering curriculum on the Kirkwood campus. Advisors will help students to insure ease of transfer.

Pre-Environmental Science and Forestry

This program is designed for students who ultimately desire a B.S. degree in environmental science and/or forestry from the State University of New York (SUNY) College of Environmental Science and Forestry, an upper division/graduate center in Syracuse.

After the first two years of study at Kirkwood, transfer students may apply to a variety of programs at SUNY including the biological sciences (botany and forest pathology, entomology, zoology, and wildlife biology), chemistry (natural products, polymers, biochemistry), forest engineering, paper science and engineering, wood products engineering, and resource management (forest resource science, management science, environmental education and communications, urban forestry, world forestry, applied resource management). This program in landscape architecture leads to a B.S. degree in environmental studies and, after one additional year, a Bachelor of Landscape Architecture degree.

Persons planning to transfer should follow the program requirements in consultation with Kirkwood's advisors for selection of electives, which vary according to the curriculum in Environmental Science and Forestry.

Graduates of Kirkwood's Pre-Environmental Science and Forestry program generally gain admission to the SUNY College of Environmental Science and Forestry with full junior class status.

English as a Second Language

English as a Second Language is a full-time or part-time English and orientation program for non-English speaking persons. The English as a Second Language program is designed to provide instruction to help the non-English speaker reach a level of proficiency in speaking English that is necessary for employment or attending school. Students may stay in the program until reaching the level of proficiency necessary to enter a credit program.

College Transfer/Career Option Programs

Several college transfer/career option programs are available. Persons who wish to study for one or two years in college transfer courses, but who also want to develop occupational skills suitable for employment immediately upon completion of one or two years of study, may find these career-oriented programs especially attractive. Credits earned in these programs may be applied toward a baccalaureate program at a four-year university or college. Descriptions of the college transfer/career option programs follow.

Business Administration

Kirkwood provides a college transfer business curriculum in several Associate of Science/Career Option degrees. Students should contact the Academic Advising Center or the Business Technologies area advisor regarding requirements for the various transfer institutions.

Accounting

This program is designed to prepare individuals for semi-professional employment opportunities in the accounting field. Upon completion of the program, students should be prepared to enter business in the areas of cost accounting, general accounting and many other specialized areas of financial reporting. Requirements include accounting principles and practice in addition to general and occupational information.

Students must fulfill the general requirements for the Associate of Science/Career Option degree, in addition to completing the required program courses, for a minimum of 90 quarter credit hours.

Required Program Courses

		Credits	Hrs.
DP010T	Introduction to Microcomputers and Data Processing	4	48
AC001T	Principles of Accounting I	4	48
AC002T	Principles of Accounting II	4	48
AC003T	Principles of Accounting III	4	48
AC006T	Intermediate Accounting I	4	48
AC007T	Intermediate Accounting II	4	48
AC009T	Intermediate Accounting III	4	48
AC004T	Cost Accounting I	4	48
AC005T	Cost Accounting II	4	48
MA043T	Finite Mathematics	5	60
MA041T	Statistics	5	60
MA031T	Intermediate Algebra	5	60
AC018T	Income Tax	4	48
EC014T	Principles of Economics (Micro)	4	48
EC013T	Principles of Economics (Macro)	4	48
LW005T	Business Law I	4	48

Recommended Business Electives

OE009T	Electronic Office Machines	2	36
AC021T	Computer Applications: Accounting	4	72
AM002T	Principles of Finance	3	36
AM005T	Introduction to Management	4	48

Banking/Finance

The curriculum in Banking/Finance is designed for students seeking careers with financial institutions and for those already in banking or finance who wish to attain advanced positions.

Students engaged in banking or finance occupations may receive various certificates from the American Institute of Banking or Institute of Financial Education upon completion of identified required courses.

Students must fulfill the general requirements for the Associate of Science/Career Option degree, in addition to completing the required program courses, for a minimum of 90 quarter credit hours.

Required Program Courses

		Credits	Hrs.
MK001T	Principles of Marketing	4	48
MK007T	Principles of Banking	3	36
DP010T	Introduction to Microcomputers and Data Processing	4	60
AC001T	Principles of Accounting I	4	48
AC002T	Principles of Accounting II	4	48
AC010T	Analyzing Financial Statements	3	36
EC013T	Principles of Economics (Macro)	4	48
EC014T	Principles of Economics (Micro)	4	48
EC008T	Money and Banking	3	36

An additional 12 credit hours of Banking courses are required.

International Trade

The International Trade program prepares students to meet the challenge of increasing world trade in the years ahead. Students who complete the program are prepared for employment managing export and import functions in businesses and industries.

The program is structured to prepare students for employment upon receiving the Associate of Arts, or Associate of Science/Career Option degree. Students who desire increased opportunities for advancement may transfer credits to four-year colleges to complete a bachelor's degree. Students may enroll on a part-time or full-time basis.

Students must fulfill the general requirements for the Associate of Arts or Associate of Science/Career Option degree, including a foreign language, in addition to completing the required program courses listed below, for a minimum of 90 quarter credit hours.

Required Program Courses

	Credits	Hrs.
MK014T Exploring World Trade	3	36
MK017T Techniques of Exporting	3	36
MK022T International Transportation	3	36
MK021T Foreign Trade Documentation	3	36
MK800T Independent Study in International Trade	1	24
IS047T Understanding Cultures	4	48
MK024T International Business	3	36
MK027T Advanced Documentation	3	36
DP010T Introduction to Microcomputers and Data Processing	4	60
MK001T Principles of Marketing	4	48

Recommended Business Electives

AC001T Principles of Accounting I	4	48
AC002T Principles of Accounting II	4	48
AC003T Principles of Accounting III	4	48
AM003T Internship	9	324
MK003T Principles of Selling	4	48
AM032T Introduction to Business	4	8
OE006T Typing	3-6	
GE001T Geography	3	60
LW005T Business Law I	4	48
AM022U Principles of Supervision	3	36

Management Development

The Management Development career option program is designed for students preparing for management careers or those who are already in entry-level management careers. In addition to classroom instruction, students have the option of utilizing on-the-job training as a part of their program. This enables them to put into practice those skills learned in the classroom.

Students must fulfill the general requirements for the Associate of Arts or Associate of Science/Career Option degree in addition to completing the required program courses listed below, for a minimum of 90 quarter credit hours.

Required Program Courses

	Credits	Hrs.
AM022U Principles of Supervision	3	36
DP010T Introduction to Microcomputers and Data Processing	4	60
AM005T Introduction to Management	4	48
AM051U Principles of Safety	1	12
Management Development courses	18	216

Marketing Management

The Marketing Management program is designed to prepare students for rapidly expanding employment opportunities in food, insurance, real estate and car sales, and other related marketing jobs in retail buying, entry-level management and advertising.

Marketing students study the exchange process through the assessment of consumer needs and the development of products and services to fulfill those needs. The program includes general education courses in addition to classes in selling, accounting, data processing and economics.

Students may select from a wide variety of classes to tailor a curriculum to their individual needs and interests. Courses are offered during the day and evening, and enrollment may be full-time or part-time.

Students must fulfill the general requirements for the Associate of Arts or Associate of Science/Career Option degree, in addition to completing the required courses listed below, for a minimum of 90 quarter credit hours.

Required Program Courses

	Credits	Hrs.
AM032T Introduction to Business	4	48
MK001T Principles of Marketing	4	8
MK003T Principles of Selling	4	48
AC001T Principles of Accounting I	4	48
AC002T Principles of Accounting II	4	48
DP010T Introduction to Microcomputers and Data Processing	4	48
EC013T Principles of Economics (Macro)	4	48
EC014T Principles of Economics (Micro)	4	48
AM005T Introduction to Management	4	48
MK025T Principles of Advertising	4	48

Recommended Business Electives

MK016T Counselor Selling	4	48
MK019U Small Business Organization and Management	3	36
CE001T Cooperative Education Experience	3	36
PY004U Human Relations	3	36
MK014T Exploring World Trade	3	36
AC003T Principles of Accounting III	4	48
LW005T Business Law I	4	48

Communications Media and Technology

Kirkwood's program in Communications Media and Technology is designed to give students a broad base of experience with the communications industry. Built around a solid arts and sciences core, it is suited both for the student who wishes to pursue a four-year college degree and for the student who plans to seek employment following graduation from Kirkwood.

Because most jobs in the communications field require a generalist's view of the world combined with a specialist's expertise, the program requires all students to do both theoretical and practical course work. After learning how to use the technology across the

field, students elect an area of specialization and work intensively to develop skills suited to their particular career interests. These might include working as a media writer, TV production assistant, media artist or radio announcer.

A college parallel/career option program, the Communications Media and Technology course of study can be completed in two years by a full-time student or over a longer period of time by a part-time student.

In order to earn the degree of communications, students must fulfill the general requirements for either the Associate of Arts or Associate of Science/Career Option degree and complete the required program courses.

Required Program Courses

All students in the program are required to take the core courses listed below.

		Credits	Hrs.
JO103T	Introduction to Photography	3	48
JO101T	Introduction to Communications Media	4	48
CM214T	Media Lab	3	48
JO106T	Promotion and Public Relations	3	36
CM319T	Legal and Ethical Issues in Communications	2	24
MK025T	Principles of Advertising		
	or		
MK001T	Principles of Marketing	4	48
CM316T	Special Projects	1-3	36-108
CM317T	Internship (optional for A.A., required for A.S./Career Option)	4-8	

Additional Required Program Courses

Depending upon the career specialization chosen, students must complete specified courses from the list that follows. Areas of specialization are: Print Communications, Media Writer, Radio/TV News Reporter, Radio Announcer/Operator, TV Production Assistant, Media Aide, Media Production Specialist, Photo Communicator, Media Artist, Media Account Executive, and Media Buyer.

CM306T	Radio and TV Presentation	2	24
AT014T	Lettering	2	48
AT008T	Design I	2	48
AT009T	Design II	2	48
AT010T	Design III	2	48
AT011T	Drawing I	2	48
AT012T	Drawing II	2	48
AT013T	Drawing III	2	48
MK003T	Principles of Selling	4	48
MK001T	Principles of Marketing	4	48
JO103T	Introduction to Photography	3	48
AT019T	Intermediate Photography (Black & White)	3	48
JO104T	Photojournalism	3	8
JO105T	Newswriting and Reporting I	4	48
JO108T	Newswriting and Reporting II	4	48
CM320T	Introduction to AV Production	2	24
CM321T	Introduction to TV Production	2	24
CM322T	Introduction to Audio Production	2	24
CM323T	Advanced Production	2	24
AT036T	Color Photography	3	48
JO107T	Principles of Design and Layout	2	48
CM201T	Public Communication	4	48
CM318T	Broadcast Writing	3	36
JO102T	Practical Reporting	1 or 2	12-24

Criminal Justice

The Criminal Justice program has two areas of emphasis: Law Enforcement and Corrections. The student need not select an area of emphasis until completion of approximately one-third of the program, thus providing each student the maximum opportunity to determine which career area to select.

The program's emphasis is on individual interests; therefore internships, experience credit examinations and certification procedures are offered. All are designed to assist the student to prepare for a career in the criminal justice system, either after completion of the associate degree or after transfer to a four-year college or university.

Students must fulfill the general requirements for the Associate of Arts or Associate of Science/Career Option degree, in addition to completing the required program courses listed below.

Law Enforcement

Required Program Courses

	Credits	Hrs.
*LE009T	Introduction to Criminal Justice	4 48
*LW003T	Criminal Law	4 48
*S0007T	Criminology	4 48
*S0011T	Juvenile Delinquency and Deviance	4 48
*LW007T	Constitutional Law	4 48

Recommended Electives

LE002T	Patrol Procedures	4 48
LE010T	Traffic Safety and Accident Investigation	4 48
LW004T	Applications of Criminal Law	4 48
LE012T	History of the Police in America	4 48
C0006T	Race Relations in the Criminal Justice System	4 48
LW002T	Criminal Evidence	4 48
LE004T	Criminal Investigation	4 48
LE005T	Crime Scene Investigation	4 48
C0002T	Introduction to Community Corrections	3 36

*The Law Enforcement major must take the courses marked with an asterisk plus at least three of the recommended electives in order to receive the Associate of Arts or Associate of Science/Career Option degree with a major in Law Enforcement.

Corrections

Required Program Courses

	Credits	Hrs.
*LE009T	Introduction to Criminal Justice	4 48
*LW003T	Criminal Law	4 48
*S0007T	Criminology	4 48
*S0011T	Juvenile Delinquency and Deviance	4 48
*LW007T	Constitutional Law	4 48

Recommended Electives

S0006T	Social Problems	4 48
PY020T	Psychology of Growth and Development	4 48
C0004T	Penology	4 48
S0013T	Sociology of Poverty	4 48
PY039T	Social Psychology	4 48



C0006T	Race Relations in the Criminal Justice System	4	48
C0002T	Introduction to Community Corrections	3	36

*The Community Corrections major must take the courses marked with an asterisk plus at least three of the courses from the list of recommended electives in order to receive the Associate of Arts or Associate of Science/Career Option degree with a major in Corrections.

Education Careers

This program is designed to prepare students to work in schools, day care centers and other educational settings as paraprofessionals. The program consists of specific skills training, general education and experience working with children or youth in a school setting. In addition, the student has the option of transferring the credits earned in this program toward teacher certification degree programs at four-year colleges. The Education Careers curriculum serves as a strong first two years of a teaching degree program.

The student who completes the program should be prepared to function in a variety of roles as part of a teaching team and would typically work as an aide or associate to a teacher or in a child care setting.

Students must fulfill the general requirements for the Associate of Arts or Associate of Science/Career Option degree, in addition to completing the required program courses listed below.

Required Program Courses		Credits	Hrs.
PY002T	General Psychology	4	48
PY020T	Psychology of Growth and Development	4	48
LS012T	Introduction to Uses of Library	2	24
OE006T	Typing I	2	48
PY007T	Field Experience/Education I	4	144
PY005T	American Public Education	4	48
PY009T	Introduction to Teaching	4	48
	or		
PY003T	Teacher Associate Seminar	2	24
LS001T	Instruction in Educational Media	3	36

Recommended Electives

LT001T	Children's Literature	4	48
PY025T	The Young Child	4	48
PS002T	American Government	4	48
MS001T	First Aid	1	12
AT001T	Art Appreciation	4	48
PY004T	Educational Psychology	4	48
PD005T	Human Potential Lab	2	24
DP006T	Introduction to Data Processing and Computer Science	4	48
PY024T	The Exceptional Child	4	48
HY016T	Europe in the Age of Monarchy	4	48

Handicapped Services

The Handicapped Services program prepares students taking one year of study for work as paraprofessionals in a variety of school or community agencies serving the handicapped. Students learn to carry out special programs designed by a variety of professionals. After two years of study the student may be employed or may go on to pursue a four-year degree in a related field such as special education, recreation, therapeutic social work, or psychology. After successful completion of the required program courses, the student will be awarded a diploma.

Students working toward an Associate of Arts or Associate of Science/Career Option degree must fulfill the general requirements for the degree, in addition to completing the required program courses listed on this page.

Required Program Courses

		Credits	Hrs.
PY026T	Handicapped Services Orientation	2	24
PY027T	Observation and Management of Behavior	4	48
PY028T	Mainstreaming and Mild Disabilities	4	48
PY031T	Physical and Multiple Disabilities	4	48
PY029T	Handicapped Service Practicum & Seminar I	4	130
PY030T	Handicapped Service Practicum & Seminar II	4	264
MS003T	First Aid	1.5	18
MS004T	Cardiopulmonary Resuscitation	.5	6
PY002T	General Psychology	4	48
PY020T	Psychology of Growth and Development	4	48
PY024T	Exceptional Child	4	48
CM204T	Speech Communication	4	48

Human Services

This is a competency-based program that focuses on human psychology, record keeping, social policy, social programs, communication, interviewing, observations, group processes and problem solving. Mastery of the competencies will qualify students for a variety of entry-level positions such as income maintenance worker, youth care worker in an adolescent group home, recreational aide in a residential facility, intake

worker in social service agencies, outreach worker, social worker aide or a worker on a crisis line.

This college parallel/career option program can be completed in two years with the student earning an Associate of Arts or Associate of Science/career option degree. Part-time students may also enter the program and complete the requirements over a longer period of time. After graduation from Kirkwood, students are qualified either to enter as juniors in a four-year college or seek employment as human service workers.

Students must fulfill the general requirements for an Associate of Arts or Associate of Science/Career Option degree, in addition to completing the required program courses listed below.

Required Program Courses

		Credits	Hrs.
SW009T	Introduction to Human Services	4	48
SW010T	Human Service Policy and Programs	4	48
SW011T	Making Observations	4	48
SW012T	Intervention Skills	4	48
SW005T	Field Experience and Seminar I	6	192
SW007T	Field Experience and Seminar II	9	300
PD005T	Human Potential Lab	2	24
CM204T	Speech Communication	4	48
PY002T	General Psychology	4	48
PY020T	Psychology of Growth and Development	4	48
S0006T	Social Problems	4	48
CM202T	Speech Communication	3	36

Legal Assistant

Approved by the American Bar Association and the Iowa Bar Association, the program is designed for students desiring employment as legal assistants. The program requires a minimum of six quarters to complete.

The general objective of the Kirkwood Legal Assistant program is to train students to perform the legal work that would enable the employer attorney to deliver better legal services. The specific program objective is to train students to perform tasks, listed below, which are frequently expected of legal assistants. Upon completion of the program, the legal assistant, under the supervision of a lawyer, can be expected to:

1. Prepare or interpret routine legal documents.
2. Communicate with the attorney and others, on substantive areas of law, including probate, tax, contracts, domestic relations, real estate, torts, litigation, bankruptcy, commercial law and business enterprises.
3. Research, select, compile and use technical legal information within the law library.
4. Comprehend and project the ethics expected of a member of the legal team, knowing the role of each participant.
5. Communicate accurately, both orally and in writing.

Upon completion of the program, the student receives an Associate of Science/Career Option degree. In addition to the 36 quarter hour core requirement, the student must satisfactorily complete all the required

program courses and a minimum of 14 hours of elective program courses for a total of 90 quarter hours.

As an alternative transfer degree, the student can receive an Associate of Arts degree. In addition to the A.A. 60 quarter hour core requirement, the student must satisfactorily complete all of the required program courses for a total of 102 quarter hours.

Required Program Courses

		Credits	Hrs.
LW032T	Legal Assistant Orientation	1	12
LW009T	Research	3	36
LW005T	Business Law I	4	48
AC018T	Income Tax	4	48
LW029T	Legal Writing	3	36
LW030T	Legal Ethics	1	12
LW011T	Estate Planning	3	36
LW012T	Estate Administration	3	36
LW015T	Torts	3	36
LW016T	Civil Litigation	3	36
LW017T	Business Organizational Law	3	36
LW014T	Legal Internship	2	72
LW019T	Real Estate Law	4	48
LW024T	Domestic Relations	3	36

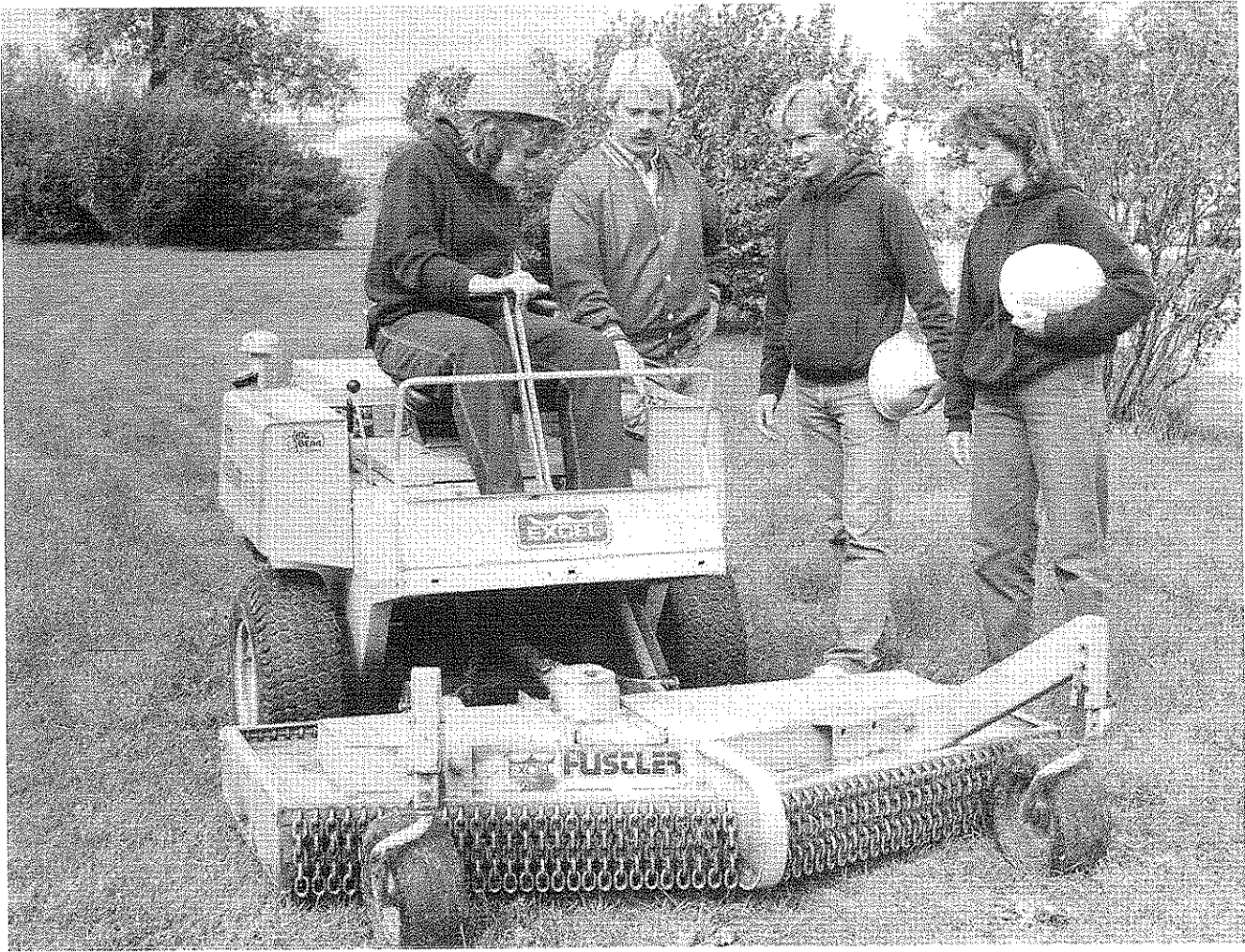
Program Electives

AC001T	Principles of Accounting I or		
AC016U	Office Accounting	4	48
LW026T	Law Office Management	3	36
LW033T	Administrative Law	3	36
LW023T	Bankruptcy Law	3	36
AC016T	Income Tax for Business	3	36
LW013T	Tax IV: Estate and Gifts	3	36
LW006T	Business Law II	4	48
LW031T	Substantive Criminal Law	3	36
LW025T	Personal Law	4	48
OE006T	Typing/Word Processing	.5-3	12-72

General Studies Degree

The Associate of General Studies degree is designed to meet the needs of people whose goals cannot be met by traditional degree programs. It is intended for those adults who wish to continue their education, yet seek recognition of their past experiences in developing a program of study based upon their personal interests and career goals.

The general studies student may utilize any of the educational programs and services of the college in developing his or her study plan. They may include both credit and non-credit courses or seminars offered by Kirkwood, cooperative education-work experiences, and individualized general studies projects. Although some of the student's studies may not be accepted for college transfer credit, they will count toward the Associate of General Studies degree as long as they are approved to be a part of the student's study plan for the degree.



VOCATIONAL- TECHNICAL DIVISION

The Meaning of Vocational-Technical Education

Why the Need for Vocational-Technical Education Has Arisen

A scientific revolution, underway the last several decades, has quickened the pace of change in all of the professions and transformed the occupational role and the educational requirements of the professional trained employee. In the past, the professional (the product of four or more years of college) had the time, the training and the duty to perform many practical functions in his/her work. An engineer, for example, may spend hours drawing or routinely testing a new product. New scientific discoveries and technological advances have so enlarged the body of theoretical knowledge underlying many of the professions that now there is too little precious time in the professional curricula to develop practical skills. The mastery of theory has become the first priority of the professional. The use of theoretical knowledge has become the dominant function of the professional in his/her day-to-day work.

As a consequence, the professional needs the assistance of a new member of the employment team, the technician or para-professional. And, to prepare him/her to work with the scientist or the engineer or the medical specialist, the technician requires a different type of post-secondary education. He/she must master, to some extent, the theoretical principles relating to the technology and develop the practical abilities the specialty requires.

Such educational preparation is above the high school level, but does not require the four or more years of college needed by the professional. An intensive program, usually of one or two years duration and designed to prepare the student for immediate and ef-

fective employment upon graduation, suffices. Such a program is vocational-technical education.

The need for technicians, already great, is growing rapidly. The federal government estimates that great numbers of new technicians' jobs will have come into existence in the nation during the 1980s. Hence the urgent need for expanded vocational-technical education.

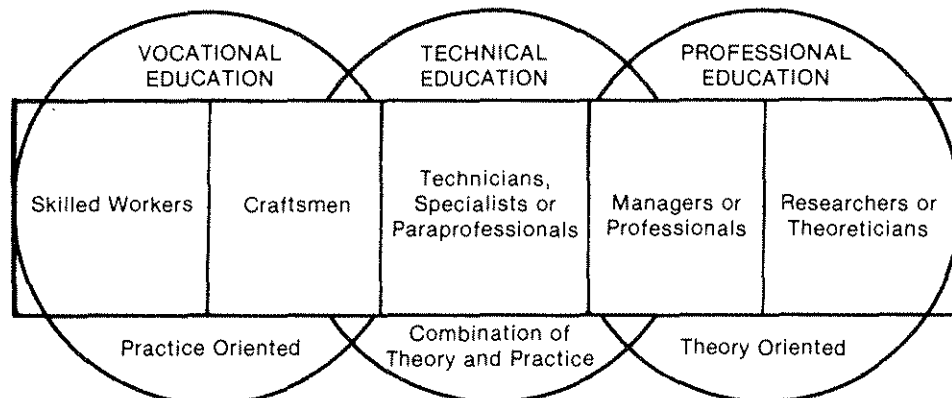
How a Technical Education Differs From Other Types of Higher Education

Technicians are action people. They must be trained to apply theory in support of the professionals with whom they work. Their education, therefore, differs markedly from that of the professionals.

Technicians need some theoretical preparation, but not in the breadth and depth required of the professional. As a consequence, the vocational-technical education curriculum must be practical in nature. The first years of a non-technical four-year college education prepare the professional-to-be for more advanced college work. In a one- or two-year educational program, the technician must learn all that is needed in order to be employable. The curricula needed by the two are in sharp contrast: the professional is academic and theoretical; the technician is practical and action-oriented. In the first college years, the professional-level student learns how to learn more; the vocational-technical education student learns how to do well those things required on the job — both the why and the how.

Vocational-technical education, to be effective, requires a special educational environment: a faculty dedicated to practical education, laboratory equipment adequate to make such education possible, a governing body and administration dedicated to the philosophy of this education, and a close working relationship with business and industry. The Vocational-Technical Division of Kirkwood Community College provides that special environment.

The World of Career Education



Vocational-Technical Requirements

Requirements for the Associate of Applied Science Degree

1. Earn a minimum of 90-111 quarter credit hours for a 6 quarter program.
2. Earn the last 24 quarter credit hours in residence at Kirkwood in a program for which the degree is sought.
3. Maintain a minimum cumulative grade point average of 1.80.
4. Satisfactorily complete group requirements as follows:
 - A. Diploma, where applicable — 45-66 quarter credit hours.
 - B. Applied general education support courses — 20 quarter credit hours — 14 if 6 hours are already met with the diploma requirements.
 - C. Additional technical courses — 0-21 quarter credit hours.
 - D. Electives — 0-10 quarter credit hours.

Requirements for the Diploma

1. Earn a minimum 45-66 quarter credit hours for a 3 quarter program.
2. Earn the last 12 quarter credit hours in residence at Kirkwood in a program for which the diploma is sought.
3. Maintain a minimum cumulative grade point average of 1.80.
5. Satisfactorily complete group requirements as follows:
 - A. Vocational-Technical certificate, where applicable — 28-42 quarter credit hours.
 - B. Applied general education support courses — 6 quarter credit hours unless already met with certificate requirements.
 - C. Additional related technical courses — 15-24 quarter credit hours.

Requirements for the Vocational or Technical Certificate

1. Earn a minimum 28-42 quarter credit hours.
2. Earn the last 9 quarter credit hours in residence at Kirkwood in a program for which the certificate is sought.
3. Maintain a minimum cumulative grade point average of 1.80.
4. Satisfactorily complete group requirements as follows:
 - A. Selected technology core — 22-36 quarter credit hours.

- B. Applied general education support courses — 6 quarter credit hours.

For a complete definition of which courses fulfill which group requirements, see the Vocational-Technical Instructional Program section.

Requirements for the Professional Development/Training Certificate

1. Earn a minimum of 16-40 quarter credit hours.
2. Earn the last 9 quarter credit hours in residence at Kirkwood in a program for which the certificate is sought.
3. Maintain a minimum cumulative grade point average of 1.80.
4. Prior knowledge earned through course work or work experience may be a prerequisite.
5. Applied general education support courses may or may not be required within the 16-40 quarter credit hours.

Requirements for the Technical Studies Degree, Diploma or Certificate*

This individualized program approach is designed for anyone seeking education/training in occupational areas that cannot be readily met through one of the more structured vocational-technical programs offered by the College. The institutional policies, procedures and program requirements are identical to those of any other program in the Division, but the content may include an approved mixture of existing courses or a combination of such courses and occupational training provided by business or industry (12-37 quarter credit hours — maximum of 1/3 of the total program). Regular departmental academic advising will be supplemented by a career consultant selected from the field represented by the career goals of the student.

Admission and acceptance into these programs requires the following:

1. Satisfy the College general admissions requirements, including the ASSET assessment.
2. Submit written justification for admission to this program in preference to one of the other programs and options available at the College.
3. Demonstrate a level of maturity and motivation which gives promise of success in handling the responsibilities inherent in such a program.
4. Demonstrate at least minimal academic aptitude by completing a minimum of twelve quarter credit hours with an average of "C" or better at either Kirkwood Community College or another recognized institution of higher education.
5. Declare candidacy for the program at such time as the minimum 12 quarter credit hours have been accumulated.

6. At the time of candidacy, plan an acceptable curriculum which must meet the approval of the appropriate department head(s). If 25 percent or more of the plan occurs within another area, approval from that department is also required.
7. There must be a rationale to the quarter credit hours that relate to specific career development or career advancement plans of the student.

*New program pending State Department of Public Instruction approval.

Waiver of Course Requirement or Credit by Examination

The Vocational-Technical Division may waive certain course requirements based upon the knowledge, skills and previous occupational work experience of a student. Waiver of any course requirement of a program will reduce the total remaining earned credit hours required. Upon satisfactory completion of a minimum of 15 credit hours earned by enrollment in courses at Kirkwood, the request will be officially processed. Such waived courses will be so indicated on the student transcript and not be included in the computation of the

cumulative grade point average. To issue a waiver of a course requirement, the student must describe and document all knowledge and skills, and previous occupational work experience as they pertain to the course(s) in question. Such supporting documentation must be developed through enrollment in the Occupational Work Experience Assessment course specifically designed for this purpose.

Credit may also be awarded for certain courses by means of proficiency examinations prepared by the appropriate department or available CLEP examinations. Such examinations can only be taken once for any given course.

Any questions regarding waiver of course requirements and/or credit by examination should be directed to the appropriate Vocational-Technical department office.

Veterans Educational Benefits

Many programs are approved for veterans. All veterans must take the required number of credit hours per quarter in order to graduate within the approved number of quarters for the program.



AGRICULTURAL TECHNOLOGIES

Agricultural Processing and Distribution Department

Agribusiness Technology



Students enrolled in this program are prepared for employment as department managers/assistants, production managers/assistants and retail salespersons in feed, seed, chemicals, grain, fertilizer and hardware, and animal health sales and service job areas. Students may pursue specific instruction in Agribusiness Management, Agricultural Statistics and Data, Agricultural Distribution and Marketing, Agricultural Processing, or Agricultural Science Transfer.

Upon completion of the required 115 quarter credit hours, the graduate is awarded an Associate of Applied Science degree. An Agricultural Supply Clerk diploma is awarded for completion of 57 quarter credit hours. Students may also pursue a credit certificate.

All students develop an individual educational plan approved by their academic advisor and program administration. The A.A.S. degree program prepares students for mid-management positions in the agribusiness industry. It is highly encouraged that all students pursue a degree program.

Courses listed below with an asterisk are required courses. The student is also required to take additional courses in each core curriculum area. For example, a requirement of 12 credits of Agricultural Economics courses means that the student must take the credit hours marked with an asterisk plus 6 credit hours of other course work from that list.

Agricultural Science

The following listing of transfer courses should be of interest to those students wishing to do pre-baccalaureate work at KCC. These courses are normally accepted for transfer at major colleges and universities.

	Credits
DP010T Introduction to Microcomputers and Data Processing	4
AG005T Animal Production	4
AM083T Elements of Farm Management	4
AG006T Principles of Crop Production	4
AG001T Fundamentals of Soil Science	4
AC019T Agricultural Accounting	3
J0103T Introduction to Photography	3
BY019T General Botany I	4
AM202T Group Communications	3
CH001T Principles of Chemistry	3
CH005T General Chemistry I	5
BY030T Principles of Biology	3
AM001T Agricultural Finance	3
AG002T Principles of Horticulture	3
AG004T Introduction to Agricultural Education	1
CS001T Agricultural Construction Materials and Procedures	3

Technical Courses

Sales/Merchandising

	Credits	Hrs.
41 credits offered, 21 required		
*AG012U Employment Experience (repeated one time)	6	216
AG157U Inventory Control Procedures	3	48
AG207U Agribusiness Management	3	36
AG221U Independent Study: Agribusiness	2	36
AG282U Agricultural Service Center Operations	3	48
AG311U Employment Practicum	6	216
AM025U Introduction to Agricultural Business	3	36
*MK002U Basic Agricultural Salesmanship	3	48
*MK035U Agribusiness Sales	3	48
MK057U Agricultural Merchandising/Retailing	3	48

Agricultural Economics

	Credits	Hrs.
27 credits offered, 12 required		
*AC019T Agricultural Accounting	3	36
AC018U Agribusiness Accounting	3	36
AG312U Advanced Futures Marketing	3	36
AM001T Agricultural Finance	3	36
*EC004U Agricultural Economics	3	36
MK004U Agricultural Futures Marketing	3	36
AM083T Elements of Farm Management	3	36
LW002U Agricultural Law	3	36
MK056U Principles of Agricultural Marketing	3	36

Agricultural Mechanization

21 credits offered, 3 required

AG109U	Agricultural Power Unit Operation	2	36
AG215U	Farm Machinery Management	3	36
AG279U	Rural Facilities Maintenance	3	48
AG316U	Chauffeur's Licensure	1	24
CS057U	Rural Concrete and Masonry	3	48
CS059U	Rural Carpentry	3	48
CS060U	Rural Electricity	3	48
MH098U	Rural Metals Applications	3	48

Agronomy

35 credits offered, 12 required

*AG001T	Fundamentals of Soil Science	4	48
*AG006T	Principles of Crop Production	4	48
AG002U	Forage and Oat Production	3	36
AG005U	Agricultural Chemicals	3	36
AG089U	Agricultural Fertilizers	3	36
AG115U	Corn Production	3	36
AG137U	Grain Grading and Processing	3	48
AG152U	Land Use and Conservation	3	48
AG251U	Soybean Production	3	36
AG284U	Crop Harvesting and Drying	3	48
AG313U	Crop Monitoring/Scouting Techniques	3	48

Animal Science

22 credits offered, 12 required

*AG005T	Animal Production	4	48
AG016U	Feed Rations	3	36
AG088U	Swine Production	3	36
*AG150U	Livestock Nutrition	3	36
AG200U	Animal Health Products	3	36
AG230U	Livestock Evaluation and Selection	3	48
AG295U	Beef Production	3	36

Related Courses

Professional Support

28 credits offered, 9 required

AG006U	Career Planning Seminar	1	12
AG263U	Agricultural Career Orientation	1	12
AG266U	Agricultural Leadership	1	12
AG322U	Computer Applications: Agriculture	3	48
AG342U	Agricultural Genetics	3	36
AG351U	Agricultural Computer Survey	2	24
BY030T	Principles of Biology	4	72
CH001T	Principles of Chemistry	3	36
CH005T	General Chemistry	5	72
DP010T	Introduction to Microcomputers and Data Processing	4	60
PD006U	Occupational Work Experience Assessment	1	12

General Education

15 credits offered, 12 required

AG315U	Influencing American Agriculture	3	36
*CM002U	Communication Skills I	3	36
*CM005U	Oral Communications	3	36
*MA001U	Mathematics I: Agriculture	3	36
*PY004U	Human Relations	3	36

*Required courses

Note: Students may select from the above courses, with the approval of the advisor, to meet the required 103 quarter credit hours for the A.A.S. degree in Agribusiness Management Technology (program description follows).

Agricultural Business Management Technology

The Agribusiness Management Technology program is currently under revision and development and will be designed to meet individuals' unique employment educational needs. Students will develop their own educational training portfolio once their career advancement goals are identified. Job possibilities exist in the entire field of Agricultural Technologies, and to reflect this need, all three departments in Agricultural Technologies will cooperate in providing instruction for students pursuing this major. Classes will be offered in a variety of scheduling patterns to provide maximum flexibility for students who are already employed.

Small agribusinesses, and horticultural and farm businesses have unique needs in the areas of financial records and analysis, strategies for establishing small retail businesses as a means of diversification, procedures for maintaining quality control within the business, techniques of supervising hired workers within small agribusinesses, production scheduling, innovative approaches for implementing electronic devices within the business, rapidly emerging production, processing, and marketing technologies, and others. It is expected that individual students will select courses and offerings from instructional areas in Agricultural Technologies plus perhaps elective courses from other departments and areas of Kirkwood to meet the 103 credit hour requirement for Associate of Applied Science degree. College credit certificates will be developed allowing students to receive specialty areas of instruction in the event that they do not wish to pursue an associate degree. Some students may wish to do pre-baccalaureate work as an integral part of the program so that they can transfer to another college or university.

Generally, students will not be required to complete an employment experience requirement as a part of the program since they will already have had experiences in the agricultural workplace. In some cases, additional credits may be required if work experience has not been achieved prior to program enrollment.

Horse Science Technology

Students enrolled in this program are prepared to find employment as assistant stable managers, horse breeding farm employees, and a variety of jobs involving racetracks. The following curriculum indicates the core required courses which must be taken by a Horse Science Technology major. Students may pursue specific instruction in Horse Production, Horse Mid-Management, Horse Services/Sales, and Agricultural Science Transfer by using the elective courses. Students may also pursue a Statistics and Record Processing major by taking additional computer and records courses.

Upon completion of the required 115 quarter credit hours, the graduate is awarded an Associate of Applied Science degree. A Horse Production diploma is awarded for completion of 57 quarter credit hours. A Horse Showing certificate is awarded upon completion of specified 30 quarter credit hours.

The A.A.S. degree program prepares a student for mid-management positions in the horse industry. It is highly encouraged that all students pursue a degree program. All students develop an individual education plan approved by their academic advisor and program administration.

Technical Courses

Horse Science

80 credits offered, 38 required

	Credits	Hrs.
*AG022U Horse Nutrition	5	72
*AG050U Horse Production I	3	60
AG051U Horse Show Management	3	48
AG054U Horsemanship: Balanced Seat	5	96
*AG075U Horse Production II	2	36
*AG201U Horse Physiology and Hoof Care	3	48
*AG204U Horse Breeding	3	48
AG210U Fundamentals of Horse Training	4	72
AG211U Horse Judging Competition	3	48
AG220U Special Projects: Horse Science	2	36
AG223U Principles of Farrier Science	1	12
AG228U Training Management	3	48
AG229U Extended Horsemanship Techniques	3	48
*AG239U Horse Industry Problems	6	216
AG272U Horse Breeds	3	48
*AG280U Horse Diseases Seminar	2	24
AG289U Horse Projects	4	96
*AG317U The Care and Understanding of the Equine Leg	1	12
AG318U Special Projects: Horse Nutrition	3	48
AG319U Special Projects: Equine Job Shadow	2	36
AG320U Special Projects: Horse Sale	2	48
AG321U Principles of Training	2	36
AG324U Advanced Horse Judging	1	24
AG325U Basic Horse Judging	2	36
AG326U Western Horsemanship	3	48
AG327U Introduction to Horse Judging	1	24
AG328U Advanced Western Horsemanship	3	48
AG329U Special Projects: Professional Horse Judging	3	48
AG355U Training Horse to Drive	2	36

Agribusiness

16 credits offered, 10 required

*AC019T Agricultural Accounting	3	36
*AC013U Agricultural Tax Accounting	1	12
AG103U Agricultural Finance	3	36
*AG216U Stable Management	3	48
MK002U Basic Agricultural Salesmanship	3	36
MK057U Agricultural Merchandising/Retailing	3	48

Agricultural Mechanization

19 credits offered, 5 required

*AG109U Agricultural Power Unit Operation	2	36
*AG279U Rural Facilities Maintenance	3	48
AG354U Equine Truck and Trailer Operation	2	36
CS057U Rural Concrete and Masonry	3	48
CS059U Rural Carpentry	3	48
CS060U Rural Electricity	3	48
MH098U Rural Metals Applications	3	48

Agronomy

3 credits offered, 0 required

AG002U Forage and Oat Production	3	48
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Related Courses

Professional Support

15 credits offered, 2 required

*AG006U Career Planning Seminar (may be repeated to maximum of 2 credits)	1	12
*AG263U Agricultural Career Orientation (may be repeated to maximum of 3 credits)	1	12
AG266U Agricultural Leadership (may be repeated to maximum of 10 credits)	2	24

General Education

24 credits offered, 16 required

AG322U Computer Applications: Agriculture	3	48
AG342U Agricultural Genetics	3	36
*CM002U Communication Skills I	3	36
*CM005U Oral Communications	3	36
DP010T Introduction to Microcomputers and Data Processing	4	60
*MA001U Mathematics I: Agriculture	3	36
*PY004U Human Relations	3	36
RE001U Equestricise	1	24
RE002U Exercises for Horsemanship	1	24

*Required courses

Other requirements:

Diploma - 2 credits of horse judging, 3 credits of horsemanship.

Degree - 3 credits of horse judging, 6 credits of horsemanship.

3 credits of computer science courses, 4 credits of horse training.

Small Animal Services

Students enrolled in this program obtain skills and background for the following jobs: veterinarian assistant (not technician), small animal supply sales, animal control officer and dog groomer. Upon completion of the required 55 quarter credit hours, the graduate is awarded a diploma.

All students develop an individual education plan approved by their academic advisor and program administration. Students who choose to take a second year of course work can work out a specialized program. Possible course work includes classes to better prepare them to transfer to a four year college, large animal courses such as Horse Science Technology courses, medical terminology and other approved courses, and/or Agribusiness Technology courses. Upon completion of the required number of credits, the graduate is awarded an Associate of Applied Science degree in Agribusiness Technology.

Technical Courses

49 credits offered, 26 required

	Credits	Hrs.
*AG003U Agribusiness Procedures	3	48
*AG200U Animal Health Products	3	48
AG231U Pet Grooming	3	48
*AG234U Small Animal Behavior	5	72
*AG235U Small Animal Health	5	72
*AG236U Kennel Management	5	72



Agricultural Production and Mechanization Department

Farm and Ranch Technology

Students enrolled in this program are prepared to work as farm managers, livestock production specialists and crop production specialists. This program offers the opportunity for students to pursue areas of specialization (options) in Beef, Swine and Crops, as well as a more diverse option, Diversified Farm Management, with a special emphasis on agricultural economics.

Upon completion of the required 118 quarter credit hours, the graduate is awarded an Associate of Applied Science degree in Farm and Ranch Technology.

Additional credit diplomas and credit certificates are being developed. Upon completion of the required 60 quarter credit hours a diploma is awarded in either Beef Production Specialist, Crop Production Specialist or Swine Production Specialist. A Livestock Judging and Evaluation certificate is awarded for completion of the required 42 quarter credit hours.

All students are aided in developing an individual education plan, approved by the academic advisor and program administrator. All students entering the Farm and Ranch Technology program, regardless of options, must perform selected minimum competencies either by completion of the course PD020D, Agricultural Experience (Introductory), or by passing a pretest (either an interview or competency verification) at or near the beginning of the program. The course, offered on a regular basis throughout the academic year, is designed for the student with little or no quantifiable background or experience in agriculture. It may be suggested that individual students take a selection of, or all of, the modules of the course. Included are modules on agricultural careers, machinery, animal husbandry, crops and soils, agricultural experience, agricultural buildings and equipment, agricultural economics, business, mathematics and communications.

The Farm and Ranch Technology program offers students a great deal of career flexibility. Some graduates elect to immediately enter the field in which they are trained. Others elect to combine the skills taught in this program with those in other Kirkwood programs in order to obtain more flexible career options. Still others take Farm and Ranch Technology courses and later transfer these courses to other community colleges and universities offering advanced degrees.

AG237U	Special Projects: Animal Health	3	48
*AG263U	Agricultural Career Orientation	1	12
AG266U	Agricultural Leadership (elective each quarter)	2	24
AG294U	Lab Techniques: Animal Health	1	24
*AG311U	Employment Practicum	3	108
AG349U	Small Animal Law and Ethics	2	24
AG350U	Canine and Feline Nutrition	3	36
AG352U	Animal Shelter Operations	2	24
BY114U	Avian Wildlife	4	48
BY115U	Mammalian Wildlife	4	48

Related Courses

22 credits offered, 12 required

AG342U	Agricultural Genetics	3	36
BY030T	Principles of Biology	4	72
CH001T	Principles of Chemistry	3	36
*CM002U	Communication Skills I	3	36
MA001U	Mathematics I: Agriculture	3	36
*PY004U	Human Relations	3	36
CM005U	Oral Communications	3	36

*Required courses

Note: Students must have completed one quarter of Small Animal Services courses prior to enrolling in an Employment Practicum course. Students must have taken Principles of Biology to enroll in Lab Techniques: Animal Health. Students can take a maximum of two Employment Practicum courses and two Special Projects: Animal Health courses. Agribusiness Technology or Horse Science Technology courses can be substituted for non-required courses. See advisor.

Professional Development/Training Certificates:

Presently available: Pet Grooming
Parts/Sales and Services

Swine Production Option

Technical Courses

Agricultural Mechanization

44 credits offered, 12 credits required

	Credits	Hrs.
AG344U Swine Facility Management	3	48
AG338U Alternate Agricultural Energy Systems	3	48
AG205U Farmstead Planning and Mechanization	3	48
MH047U Farm Machinery Maintenance	3	48
MH098U Rural Metals Applications	3	48
CS060U Rural Electricity	3	48
CS057U Rural Concrete and Masonry	3	48
CS059U Rural Carpentry	3	48
AG109U Agricultural Power Unit Operation	2	36
MH050U Diesel Fuel Systems I	3	48
MH013U Engines I	3	48
MH049U Field Crop Harvesting Equipment Operation and Adjustment	3	60
MH048U Planting and Tillage Equipment Operation and Adjustment	3	60
AG364U Agricultural Energy Audit	3	48
AG362U Agricultural Energy Management	3	48

Agricultural Economics

30 credits offered, 15 credits required

EC004U Agricultural Economics	3	36
AG103U Agricultural Finance	3	36
AC019T Agricultural Accounting	3	36
MK056U Principles of Agricultural Marketing	3	36
*MK004U Agricultural Futures Marketing	3	36
AG339U Farm Land Acquisition	3	36
LW002U Agricultural Law	3	36
AM083T Elements of Farm Management	3	36
AG312U Advanced Futures Marketing	3	36
AG215U Farm Machinery Management	3	48

Agronomy

44 credits offered, 12 credits required

AG114U Crop Production Orientation	3	48
AG284U Crop Harvesting and Drying	3	48
AG131U Field Crop Planning I	3	48
AG089U Agricultural Fertilizers	3	48
AG002U Forage and Oat Production	3	36
AG152U Land Use and Conservation	3	48
AG079U Field Crop Planning II	3	48
AG115U Corn Production	3	36
AG251U Soybean Production	3	36
AG005U Agricultural Chemicals	3	36
AG006T Principles of Crop Production	4	48
AG001T Fundamentals of Soil Science	4	36
AG218U Independent Study: Agronomy	3	36
AG137U Grain Grading and Processing	3	48

Animal Science

75 credits offered, 36 credits required

*AG073U Swine Breeding Stock Selection	3	48
*AG334U Swine Reproduction and Management	3	48
*AG071U Swine Breeding and Genetics	3	48
*AG331U Swine Farrowing and Nursery Management	3	48
*AG233U Swine Facilities and Equipment	3	48
*AG332U Swine Production and Marketing	3	48
*AG159U Swine Nutrition and Feeding	3	48
*AG335U Swine Health Programs	3	48
*AG333U Swine Enterprise Management	3	48
*AG072U Swine Records and Management	3	48
AG249U Beef and Dairy AI	3	36
AG346U Beef Marketing	3	48

AG063U Beef Industry	3	48
AG064U Beef Feedlot Management	3	48
AG061U Principles of Ruminant Nutrition	3	48
AG065U Applied Ruminant Nutrition	3	36
AG250U Beef Cow/Calf Production	3	48
AG092U Beef Breeding and Reproduction	3	48
AG336U Beef Enterprise Planning	3	48
AG337U Beef Science Management	3	48
AG347U Livestock Clinics and Events	3	48
AG219U Independent Study: Animal Science	3	36
AG150U Livestock Nutrition	3	48
*AG012U Employment Experience (3)	6	216

Related Courses

Professional Support and General Education

88 credits offered, 27 credits required

CM005U Oral Communications (2)	3	36
CM002U Communication Skills I (2)	3	36
CM202T Group Communication (2)	3	36
PY004U Human Relations (2)	3	36
MA001U Mathematics I: Agriculture (2)	3	24
CH001T Principles of Chemistry	3	48
CH005T General Chemistry	5	72
BY019T General Botany I	4	60
*AG266U Agricultural Leadership (1) (may be repeated)	2-6	36-108
*AG340U Swine Orientation (may be repeated two times)	1	12
*DP010T Introduction to Microcomputers and Data Processing	4	60
*AG322U Computer Application: Agriculture	3	48
MK002U Basic Agricultural Sales	3	36
J0103T Introduction to Photography	3	48
MK057U Agricultural Merchandising/Retailing	3	36
AG341U Livestock Anatomy and Physiology	3	48
AG179U Advanced Evaluation and Selection (may be repeated)	2	36
AG351U Agricultural Computer Survey	3	36
*AG230U Livestock Evaluation Selection (1)	3	48
AG348U Modern Farm Update	3	48
AG147U Field Crop Analysis	3	48
AG313U Crop Monitoring/Scouting Technology	3	48
MH067U Shop Practices and Safety	2	24
MH063U Technical Manual Interpretation	1	12
AG367U Introductory Meat Science	3	36
AG366U Meat Evaluation and Marketing	3	48
AG363U Personal Safety and Health for Agricultural Workers	3	36
AG361U Occupational Safety and Health for Agricultural Workers	3	36
AG360U Safety Regulations for Agri-Industry	3	36

*Required courses

Additional notes:

(1) Required first quarter.

(2) Students must take 3 of 5.

(3) Students must take 1 EE with additional EE credits applied to electives.

Beef Production Option

Technical Courses

Agricultural Mechanization

47 credit offered, 12 credits required

	Credits	Hrs.
AG344U Swine Facility Management	3	38
AG338U Alternate Agricultural Energy Systems	3	48

AG205U	Farmstead Planning and Mechanization	3	48
MH047U	Farm Machinery Maintenance	3	48
MH098U	Rural Metals Applications	3	48
CS060U	Rural Electricity	3	48
CS058U	Rural Plumbing	3	48
CS057U	Rural Concrete and Masonry	3	48
CS059U	Rural Carpentry	3	48
AG109U	Agricultural Power Unit Operation	2	36
MH013U	Diesel Fuel Systems I	3	48
MH013U	Engines I	3	48
MH049U	Field Crop Harvesting Equipment Operation and Adjustment	3	60
MH048U	Plantings and Tillage Equipment Operation and Adjustment	3	60
AG364U	Agricultural Energy Audit	3	48
AG362U	Agricultural Energy Management	3	48
Agricultural Economics			
30 credits offered, 15 credits required			
EC004U	Agricultural Economics	3	36
AG103U	Agricultural Finance	3	36
AC019T	Agricultural Accounting	3	36
MK056U	Principles of Agricultural Marketing	3	36
*MK004U	Agricultural Futures Marketing	3	36
AG339U	Farm Land Acquisition	3	36
LW002U	Agricultural Law	3	36
AM083T	Elements of Farm Management	3	36
AG312U	Advanced Futures Marketing	3	36
AG215U	Farm Machinery Management	3	48
Agromony			
44 credits offered, 12 credits required			
AG114U	Crop Production Orientation	3	48
AG284U	Crop Harvesting and Drying	3	48
AG131U	Field Crop Planning I	3	48
AG089U	Agricultural Fertilizers	3	48
AG002U	Forage and Oat Production	3	36
AG152U	Land Use and Conservation	3	48
AG079U	Field Crop Planning II	3	48
AG115U	Corn Production	3	36
AG251U	Soybean Production	3	36
AG005U	Agricultural Chemicals	3	36
AG006T	Principles of Crop Production	4	48
AG001T	Fundamentals of Soil Science	4	48
AG218U	Independent Study: Agromony	3	36
AG137U	Grain Grading and Processing	3	48
Animal Science			
75 credits offered, 36 credits required			
AG347U	Livestock Clinics and Events	3	48
*AG063U	Beef Industry	3	48
*AG064U	Beef Feedlot Management Nutrition	3	48
*AG061U	Principles of Ruminant Nutrition	3	48
*AG065U	Applied Ruminant Nutrition	3	36
*AG250U	Beef Cow/Calf Production	3	48
*AG092U	Beef Breeding and Reproduction	3	48
*AG336U	Beef Enterprise Planning	3	48
*AG337U	Beef Science Management	3	48
AG249U	Beef and Dairy AI	3	36
AG346U	Beef Marketing	3	48
AG073U	Swine Breeding Stock Selection	3	48
AG334U	Swine Reproduction and Management	3	48
AG071U	Swine Breeding and Genetics	3	48
AG331U	Swine Farrowing and Nursery Management	3	48
AG233U	Swine Facilities and Equipment	3	48
AG332U	Swine Production and Marketing	3	48
AG159U	Swine Nutrition and Feeding	3	48
AG335U	Swine Health Programs	3	48

AG333U	Swine Enterprise Management	3	48
AG072U	Swine Records and Management	3	48
AG219U	Independent Study: Animal Science	3	36
AG150U	Livestock Nutrition	3	48
*AG012U	Employment Experience (3) (may be repeated)	6	216

Related Courses

Professional Support and General Education

91 credits offered, 27 credits required

CM005U	Oral Communications (2)	3	36
CM002U	Communication Skills I (2)	3	36
CM202T	Group Communication (2)	3	36
PY004U	Human Relations (2)	3	36
MA001U	Mathematics I: Agriculture	3	24
CH001T	Principles of Chemistry	3	48
CH005T	General Chemistry	5	72
BY019T	General Botany I	4	60
*AG266U	Agricultural Leadership (1) (may be repeated)	2-6	36-108
*AG343U	Beef Orientation (to be repeated two times)	1	12
*DP010T	Introduction to Microcomputers and Data Processing	4	60
AG171U	Principles of Animal Breeding	3	48
*AG322U	Computer Applications: Agriculture	3	48
MK002U	Basic Agricultural Salesmanship	3	36
JO103T	Introduction to Photography	3	48
MK057U	Agricultural Merchandising/Retailing	3	36
AG341U	Livestock Anatomy and Physiology	3	48
AG179U	Advanced Evaluation and Selection (may be repeated)	2	36
AG351U	Agricultural Computer Survey	3	36
*AG230U	Livestock Evaluation Selection (1)	3	48
AG348U	Modern Farm Update	3	48
AG147U	Field Crop Analysis	3	48
AG313U	Crop Monitoring/Scouting Techniques	3	48
MH067U	Shop Practices and Safety	2	24
MH063U	Technical Manual Interpretation	1	12
AG367U	Introductory Meat Science	3	36
AG366U	Meat Evaluation and Marketing	3	8
AG363U	Personal Safety and Health for Agricultural Workers	3	48
AG361U	Occupational Safety and Health for Agricultural Workers	3	48
AG360U	Safety Regulations for Agri-Industry	3	48

*Required courses

Additional notes:

(1) Required first quarter.

(2) Students must take 3 of 5.

(3) Students must take EE with additional EE credits applied to electives.

Crop Production Option

Technical Courses

Agricultural Mechanization

47 credits offered, 12 credits required

	Credits	Hrs.
AG344U	Swine Facility Management	3 48
AG338U	Alternate Agricultural Energy Systems	3 48
AG205U	Farmstead Planning and Mechanization	3 48
MH047U	Farm Machinery Maintenance	3 48
MH098U	Rural Metals Applications	3 48
CS060U	Rural Electricity	3 48
CS058U	Rural Plumbing	3 48

CS057U	Rural Concrete and Masonry	3	48
CS059U	Rural Carpentry	3	48
AG109U	Agricultural Power Unit Operation	2	36
MH050U	Diesel Fuel Systems I	3	48
MH013U	Engines I	3	48
MH049U	Field Crop Harvesting Equipment Operation and Adjustment	3	60
MH048U	Planting and Tillage Equipment Operation and Adjustment	3	60
AG364U	Agricultural Energy Audit	3	48
AG360U	Agricultural Energy Management	3	48
Agricultural Economics			
30 credits offered, 15 credits required			
EC004U	Agricultural Economics	3	36
AG103U	Agricultural Finance	3	36
AG019T	Agricultural Accounting	3	36
MK056U	Principles of Agricultural Marketing	3	36
*MK004U	Agricultural Futures Marketing	3	36
AG339U	Farm Land Acquisition	3	36
LW002U	Agricultural Law	3	48
AM083T	Elements of Farm Management	3	36
AG312U	Advanced Futures Marketing	3	36
AG215U	Farm Machinery Management	3	36
Agronomy			
50 credits offered, 36 credits required			
*AG114U	Crop Production Orientation	3	48
*AG284U	Crop Harvesting and Drying	3	48
*AG131U	Field Crop Planning I	3	48
AG089U	Agricultural Fertilizers	3	48
AG002U	Forage and Oat Production	3	48
*AG152U	Land Use and Conservation	3	48
*AG079U	Field Crop Planning II	3	48
AG115U	Corn Production	3	36
AG251U	Soybean Production	3	36
AG005U	Agricultural Chemicals	3	36
AG006T	Principles of Crop Production	4	48
AG001T	Fundamentals of Soil Science	4	36
AG213U	Independent Study: Agronomy	3	36
*AG012U	Employment Experience (3) (may be repeated)	6	216
AG137U	Grain Grading and Processing	3	48
Animal Science			
68 credits offered, 12 credits required			
AG073U	Swine Breeding Stock Selection	3	48
AG334U	Swine Reproduction and Management	3	48
AG071U	Swine Breeding and Genetics	3	48
AG331U	Swine Farrowing and Nursery Management	3	48
AG233U	Swine Facilities and Equipment	3	48
AG332U	Swine Production and Marketing	3	48
AG159U	Swine Nutrition and Feeding	3	48
AG335U	Swine Health Programs	3	48
AG333U	Swine Enterprise Management	3	48
AG072U	Swine Records and Management	3	48
AG249U	Beef and Dairy AI	2	36
AG346U	Beef Marketing	3	48
AG063U	Beef Industry	3	48
AG064U	Beef Feedlot Management	3	48
AG061U	Principles of Ruminant Nutrition	3	48
AG065U	Applied Ruminant Nutrition	3	36
AG250U	Beef Cow/Calf Production	3	48
AG336U	Beef Enterprise Planning	3	48
AG337U	Beef Science Management	3	48
AG347U	Livestock Clinics and Events	3	48
AG219U	Independent Study: Animal Service	3	48

AG150U	Livestock Nutrition	3	48
AG230U	Livestock Evaluation and Selection	3	48

Related Courses and Support

General Education

93 credits offered, 27 credits required

CM005U	Oral Communications (2)	3	36
CM002U	Communication Skills I (2)	3	36
CM202T	Group Communication (2)	3	36
PY004U	Human Relations (2)	3	36
MA001U	Mathematics I: Agriculture (2)	3	24
CH001T	Principles of Chemistry	5	72
CH005T	General Chemistry	5	72
BY019T	General Botany I	4	60
*AG266U	Agricultural Leadership (1) (may be repeated)	2-6	36-108
*AG345U	Crop Orientation (to be repeated two times)	1	12
*DP010T	Introduction to Microcomputers and Data Processing	4	60
AG171U	Principles of Animal Breeding	3	48
*AG322U	Computer Applications: Agriculture	3	48
MK002U	Basic Agricultural Salesmanship	3	36
JO103T	Introduction to Photography	3	48
MK057U	Agricultural Merchandising/Retailing	3	36
AG341U	Livestock Anatomy and Physiology	3	48
AG179U	Advanced Evaluation and Selection (may be repeated)	2	36
AG351U	Agricultural Computer Survey	3	36
*AG230U	Livestock Evaluation Selection (1)	3	48
AG348U	Modern Farm Update	3	48
AG147U	Field Crop Analysis	3	48
AG313U	Crop Monitoring/Scouting Techniques	3	48
MH067U	Shop Practices and Safety	2	24
MH063U	Technical Manual Interpretation	1	12
AG367U	Introductory Meat Science	3	36
AG366U	Meat Evaluation and Marketing	3	48
AG363U	Personal Safety and Health for Agricultural Workers	3	36
AG361U	Occupational Safety and Health for Agricultural Workers	3	36
AG360U	Safety Regulations for Agri-Industry	3	36

*Required courses

Additional notes:

- (1) Required first quarter.
- (2) Students must take 3 to 5.
- (3) Students must take 1 EE with additional EE credits applied to electives.

Diversified Farm Management Option

Technical Courses

Agricultural Mechanization

47 credits offered, 15 credits required

	Credits	Hrs.
AG344U	Swine Facility Management	3 48
AG338U	Alternate Agricultural Energy Systems	3 48
AG205U	Farmstead Planning and Mechanization	3 48
MH047U	Farm Machinery Maintenance	3 48
MH098U	Rural Metals Applications	3 48
CS060U	Rural Electricity	3 48
CS058U	Rural Plumbing	3 48
CS057U	Rural Concrete and Masonry	3 48
CS059U	Rural Carpentry	3 48
AG109U	Agricultural Power Unit Operation	2 36

MH050U	Diesel Fuel Systems I	3	48
MH013U	Engines I	3	48
MH049U	Field Crop Harvesting Equipment Operation and Adjustment	3	60
MH048U	Planting and Tillage Equipment Operation and Adjustment	3	60
AG364U	Agricultural Energy Audit	3	48
AG362U	Agricultural Energy Management	3	48

Agricultural Economics

30 credits offered, 30 credits required

*EC004U	Agricultural Economics	3	36
*AG103U	Agricultural Finance	3	36
*AC019T	Agricultural Accounting	3	36
*MK056U	Principles of Agricultural Marketing	3	36
*MK004U	Agricultural Futures Marketing	3	36
*AG339U	Farm Land Acquisition	3	36
*LW002U	Agricultural Law	3	36
*AM083T	Elements of Farm Management	3	36
*AG312U	Advanced Futures Marketing	3	36
*AG215U	Farm Machinery Management	3	48

Agronomy

50 credits offered, 15 credits required

AG114U	Crop Production Orientation	3	48
AG284U	Crop Harvesting and Drying	3	48
AG131U	Field Crop Planning I	3	48
AG089U	Agricultural Fertilizers	3	48
AG002U	Forage and Oat Production	3	36
AG152U	Land Use and Conservation	3	48
AG079U	Field Crop Planning II	3	36
AG115U	Corn Production	3	36
AG251U	Soybean Production	3	36
AG005U	Agricultural Chemicals	3	36
AG006T	Principles of Crop Production	4	48
AG001T	Fundamentals of Soil Science	4	36
AG137U	Grain Grading and Processing	3	48
AG012U	Employment Experience (3) (may be repeated)	6	216
AG218U	Independent Study: Agronomy	3	36

Animal Science

82 credits offered, 15 credits required

AG347U	Livestock Clinics and Events	3	48
AG063U	Beef Industry	3	48
AG064U	Beef Feedlot Management	3	48
AG061U	Principles of Ruminant Nutrition	3	36
AG065U	Applied Ruminant Nutrition	3	48
AG250U	Beef Cow/Calf Production	3	48
AG092U	Beef Breeding and Reproduction	3	48
AG336U	Beef Enterprise Planning	3	48
AG337U	Beef Science Management	3	48
AG249U	Beef and Dairy AI	3	36
AG346U	Beef Marketing	3	48
AG073U	Swine Breeding Stock Selection	3	48
AG334U	Swine Reproduction and Management	3	48
AG071U	Swine Breeding and Genetics	3	48
AG331U	Swine Farrowing and Nursery Management	3	48
AG233U	Swine Facilities and Equipment	3	48
AG332U	Swine Production and Marketing	3	48
AG159U	Swine Nutrition and Feeding	3	48
AG335U	Swine Health Programs	3	48
AG072U	Swine Records and Management	3	48
AG333U	Swine Enterprise Management	3	8
AG219U	Independent Study: Animal Science	3	36
AG016U	Feed Rations	3	36
AG012U	Employment Experience (3) (may be repeated)	6	16

AG150U	Livestock Nutrition	3	48
AG005T	Animal Production	4	48

Related and Support Courses

Professional Support and General Education

91 credits offered, 27 credits required

CM005U	Oral Communications (2)	3	36
CM002U	Communication Skills (2)	3	36
CM202T	Group Communication (2)	3	36
PY004U	Human Relations (2)	3	36
MA001U	Mathematics I: Agriculture (2)	3	24
CH001T	Principles of Chemistry	3	48
CH005T	General Chemistry	5	72
BY019T	General Botany I	4	60
*AG266U	Agricultural Leadership (1) (may be repeated)	2-6	36-108
*	Swine or Beef or Crop Orientation (may be repeated two times)	1	12
*DP010T	Introduction to Microcomputers and Data Processing	4	60
AG171U	Principles of Animal Breeding	3	48
*AG322U	Computer Applications: Agriculture	3	48
MK002U	Basic Agricultural Salesmanship	3	36
JO103T	Introduction to Photography	3	48
MK057U	Agricultural Merchandising/Retailing	3	36
AG341U	Livestock Anatomy and Physiology	3	48
AG179U	Advanced Evaluation and Selection (may be repeated)	2	36
AG351U	Agriculture Computer Survey	3	36
AG230U	Livestock Evaluation Selection (1)	3	48
AG348U	Modern Farm Update	3	48
AG147U	Field Crop Analysis	3	48
AG313U	Crop Monitoring/Scouting Techniques	3	48
MH067U	Shop Practices and Safety	2	24
MH063U	Technical Manual Interpretation	1	12
AG367U	Introductory Meat Science	3	36
AG366U	Meat Evaluation and Marketing	3	48
AG363U	Personal Safety and Health for Agricultural Workers	3	48
AG361U	Occupational Safety and Health for Agricultural Workers	3	48
AG360U	Safety Regulations for Agri-Industry	3	48

*Required courses

Additional notes:

- (1) Required first quarter.
- (2) Students must take 3 of 5.
- (3) Students must take one EE with additional EE credits applied to electives.

Farm Equipment Mechanization Technology

Students enrolled in this program are prepared to work as technicians in such occupational areas as farm and industrial equipment, farm production and mechanics, parts and sales, setup and pre-delivery. This program offers the opportunity for students to pursue the following areas of specialization (options): Farm Equipment Service Technician, Industrial Equipment Service Technician, Farm Production Technician, and Parts and Sales Technician.

Upon completion of the required 118 quarter credit

hours, the graduate is awarded an Associate of Applied Science degree. A Setup Delivery Specialist diploma is awarded for completion of the required 72 quarter credit hours.

All students are aided in developing an individual educational plan approved by the academic advisor and specific program administration. All students entering the Farm Equipment Mechanization Technology program, regardless of options, must perform selected minimum competencies either by completion of the course PD020D, Agricultural Experience (Introductory), or by passing a pretest (either an interview or competency verification) at or near the beginning of the program. The course, offered on a regular basis throughout the academic year, is designed for the student with little or no quantifiable background or experience in agriculture. It may be suggested that individual students take a selection of, or all of, the modules of the course. Included are modules on agricultural careers, agricultural machinery, animal husbandry, crops and soils, agricultural experience, buildings and equipment, agricultural economics, business, math and communications.

Some students may wish to enroll in introductory personal computer classes from other sources to gain computer proficiency. These classes may be used to meet graduation requirements if the student processes a transfer of credit application and the advisor approves it.

Students in this program have a great deal of career flexibility. Some graduates elect to immediately enter the field in which they are trained. Others elect to combine the skills taught in this program with those in other Kirkwood programs in order to obtain more flexible career options. Still others take courses in Farm Equipment Mechanization and later transfer these courses to other community colleges and universities offering advanced degrees.

Farm Equipment Service Technician Option and Industrial Equipment Service Technician Option

Technical Courses

80 credits offered, 80 required

Basic Mechanics		Credits	Hrs.
*MH002U	Hydraulics I	3	36
*MH032U	Electrical Systems I	3	36
*MH013U	Engines I	3	36
*MH016U	Power Transfer Systems I: Basics	3	36
*MH050U	Diesel Fuel Systems I	3	36
Intermediate Mechanics		Credits	Hrs.
*MH096U	Hydraulics II (Ag)	3	48
*MH106U	Electrical Systems II (Ag)	3	48
*MH107U	Engines II (Ag)	3	48
*MH113U	Power Transfer Systems II: Standard Transmissions (Ag)	3	48
*MH097U	Power Transfer Systems III: Differentials, Final Drives	3	48

*MH095U	Diesel Fuel Systems II (Ag)	3	48
Advanced Mechanics			
*MH109U	Hydraulics III (Ag)	3	72
*MH112U	Electrical Systems III (Ag)	3	72
*MH108U	Engines III (Ag)	3	72
*MH102U	Power Transfer Systems IV (Ag)	3	48
*MH103U	Unit Diagnosis and Overhaul I (Ag)	8	168
*MH104U	Unit Diagnosis and Overhaul II (Ag)	8	168
*MH105U	Unit Diagnosis and Overhaul III (Ag)	8	168
*AG012U	Employment Experience	4	144
or			
*AG311U	Employment Practicum	4	144
*MH110U	Diesel Fuel Systems III (Ag)	3	48

Related Courses

Professional Support and General Education

55 credits offered, 20 required

*CM002U	Communication Skills I	3	36
*PY004U	Human Relations	3	36
*MH100U	Tool Reconditioning and Repair	2	36
*MH067U	Shop Practices and Safety	2	24
*MH001U	Mathematics I: Agriculture	3	36
*AG263U	Agricultural Career Orientation	3	36
*MH063U	Technical Manual Interpretation	1	12
AG266U	Agricultural Leadership	1-6	12-72
*MH098U	Rural Metal Applications	3	48
MH111U	Machinery and Equipment Servicing (Ag)	4	96
MH061U	Field Crop Harvesting Equipment Operation and Adjustment	4	96
MH048U	Planting and Tillage Equipment Operation and Adjustment	4	72
AM003U	Business Practices	3	36
AG109U	Agricultural Power Unit Operation (truck)	1	18
DP010T	Introduction to Microcomputers and Data Processing	4	60
AG322U	Computer Applications: Agriculture	3	48
AG351U	Agricultural Computer Survey	3	48
Others as agreed by student, advisor and department head			

*Required courses

Parts and Sales Technician Option

Technical Courses

60 credits offered, 56 required

Basic Mechanics		Credits	Hrs.
*MH002U	Hydraulics I	3	36
*MH032U	Electrical Systems I	3	36
*MH013U	Engines I	3	36
*MH016U	Power Transfer Systems I (special drives)	3	36
*MH050U	Diesel Fuel Systems I	3	36
Intermediate Mechanics		Credits	Hrs.
*MH096U	Hydraulics II (Ag)	3	48
*MH106U	Electrical Systems II (Ag)	3	48
*MH107U	Engines II (Ag)	3	48
*MH113U	Power Transfer Systems II: Standard Transmissions (Ag)	3	48
*MH097U	Power Transfer Systems III: Differentials, Final Drives (Ag)	3	48
Business Courses		Credits	Hrs.
*AM003U	Business Practices	3	36

*AG282U	Agricultural Service Center Operations	12	216
*AG157U	Inventory Control Procedures	4	60
*MK063U	Purchasing I	3	36
*AG012U	Employment Experience	4	144
	or		
*AG311U	Employment Practicum	4	144

Related Courses

Professional Support and General Education

50 credits offered, 16 required

AG266U	Agricultural Leadership	1-6	12-72
*CM002U	Communication Skills I	3	36
*CM005U	Oral Communications	3	36
*PY004U	Human Relations	3	36
*MA001U	Mathematics I: Agriculture	3	36
*AG266U	Agricultural Career Orientation	3	36
*MH063U	Technical Manual Interpretation	1	12
MH111U	Machinery and Equipment Servicing	4	96
MH100U	Tool Reconditioning and Repair	2	36
MH067U	Shop Practices and Safety	2	24
AG109U	Agricultural Power Unit Operation (truck)	1	18
MH098U	Rural Metal Applications	3	48
DP010T	Introduction to Microcomputers and Data Processing	4	60
AG322U	Computer Applications: Agriculture	3	48
MK064U	Purchasing II	3	36
AG351U	Agricultural Computer Survey	3	48

*Required courses

Farm Production Technician Option

Technical Courses

39 credits offered, 39 required

Basic Mechanics

		Credits	Hrs.
*MH002U	Hydraulics I	3	36
*MH032U	Electrical Systems I	3	36
*MH013U	Engines I	3	36
*MH016U	Power Transfer Systems I: Basics	3	36
*MH050U	Diesel Fuel Systems I	3	36

Intermediate Mechanics

*MH096U	Hydraulics II (Ag)	3	48
*MH106U	Electrical Systems II (Ag)	3	48
*MH107U	Engines II (Ag)	3	48
*MH113U	Power Transfer Systems II: Standard Transmissions (Ag)	3	48
*MH097U	Power Transfer Systems III: Differentials, Final Drives (Ag)	3	48

Advanced Mechanics

*MH109U	Hydraulics III (Ag)	3	72
*MH112U	Electrical Systems III (Ag)	3	72
*MH108U	Engines III (Ag)	3	72

Others as agreed by student, advisor and department head

Related Courses

Professional Support and General Education

55 credits offered, 20 required

*CM002U	Communication Skills I	3	36
*PY004U	Human Relations	3	36
*MH100U	Tool Reconditioning and Repair	2	36
*MH067U	Shop Practices and Safety	2	24
*MH001U	Mathematics I: Agriculture	3	36
*AG263U	Agricultural Career Orientation	3	36

*MH063U	Technical Manual Interpretation	1	12
*AG266U	Agricultural Leadership	1-6	12-72
*MH098U	Rural Metal Applications	3	48
MH111U	Machinery and Equipment Servicing	4	96
MH061U	Field Crop Harvesting Equipment Operation and Adjustment	4	96
MH048U	Planting and Tillage Equipment Operation and Adjustment	4	72
AM003U	Business Practices	3	36
AG109U	Agricultural Power Unit Operation (truck)	1	18
DP010T	Introduction to Microcomputers and Data Processing	4	60
AG322U	Computer Applications: Agriculture	3	48
AG351U	Agricultural Computer Survey	3	48

***Required courses**

The other courses will be as agreed to by the student, advisor and department head once the student's career interest in production agriculture is known. Elective courses will normally come from the Farm and Ranch Technology program.

Setup/Pre-delivery Specialist

Technical Courses

26 credits offered, 22 required

Basic Mechanics

		Credits	Hrs.
*MH002U	Hydraulics I	3	36
*MH032U	Electrical Systems I	3	36
*MH016U	Power Transfer Systems I: Basics	3	36

Intermediate Mechanics

*MH096U	Hydraulics II (Ag)	3	48
*MH106U	Electrical Systems II (Ag)	3	48
*MH113U	Power Transfer Systems II: Standard Transmissions (Ag)		
*AG012U	Employment Experience	4	144
	or		
*AG311U	Employment Practicum	4	144

Related Courses

Professional Support and General Education

56 credits offered, 40 required

*CM002U	Communication Skills I	3	36
*PY004U	Human Relations	3	36
*MH067U	Shop Practices and Safety	2	24
*MH100U	Tool Reconditioning and Repair	2	36
*AG109U	Agricultural Power Unit Operation	1	18
*AG266U	Agricultural Career Orientation	3	36
*MH063U	Technical Manual Interpretation	1	12
*AM003U	Business Practices	3	36
*MH048U	Planting and Tillage Equipment Operation and Adjustment	4	72
*MH111U	Machinery and Equipment Servicing	4	96
*MH099U	Equipment Setup and Pre-delivery	8	144
*MH101U	Engine Powered Equipment Operation	3	48
*MH098U	Rural Metal Applications	3	48
AG266U	Agricultural Leadership	1-3	12-36
DP010T	Introduction to Microcomputers and Data Processing	4	60
AG322U	Computer Applications: Agriculture	3	48
AG351U	Agricultural Computer Survey	3	48

Others as agreed by student, advisor and department head to make up the 72 credit hours required.

*Required courses

Professional Development/Training Certificates

Presently available: Agricultural Equipment Servicing
Swine Enterprise Management
Agricultural Safety Certification
Agricultural Energy Certification

*MK011V	Retail Flower Shop Operation I	5	60
*MK012V	Retail Flower Shop Operation II	3	36
*MK013V	Retail Flower Shop Operation III	3	36
*MK014V	Retail Flower Shop Operation IV	2	24
DP010T	Introduction to Microcomputers and Data Processing	4	60
General Education			
9 credits offered, 8 required			
*MA001U	Mathematics I: Agriculture	2	24
*PY004U	Human Relations	3	36
*CM002U	Communication Skills I	3	36
AG266U	Agricultural Leadership (Elective each quarter)	1	12

*Required courses

Horticulture and Natural Resources Department

Floriculture

The Floriculture program prepares students to work as floral designers, retail flower shop managers, greenhouse specialists and other similar positions. Upon completion of the required 72.5 quarter credit hours, the graduate is awarded a diploma.

All students are aided in developing an individual educational plan approved by the academic advisor and specific program administration.

Technical Courses

Floral Design
11.5 credits offered, 11.5 required

	Credits	Hrs.
*AT001V Floral Designing I	5	108
*AT002V Floral Designing II	2	48
*AT003V Floral Designing III	2	48
*AT004V Floral Designing IV A	1.5	36
*AT008V Floral Designing IV B	1	24

Plant Materials
11 credits offered, 11 required

*AG017V Basics of Plant Growth	3	36
*AG014V Plant Production	3	48
*AG013V Plant Identification and Care	3	36
*AG018V Diagnosing Plant Disorders	2	24

Technical Support
21 credits offered, 15 required

*AG012U Employment Experience (to be repeated)	6	216
*AG006U Career Planning Seminar (to be repeated)	1	12
*AG016V Design Show Seminar	1	12
AG222U Special Projects: Horticulture	1-6	24-144

Related Courses

Business
33 credits offered, 29 required

*MK003T Principles of Selling	4	48
*AC005V Floriculture Bookkeeping	4	48
*MK001T Principles of Marketing	4	48
*MK001V Retail Advertising and Display	4	48

Grounds and Turfgrass Management Technology

The Grounds and Turfgrass Management Technology program prepares students for employment as industrial and institutional grounds managers, golf course greenskeepers, municipal horticulturists and many other similar jobs. Upon completion of the required 104 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

All students are aided in developing an individual education plan approved by the academic advisor and specific program administration. Substitution of courses for those listed in the recommended curriculum may be approved to meet the needs of specific career areas or college transfer programs.

Technical Courses

Plant Materials Science
52 credits offered, 25 required

	Credits	Hrs.
*AG057U Turfgrass Management	4	60
*AG044U Plant Materials I	4	60
*AG045U Plant Materials II	4	60
*AG252U Plant Material Maintenance	4	72
*AG357U Plant Diseases	2	24
*AG048U Plant Propagation	4	72
*AG356U Plant Insects	3	48
AG206U Greenhouse Practices	4	60
AG047U Herbaceous Plant Materials	4	72
AG046U Plant Materials III	4	60
AG027U House Plants	4	60
AG036U Fruit and Vegetable Production	4	60
AG370U Advanced Turfgrass Management	3	36
AG358U Plants of the Wilds	4	60

Landscape Design and Construction
20 credits offered, 12 required

*AG029U Landscape Construction	4	72
*AG030U Basic Landscape Drawing	4	72
*AG330U Park Planting Design	4	72
AG034U Commercial Landscape Design	4	72
AG031U Residential Landscape Design	4	72

Horticulture Facilities and Equipment
16 credits offered, 8 required

*AG062U Horticulture Equipment	4	72
*AG359U Facility Construction A	4	72

AG365U	Facility Construction B	4	72
AG369U	Grounds Maintenance	4	60
AG010U	Park Maintenance Programs	4	60

Natural Resources

26 credits offered, 4 required

*AG056U	Soil and Water Conservation	4	60
AG309U	Natural Resources Appreciation	4	60
AG018U	Wildlife Reserves	4	60
BY113U	Aquatic Wildlife	2	24
BY115U	Mammalian Wildlife	4	48
BY114U	Avian Wildlife	4	48
AG368U	Natural Resources Interpretation	4	60

Technical Support

12 credits offered, 6 required

*AG012U	Employment Experience	6	216
AG222U	Special Projects: Horticulture	1-6	24-144

Related Courses

Business Management

20 credits offered, 4 required

*AG254U	Grounds Management Problems	4	72
AG015U	Park and Recreation Administration	4	60
AG310U	Golf Course Maintenance	4	84
AG026U	Garden Center Operations	4	60
AG035U	Commercial Plant Production	4	60

General Education

24.5 credits offered, 15.5 required

*CM002U	Communication Skills I	3	36
*CM005U	Oral Communications	3	48
*PY004U	Human Relations	3	36
*MA001U	Mathematics I: Agriculture	4	48
*MS003T	First Aid	.5	6
MS004T	CPR	1	12
*AG006U	Career Planning Seminar (to be repeated)	1	12
AG266U	Agricultural Leadership (elective each quarter)	1	12
AG322U	Computer Applications: Agriculture	3	48
DP010T	Introduction to Microcomputers and Data Processing	4	60
MK055U	Merchandising: Horticulture	3	48

*Required courses

Landscape, Nursery and Garden Center Technology

The Landscape, Nursery and Garden Center Technology program prepares students for employment in career areas such as landscape design and construction, garden center operations, nursery, stock production, greenhouse management and many other related areas. Upon completion of the required 107 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

All students are aided in developing an individual educational plan approved by the academic advisor and specific program administration. Substitution of courses for those listed in the recommended curriculum may be approved to meet the needs of specific career areas or college transfer programs.

Technical Courses

Plant Materials Science

52 credits offered, 25 required

	Credits	Hrs.
*AG057U	Turfgrass Management	4 60
*AG044U	Plant Materials I	4 60
*AG045U	Plant Materials II	4 60
*AG252U	Plant Material Maintenance	4 72
*AG257U	Plant Diseases	2 24
*AG048U	Plant Propagation	4 72
AG356U	Plant Insects	3 48
AG206U	Greenhouse Practices	4 60
AG047U	Herbaceous Plant Materials	4 72
AG046U	Plant Materials III	4 60
AG027U	House Plants	4 60
AG036U	Fruit and Vegetable Production	4 60
AG370U	Advanced Turfgrass Management	3 36
AG358U	Plants of the Wilds	4 60

Landscape Design and Construction

20 credits offered, 12 required

*AG029U	Landscape Construction	4 72
*AG030U	Basic Landscape Drawing	4 72
*AG330U	Park Planting Design	4 72
AG034U	Commercial Landscape Design	4 72
AG031U	Residential Landscape Design	4 72

Horticulture Facilities and Equipment

16 credits offered, 8 required

*AG062U	Horticulture Equipment	4 72
*CS002U	Facility Construction	4 72
AG010U	Park Maintenance Programs	4 60
AG369U	Grounds Maintenance	4 60

Natural Resources

26 credits offered, 4 required

*AG056U	Soil and Water Conservation	4 60
AG309U	Natural Resources Appreciation	4 60
AG018U	Wildlife Reserves	4 60
BY113U	Aquatic Wildlife	2 24
BY115U	Mammalian Wildlife	4 48
BY114U	Avian Wildlife	4 48
AG368U	Natural Resources Interpretation	4 60

Technical Support

12 credits offered, 6 required

*AG012U	Employment Experience	6 216
AG222U	Specialized Projects: Horticulture	1-6 24-144

Related Courses

Business Management

20 credits offered, 4 required

*AG026U	Garden Center Operations	4 60
AG254U	Grounds Management Problems	4 72
AG015U	Park and Recreation Administration	4 60
AG310U	Golf Course Maintenance	4 84
AG035U	Commercial Plant Production	4 60

General Education

24.5 credits offered, 18.5 required

*CM002U	Communication Skills I	3 36
*CM005U	Oral Communications	3 48
*PY004U	Human Relations	3 36
*MA001U	Mathematics I: Agriculture	4 48
*MS003T	First Aid	5 6
*MS004T	CPR	1 12
*AG006U	Career Planning Seminar (to be repeated)	1 12
AG266U	Agricultural Leadership (elective each quarter)	1 12

AG322U	Computer Applications: Agriculture	3	48
DP010T	Introduction to Microcomputers and Data Processing	4	60
*MK055U	Merchandising: Horticulture	3	48

*Required courses

*BY114U	Avian Wildlife	4	48
AG368U	Natural Resources Interpretation	4	60
Technical Support			
12 credits offered, 6 required			
*AG012U	Employment Experience	6	216
AG222U	Special Projects: Horticulture	1-6	24-144

Parks and Natural Resources Technology

The Parks and Natural Resources Technology program prepares students for careers as county or state park attendants, park rangers, horticulturists, municipal park technicians and many others. Upon completion of the required 114 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

All students are aided in developing an individual education plan approved by the academic advisor and specific program administration. Substitution of courses for those listed in the recommended curriculum may be approved to meet the needs of specific career areas or college transfer programs.

Technical Courses

Plant Materials Science

52 credits offered, 25 required

	Credits	Hrs.
*AG057U	Turfgrass Management	4 60
*AG044U	Plant Materials I	4 60
*AG045U	Plant Materials II	4 60
*AG252U	Plant Material Maintenance	4 72
*AG357U	Plant Disease	2 24
*AG048U	Plant Propagation	4 72
*AG356U	Plant Insects	3 48
AG206U	Greenhouse Practices	4 60
AG047U	Herbaceous Plant Materials	4 72
AG046U	Plant Materials III	4 60
AG027U	House Plants	4 60
AG036U	Fruit and Vegetable Production	4 60
AG370U	Advanced Turfgrass Management	3 36
AG358U	Plants of the Wilds	4 60

Landscape Design and Construction

20 credits offered, 12 required

*AG029U	Landscape Construction	4 72
*AG030U	Basic Landscape Drawing	4 72
*AG330U	Park Planting Design	4 72
AG031U	Residential Landscape Design	4 72
AG034U	Commercial Landscape Design	4 72

Horticulture Facilities and Equipment

16 credits offered, 8 required

*AG062U	Horticulture Equipment	4 72
*AG359U	Facility Construction A	4 72
*AG365U	Facility Construction B	4 72
AG369U	Grounds Maintenance	4 60
AG010U	Park Maintenance Programs	4 60

Natural Resources

26 credits offered, 14 required

*AG056U	Soil and Water Conservation	4 60
AG309U	Natural Resources Appreciation	4 60
AG018U	Wildlife Reserves	4 60
*BY113U	Aquatic Wildlife	2 24
*BY115U	Mammalian Wildlife	4 48

Related Courses

Business Management

20 credits offered, 4 required

*AG015U	Park and Recreation Administration	4 60
AG254U	Grounds Management Problems	4 72
AG310U	Golf Course Maintenance	4 84
AG026U	Garden Center Operations	4 60
AG035U	Commercial Plant Production	4 60

General Education

24.5 credits offered, 15.5 required

*CM002U	Communication Skills I	3 36
*CM005U	Oral Communications	3 48
*PY004U	Human Relations	3 36
*MA001U	Mathematics I: Agriculture	4 48
*MS003T	First Aid	5 6
*MS004T	CPR	1 12
*AG006U	Career Planning Seminar (to be repeated)	1 12
AG266U	Agricultural Leadership (elective each quarter)	1 12
AG322U	Computer Applications: Agriculture	3 48
DP010T	Introduction to Microcomputers and Data Processing	4 60
MK055U	Merchandising: Horticulture	3 48

*Required courses

Additional Departmental Offerings of Special Interest

The Horticulture and Natural Resources Department offers selected courses and certificates to meet the specific needs of our industry. The courses listed below are offered when requested. Additional short courses, workshops and seminars are available when needs are identified.

Technical Courses

	Credits	Hrs.
AG278U	Ornamental Trees and Shrubs	1-3 12-84
AG269U	Greenhouse Production	1-3 12-84
AG276U	Residential Planting Design	1-3 12-84
AG277U	Native Trees and Shrubs	1-3 12-84
AG274U	Horticulture Pesticide Application	1-3 12-84
AG268U	Interior Plants	1-3 12-84

Professional Development/Training Certificates

Presently available: Natural Resources Interpreter
Fruit and Vegetable Production
Pesticide Applicators Certification

BUSINESS TECHNOLOGIES



Food Service Management Technology

The Food Service Management program is designed to prepare students for entrance into careers in restaurant or institutional food management. Through specialized training, students develop the skills and knowledge necessary to meet the requirements of this growing, competitive industry.

The program features classroom and laboratory instruction in technical, related and general education

courses. This includes quantity meal preparation and service in the kitchen-dining area and fast food cafe operated by Food Service students.

Upon completion of the required 49 quarter credit hours and the Food Service Training program, the graduate is awarded an Associate of Applied Science degree.

Food Service Training is a specialized diploma program designed to provide men and women with the technical and specialized knowledge and skills required to enter the quantity food preparation and service industry. The internship period provides the student with actual work experience in commercial or institution food service establishments throughout Iowa. The graduate is prepared for employment in restaurants, hotels, motels, institutions, industrial cafeterias, delicatessens and other facilities.

Upon completion of the required 59 quarter credit hours, the graduate is awarded a diploma.

Technical Courses

		Credits	Hrs.
AM052U	Food Service Management I	3	36
AM053U	Food Service Management II	4	96
AM075U	Food Service Management III	4	96
HE012U	Equipment and Design	4	60
HE013U	Garde Manger	3	72
LW005U	Food Service Law	4	48
MK019U	Small Business Organization	3	36
AM022U	Principles of Supervision	4	48
*HE010U	Food Composition I	3	36
*HE011U	Food Composition II	3	36
*HE022U	Food Composition III	3	36
*HE009U	Food Service Sanitation and Safety	2	24
*HE005U	Food Production I	6	144
*HE006U	Food Production II	6	144
*HE007U	Food Production III	6	144
*HE008U	Menu Planning and Servicing Fundamentals	3	36
*HE016U	Quantity Food Purchasing	3	36
*MK022U	Employment Seminar	1	24
*	Elective	4	48
	Elective	4	48

Related Courses

EC015T	Principles of Business Economics	4	48
CM201T	Public Communication	4	48
	or		
CM204T	Speech Communication	4	48
AC016U	Office Accounting	4	48
	or		
AC001T	Principles of Accounting I	4	48
*AM032T	Introduction to Business	4	48
*MA037U	Mathematics I: Business	2	24
*PD019D	P.A. Reading/Writing	3	36
*DP010T	Introduction to Microcomputers and Data Processing	4	60
*CM002U	Communication Skills I	3	36
	or		
*CM101T	Composition I	4	48
*PY004U	Human Relations	3	36
	Electives	4	48

*Required diploma courses

Accounting and Office Education Department

Accounting Technology

This program is designed to prepare individuals for paraprofessional employment opportunities in the accounting field. Upon completion of the program, the student should have the skills and technical knowledge needed to enter business in the areas of cost accounting, general accounting and many other specialized areas of financial accounting and financial reporting. Requirements include accounting principles and practice, and general and occupational information.

Upon completion of the required 91 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

	Credits	Hrs.
AC001T Principles of Accounting I	4	48
AC002T Principles of Accounting II	4	48
AC003T Principles of Accounting III	4	48
AC006T Intermediate Accounting I	4	48
AC007T Intermediate Accounting II	4	48
AC009T Intermediate Accounting III	4	48
AC004T Cost Accounting I	4	48
AC005T Cost Accounting II	4	48
AC018T Income Tax	4	48
MK022U Employment Seminar	1	24
AC021T Computer Applications: Accounting	4	72
AC021U Professionalism	1	2
Business Electives (repeated one time)	8	96

Related Courses

OE009T Electronic Office Machines	2	36
LW005T Business Law I	4	48
MA043T Finite Mathematics	5	60
MA041T Fundamentals of Statistics	5	60
DP010T Introduction to Microcomputers and Data Processing	4	60
EC013T Principles of Economics (Macro)	4	48
EC014T Principles of Economics (Micro)	4	48
CM101T Composition I	4	48
or		
CM002U Communication Skills I	3	36
CM117T Composition II: Technical Writing	4	48
or		
CM003U Communication Skills II	3	36
CM201T Public Communication	4	48

Accounting

This program is designed to provide fundamental knowledge of accounting, an understanding of basic concepts, definitions and terminologies, and insight into characteristics and methods of operating accounting systems. The program includes group instruction,

individual instruction, laboratory practice, and simulates on-the-job training.

Upon completion of the required 56 quarter credit hours, the graduate is awarded a diploma.

Technical Courses

	Credits	Hrs.
AC001V Accounting Fundamentals I	5	60
or		
AC001T Principles of Accounting I	4	48
AC002V Accounting Fundamentals II	5	60
or		
AC002T Principles of Accounting II	4	48
AC003V Accounting Fundamentals III	5	60
or		
AC003T Principles of Accounting III	4	48
AC018T Income Tax	4	48
AC020U Business Simulation	4	96
OE010T Filing Systems	2	24
AC021T Computer Applications: Accounting	4	72
MK022U Employment Seminar	1	24
Business Electives	6	72

Related Courses

DP010T Introduction to Microcomputers and Data Processing	4	60
LW005T Business Law I	4	48
CM002U Communication Skills I	3	36
or		
CM101T Composition I	4	48
CM003U Communication Skills II	3	36
or		
CM102T Composition II	4	48
MA037U Mathematics I: Business	2	24
or		
MA031T Intermediate Algebra	5	60
OE009T Electronic Office Machines	2	36
PY004U Human Relations	3	36
OE006T College Typing Modules (3, 4, 25A & B)	2	48

Office Education

The core approach to the Office Education curricula allows the student certain flexibility in selecting a major interest area in an office occupation. Completion of the following 15 core courses is part of the requirements for graduation from the Administrative Secretarial, Clerical, General Secretarial, Information Processing, Legal Secretarial, and Medical Secretarial programs. Each student entering these programs will be given the opportunity for advanced skill placement in certain courses through testing.

Office Education Core Courses

	Credits	Hrs.
OE006T College Typing I	3	72
OE007T College Typing II	3	72
OE008T College Typing III	3	72
OE020U Office Careers	1	12
CM008U Business English	3	36
OE001U Office Procedures I	4	48
OE019U Machine Transcription	3	48
OE005U Business Spelling/Proofreading	2	24

CM001U	Business Communications	4	48
*OE009T	Electronic Office Machines	2-3	36-48
OE026U	Word Processing I	3	60
AC016U	Office Accounting	4	48
	or		
AC001T	Principles of Accounting I	4	48
PY004U	Human Relations	3	36
	or		
PY002T	General Psychology	4	48
OE010T	Filing Systems	2	24
MK022U	Employment Seminar	2	36

*Legal and Medical Secretarial programs require 3 credit hours.

Office Education Shorthand Core Courses

OE001T	College Shorthand I	4	60
OE002T	College Shorthand II	4	60
OE003T	College Shorthand III	4	60

Administrative Secretarial Technology

The Administrative Secretarial program prepares students in advanced secretarial skills, office administration techniques and general education areas. The graduate is prepared for a high-level position as a participating member of an executive team in the electronic office.

Upon completion of the required 108 quarter hours, the graduate is awarded an Associate of Applied Science degree.

Core Courses

	Credits	Hrs.
Office Education Core Courses	43	672
Office Education Shorthand Core Courses	12	180

Technical Courses

OE011T	Administrative Office Procedures	4	48
OE012T	College Typing IV	3	72
AM019U	Office Administration	4	48
AM076U	Time Management Seminar	1	12
AC002T	Principles of Accounting II	4	48
AM003T	Business Internship	6	216
OE044T	Records Management	2	24
MK024U	Business Internship Seminar	1	12

Related Courses

AM032T	Introduction to Business	4	48
LW005T	Business Law I	4	48
EC013T	Principles of Economics (Macro)	4	48
DP010T	Introduction to Microcomputers and Data Processing	4	60
CM204T	Speech Communication	4	48
	or		
CM201T	Public Communication Electives	4	48
		8	96

Advanced Placement — Certified Professional Secretary

CPS Credit by Testing: Students who successfully complete one or more sections of the CPS examination may present a copy of the card indicating the sections passed and request credit for up to 38 hours to be applied toward an Associate of Applied Science degree. Twelve credit hours of Kirkwood course work must be established before applying for credit by CPS examination. The following courses have been determined as equivalent to the examination sections.

Section I: Behavioral Science in Business

PY004U	Human Relations	3	36
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Section II: Business Law

LW005T	Business Law I	4	48
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Section III: Economics and Management

EC013T	Principles of Economics (Macro)	4	48
AM019U	Office Administration	4	48

Section IV: Accounting

AC001T	Principles of Accounting I	4	48
AC002T	Principles of Accounting II	4	48

Section V: Office Administration and Communication

OE007T	College Typing II	3	72
OE008T	College Typing III	3	72
	(Typing credit will be granted for Part V completed by 1982)		
OE011T	Administrative Office Procedures	4	48
OE010T	Filing Systems	2	24
OE044T	Records Management	2	24

Section VI: Office Technology

DP010T	Introduction to Microcomputers and Data Processing	4	48
OE026U	Word Processing I	3	60

Clerical

The Clerical program covers basic office skills needed in many business, industrial and professional office positions that require no shorthand skills. Emphasis is placed on typing proficiency, office machine skills, filing procedures and telephone techniques.

Upon completion of the required 52 quarter credit hours, the graduate is awarded a diploma.

Core Courses

	Credits	Hrs.
Office Education Core Courses	42	648

Technical Courses

OE002U	Office Procedures II	4	60
DP010T	Introduction to Microcomputers and Data Processing	4	60

Related Courses

Electives	2	24
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General Secretarial

The General Secretarial program prepares students for careers in a number of businesses such as banking firms, advertising agencies, educational institutions and travel agencies. Emphasis is placed on shorthand proficiency.

Upon completion of the required 71 quarter credit hours, the graduate is awarded a diploma.

Core Courses

	Credits	Hrs.
Office Education Core Courses	42	648
Office Education Shorthand Core Courses	12	180

Technical Courses

OE012T	College Typing IV	3	72
OE002U	Office Procedures II	4	60
OE032U	Word Processing II	3	72
DP010T	Introduction to Microcomputers and Data Processing	4	60

Related Courses

Electives	3	36
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Information Processing

The Information Processing program provides the specialized training necessary to work with the sophisticated electronic equipment in today's modern offices. In addition to advanced training in basic office skills, students complete specialized course work on word processors and microcomputers. Word processing management and supervisory techniques are also included. Proficiency at the College Typing II (45 wpm) level is a prerequisite for admission to the Information Processing program.

Upon completion of the required 54 quarter credit hours, the graduate is awarded a diploma.

Core Courses

	Credits	Hrs.
Office Education Core Courses	36	504

Technical Courses

OE031U	Word Processing Production	2	48
OE032U	Word Processing II	3	72
OE028U	Information Processing Systems Management	4	48
DP010T	Introduction to Microcomputers and Data Processing	4	60
OE044T	Records Management	2	24
OE002U	Office Procedures II	4	60

Legal Secretarial

This program provides specialized preparation for successful employment in the legal secretarial field. In

addition to instruction in general office skills, the student completes seven technical courses. Proficiency at the College Typing I (35 wpm) and Shorthand I levels are required for admission to the program.

Upon complete of 75 quarter credit hours, the graduate is awarded a diploma.

Core Courses

	Credits	Hrs.
Office Education Core Courses	40	588
Office Education Shorthand Core Courses	8	120

Technical Courses

OE006V	Legal Terminology	3	48
OE033V	Legal Terminology Review	2	24
OE005V	Legal Typing	3	48
OE003V	Legal Dictation	3	48
OE004V	Legal Machine Transcription	3	48
OE002V	Law Office Procedures	3	36
AM003T	Business Internship	5	180
MK024U	Business Internship Seminar	1	12

Related Courses

LW025T	Personal Law	4	48
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Medical Secretarial

The Medical Secretarial program provides the specialized preparation for successful employment in a health office setting, including doctors' offices, insurance offices, clinics, hospitals and laboratories. Proficiency at the College Typing I (35 wpm) level is required for admission to the program. Upon completion of the 72 required quarter credit hours, the graduate is awarded a diploma.

Core Courses

	Credits	Hrs.
Office Education Core Courses	40	588

Technical Courses

MS061U	Medical Terminology I	3.5	48
MS062U	Medical Terminology II	3.5	48
BY006U	Basic Anatomy and Physiology	4	60
OE014U	Legal Aspects of Medical Records	2	24
OE032V	Medical Insurance Seminar	1	12
OE016U	Medical Secretarial Machine Transcription I	3	48
OE021U	Medical Secretarial Machine Transcription II	3	48
OE017U	Medical Secretarial Office Procedures	4	48
MS063U	Pharmacology	2	24
AM003T	Business Internship	5	180
MK024U	Business Internship Seminar	1	12

Professional Development/Training Certificates

Presently Available: Office Clerk
Purchasing
Word Processing
Bookkeeping

Management and Marketing Department

Food Store Management Technology

Through general and specialized business preparation, students in Food Store Management are provided with the background and skills necessary for meeting the requirements of this vast and rapidly expanding career field. Students typically enter the retail or wholesale food industry. The program has excellent industry support throughout Iowa and the Midwest. The graduate is prepared to be employed in supermarkets, convenience stores, wholesale operations, route sales, and as representatives of various food brokers.

Upon completion of the required 108 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

		Credits	Hrs.
MK012U	Introduction to Food Store Marketing	4	48
AM003T	Business Internship (repeated four times)	4	144
MK011U	Food Store Seminar (repeated four times)	1	12
MK013U	Food Store Planning and Layout	3	36
AM005U	Front End Management	3	36
MK041U	Food Store Merchandising I	3	36
AM012U	Store Operations Management	5	60
MK042U	Food Store Merchandising II	3	36
MK003T	Principles of Selling	4	48
MK025T	Principles of Advertising	4	48
MK001T	Principles of Marketing	4	48
MK022U	Employment Seminar	3	36
AM022U	Principles of Supervision	4	48

Related Courses

AM032T	Introduction to Business	4	48
MA037U	Mathematics I: Business	2	24
PY004U	Human Relations	3	36
LW025T	Personal Law	4	48
CM002U	Communication Skills I or	3	36
CM101T	Composition I	4	48
CM003U	Communication Skills II or	3	36
CM102T	Composition II	4	48
AC001T	Principles of Accounting I	4	48
EC015T	Principles of Business Economics	4	48
CM201T	Public Communication	4	48
AC006U	Management Accounting	4	48
DP010T	Introduction to Microcomputers and Data Processing	4	60
	Elective	4	48



Interior Design Technology

The Interior Design program combines professional-technical, business and general education. It is designed to prepare students for careers in design and merchandising as commercial and home interior designers, sales representatives, consultants, buyers in furniture, drapery, wall/floor coverings, design and related accessory areas of retail stores, and related professional fields.

Upon completion of the required 127 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

		Credits	Hrs.
AT003U	Survey of Interiors I	3	36
AT006U	Survey of Interiors II	2	24
AT015U	Survey of Interiors III	2	24
MK032U	Home Furnishings I	3	36
MK033U	Home Furnishings II	4	48
GR042U	Elementary Drawing	2	48
HE021U	Kitchen and Bath Planning	3	36
MK048U	Window Design Treatment	3	36
MK029U	Professional Practices	4	48
HE003U	Textiles	4	60
HE020U	Interior Analysis and Design	5	72
AT007U	Design Relationships	2	24
AT002U	Decorative Accessories	2	24
AT008U	Color in Interiors	2	24
AM003T	Business Internship (repeated one time)	6	216
MK024U	Business Internship Seminar (repeated one time)	1	12
MK002T	Principles of Retailing	4	48
MK001T	Principles of Marketing	4	48
MK025T	Principles of Advertising	4	48
AM020U	Retail Management	4	48
MK014U	Merchandising	4	48
MK019U	Small Business Organization	3	36
MK022U	Employment Seminar	3	36

MK003T	Principles of Selling	4	48
AM001U	Merchandise Analysis and Control	3	36

Related Courses

AM032T	Introduction to Business	4	48
EC015T	Principles of Business Economics	4	48
AM022U	Principles of Supervision	4	48
LW005T	Business Law I	4	48
DP010T	Introduction to Microcomputers and Data Processing	4	60
AC001T	Principles of Accounting I	4	48
PY004U	Human Relations	3	36
CM201T	Public Communication	4	48
CM002U	Communication Skills I	3	36
CM003U	Communication Skills II	3	36
MA037U	Mathematics I: Business	2	24

Management Development Technology

The Management Development Technology program is designed to develop and improve management skills for those persons currently in first-line to mid-level management positions or those seeking advancement into a supervisory capacity. The program provides an extensive selection of both introductory and advanced, general and technical management courses offered on either a credit or audit basis. Students may select various courses of their choice or select tracks that lead to a Vocational-Technical certificate, diploma, Associate of Arts degree, Associate of Science/Career Option degree or Associate of Applied Science degree.

Students who have completed a vocational-technical certificate or diploma in a program other than Management Development may be able to apply that certificate toward the completion of the diploma or Associate of Applied Science degree. Courses completed at other accredited institutions that parallel the offerings of the Management Development program may be considered for credit.

Courses are offered daytime and evenings, on and off campus, and by arrangement at business locations, in order to accommodate both full-time employed workers taking courses on a part-time basis and regularly enrolled Kirkwood students.

Students enrolled in the Management Development program may be eligible for employer reimbursement, scholarships, financial aid, student loans and/or veterans' benefits and should contact the Enrollment Services Office for details.

REQUIREMENTS SUMMARY

Option I: Certificate (28-36 credits)

Complete the related course requirements (6-8 credits) and the certificate courses (22-30 credits) of one of the technology selections (Management, Traffic and Transportation, Money and Banking, Small Business) or another discipline offered by the College.

Option II: Diploma in Supervisory Management (51 credits minimum)

Complete the related course requirements (6-8 credits), the Management Certificate course work (30 credits), and either (a) additional managerial course work (15 credits) or (b) a certificate (or its equivalency) from another discipline.

Option III: Associate of Applied Science Degree (90 credits minimum)

Complete the related course requirements (16-20 credits), the Management Certificate courses (30 credits), and either (a) a certificate or diploma (or equivalency) in another discipline (22-78 credits) or (b) additional managerial course work (at least 15 credits). Up to 10 credits of elective courses are allowed in the 90 quarter credit hour total.

Option III, Example 1

16-20	credits	Related courses
30	credits	Management Certificate courses
34	credits	Additional managerial courses
10	credits	Electives

Option III, Example 2

16-20	credits	Related courses
30	credits	Management Certificate courses
28	credits	Certificate from another discipline
6	credits	Additional managerial courses
10	credits	Electives

Option IV: Associate of Arts or Associate of Science/Career Option with Management Certificate

Complete 36 A.S./Career Option or 60 A.A. distributive credits of liberal arts requirements as described in the Kirkwood catalog, plus Management Certificate courses (30 credits). In the A.S./Career Option program, up to 24 credits may consist of elective credits. In both degree programs, all of the liberal arts credit requirements and at least 66 total credits must be "T" (transfer) courses.

Technical Courses

Management Certificate:

Complete 30 credits from the following list including those indicated with an asterisk (*) as required and, additionally, a minimum of 3 credits of computer course work and the two required related courses.

	Credits	Hrs.
*AM022U Principles of Supervision	3-4	36-48
*AM005T Introduction to Management	4	48
AM095U Leadership Styles	3-4	36-48
AM092U Employee Training and Development	4	48
AM094U Productivity Improvement	3	36
AM049U Labor Relations	4	48
AM050U Results Oriented Management (MBO)	3	36

AM042U	Decision Making	3	36
AM047U	Personnel Management	4	48
AM019U	Office Administration	4	48
AM089U	Applied Organizational Study	3	36
AM067U	Organizational Behavior	3	36
AM054U	Public Administration	3	36
DP010T	Introduction to Microcomputers and Data Processing	3-4	45-60
DP010U	Computer Applications for Managers	1-5	15-75
LW005T	Business Law I	4	48
LW006T	Business Law II	4	48
AC001T	Principles of Accounting I	4	48
MA037U	Mathematics I: Business	2	24
AM081U	Professional Profile	2	24
MK019U	Small Business Organization	3	36
AM091U	Advanced Supervision	3	36
*AM051U	Principles of Safety	1	12
AM093U	Time Management	1	12
AM058U	Work Habits and Absenteeism	1	12
AM079U	Performance Appraisal	1	12
AM029U	Wage and Salary Administration		
AM044U	Work Simplification	1	12
AM082U	Risk Management	1	12
AM048U	General Production and Inventory Control	4	48
AM032U	Quality Control	3	36
MK063U	Purchasing I	3	36
MK064U	Purchasing II	3	36
AM051U	Industrial Safety	3	36
AM055U	Current Topics in Management	1-2	12-36
	Approved Substitutions	6	72

Traffic and Transportation Certificate:

Complete all courses below plus two required related courses.

AM036U	Traffic and Transportation I	3	36
AM037U	Traffic and Transportation II	3	36
AM038U	Traffic and Transportation III	3	36
AM039U	Traffic and Transportation IV	3	36
AM040U	Traffic and Transportation V	3	36
AM041U	Traffic and Transportation VI	3	36
AM064U	Interstate Commerce Law and Practice I	3	36
AM068U	Interstate Commerce Law and Practice II	3	36
AM069U	Interstate Commerce Law and Practice III	3	36

Money and Banking Certificate (co-sponsored by local Chapter 240 of the Institute of Financial Education):

Complete 24 credits below plus two required related courses. The list below is a partial list of a growing number of approved Money and Banking courses. Contact a Savings and Loan educational representative for the current list and quarterly class schedule.

AM083U	Introduction to Savings and Loan Associations	2	24
AM084U	Residential Mortgage Lending	2	24
MK060U	Real Estate Principles/Practices I	4	48
MK019T	Real Estate Portfolio	3	36
AM074U	Savings Accounts	2	24

AM085U	Savings Accounts Administration	2	24
AM086U	Financial Institutions	2	24
AM087U	Savings Association Operations	2	24
AM088U	Teller Operations	2	24
LW019T	Real Estate Law	4	48
MK058U	Real Estate Appraisal	3	36

Small Business Certificate:

Complete 30 credits below, including those indicated with an asterisk (*) as required and the two required related courses.

*AM032T	Introduction to Business	4	48
*AM005T	Introduction to Management	4	48
*MK019U	Small Business Organization	3	36
*AC005U	Small Business Record Keeping	2	24
*LW017T	Business Organizational Law	3	36
*AM051U	Principles of Safety	1	12
MK001T	Principles of Marketing	4	48
MK025T	Principles of Advertising	4	48
MK016T	Counselor Selling	4	48
MK003T	Principles of Selling	4	48
MK002T	Principles of Retailing	4	48
MK014U	Merchandising	4	48
	Selected Computer Courses	1-5	15-75
	Approved Substitutions	1-6	12-72

Related Courses

For certificate, diploma, Career Option degree or Associate of Arts degree, the two required courses are indicated with an asterisk (*).

For the A.A.S. degree all five courses (or alternates) are required.

CM002U	Communication Skills I	3	36
	or		
*CM101T	Composition I	4	48
CM003U	Communication Skills I	3	36
	or		
CM117T	Composition II: Technical Writing	4	48
EC015T	Principles of Business Economics	3	36
PS002U	Citizen's Role in Government	3	36
	or		
PS006T	lowa Government: Today and Tomorrow	4	48
*PY004U	Human Relations	3	36
	or		
*PY002T	General Psychology	4	48

Retail Management Technology

This program is designed to prepare students for careers in retail management. Occupations include small shop owner, department manager/buyer as well as other retail careers. In addition to classroom instruction, the program includes on-the-job training. Also, the students participate in a "shadowing" experience whereby they observe someone involved in an occupation that is similar to their career interest.

Graduates of the Fashion Merchandising, Jewelry Merchandising, Real Estate or Retail Marketing programs who also complete the additional 61 credit hours of the Retail Management Technology program are awarded an Associate of Applied Science degree.

Technical Courses

MK069U	Management Seminar I	Credits	Hrs.
		2	36

AM003T	Business Internship (repeated one time)	5	180
AM001U	Merchandise Analysis and Control	3	36
AM014U	Merchandising	4	48
MK019U	Small Business Organization	3	36
AM020U	Retail Management	4	48
MK024U	Business Internship Seminar (repeated one time)	1	12
MK070U	Management Seminar II	2	36
MK001T	Principles of Marketing	4	48
AM005T	Introduction to Management	4	48
AM022U	Principles of Supervision	4	48

Related Courses

EC015T	Principles of Business Economics	4	48
AC001T	Principles of Accounting I	4	48
AC006U	Management Accounting	4	48
LW005T	Business Law I or	4	48
LW025T	Personal Law	4	48
CM003U	Communication Skills II or	3	36
CM102T	Composition II	4	48

Fashion Merchandising

The Fashion Merchandising program provides specialized preparation for individuals interested in the field of retail fashion products. Typical careers include fashion sales, specialty shop management, bridal consulting, department management, fashion coordinating and fashion buying.

Upon completion of the required 65 quarter credit hours, the graduate is awarded a diploma.

Technical Courses

		Credits	Hrs.
HE003U	Textiles	4	60
MK022U	Employment Seminar	1	24
MK007U	Principles of Fashion Merchandising	3	36
MK018U	Visual Merchandising	2	36
MK008U	Fashion Show Procedures	3	60
MK006U	Fashion Merchandising Seminar	1	24
AM003T	Business Internship (repeated one time)	5	180
MK024U	Business Internship Seminar (repeated one time)	1	12
HE002U	History of Fashion	3	36
MK003T	Principles of Selling	4	48
MK016T	Counselor Selling	4	48
MK002T	Principles of Retailing	4	48
MK025T	Principles of Advertising	4	48

Related Courses

MA037U	Mathematics I: Business	2	24
PY004U	Human Relations	3	36
AM032T	Introduction to Business	4	48
CM002U	Communication Skills I or	3	36
CM101T	Composition I	4	48
DP010T	Introduction to Microcomputers and Data Processing	4	60
CM201T	Public Communication	4	48

Jewelry Merchandising

The Jewelry Merchandising program prepares students for sales-oriented positions in retail jewelry or department stores. Students receive instruction in gem identification, appraisal and design, as well as salesmanship and merchandising. Included in the program is on-the-job training whereby the student is able to practice the skills and technical knowledge learned in the classroom.

Upon completion of the required 63 quarter credit hours, the graduate is awarded a diploma.

Technical Courses

		Credits	Hrs.
MK003T	Principles of Selling	4	48
AT016U	Gem Identification Nat/Mfg.	3	36
MK022U	Employment Seminar	3	36
MK016T	Counselor Selling	4	48
AT012U	Design I	3	36
AM003T	Business Internship (repeated one time)	5	180
MK024U	Business Internship Seminar (repeated one time)	1	12
MK050U	Precious Gem Appraisal	2	24
MK018U	Visual Merchandising	2	24
AT013U	Design II	3	36
MK024U	Business Internship Seminar	1	36
LW004U	Ethics and Legal Aspects	3	36
MK002T	Principles of Retailing	4	48
AM003T	Business Internship	5	180

Related Courses

AM032T	Introduction to Business	4	48
MA037U	Mathematics I: Business	2	24
PY004U	Human Relations	3	36
CM002U	Communication Skills I or	3	36
CM101T	Composition I	4	48
CM201T	Public Communication	4	48
DP010T	Introduction to Microcomputers and Data Processing	4	60

Real Estate

The Real Estate program provides the student an opportunity to acquire the skills and understanding needed to enter the growing field of real estate sales and management. The curriculum offers a wide range of technical expertise courses.

The courses are designed to accommodate full-time, part-time and non-degree seeking students alike. Prospective students seeking to enter the field need a strong preparation in the areas of law, finance, appraisal and salesmanship. Those individuals already working as sales associates or realtors may find enrollment beneficial in increasing their knowledge and awareness of current developments.

Upon completion of the required 61 quarter credit hours, the graduate is awarded a diploma.

Technical Courses

		Credits	Hrs.
MK060U	Real Estate Principles/Practices I	4	48
MK061U	Real Estate Principles/Practices II	4	48
LW019T	Real Estate Law	4	48
MK059U	Real Estate Finance	4	48
MK058U	Real Estate Appraisal	4	48
MK062U	Real Estate Seminar	4	48
CS070U	Principles of Surveying and Construction	3	48
MK025T	Principles of Advertising	4	48
MK003T	Principles of Selling	4	48
MK016T	Counselor Selling	4	48
MK002T	Principles of Retailing	4	48

Related Courses

		Credits	Hrs.
CM201T	Public Communication	4	48
PY004U	Human Relations	3	36
CM002U	Communication Skills I	3	36
AM032T	Introduction to Business	4	48
DP010T	Introduction to Microcomputers and Data Processing	4	60

Retail Marketing

The Retail Marketing program prepares students for sales-oriented positions in retail establishments. Students receive instruction in salesmanship, communication skills, human relations and data processing.

Included in the program is on-the-job training whereby the student is able to practice skills and knowledge learned in the classroom. Upon completion of the required 58 quarter credit hours, the graduate is awarded a diploma.

Technical Courses

		Credits	Hrs.
MK022U	Employment Seminar	3	36
MK003T	Principles of Selling	4	48
AM003T	Business Internship (repeated one time)	5	180
MK024U	Business Internship Seminar (repeated one time)	1	12
MK016T	Counselor Selling	4	48
MK010U	Retail Seminar	1	24
MK018U	Visual Merchandising	2	36
MK002T	Principles of Retailing	4	48
MK025T	Principles of Advertising	4	48

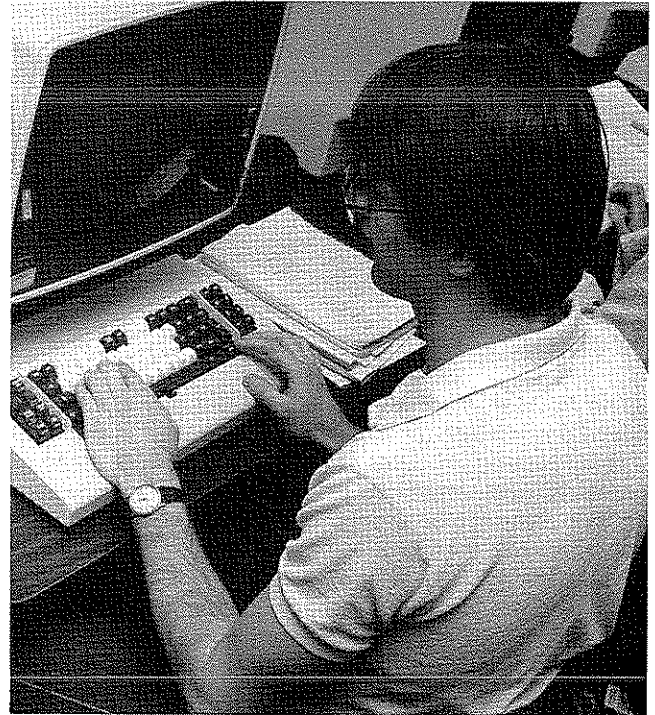
Related Courses

		Credits	Hrs.
CM201T	Public Communication	4	48
PY004U	Human Relations	3	36
AM032T	Introduction to Business	4	48
MA037U	Mathematics I: Business	2	24
CM002U	Communication Skills I	3	36
DP010T	Introduction to Microcomputers and Data Processing Elective	4 4	60 48

Professional Development/Training Certificates

Presently available: Basic Sales
Advanced Sales
Retail Sales

DATA PROCESSING TECHNOLOGIES



Computer Programming Technology

Training in computer programming stresses applied technical knowledge so that the student can step directly into the occupation of computer programming with a business orientation. Units of training change frequently to keep pace with the industry.

Upon completion of the required 98 quarter credit hours, the graduate is awarded an Associate of Applied Science degree. New students may begin each quarter and also enroll on a space available part-time basis.

Students must select, with the consent of an advisor, courses from the following list:

Technical Courses

		Credits	Hrs.
DP006T	Computer and Data Processing Concepts	3	36
DP001U	Self Service Aids	1	24
DP041U	Program Design and Documentation	3	36
DP021U	Operating Systems Concepts	4	60

DP010T	Introduction to Microcomputers and Data Processing	4	60
DP013U	Introduction to COBOL Programming	4	60
DP049U	Structured Systems Analysis	3	36
DP042U	Program Testing	3	48
DP014U	COBOL II Programming	4	60
DP022U	Operating Systems Coding	4	60
DP048U	Financial Applications of Data Processing	3	36
DP091U	COBOL III Programming	4	60
DP044U	Data Management	4	60
DP084U	Manufacturing Applications of Data Processing	3	36
DP085U	Data Communications Concepts	3	36
DP083U	Data Base Management	4	60
DP036U	Application Programming Projects	5	108
DP092U	Data Communications Coding	4	60
DP093U	Introduction to PASCAL Programming Language Electives	3	48
		8	120

Related Courses

CM101T	Composition I	4	48
MA031T	Intermediate Algebra	5	60
CM117T	Composition II: Technical Writing	4	48
AC001T	Principles of Accounting I	4	48
AC002T	Principles of Accounting II	4	48
PY004U	Human Relations	3	36

Computer Operations

The Computer Operations program trains students for employment in a variety of closely related occupations in data processing as data librarians, work schedulers, records auditors, documentation specialists, operations assistants, or mainframe and microcomputer operators.

Upon completion of the required 55 quarter credit hours, the graduate is awarded a diploma. Students may enroll at the beginning of the fall or spring quarters and also on a space available part-time basis.

Students must select, with the consent of an advisor, courses from the following list:

Technical Courses

		Credits	Hrs.
DP006T	Computer and Data Processing Concepts	3	36
DP001U	Self Service Aids	1	24
DP009U	Assigned Operations Projects (repeated one time)	3	60
DP005U	Introduction to Computer Architecture	3	36
DP011U	Introduction to Report Program Generator (RPG) II	4	60
DP021U	Operating Systems Concepts	4	60
DP010T	Introduction to Microcomputers and Data Processing	4	60
DP027U	Systems Utilities	2	36
DP003U	Computer Operating Techniques	3	36
DP104U	Microcomputer Utilities	2	36
DP089U	Business Applications of Data Processing	3	36
DP095U	Basic Programming I	4	60
	Microcomputer Electives	6	108

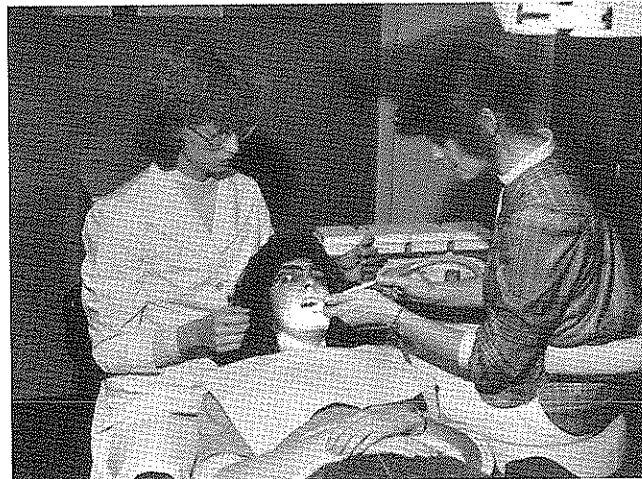
Related Courses

CM101T	Composition I	4	48
AC001T	Principles of Accounting I	4	48
PY004U	Human Relations	3	36

Professional Development/Training Certificates

Presently available: Microcomputer Specialist
Microcomputer Programmer

HEALTH TECHNOLOGIES



Allied Health Department

Dental Assisting Technology

The Dental Assisting curriculum is designed to prepare students to assist the dentist in the treatment of patients, take x-rays, manage a business office and perform laboratory procedures in a dental office. Dental assistant students are prepared for successful employment in private dental offices, group practices, dental services, clinics and hospitals, and public health agencies.

The program offers a diploma with an optional Associate of Applied Science degree. Students who complete the diploma program are eligible to take the national certification examination. The associate degree

option is designed for those who wish to advance into specialized areas of dental assisting. The curriculum provides for flexibility and diverse career interests. Students with prior experience and/or education must see the program coordinator for advanced placement.

The Dental Assisting program is accredited by the Commission on Dental Accreditation of the American Dental Association, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and by the United States Department of Education.

Upon completion of the required 80 quarter credit hours, the graduate is awarded a diploma. Upon completion of the additional required 24 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

	Credits	Hrs.
*MS004T CPR	1	12
*DN102U Dental Materials	4	60
*DN103U Dental Assisting	6	96
*DN115U Dental Lab. Assisting	4.5	84
*BY110U Dental Anatomy	3	36
*BY111U Head and Neck Anatomy	3	36
*DN113U Dental Radiography I	3	42
*DN109U Laboratory Practicum I	4.5	90
*BY109U Oral Microbiology	2.5	36
*DN120U Dental Therapeutics	2.5	36
*DN141U Dental Specialties	5.5	72
*DN114U Dental Radiography II	2	30
*AM033U Dental Office Management	4.5	60
*DN110U Lab. Practicum II	7.5	168
*DN121U Disease and Prevention	3.5	48
*DN111U DA Clinic I	3.5	114
*DN112U DA Clinic II	3.5	114
*DN143U Advanced Practicum I	2.5	48
*MS067U Health Occupations Leadership	2	24
MS056U Educational Techniques	3	36
MS036U Studies in Health Science	4	48
DN168U Advanced Practicum II	5	108

Related Courses

*CM101T Composition I	4	48
*CM204T Speech Communications	4	48
*PY002T General Psychology	4	48
CM102T Composition II: Technical Writing	4	48
Electives	8	96

*Required diploma courses

Dental Assisting Off-Campus Program

This state-wide program provides an opportunity for employed dental assistants to demonstrate competence and gain a recognized formal education. The program provides extension courses off campus for college credit and is designed specifically for employed dental assistants. Course content is the same as the on-campus program. Students are required to come to the campus for performance examinations.

Upon completion of the required 80 quarter credit hours, the graduate is awarded a diploma in Dental Assisting. The program can be completed over a period of three years. Students enrolling must submit proof of employment as a dental assistant and have access to a dental office facility.

Dental Laboratory Technology

The Dental Laboratory Technology curriculum is designed to prepare students to box, pour and articulate models; set up, wax up, invest and process full dentures; cast inlays, crowns, bridges, partials, porcelain jackets, porcelain on metal; and construct many other special dental appliances. Dental laboratory technicians are employed in commercial dental laboratories, universities, other institutions and private dental offices, or they may choose to operate their own dental laboratory.

This program is accredited by the Commission on Dental Accreditation of the American Dental Association, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and by the United States Department of Education.

Upon completion of the required 135 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

	Credits	Hrs.
DN004U Dental Orientation	2.5	36
DN001U Dental Materials (DLT)	4	72
DN005U Dental Equipment I	1	18
DN164U Dental Equipment II	1	18
DN165U Dental Equipment III	1	18
BY003U Oral Anatomy	2	24
BY002U Dental Anatomy I	3	48
BY001U Dental Anatomy II	2	36
PH004U Technical Chemistry and Physics I	3.5	60
PH005U Technical Chemistry and Physics II	4	84
PH006U Technical Physics III	2	36
DN006U DLT Clinic I	12	432
DN021U Dental Techniques I	6.5	120
DN023U Articulators and Articulation	2	36
DN024U Cast Inlay and Crown	5	96
DN025U Crown and Bridge	10	192
DN026U Partial Denture Techniques I	4.5	96
DN008U Metal Design, Color and Contour	3	60
DN027U Partial Denture Techniques II	5	96
DN022U Denture Techniques II	6	120
DN003U Orthodontics	2.5	60
DN009U Precision Attachment Partial	4	84
DN010U Cast Metal Base Dentures	2	42
DN028U Specialized Study: Orthodontics	6	144
DN029U Specialized Study: Fixed Bridges	6	144
DN030U Specialized Study: Ceramics	6	144
DN031U Specialized Study: Removable Bridges	6	144
DN032U Specialized Study: Full Dentures	6	144
DN007U DLT Clinic II	12	432
MS067U Health Occupations Leadership	3	36
DN169U Occlusion	2	36
DN002U Porcelain Techniques	4.5	96
DN020U Laboratory Management (DLT)	3	36

Related Courses

CM002U	Communication Skills I	3	36
PY007U	Sales Psychology and Human Relations	3	36
PY002U	General Psychology	4	48

Electroencephalographic Technology

Electroencephalographic Technology (EEG Tech) is a cooperative program between Kirkwood Community College and the University of Iowa Department of Neurology. Related and general education courses are provided by the College, with the EEG core courses provided by the University of Iowa Department of Neurology. Clinical experiences are provided by area hospitals, including the University of Iowa Department of Neurology.

The electroencephalographic technologist functions in a laboratory performing neurological tests on either hospitalized patients or out-patients. The electroencephalograph records the electrical activity of the brain. The recorded activity assists the physician in the diagnosis and treatment of patients having various types of brain dysfunction. EEG technologists may be employed in private or public hospitals, clinics, private neurologists' offices and research institutions.

This program is accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association. Students with prior experience and/or education must see the program coordinator for advanced placement.

Upon completion of the required 109.5 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

		Credits	Hrs.
MS025U	Introduction to Health Care	4	72
MS037U	Clinical EEG Lecture I	1	12
MS038U	Introduction to EEG Lab Techniques/Seminar	8	168
MS003T	First Aid	.5	6
MS004T	CPR	1	12
MS040U	Applied Electronics and Instrumentation	3	48
MS041U	General Neurology I	2	24
MS042U	Clinical Laboratory I	11.5	252
MS043U	General Neurology II	2	24
MS044U	Clinical Laboratory II	15	348
MS045U	Special Instrumentation Techniques I	2.5	42
MS046U	Clinical Laboratory III	13	300
MS047U	Special Instrumentation Techniques II	4	96
MS048U	Clinical EEG Lecture II	2	24
MS049U	Clinical Laboratory IV	9	204

Related Courses

AM022U	Principles of Supervision	3	36
MA012U	Technical Mathematics I	4	48
EL029U	Electrical Circuits I	8	132
CM101T	Composition I	4	48
BY006U	Basic Anatomy and Physiology	4	60
BY009U	Homeostatic Physiology	4	48
PY002T	General Psychology	4	48

Medical Assisting

The Medical Assisting curriculum prepares the student to work under the supervision of medical personnel as a medical assistant in a clinic, hospital, group practice or physician's private office. The assistant's duties are both administrative and clinical. Some of these duties include assisting the physician with examinations, arranging hospital admissions, assisting in medical emergencies, performing laboratory tests, ordering medical supplies, scheduling appointments, typing medical reports and completing insurance forms.

The program offers a diploma with an optional Associate of Applied Science degree. Both are accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association, in collaboration with the American Association of Medical Assistants. Students with prior experience and/or education must see the program coordinator for advanced placement.

Upon completion of the required 79 quarter credit hours, the graduate receives a diploma and is eligible to take the basic certification examination offered by the American Association of Medical Assistants. Upon completion of the additional required 24 credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

		Credits	Hrs.
*MS070U	Clinical Procedures I	3	48
*MS071U	Clinical Procedures II	3	48
*MS072U	Medical Office Procedures I	2	36
*MS073U	Medical Office Procedures II	2	24
*LW006U	Medical Law	2	24
*MS061U	Medical Terminology I	3	36
*MS062U	Medical Terminology II	3	36
*MS074U	MA Clinic I	6	204
*MS075U	MA Clinic II	11	396
*MS076U	MA Psychiatry	2	24
*MS063U	Pharmacology	2	24
*MS025U	Introduction to Health Care	4	72
*MS067U	Health Occupations Leadership	2	24
*MS003T	First Aid	.5	6
*MS004T	CPR	1	12
*MS077U	MA Pharmacology	2	30
*MS078U	Medical Laboratory I	4	78
*MS079U	Medical Laboratory II	1.5	30
MS056U	Education Techniques	3	36
MS013U	Normal Nutrition	2	24
MS060U	Limited Practice Radiographer	7	96

Related Courses

*OE018U	Medical Typing	2	36
*BY006U	Basic Anatomy and Physiology	4	60
*AC019U	Medical Bookkeeping	3	48
*SO004T	Introduction to Sociology	4	48
*CM204T	Speech Communication	4	48
*CM101T	Composition I	4	48
*DP094U	Health Career Microcomputers	4	72
	Electives	12	
*Required diploma courses			



Medical Records Technology

The Medical Records program prepares students for careers in the medical records field, including hospital records departments, medical clinics, long-term care facilities, state and federal health agencies, and health research societies. An unpaid directed practicum is offered in various types of health facilities.

Graduates are eligible to write the National Accreditation examination offered by the American Medical Records Association to become accredited records technicians. This program is accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association, in collaboration with the American Medical Records Association.

Upon completion of the required 103 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

	Credits	Hrs.
OE027U Medical Transcription	5	72
MA036U Health Data Statistics	4	48
MS061U Medical Terminology I	3.5	48
MS062U Medical Terminology II	3.5	48
OE015U Medical Record Science I	4	48
OE009U Medical Record Science II	3.5	48
OE012U Medical Record Science III	4.5	60
OE010U Nosology	4.5	60
OE013U Documentation of Medical Records	3.5	48
OE014U Legal Aspects of Medical Records	2	24
OE011U MRT Practicum	5	168
OE011U MRT Practicum	6	216
OE011U MRT Practicum	2	48
MS063U Pharmacology	2	24
MS056U Educational Techniques	3	36

Related Courses

AM019U Office Administration	4	48
CM101T Composition I	4	48
CM117T Composition II: Technical Writing	4	48
PY002T General Psychology	4	48
OE007T Typing II	3	72
BY006U Basic Anatomy and Physiology	4	60
BY009U Homeostatic Physiology	4	48
BY112U Introduction to Pathology	4	48
OE005U Business Spelling/Proofreading	2	24
DP010T Introduction to Microcomputers and Data Processing	4	60
OE026U Word Processing I	3	60
Electives	7	

Occupational Therapy Assisting Technology

This program combines academic and clinical experiences to prepare graduates to work under the supervision of registered occupational therapists. Occupational therapy assistants help patients perform tasks critical to self-care, work and leisure activities, and assist with the restoration and treatment of physical and psychosocial disabilities. Occupational therapy assistants are employed in hospitals, nursing homes, area education agencies, mental health facilities, rehabilitation centers, extended care facilities and public school programs.

This program is accredited by the American Occupational Therapy Association. Students with prior experience and/or education must see the program coordinator for advanced placement.

Upon completion of the required 114 quarter credit hours, the graduate is awarded an Associate of Applied Science degree and is eligible to take the certification examination of the American Occupational Therapy Association. Passing this examination is required in order for the graduate to become a certified occupational therapy assistant and to obtain a license in Iowa. (License is required to practice in Iowa.)

Technical Courses

	Credits	Hrs.
TH005U Therapeutic Techniques	4	48
MS025U Introduction to Health Care	4	72
TH004U Developmental Processes	6	84
TH002U Health-Illness-Health	10	168
TH003U Therapeutic Crafts I	4	84
CM007U Medical Communications	4	48
MS003T First Aid	.5	6
MS004T CPR	1	12
MS061U Medical Terminology I	2	24
TH007U OT Evaluation	5	84
TH010U OTA Clinic A	8	288
TH009U OTA Clinic B	8	288
TH001U Occupational Therapy Management Skills	2	24
MS036U Studies in Health Science	4	48
TH008U OTA Clinic C	8	288
MS067U Health Occupations Leadership	2.5	30
TH013U OT Planning	5	96

TH012U	OT Theory and Techniques	5	96
TH014U	Therapeutic Crafts II	4	84
MS080U	Life Styles, A Health Perspective	4	48

Related Courses

BY006U	Basic Anatomy and Physiology	4	60
PY002T	General Psychology	4	48
BY011U	Functional Anatomy	4	48
CM204T	Speech Communication	4	48
CM101T	Composition I	4	48
PY004U	Human Relations	3	36

Orthopaedic Physician's Assisting Technology

The Orthopaedic Physician's Assisting curriculum prepares students to assist in the care of patients with musculoskeletal disorders and diseases under the supervision of an orthopaedic surgeon. Although specific duties may vary according to employer needs, the OPA functions primarily as a surgical assistant, cast and traction technician, patient data collector and patient instructor.

Theory and practice are integrated and concurrent during the program. Classroom and laboratory activities are provided on campus, while practical experience is obtained in selected hospitals and private physicians' offices. Students with prior experience and/or education must see the program coordinator for advanced placement.

Upon completion of the required 105.5 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

	Credits	Hrs.
MS007U	4	72
MS056U	3	36
MS008U	4	96
MS006U	3	48
MS025U	4	72
MS004U	4	48
MS009U	4	96
MS005U	4	48
MS015U	3	36
OE007U	2	24
MS013U	3.5	60
MS067U	.5	12
MS010U	7	240
MS011U	7	240
MS012U	13	480
MS003T	.5	6
MS004T	1	12
MS066U	3	60

Related Courses

BY006U	Basic Anatomy and Physiology	4	60
BY042T	Microbiology	5	72
CM101T	Composition I	4	48
BY011U	Functional Anatomy	4	48

CM117T	Composition II: Technical Writing	4	48
BY112U	Introduction to Pathology	4	48
CM204T	Speech Communication	4	48
BY009U	Homeostatic Physiology	4	48

Respiratory Therapy Technology

This curriculum is designed to prepare students to work as allied health specialists in the field of respiratory therapy. The role of the respiratory therapist is primarily, but not limited to, cardio-respiratory care in the form of oxygen administration, ventilatory support, blood gas analysis, chest physiotherapy and pulmonary rehabilitation. The therapist's role also often encompasses other related therapeutic and diagnostic functions such as pulmonary function testing.

This program is accredited by the Committee on Allied Health Education and Accreditation. Students with prior experience and/or education must see the program coordinator for advanced placement.

Upon completion of the required 147 quarter credit hours, the graduate is awarded an Associate of Applied Science degree and a certificate of completion that makes him/her eligible for the Entry-Level Examination given by the National Board for Respiratory Care. After passing the Entry-Level Examination, graduates may apply for the Registry Examination System.

Technical Courses

	Credits	Hrs.
MS025U	4	72
MS014U	3	36
MS083U	7	84
MS019U	8	192
MS063U	2	24
MS020U	8	192
MS050U	3	36
MS053U	4	48
MS021U	5	126
MS032U	3	36
MS055U	2	24
MS022U	8	192
MS059U	3	36
MS060U	3	36
MS081U	2	48
MS082U	2	48
MS084U	1	24
MS085U	2	48
MS033U	8	192
AM023U	3	6
MS058U	2	36
MS056U	3	36
MS057U	12	288

Related Courses

PH011T	Medical Physics	4	60
BY006U	Basic Anatomy and Physiology	4	60

BY042T	Microbiology	5	72
BY009U	Homeostatic Physiology	4	48
PY002T	General Psychology	4	48
CM101T	Composition I	4	48
CM117T	Composition II: Technical Writing	4	48
CM201T	Public Communications	4	48
CH001T	Principles of Chemistry	4	60
BY013U	Respiratory Physiology	4	48
	Algebra Elective	5	60
MS004T	CPR	1	12
	Computer Science Elective	2	24

Nursing Department

Nursing Technology

The Nursing program offers Licensed Practical Nursing (LPN) and Associate Degree Nursing (ADN) options in a cored curriculum. Successful completion of qualifying assessments and Nursing Education orientation is required before one can apply for Nursing Education admission. Students must be 17 years of age and have a high school diploma or equivalent before applying.

The first four quarters of the LPN and ADN programs are identical and provide a core of skills, knowledge, ability and concepts common to the practical and registered technical nursing roles. Nursing courses and clinical experiences are offered concurrently on campus and in cooperating health facilities in the area. The curriculum consists of major phases of medical, surgical, maternal, pediatric and psychiatric nursing, and is designed to prepare graduates to work in hospitals, extended or long-term care health facilities, doctors' offices, clinics and agencies providing nursing care.

LPN students learn specific procedures and patient care skills pertinent to the performance expected by employers. Upon completion of the required 75.5 quarter credit hours, the graduate receives a diploma and is eligible for the state examination for LPN licensure.

ADN students receive additional instruction in nursing and science courses, and more extensive clinical patient care skills. ADN students learn to plan, implement and evaluate a plan of nursing care for patients, assume specific leadership skills, and make responsible decisions regarding nursing care. Upon completion of the required 149.5 quarter credit hours, the graduate is awarded an Associate of Applied Science degree and is eligible for the state examination for RN licensure. Questions regarding admissions procedures may be directed to the Office of Admissions or the Nursing Department Head.

ADN Advanced Placement

Two Advanced Placement options are available for LPNs. The first is to enter the day program offered at the main campus, either spring or fall quarter. The second option is to enroll fall quarter through the program at the Iowa City Community Education Center, with all preliminary admission and enrollment decisions established at the main campus. Questions regarding admissions procedures may be directed to the Office of Admissions or the Nursing Department.

Associate Degree Nursing

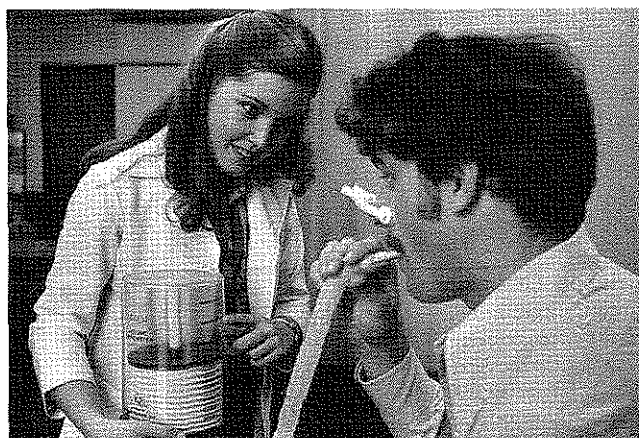
Technical Courses

		Credits	Hrs.
*MS003T	First Aid	5	6
*MS004T	CPR	1	12
*NS002U	Metrology	1	12
*NS013U	Nutrition	2	24
*NS003U	Nursing I (Fundamentals of Nursing)	9	156
*NS004U	Nursing II (Introduction to Medical-Surgical Nursing)	10	180
*NS005U	Nursing III (Maternal and Child Nursing)	12	228
*NS006U	Nursing IV ADN (Medical-Surgical Nursing)	13	252
NS007U	Nursing V (Medical-Surgical Nursing)	12	240
NS008U	Nursing VI (Psychiatric Nursing)	10	180
NS009U	Nursing VII (Advanced Maternal-Child Nursing)	12	240
NS010U	Nursing VIII (High Priority Care and Management Principles)	16	336
NS011U	Nursing IX Seminar	2	24
NS012U	Advanced Placement Seminar (ADN)	1	12
*NS017V	PN Nursing Seminar (LPN)	2	24

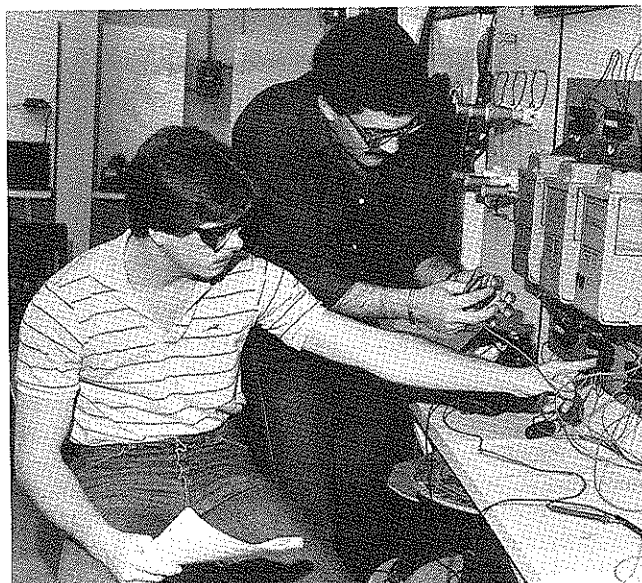
Related Courses

		Credits	Hrs.
*BY006U	Basic Anatomy and Physiology	4	60
*PY002T	General Psychology	4	48
*CM204T	Speech Communication	4	48
*BY042T	Microbiology	5	72
*PY020T	Psychology of Growth and Development	4	48
CM101T	Composition I	4	48
CM117T	Composition II: Technical Writing	4	48
SO004T	Introduction to Sociology	4	48
SO006T	Social Problems	4	48
BY009U	Homeostatic Physiology Electives	4	48

*Required LPN diploma courses



INDUSTRIAL TECHNOLOGIES



Marine and Small Engine Mechanics

This program leads to employment in the growing fields of motorcycle repair, lawn and garden equipment repair, marine and small engine repair, and turf and recreational vehicle repair. Students in the program study engine electrical systems, hydraulics; power transfer systems, gasoline engines, welding, fibreglassing and sheet metal work. Students spend the majority of their class time in the laboratory learning the skills required for employment as marine and small engine mechanics.

Students may enroll in this program other than fall quarter if they have had some previous training or experience. Advanced placement will be determined by the instructor and department head.

Upon completion of the required 60 quarter credit hours, the graduate is awarded a diploma.

Technical Courses		Credits	Hrs.
MH002U	Hydraulics I	3	60
MH032U	Electrical Systems I	3	60
MH033U	Electrical Systems II	5	96
MH013U	Engines I	3	60
MH059U	Engines II	5	96
MH016U	Power Transfer Systems I	3	48
MH018U	Power Transfer Systems II	3	60
MH050U	Diesel Fuel Systems I	4	72
MH021U	Unit Diagnosis and Overhaul I	8	156

MH051U	Unit Diagnosis and Overhaul II	8	156
MH067U	Shop Practices and Safety	1	12
MH019U	Equipment Reconditioning and Repair	2	36
MM030U	Fundamentals of Welding I	2	48
MH063U	Technical Manual Interpretation	1	12

Related Courses

CM002U	Communication Skills I	3	36
PY004U	Human Relations	3	36
AM003U	Business Practices	3	36

Electronics and Manufacturing Department

Electro-Mechanical Technology

Option I: Communications Electronics

Option II: Industrial Maintenance

The Electro-Mechanical Technology program allows students to choose between two associate degree majors and three one-year diploma programs. The degree and diploma programs provide the student with the skills necessary to enter the electronics, electrical and environmental control service and repair industry. Each program specializes in a specific career area to meet the needs of business and industry. The choice of program depends upon the area of interest and the technical competency desired.

Communications Electronics Option

Today's communications systems provide extensive employment opportunities in a variety of job settings and prospects for the future appear bright.

The Communications Electronics option offers the electronics student theory and practical applications of the fundamentals of electronics as they apply to the following: radio and television broadcast systems, consumer electronics repair (stereo, AM/FM receivers, Citizen Band receivers, television receivers, video recorders/players, earth satellite systems and paging systems). The graduate possesses the skills and knowledge needed to service and repair electronic commercial and consumer products. Upon completion of the 123 required quarter credit hours, the graduate is awarded the Associate of Applied Science degree.

Upon completion of the required 78 quarter credit hours, the graduate is awarded an Audio and Radio Service diploma and has gained theory and application in repair of audio equipment and receivers such as AM, FM and FM stereo.

Technical Courses

	Credits	Hrs.
*EL029U Electrical Circuits I	8	132
*EL079U Introduction to Electricity and Electronics	6	96
*EL030U Electrical Circuits II	8	132
*EL076U Solid State I	8	132
*EL078U Shop Methods	2	48
*EL077U Solid State II	7	120
*EL007U Communications Circuits I	6	96
*EL073U Digital Circuits I	3	48
*EL008U Communications Circuits II	6	96
EL074U Digital Circuits II	3	48
EL084U Television Servicing	8	144
EL072U Communications Circuits III	6	96
EL075U Digital Circuits III	3	48
EL080U Mechanical Devices I	10	180
EL084U Television Principles	8	144
EL100U Mechanical Devices II	10	180
EL061U Microprocessor Fundamentals	5	84
*EL101U Radio and Sound Servicing	10	180
EL071U Basic Programming for Technicians	4	60

Related Courses

*CM002U Communication Skills I	3	36
*MA012U Mathematics I: Electromechanical	4	48
*PY004U Human Relations	3	36
CM003U Communication Skills II	3	36
EC003U Economics for Technicians	3	36
*MA039U Mathematics II: Electromechanical	4	48

*Required diploma courses

Industrial Maintenance Option

The Industrial Maintenance Option provides the opportunity for a student to earn an associate degree in industrial maintenance or a diploma in either Refrigeration and Environmental Control or Electrical Maintenance and Installation. To meet the demands of high technology in industry, the Industrial Maintenance program is designed to provide skills in programmable motor controllers, adjustable frequency drives, and state of the art energy management systems.

Also, the student is trained in the areas of hydraulics, pneumatic and electronic process controls, and instrumentation. A maintenance person is often required to service and maintain the temperature control systems, therefore training is given in the areas of heating, ventilation and air-conditioning systems and their corresponding controls, both pneumatic and electronic. Subject theory is reinforced by laboratory exercises throughout the program.

Graduates of the Refrigeration and Environmental Control and Electrical Maintenance and Installation diplomas who **also** complete the 64-65 required quarter credit hours of the Industrial Maintenance Option are awarded an Associate of Applied Science degree.

Technical Courses

	Credits	Hrs.
EL102U Industrial Process Controls I	4	72
EL094U HVAC Controls	5	60

EL099U Fundamentals of Fluid Power	7	108
EL093U Applied Industrial Electronics	7	120
EL103U Industrial Process Controls II	6	96
EL104U Controls and Instrumentation	5	72
EL105U Energy Management	4	72

Technical Course Options

Refrigeration and Environmental Control emphasis

EL092U HVAC Systems	3	48
EL077U Solid State II	4	72

Electrical Maintenance and Installation emphasis

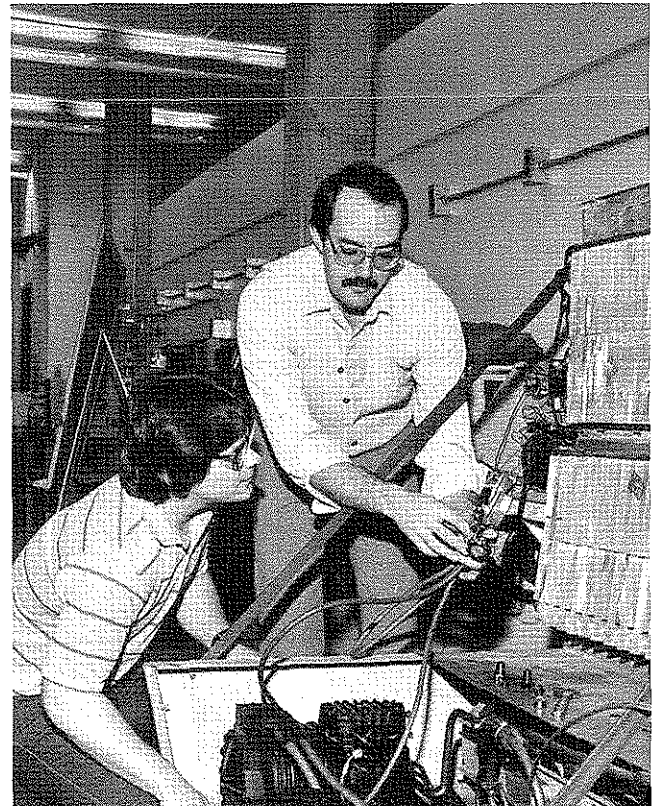
EL089U Air Conditioning and Refrigeration I	8	108
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Related Courses

DP010T Introduction to Microcomputers and Data Processing	4	60
PH010U Applied Physics II	4	60
EL071U Basic Programming for Technicians	4	60
CM003U Communication Skills II	3	36

Refrigeration and Environmental Control

A large percentage of refrigeration and air-conditioning system failures are electrical in nature. The Refrigeration and Environmental Control diploma program is designed to teach electrical skills such as schematic and wiring diagram interpretation, circuit construction and protection according to the National Electric Code, theory of AC and DC motors, transformer operation, and troubleshooting using modern electrical testing equipment.



Air conditioning and refrigeration is a large and expanding field and to meet the demands of the community and industry, students are trained to service and maintain equipment such as domestic refrigerators, split system air conditioners, walk-in coolers and freezers, ice makers and heat pumps. Subject theory is reinforced by laboratory exercises throughout the program.

Upon completion of the required 66 quarter credit hours, the graduate is awarded a diploma.* The graduate may continue in the Industrial Maintenance program to earn an Associate of Applied Science degree.

Technical Courses

		Credits	Hrs.
EL029U	Electrical Circuits I	8	132
EL078U	Shop Methods	2	48
EL085U	National Electrical Code	3	48
EL086U	Electrical Wiring	3	60
EL087U	Motors and Transformers	5	84
EL076U	Solid State I	8	120
EL088U	Motor Control Circuits	4	60
EL089U	Air Conditioning and Refrigeration I	8	108
EL090U	Air Conditioning and Refrigeration II	8	120
EL091U	Air Conditioning and Refrigeration III	5	84

Related Courses

MA040U	Math I: Electromechanical	4	48
MA039U	Math II: Electromechanical	4	48
CM002U	Communication Skills I	3	36
PH009U	Applied Physics I	4	60
PY004U	Human Relations	3	36

*New program pending State Department of Public Instruction approval.

Electrical Maintenance and Installation

The Electrical Maintenance and Installation program provides the individual with an electrical and electromechanical background. Included are residential and commercial wiring, electromechanical devices such as AC/DC motors and generators, transformers, motor control circuits, and basic electronics. Student are prepared for entry-level jobs in residential or commercial wiring, electrical plant maintenance in industry, or large appliance servicing. Subject theory is reinforced by laboratory exercises throughout the program.

Upon completion of the required 67 quarter credit hours, the graduate is awarded a diploma. The graduate may continue in the Industrial Maintenance program to earn an Associate of Applied Science Degree.

Technical Courses

		Credits	Hrs.
EL029U	Electrical Circuits I	8	132
EL078U	Shop Methods	2	48
EO085U	National Electrical Code	3	48
EL086U	Electrical Wiring	3	60
EL087U	Motors and Transformers	5	84
EL088U	Motor Control Circuits	4	60
EL107U	Electrical Power	6	108

EL030U	Electrical Circuits II	8	132
EL106U	Commercial Wiring	6	108

Related Courses

MA040U	Math I: Electromechanical	4	48
MA039U	Math II: Electromechanical	4	48
CM002U	Communication Skills I	3	36
PH009U	Applied Physics I	4	60
PY004U	Human Relations	3	36

Electronics Engineering Technology

Option I: Computer Technology

Option II: Communications Technology

The Electronics Engineering Technology program is oriented toward research and development electronics. The major emphasis is on circuit analysis, basic design, modification and troubleshooting. Successful completion of the Electronics Engineering Technology program qualifies the student for an entry-level job as a research and development technician, an engineer associate, or as an instrumentation technician in certain industries. Other occupations include field engineer and technical sales representative.

Graduates of the Electronics Engineering Technology program are qualified to pursue any area of electronics as a career. However, during the last quarter of study the student is given the option of concentrating on either computer technology or communications technology.

Upon completion of the required 126 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

		Credits	Hrs.
EL001U	Introduction to Electronics Laboratory	3	60
EL002U	Electric Circuits I	6	84
EL003U	Electric Circuits II	6	84
EL035U	Active Devices I	6	96
EL015U	Active Devices II	6	96
EL062U	Digital Principles	6	84
EL013U	Active Devices III	6	96
EL006U	Communications Electronics	5	60
EL033U	Electronic Test Methods	3	60
EL061U	Microprocessor Fundamentals	4	60
EL034U	Transform Circuit Analysis	5	60
EL012U	Transmission Systems	6	84
EL058U	Design Projects I	2	36
EL060U	Microprocessor Interfacing	4	60

Computer Option

EL063U	Microprocessor Software	4	60
EL065U	Advanced Microprocessor Interfacing	4	60
EL066U	Introduction to Robotics	4	60
EL067U	Digital Diagnostic Techniques	4	60

Communications Option

EL068U	Electronic Technological Trends	3	36
EL059U	Design Projects II	3	60
EL069U	Practical Communications Systems	5	60
EL070U	Radio Frequency Design	4	60

Related Courses

MA012U	Technical Mathematics I	4	48
EL071U	Basic Programming for Technicians	4	60
CM002U	Communication Skills I	3	36
MA013U	Technical Mathematics II	4	48
CM003U	Communication Skills II	3	36
PY004U	Human Relations	3	36
PH001U	UTC Physics I	4	60
MA015U	Technical Mathematics III	4	48
EC003U	Economics for Technicians	3	36
PH002U	UTC Physics II	4	60
PH008U	UTC Physics III	4	60
CM004U	Communication Skills III	3	36

Manufacturing Technology**Option I: Mechanical Design
Option II: CADD/CAM**

The Manufacturing Technology program provides the student the opportunity to choose between the Mechanical Design and CADD/CAM options. The manufacturing industry depends on the research and development groups to produce the manufacturing designs for production and evaluation of any new product. The manufacturing process requires the communication (drawings or computer systems) between the idea and machine processes. The interface between computer aided drafting and design (CADD) and computer aided manufacturing (CAM) has greatly increased productivity.

Mechanical Design Option

This curriculum includes practical experience in the drafting room, shops and laboratories, but emphasizes technical studies in the classroom. The program stresses a high degree of ability in analytical problem solving, as well as the ability to translate ideas and concepts into graphic representations. Students gain a

thorough knowledge of mechanical and manufacturing processes, enabling them to follow a design to its conclusion in the actual manufacture and ultimate production of a tool or product.

The instruction in design provides the student possessing mechanical and mathematical aptitude an opportunity to qualify for work in research and development in a wide range of industrial areas ranging from farm machinery to electronics. Mechanical Design graduates may be employed as technicians in manufacturing companies, engineering firms, and county, state and city government agencies.

Upon completion of the required 114 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

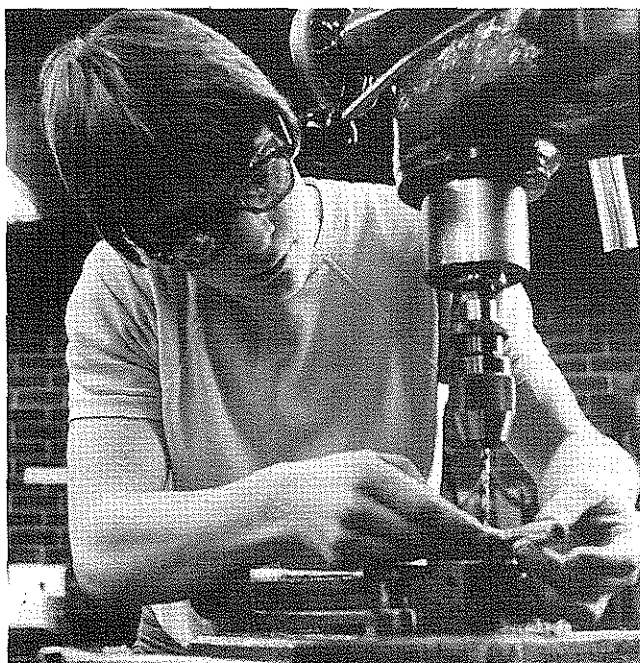
		Credits	Hrs.
GR002U	Mechanical Drafting I	6	120
GR003U	Mechanical Drafting II	6	120
GR004U	Mechanical Drafting III	5	108
GR005U	Design Problems I	3	60
GR006U	Design Problems II	6	144
EG001U	Statics	7	108
EG002U	Kinematics of Mechanisms	6	120
EG003U	Dynamics	5	84
EG004U	Machine Design	7	120
EG006U	Strength of Materials I	4	60
EG007U	Strength of Materials II	4	60
MA007U	Technical Problems	3	60
MH002U	Hydraulics	4	60
GR050U	Introduction to Computer Graphics	3	48
GR051U	Computer Problems	3	48

Related Courses

MA012U	Technical Mathematics I	5	60
MA013U	Technical Mathematics II	5	60
MA015U	Technical Mathematics III	5	60
MM001U	Manufacturing Processes I	4	72
DP010T	Introduction to Microcomputers and Data Processing	3	48
CM002U	Communication Skills I	3	36
CM003U	Communication Skills II	3	36
PY004U	Human Relations	3	36
EC003U	Economics for Technicians	3	36
PH001U	UTC Physics I	4	60
PH002U	UTC Physics II	4	60

CADD/CAM Option

The Computer Aided Drafting and Design/Computer Aided Manufacturing option will be developed to provide the graduate with the skills and knowledge to operate a CAD system, operate and code CNC machine equipment, and provide the interface in communication between design and manufacturing. This program is presently under development. Upon completion of research, development and Iowa Department of Public Instruction approval, this option will be available for enrollment.



Machinist

The Machinist curriculum prepares students to enter the machinist trade and become skilled machinists or machine operators. A balance of practical shop work and related instruction provides a solid foundation for advancement in the trade. Related instruction includes shop math, blueprint reading and machine technology. The practical shop work is individualized so that students can progress at an accelerated pace.

Students learn the care and use of precision measuring and layout tools, and develop skills on basic machine tools and production machines. Basic metallurgy and heat treatment of steel also are covered. Setup, operation and coding of NC and CNC equipment are emphasized.

Upon completion of the required 69 quarter credit hours, the graduate is awarded a diploma.

Technical Courses

	Credits	Hrs.
MM040U Introduction to Shop Processes	15	288
MM034U Machinist Math I	3	36
MM037U Machinist Print Reading I	3	36
MM041U Application of Shop Processes	13	252
MM035U Machinist Math II	3	36
MM038U Machinist Print Reading II	2	24
MM042U Advanced Shop Practices and NC	17	348
MM036U Machinist Math III	1	12
MM039U CNC Machine Operation	4	96

Related Courses

DP010T Introduction to Microcomputers and Data Processing	4	48
CM002U Communication Skills I	3	36
PY004U Human Relations	3	36

Professional Development/Training Certificates

Presently available: Electronic Fundamentals
Electrical Maintenance
Air Conditioning/
Refrigeration
Maintenance
Small Engine Repair
Statistical Process Control

Environmental Science Department

Analytical Laboratory Technology

The Analytical Laboratory Technology program is designed to develop the foundation for work in agricultural, chemical and environmental laboratories. The program stresses the basic laboratory techniques, skills and safety procedures required for successful employment. It provides hands-on experience in working with a variety of environmental and agricultural samples. Upon completion of the required 96 quarter credit hours, the graduate is awarded an Associate of Applied Science degree. ** Upon completion of the required 49 quarter credit hours, the graduate is awarded a diploma.

Technical Courses

	Credits	Hrs.
*EV053U Basic Laboratory Skills	2	36
*EV045U Water Analysis	2	36
*EV043U Basic Environmental Science	3	48
*EV049U Wastewater Analysis	2	48
EV032U Basic Chemical Instrumental Methods	4	72
*EV034U Agricultural Product Analysis	3	48
EV035U Special Projects	2	48
*EV033U Laboratory Management and Safety	2	24
*EV031U Quality Control Product Analysis	4	84
*EV056U Introduction to Quality Control	3	48
EV049U Wastewater Analysis	2	48
EV013U Supervised Field Studies	12	432
*EV057U Introduction to Quantitative Measurement	5	96

Related Courses

*CH001T Principles of Chemistry	4	60
*MA020D Beginning Algebra	5	60
EL001U Introduction to Electronics Lab	3	48
CH002T Fundamentals of Organic Chemistry	4	60
MA012U Technical Mathematics I	3	36
*CM002U Communication Skills I	3	36
CH003T Fundamentals of Biochemistry	4	60
*MA031T Intermediate Algebra	5	60
*PY004U Human Relations	3	36
*DP010T Introduction to Microcomputers and Data Processing	3	48

CH005T	General Chemistry I	5	72
CM003U	Communication Skills II	3	36
CH006T	General Chemistry II	5	72
CM004U	Communication Skills III	3	36
BY042T	Microbiology I	5	72
CH004T	Quantitative Analysis	6	108

*Required diploma courses

**New program pending State Department of Public Instruction approval.

Water and Wastewater Technology

This program prepares students for employment in the areas of wastewater collection and treatment, water treatment and distribution, and laboratory analysis in water and wastewater treatment facilities. Job opportunities are available with municipal treatment plants as well as with municipal and private laboratories, regulatory agencies, engineering firms and private industry.

The curriculum consists of classroom, laboratory and practical field learning experiences. A pilot scale wastewater treatment facility is located on campus and provides students with training experience in a functioning wastewater treatment plant.

Career options offered through the Water and Wastewater program include certificates, a diploma and an associate degree. Students may enter the program each fall, winter and spring. Classes are primarily offered on a day format but many of the second-year classes are also offered in the evening. Students with water and or wastewater plant operating experience may receive advanced standing in the program. Students who have educational credit through the Iowa Operator Training Workshop Program or through some self-study training programs may also receive advanced standing.

Students in the diploma program and the associate degree program are eligible to take the Iowa Grade I water and wastewater exams upon completion of the required 60 credits of water and wastewater technical courses and the 8 credits of water and wastewater related courses. Students in a certificate option program need additional outside water and/or wastewater operational experience before they become eligible to take an Iowa Grade I exam.

Upon completion of the required 98 quarter credit hours, the graduate is awarded an Associate of Applied Science degree. Upon completion of the required 68 quarter credit hours, the graduate is awarded a diploma.

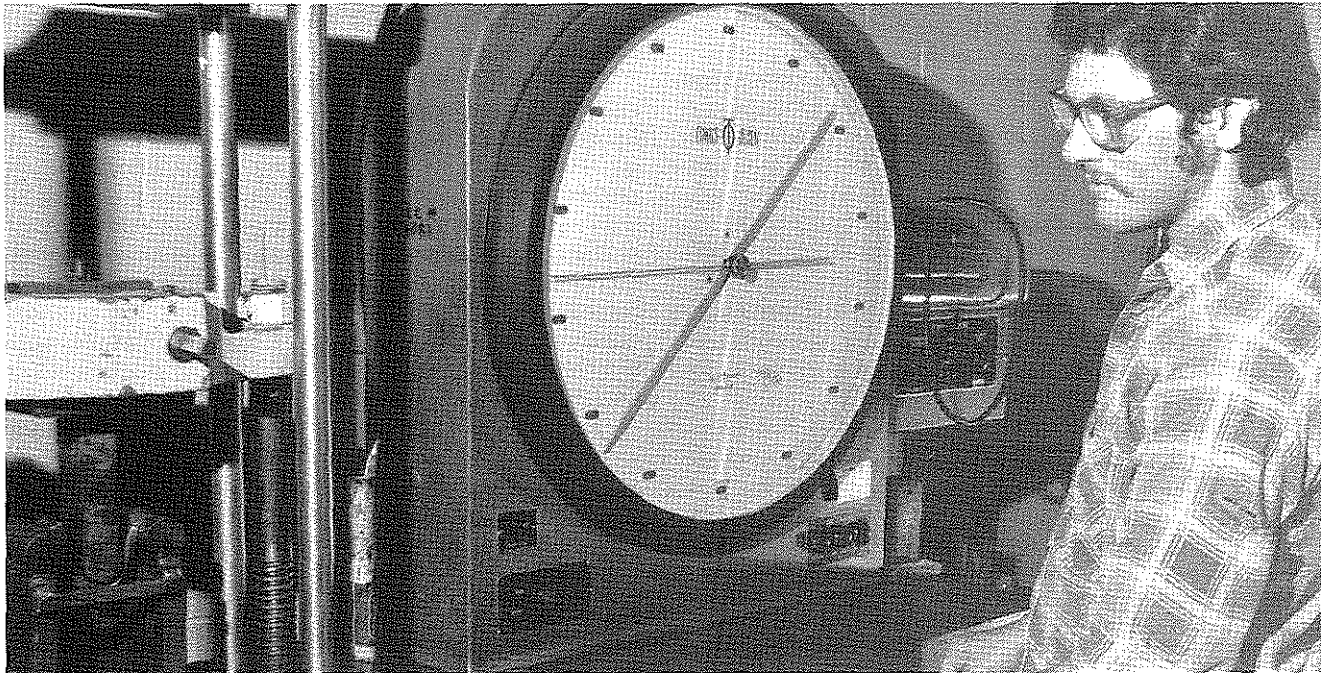
Technical Courses

		Credits	Hrs.
*EV061U	Water/Wastewater Plant Visitation	1	24
*EV035U	Special Projects	2	48
*EV038U	Treatment Plant Operation	2	48
*EV039U	Environmental Analysis	2	48
*EV040U	Sludge Treatment and Disposal	3	36
*EV041U	Activated Sludge Treatment	3	36
*EV042U	Water Resources	2	24
*EV043U	Basic Environmental Science	3	48
*EV044U	Water Supply and Distribution	4	72
*EV045U	Water Analysis	2	36
*EV046U	Water Treatment	4	72
*EV047U	Wastewater Collection	2	36
*EV048U	Lagoons	2	24
*EV049U	Wastewater Analysis	2	48
*EV050U	Wastewater Treatment	4	72
*EV051U	Pumps	2	36
*EV052U	Water/Wastewater Plant Administration	2	24
*EV053U	Basic Lab Skills	2	36
*EV054U	Introduction to Water and Wastewater Treatment	2	24
EV055U	Supervised Plant Operation	12	288
	or		
EV037U	Internship	12	432
	(6 credits from following list required for A.A.S.)		
EV059U	Municipal Treatment Plant Management	3	36
EV058U	Municipal Treatment Plant Safety	2	24
EV060U	Industrial Wastewater Treatment	2	24
EV014U	Seminar: Environmental Science	2	24
EV036U	Treatment Plant Troubleshooting	1	24

Related Courses

*CH001T	Principles of Chemistry	3	36
*CM002U	Communication Skills I	3	36
*EL064U	Basic Electricity	2	24
*MA038U	Math, Problem Solving	4	48
DP010T	Introduction to Microcomputers and Data Processing	3	48
PS002T	American Government	4	48
	or		
PS006T	Iowa Government	4	48
PY002T	General Psychology	4	48
	or		
PY004U	Human Relations	3	36
	(6 credits from following list required for A.A.S.)		
CM001U	Business Communications	4	48
CM003U	Communication Skills II	3	36
CM005U	Oral Communications	3	36
CM101T	Composition I	4	48
CM102T	Composition II	4	48
CM201T	Public Communication	4	48
	(8 credits from following list required for A.A.S.)		
BY030T	Principles of Biology	4	72
BY032T	Environmental Biology	4	72
CH002T	Fundamentals of Organic Chemistry	4	60
CH003T	Fundamentals of Biochemistry	4	60
CH004T	Quantitative Analysis	6	108
CH005T	General Chemistry I	5	72
CH006T	General Chemistry II	5	72
PH001T	College Physics I	4	60
PH008T	21st Century Introductory Physics	4	60
PH002T	College Physics II	4	60

*Required diploma courses



Fire Science

The Fire Science program is designed primarily for the professional in the fire service. It is not designed to provide skills needed by the entry-level line fire fighter. The program is aimed at the current or potential fire service administrator or officer either in the public or private sector. The majority of the participants in the past have been professional fire personnel from the public and industrial sectors seeking advancement within the fire service. This program is a part-time offering in an evening format.

Upon completion of the required 30 quarter credit hours, the graduate is awarded a certificate.

Technical Courses

		Credits	Hrs.
FS001U	Introduction to History and Philosophy of Fire Science	3	36
FS010U	Fire Behavior	3	36
FS002U	Building Design for Fire Protection	3	36
FS003U	Fire Protection Systems and Equipment	3	36
FS006U	Tactics and Planning for Fire Protection	3	36
FS008U	Fluid Flows and Hydraulics	3	36
FS009U	Hazardous Material and Incident Management	3	36
FS011U	Fire Investigation	3	36
	Mathematics elective	3-5	36-60
	Composition or Speech elective	3-4	36-48

Professional Development/Training Certificates

Presently Available: Water Treatment
Wastewater Treatment

Industrial Services and Construction Department

Architectural Drafting

The Architectural Drafting program is designed to prepare individuals for entry-level employment in architects' offices. Normally, this involves the drawing or redrawing of plans, elevations, details, plumbing, and electrical and mechanical layouts. Attention is given to accuracy, neatness and proper drawing procedure. The type of drawing is primarily of commercial construction rather than of residential.

Upon completion of the required 74 quarter credit hours, the graduate is awarded a diploma.

Technical Courses

		Credits	Hrs.
GR032U	Architectural Drafting I	13	288
GR033U	Architectural Drafting II	13	288
GR034U	Architectural Drafting III	11	240
GR035U	Architectural Drafting IV	14	438
GR036U	Basic Mechanical/Electrical	2	24
CS033U	Estimating	3	36
CS034U	Presentations	2	24
CS035U	Construction Materials	3	36
CS036U	Construction Methods	3	36

Related Courses

MA011U	Mathematics I: Industrial	3	36
MA003U	Mathematics II: Industrial	3	36
CM002U	Communication Skills I	3	36
PY003U	The Profession	1	12

Automotive Collision Repair

The skills developed in this program may be applied to the auto collision repair industry or the manufacturing industry. Automobile collision repair personnel are employed in body and fender shops, dealerships and garages that offer collision repair services. Other employers are trucking, taxi-cab and bus companies, as well as automotive manufacturers. Related areas of employment for which the Automotive Collision Repair program prepares students are: sheet metal fabrication, instrumentation, component assembly, alignment and refinishing. Employment opportunities may exist locally, statewide or nationally.

Students in the program receive training in the full range of shop processes used to restore damaged vehicles. Students learn to use hydraulic jacks, rams, air and electric grinders, sanders, buffers, drills, panel cutters, welders, torches, paint guns, damage dozers, alignment tools and specialized hand tools. This program seeks to develop in each student a degree of competency in the common skills of the trade. It provides students with an understanding of the basic technical knowledge and entry level skills to meet industry's needs. When a student completes this program, he/she will not be a master mechanic.

Upon completion of the required 78 quarter credit hours, the graduate is awarded a diploma. To aid students in tailoring the program to their needs, it should be designed with the assistance of an advisor.

Technical Courses

	Credits	Hrs.
MH019U Equipment Reconditioning and Repair	3	60
MM030U Fundamentals of Welding I	2	48
MH067U Shop Practices and Safety	2	24
MH079U Refinishing I	6	108
MH080U Refinishing II	6	108
MH081U Refinishing III	6	108
MH070U Metal Working I	10	216
MH114U Metal Working II	12	240
MH115U Metal Working III	12	240

Related Courses

CM002U Communication Skills I	3	36
MA011U Mathematics I: Industrial	3	36
PY004U Human Relations	3	36
AM003U Business Practices	3	36
PH011U Mechanisms	2	24

Automotive Technology

The Automotive Technology program provides students with entry level employment skills and technical knowledge to meet the needs of the auto repair industry. The program is designed for those who seek employment in any of the varied occupations connected with automotive mechanics.

The curriculum involves completion of a basic core of instruction and features courses involving technical and related areas of instruction. The program provides course work in automotive systems to include automotive tune-up, cooling systems, fuel systems, brakes, suspensions and electrical. As the student acquires the fundamental skills in auto service and repair, additional automotive systems are included in the areas of advanced electrical fuel and alignment systems. Also, engine and transmission overhaul skills are acquired. The course work allows for considerable hands-on experience.

Upon completion of the required 114 quarter credit hours, the graduate is awarded an Associate of Applied Science degree.

Technical Courses

	Credits	Hrs.
MH067U Shop Practices and Safety	2	36
MH030U Fundamentals of Automotive Mechanics	6	96
MH019U Equipment Reconditioning and Repair	2	36
MM030U Fundamentals of Welding I	2	48
MH013U Engines I	3	48
MH037U Tune-up I	4	72
MH064U Front End Service I	3	48
MH016U Power Transfer Systems I	4	60
MH018U Power Transfer Systems II	2	36
MH031U Brakes I	3	60
MH034U Vehicle Inspection	1	12
MH036U Fuel Systems I	4	72
MH032U Electrical Systems I	3	48
MH033U Electrical Systems II	5	96
MH066U Cooling Systems I	4	72
MH089U Cooling Systems II	3	60
MH090U Tune-up II	3	60
MH092U Brakes II	3	60
MH093U Front End Service II	3	60
MH091U Fuel Systems II	3	60
MH094U Power Transfer Systems III	4	72
MH088U Diesel Engines	4	72
MH035U Automotive Engine Overhaul	6	132
MH065U Advanced Alignment	3	60
MH038U Advanced Tune-Up	6	108
MM031U Fundamentals of Welding II	3	66
MH042U Vehicular Air Conditioning	6	120

Related Courses

CM002U Communication Skills I	3	36
MA011U Mathematics I: Industrial	2	24
PY004U Human Relations	3	36
AM003U Business Practices	3	36
CM003U Communication Skills II	3	36
PH011U Mechanisms	2	24
DP010T Introduction to Microcomputers and Data Processing	3	48

Construction Technology

The Construction Technology program is designed to prepare students for entry-level employment or job advancement in a variety of positions within the construction industry. Typical positions include working directly for contractors, building equipment companies, building material suppliers, sub-contractors, municipalities and other related construction firms. The emphasis of the program is on the study of construction technology and its applications to residential, commercial and industrial construction.

The first year of the program stresses the learning of skills and technical knowledge that apply directly to construction, including carpentry, plumbing, electrical work, concrete and masonry. The second year of the program stresses the technical aspects of estimating, materials, construction management and contracts for residential, commercial and industrial construction.

Upon completion of the required 106 quarter credit hours, the graduate is awarded an Associate of Applied Science degree. The program allows for the option of pursuing a Building Trades diploma by completing the first 4 quarters of the degree program. Upon completion of the required 73 quarter credit hours, the graduate is awarded a diploma.



Technical Courses

		Credits	Hrs.
*CS085U	Construction Safety	1.5	18
*CS080U	Concrete and Masonry	11	240
*CS073U	Electrical Wiring	4	78
*CS072U	Plumbing	4	78
*EL092U	HVAC Systems	4	78
*CS082U	Construction Print Reading	4	60
*CS079U	Wood Construction	11	240
*CS083U	Construction Drafting	6	120
*CS084U	Site Development	3	48
*CS078U	Energy in Construction	4	48
*CS076U	Steel Construction	2	24
CS075U	Strength of Materials	5	60
CS086U	Estimating I	4	48
CS074U	Contracts and Specifications	4	60
CS071U	Estimating II	4	72
CS081U	Construction Management	5	60
CS077U	Construction Scheduling	4	48

Related Courses

*MA011U	Mathematics I: Industrial	4	48
*MS003T	First Aid	.5	6
*MS004T	CPR	1	12
*PH012U	Physics (Unified)	6	120
*CM002U	Communication Skills I	3	36
*DP010T	Introduction to Microcomputers and Data Processing	4	60
AM005T	Introduction to Management	4	48
PY004U	Human Relations	3	36
*Required diploma courses			

Graphic Arts

The Graphic Arts program provides instruction in the basic fundamentals of the graphic arts industry, beginning with the history of graphic arts, printing processes, functional typography, lithography, layout and design, mathematics and bindery operation.

Advancing through the program, the student develops technical knowledge and skill associated with lithography, camera and darkroom processes, photo-composition, paste-up, theory of color, image assembly and platemaking, and offset presswork. In the final stages, the student becomes familiar with management problems, estimating, production control, plant organization and layout, industrial relations and related technical data.

Upon completion of the required 69 quarter credit hours, the graduate is awarded a diploma.

Technical Courses

		Credits	Hrs.
GR007U	Layout and Design	5	108
GR009U	Typography	3	60
GR011U	Copy Preparation I	9	192
GR012U	Copy Preparation II	4	90
GR030U	Copy Preparation III	3	72
GR046U	Copy Preparation IV	3	72
GR019U	Platemaking I	1	18
GR020U	Platemaking II	1	18
GR047U	Platemaking III	1	24
GR021U	Process Camera I	1	30
GR022U	Process Camera II	3	60
GR023U	Process Camera III	2	36
GR024U	Image Assembly I	1	30
GR025U	Image Assembly II	2	42
GR026U	Image Assembly III	3	60

GR027U	Offset Presswork I	4	72
GR028U	Offset Presswork II	4	84
GR029U	Offset Presswork III	4	84
GR043U	Phototypesetting I	3	66
GR044U	Phototypesetting II	2	48
GR045U	Phototypesetting III	1	24
GR031U	Bindery Operations	1	24
GR048U	Printing Estimating	2	36

Related Courses

CM002U	Communication Skills I and one of the below:	3	36
CM003U	Communication Skills II	3	36
PY004U	Human Relations	3	36
DP010T	Introduction to Microcomputers and Data Processing	3	48

Typing:

OE014T	Mod. 1: Alphabetic Keyboard	.5	
OE015T	Mod. 2: Numbers and Symbols	.5	
OE039T	Mod. 25: Individual Prescribed Instruction	.5	
OE039T	Mod. 25: Individual Prescribed Instruction	.5	

(Typing Modules should be completed prior to entry; they are a prerequisite for Phototypesetting I offered in the second quarter.)

Welding

The Welding program consists of three main phases. The first is metallic arc welding, commonly referred to as stick welding. A student satisfactorily completing this section of the program should have the skill required to pass the American Welding Society's Guide Bend Test in three positions with 3/8 inch steel plate using low-hydrogen electrodes. Also included in this section are oxyacetylene cutting, Mathematics I and Blueprint Reading.

The second phase is referred to as combination welding. This covers semi-automatic, oxyacetylene, heliarc, sheet metal cast iron and nonferrous welding. It is recommended that students take the first two phases as a minimum.

The third phase involves the study of the technical aspects of welding manufacturing processes, shop math, communication skills, and the setup and use of production machinery.

The first two phases of the program are set up on a modular basis; that is, students progress at their own pace within the time allotted. The lessons are self-instructional and all necessary demonstrations are provided on videotape. Instructors provide individual help as necessary. Students can enroll at any time if space is available.

Upon completion of the required 51 quarter credit hours, the graduate is awarded a diploma. Upon completion of the required 17.5 quarter credit hours of the first phase, the graduate is awarded a certificate in Metallic Arc Welding. Upon completion of the required 36.5

quarter hours of the first and second phases, the graduate is awarded a certificate in Combination Welding.

Technical Courses

		Credits	Hrs.
MM011V	Introduction to Arc Welding	1	26
MM025V	Weaving the Electrode	.5	12
MM028V	Flame Cutting	1	18
MM026V	Introduction to Joint Welding	1	28
MM027V	Powdered Iron Weld Methods	1	28
MM029V	Butt Joints: Flat	1	30
MM030V	Horizontal Weld Techniques	1	24
MM031V	Vertical Welding Techniques	1	26
MM032V	Overhead Welding Techniques	.5	18
MA011U	Mathematics I: Industrial	3	36
MM034V	Blueprint Reading for Welders	3	36
MM033V	A.W.S. Test: Low-Hydrogen Electrodes	3.5	78
MM017V	Semi-automatic Welding	3	60
MM035V	Oxyacetylene Light-Gauge Steel Welding	1	20
MM036V	Oxyacetylene Heavy Steel Welding	1	20
MM037V	Brazing and Silver Solder	1	20
MM038V	Oxyacetylene Cast Iron Repair	1	20
MM039V	Oxyacetylene Nonferrous Materials	1	20
MM019V	Heliarc Welding	5	104
MM020V	Special Arc Welding Techniques	3	60
MA003U	Mathematics II	3	36
MM032U	Production Machinery	2	56
MM023V	Student Project	2	56
MM012V	Welding Special Projects	2	48
MM065V	Pipe Welding Technology	8	160

Related Courses

CM002U	Communication Skills I	3	36
PY004U	Human Relations	3	36
MM001U	Manufacturing Processes I	4	72

Professional Development/Training Certificates

- Presently Available:**
- Construction/Contractor Management
 - Graphic Arts/Paste-up
 - Computer Graphics Operation
 - Automotive Services
 - Automotive Specialist
 - Automotive Brakes Specialist
 - Automotive Power Transfer Systems Specialist
 - Automatic Fuel Systems Specialist
 - Arc Welding
 - Automotive Welding
 - Combination Welder
 - Farm Welder
 - Gas Metallic Arc Welding
 - Gas-Tungsten Arc Welding
 - Oxyacetylene Welding
 - Pipe Welding
 - Sculpture Welding



COMMUNITY EDUCATION

Community Education Courses

In keeping with its philosophy of lifelong learning, the Community Education Division of Kirkwood Community College has developed a wide variety of credit and non-credit courses for persons who want to continue their education. These are designed for personal growth as well as for career preparation or skill upgrading. Many of these courses are offered for the recreational opportunities they provide and the personal enjoyment they bring, while others provide a chance to learn a skill with which to earn supplementary income.

Instructors for these classes are enlisted from among civic, business, industrial and cultural leaders throughout Kirkwood's seven-county area, to make their expertise available to the entire community. All classes are conducted with the philosophy of Community Education in mind — that "learning is enjoyable and should be the means to individual growth for every citizen of this area." Sociability and sharing are integral parts of this facet of Kirkwood's educational offerings.

New classes are offered on a quarterly basis. Information regarding specific class offerings is available from the Community Education Office on Kirkwood's main campus or from any of the college's Community Education centers.

Community Education Centers

Kirkwood has Community Education centers at eight locations. The centers offer High School Completion classes, Adult Basic Education instruction, high school refresher courses, G.E.D. preparation, tutoring, vocational classes for high school students (secondary program), and general interest/part-time supplemental courses. The eight centers are:

Iowa City Community Education Center
810 Maiden Lane
Iowa City, Iowa
Phone: 338-7956

Lincoln Community Education Center
9th St. and 18th Ave. S.W.
Cedar Rapids, Iowa
Phone: 366-0142

Marion Community Education Center
6th St. and 10th Ave.
Marion, Iowa
Phone: 377-2216

Monticello Community Education Center
Plastic Lane
Monticello, Iowa
Phone: 465-4276

Washington Community Education Center
322 S. Avenue D
Washington, Iowa
Phone: 653-4655

Williamsburg Community Education Center
200 West Street
Williamsburg, Iowa
Phone: 668-2461

Hartwick Learning Center
Hartwick, Iowa
Phone: (515) 525-2153

Vinton Community Education Center
1002 G Ave.
Vinton, Iowa
Phone: 472-4239

Programs to Meet the Varied Needs of People

Secondary Programs at Kirkwood

Secondary programs at Kirkwood is a cooperative arrangement with area high schools to supplement the high school curriculum in vocational preparatory programs. Students are transported from their local high school to the nearest secondary program center for a portion of a school day.

Secondary programs at Kirkwood enable the student to acquire and demonstrate the skills necessary for entry-level vocational careers in welding, auto mechanics, health occupations, child care, building trades, agriculture and vocational business.

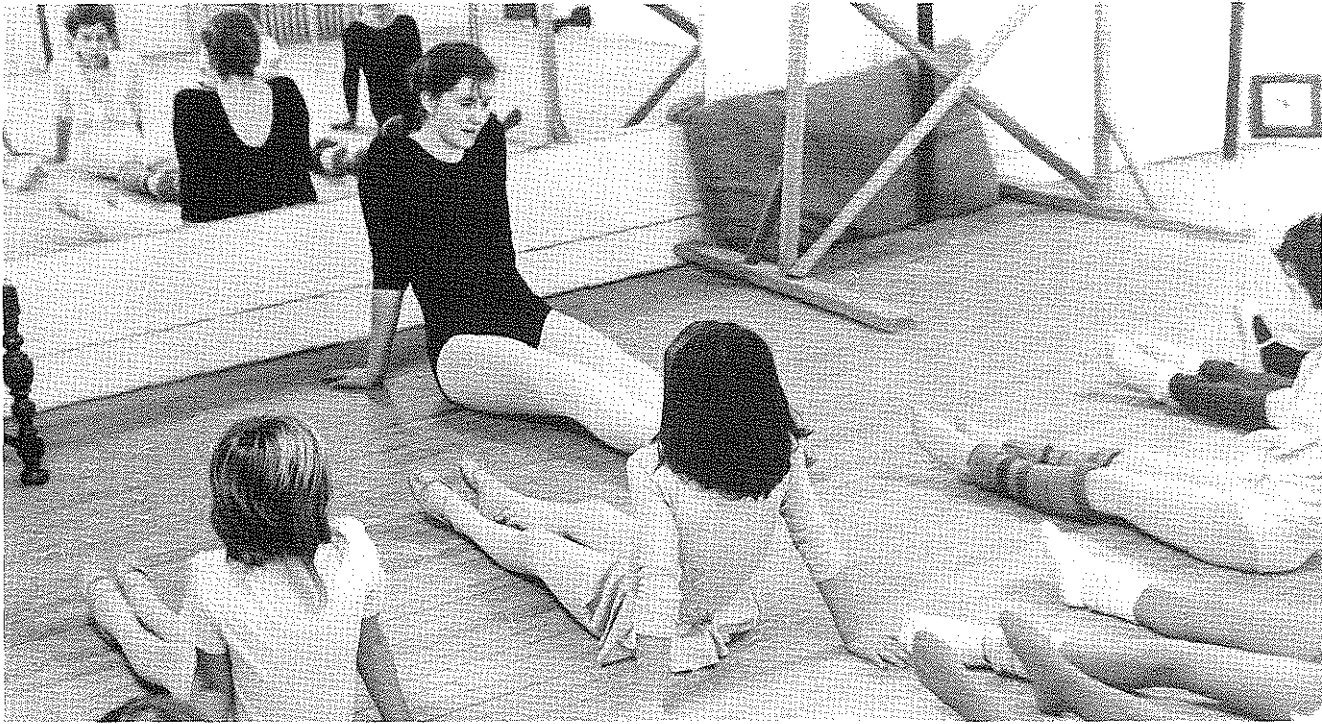
For more information, contact your local high school counselor or the nearest Kirkwood Community Education center.

General Interest and Recreational Classes

General interest and recreational classes are designed for adults who are not interested in earning academic credit, but who wish to further their education informally, enrich their cultural lives, improve their physical fitness or improve their personal efficiency.

These types of classes are self-supporting and offered as a community service in cooperation with local school districts. Classes are available in many areas. A few examples are:

AREAS	EXAMPLES
Arts and Crafts	Batik, Pottery, Macrame
Special Interest	Foreign Language, Astrology
Recreation	Aerobic Dance, Volleyball



Supplementary Vocational Classes

These classes are designed to help persons seeking job enrichment or upgrading. Classes are held at business and industrial sites as well as on the Kirkwood campus and in local high schools. The time and location of the classes vary. The subject areas include:

AREAS
 Health Occupations
 Trade and Industry
 Business and Office
 Home and Family
 Personal Development
 Agriculture
 Business/Management

EXAMPLES
 Nurse Aide, Anatomy and Physiology, EMT-A
 Woodworking, Auto Mechanics
 Shorthand/Typing, Office Skills
 Microwave Cooking, Family Dynamics
 Assertiveness Training, Communication
 Houseplants, Animal Nutrition, Gardening
 Supervision, Delegation, Business Writing

In-Service, Seminars, Workshops

Kirkwood provides in-service, seminars and workshops to meet the varied needs of people, businesses, industries and communities. Many courses have been developed and are now available. Others tailored to individual needs are developed as requests are made. Current program areas include:

Trades and Industry
 Business/Management
 Recreation
 Small Business Training
 Health Occupations
 Agriculture and Natural Resources
 Home and Family
 Re-licensing: Nursing, Real Estate, Cosmetology,
 Insurance

Transfer and Vocational Credit (District Instructional Services)

The District Instructional Services Division, in cooperation with the credit programs of the college, offers credit extension courses in locations throughout Kirkwood's seven counties. Open to adults with a high school diploma, these courses include classes in English, mathematics, foreign language, fine arts, the humanities, social science and classes in vocational-technical areas.

Many of the courses are offered through the college's Telecommunications System at Kirkwood's various Community Education centers and local high schools. In addition, the college's Off-Campus College Credit Degree program makes it possible to complete an associate degree in several subject areas, through a combination of Telelink and television courses offered each quarter. College credit courses are also offered at Iowa City's West High School, Cedar Rapids Kennedy High School, Marion High School and Linn Mar High School.

High School Completion

The Community Education Division provides the opportunity for adults to work toward the completion of their high school education. Kirkwood offers classes at various locations in the seven-county area and individualized programs are available at Kirkwood's Community Education centers. These programs are free to adults. A high school graduation ceremony takes place each spring.



Correspondence Studies

High school completion by correspondence is made possible by the Community Education Division through a variety of courses. There is no limit to the number of courses a student may take. However, the transfer of such credit to institutions other than Kirkwood is an optional matter for the accepting institution.

Enrollment for students who are considered actively enrolled in their local high schools is subject to the consent and approval of those schools. Prospective correspondence students who are not enrolled elsewhere may enroll in this program at any time.

Adult Basic Education/Right to Read

This area of learning is offered to help persons improve their basic academic skills.

The classes are located throughout Kirkwood's seven-county area and are scheduled at times convenient to students. Students may continue their work to prepare for the General Educational Development test (G.E.D.) or earn credit toward a Kirkwood adult high school diploma. Community Education centers located in Cedar Rapids, Hartwick, Iowa City, Marion, Monticello, Vinton, Washington and Williamsburg provide flexible hours and individualized instruction for those who prefer this approach to learning.

The Right to Read program is unique in that adults desiring to read better are assigned tutors, who are volunteers from the community. The participant and tutor are supplied the necessary learning materials and make their own arrangements and plans for achieving selected reading goals. Participants receive approximately two hours of reading assistance per week. The program is operated through coordinators at Kirkwood's Community Education centers in Cedar Rapids and Iowa City.

Semi-Trailer Truck Driving

The Semi-Trailer Truck Driving program is designed to prepare men and women for employment in the trucking industry. The entry-level curriculum includes classroom instruction, individualized student laboratory learning, driving range instruction and supervised practical experience driving on highways, interstates, and in towns and cities.

Graduates of the program are awarded a certificate, 15 college CEUs (Continuing Education Units), the opportunity to take the state driving examination and placement assistance.

Institutional Programs

Learning programs, which include all or a selection of those previously mentioned, have been set up in institutions such as the Iowa State Men's Reformatory, Veteran's Hospital, county homes and halfway houses.

Instructional services, consultant services and curriculum guidance may be arranged for these types of programs through the Community Education Division.



STUDENT LIFE

STUDENT AFFAIRS



Counseling Services

The college provides professional counselors to assist students in vocational and educational planning and in solving problems of a personal or social nature.

The counselors help students make decisions and plan for their future. Students and potential students have opportunities for individual conferences with members of the counseling staff to consider their school and work background, interests and goals. They are assisted in selecting an appropriate course of study.

A student who experiences difficulty or dissatisfaction with a particular curriculum is encouraged to use the counseling service for further discussion with a counselor and/or for exploration of alternative courses of action.

Assistance is also available to all students who desire help in acquiring better study habits, tutoring, developing satisfactory personal and social relationships, solving financial problems, selecting a transfer school, learning about employment possibilities or help with job seeking skills.

Counselors are available in several locations on campus. Students in all programs have access to counsel-

ing services, including those students enrolled in evening classes. Counseling is available from 7:30 a.m. to 8:30 p.m., Monday through Thursday, and 8 a.m. to 4 p.m. on Friday.

Personal Development Courses

Counselors teach several courses designed to help students deal with issues or develop skills that are needed in daily living. **Human Potential Labs** consist of small group structured experiences that help students discover and develop their strengths. **Career Decision Making** courses are designed to teach students the processes involved in career and life planning. A related course, **Career Exploration/Independent Study**, is broken into modules which a student proceeds through on an individual basis with a counselor. **Assertive Behavior Training** teaches students how to be less passive or aggressive and shows them how to deal more effectively with others. See the course description section of the catalog for more information about these courses.

Rehabilitation Services

Within the Counseling Department, specialized counseling services are provided by a full-time rehabilitation counselor to students who have met the eligibility requirements for assistance from the Iowa Rehabilitation Education and Services Branch (RESB). In addition, financial assistance may be arranged. Students who have physical, emotional or mental disabilities which prevent them from getting or keeping certain jobs may apply for these services, which also include diagnosis and treatment through community agencies and medical personnel. Further information can be obtained from the RESB counselor.

Personal Achievement Department

The purpose of the Personal Achievement Department is to provide an opportunity for all students to diagnose, develop and strengthen their skills in the areas of reading, writing, mathematics, spelling and study skills. In addition to this skill development, we hope also to help students develop a sense of self-confidence in their abilities to learn. The program is located in Benton Hall.

Types of Assistance

An individual may enroll in Personal Achievement courses for a variety of reasons, both personal and ac-

ademic in nature. Some of these reasons may include the following:

1. High school graduates who did not gain the skills necessary to succeed in college-level work may wish to improve their basic skills before entering a college program.
2. Adults as learners who have been away from school for a while may wish to review their basic skills either before or along with taking other courses at Kirkwood. These students may lack confidence in themselves or their skills.
3. Currently employed individuals might need to improve themselves in any or all of these areas to remain competitive in their career areas.
4. Those individuals who have been recommended to Personal Achievement by the results of the Self Assessment tests or by an instructor or counselor may decide to take any one or any combination of courses to assist them in succeeding in their academic pursuits at Kirkwood.

Courses Available

The Personal Achievement Department offers courses in reading, writing, spelling techniques, mathematics, pre-algebra and basic study skills. All courses are offered on either an individualized, one-to-one basis with an instructor, or on a small group basis. Upon enrollment, the student's current skill level is determined through diagnostic testing for the purpose of identifying his or her strengths and weaknesses in these academic areas. Then, based on the results of these tests, a plan of instruction is developed with each student.

Students may enroll in the reading, writing, math and spelling courses at any time during the quarter, provided space is available. These courses are offered for one to three hours of developmental credit, depending upon the recommendation of the instructor involved and his or her interpretation of the students' diagnostic test. Study skills is offered on a classroom basis.

A unique feature of Personal Achievement courses is that their curriculum and content is related to the specific subject matter or vocational interest of the student being served.

Other Developmental Services

For those students who want to find out what their current skill strengths and weaknesses are, the Self Assessment program is offered by the Personal Achievement Department Testing Center on a weekly basis.

The student-to-student tutorial program is coordinated by the counseling department. Tutors are students recommended and verified by instructors in the subject areas they tutor. Any student who identifies a need for extra help in a subject is eligible for tutoring. This service is supported in part by Student Activity funds.

Placement Services

The Placement Office fulfills the following functions:

1. Helps students to find part-time employment.
2. Assists graduates to secure full-time employment.
3. Helps to locate suitable work for students who leave school prior to graduation.
4. Assists former Kirkwood Community College students to find employment.
5. Conducts follow-up studies of former students.
6. Endeavors to maintain an accurate picture of employment needs and trends in the community.

In order to utilize the services of the Placement Office, students should complete the appropriate forms for either part-time or full-time employment. Registration forms are available in the Placement Office. The Placement Office should be notified promptly of job acceptances.

Skill Center

The primary objective of the Skill Center is the preparation of handicapped and disadvantaged persons for vocational training or placement in jobs. Personal and vocational goals are established through counseling between the student and the center's staff.

A trained staff of instructor/evaluators, student supervisors, vocational counselors and job placement personnel is available. Physicians, psychologists and psychiatrists are available on a referral basis, as well as services offered through the Linn County Mental Health Center, Residential Care Facility, Public Health Nursing and other social service agencies.

The Skill Center provides unique opportunities for career exploration, vocational assessment, work adjustment training, academic upgrading, job seeking skills, skill development and on-the-job training, with the objective of making appropriate recommendations for job placement or vocational training. Additional information and referral procedures can be obtained by calling 398-5455.

Financial Aid

The financial aid program at Kirkwood Community College exists to make possible a college education for qualified students. Each student and his or her family is expected to make a maximum effort to meet college expenses. However, if it is determined that a family cannot meet the full costs for a year, assistance will be provided to the greatest extent possible from the following sources:

Pell Grants: Grants to needy students.

Supplemental Educational Opportunity Grants: An additional aid program for those who demonstrate greater financial need.

National Direct Student Loans: Low-interest loans through the college; long-term repayments.

College Work-Study Program: Fifteen to twenty hours of work per week, built around the student's class schedule; minimum wage.

Iowa Guaranteed Student Loans: Borrowing from a bank, credit union or savings and loan. Students may borrow up to \$2,500 a year. Current rate of interest is eight percent. Repayment and interest payments delayed until after graduation.

State of Iowa Scholarship Program: Upper 15 percent of high school seniors. Application is made through local high school counselor.

Iowa Vocational-Technical Tuition Grants: For full-time Vocational-Technical students.

Veterans educational benefits: Provided under provisions of G.I. bill and war orphans legislation, etc.

Rehabilitation services: See Rehabilitation Counseling under Counseling Services.

Short-term loans and scholarships.

For specific information, contact the Financial Aids Office, Room 123, Linn Hall, 398-5488.

Kirkwood Scholarships

The scholarships listed here are the more consistent and ongoing scholarships available through Kirkwood. They are still subject to change or termination.

Scholarships Awarded by Groups/Individuals Through Kirkwood

1. College-Wide Scholarships:

Kirkwood Scholar: \$600 awarded annually; apply at the Financial Aids Office or with high school counselor from March 1 to April 15.

Area Ten Community: \$250 awarded annually; apply between March 1 and May 1 at the Financial Aids Office or with high school counselor.

2. Restricted Scholarships (limited to students in specific areas):

Activity Scholarships: available to students participating in activities such as music, drama, athletics, the student newspaper or the Kirkwood radio station; awarded as money becomes available; contact the Financial Aids Office.

Bank Scholarships: offered to graduating seniors who are (or whose parents are) patrons of local banks and have been accepted into a program at Kirkwood. Awards vary; check with the Financial Aids Office to see if your bank participates.

Colonial Dental Studio Scholarship: for Dental Lab students (Health Technologies); \$600 awarded annually, dispersed quarterly; apply at the Financial Aids Office from March 1 to April 15.

Des Moines Allied Florist Association Scholarship: for Floriculture students; \$100 awarded annually, dispersed quarterly; apply at the Financial Aids Office from February 1 to March 5.

Food Store Marketing Scholarship: for Food Store Marketing students (Business Technologies); \$200 awarded annually, dispersed quarterly; apply from three weeks before each quarter until the last Friday of the third week of that quarter at the Financial Aids Office.

Iowa National Mutual Insurance Scholarship: offered to students having completed one quarter of course work at Kirkwood in a business or data processing program; \$600 awarded yearly, dispersed quarterly; apply from March 1 to April 15; applications taken at the Financial Aids Office.

Food Service Scholarship: for students in Food Service Training; contact the Food Service program coordinator for more information.

Scholarships Awarded by Groups Outside Kirkwood

Alumni Scholarship: award range varies; high school counselors will be notified when applications will be accepted; dispersed quarterly.

Asparagus Scholarship: awarded to Food Store Marketing students; \$100 awarded annually, dispersed quarterly; apply from January 1 until May 1 at the Financial Aids Office.

Cennex Scholarship: \$600 for first year and \$600 for second-year students who are enrolled in Vocational-Technical Agriculture programs; applications available at the Agricultural Technologies Department or the Financial Aids Office.

The David E. Cuckler Scholarship: awarded annually to graduating Monticello High School seniors who have been accepted into a Vocational-Technical program at Kirkwood; amount of award varies; dispersed quarterly; apply from January 1 to April 1 with high school counselor. Former recipients should contact the Financial Aids Office.

Easter Seal Society of Iowa Scholarship: annual award dispersed quarterly; amount varies; contact the Financial Aids Office; apply from February 2 until April 15.

Five Star Chapter of the American Business Women's Association Scholarship: annual award of varying amount, dispersed quarterly; apply from January 1 through March 28 at the Financial Aids Office.

Kirkwood Women's Scholarships: three \$90 awards made annually and dispersed quarterly; apply at the Campus Nurse's Office or at the Financial Aids Office from July 15 through August 15.

Minority Student Scholarships: annual awards dispersed quarterly in varying amounts; apply at Financial Aids Office by the following deadlines: Fall Quarter — July 1, Winter Quarter — September 1, Spring Quarter — January 1, and Summer Quarter — April 1.

Seven-in-One Chapter of the American Business Women's Association Scholarship: varying amount awarded yearly, dispersed quarterly; apply at the Financial Aids Office from January 1 through April 15.

National Institute for Food Service Industry Scholarship: annual award of \$1900, dispersed quarterly; apply at the Financial Aids Office or Food Service Technology Office from January 1 through April 1.

March of Dimes Nursing Scholarships: awards vary; contact the Financial Aids Office for details.

For a complete listing of all Kirkwood scholarships, please see the Kirkwood Scholarship Resource Book. Copies are located in high school counselors' offices within the seven-county area and in all departments at Kirkwood.

State Scholarships

State of Iowa Scholarships: administered by the Iowa College Aid Commission; award amount varies.

Other Scholarship Sources

In Cedar Rapids, there are several firms that have scholarships for employees wanting to improve themselves. Be sure to check with your employer.

Check with area high school counselors, your church and other service organizations in your community.

General Requirements

Any student seeking financial aid at Kirkwood must:

1. Be enrolled or accepted for enrollment in an approved program (one that is at least six months in length and leading to a degree or other objective) and must maintain satisfactory progress toward his/her program objective.
2. Be a citizen or permanent resident of the United States.
3. Be pursuing at least six quarter hours of course work per quarter.

When to Apply

The priority dates for requesting financial aid at Kirkwood are **January 1 to February 15** for aid funds to be awarded for use in the next fiscal year (July 1 to June

30). Applications received after February 15 will also be processed. Applications are processed in the order in which they are received, so students should apply as early as possible after January 1.

When Aid Is Awarded

Students who will receive aid will be notified by letter in June or earlier as funds become available. At that time the student also will learn the amount of aid to be awarded. Within 10 days after the award letter is received, the student must notify the Financial Aids Office that he or she has accepted the aid. This is necessary so that funds not accepted can be redistributed to other students. Dates for awarding of scholarships vary depending upon the scholarship involved.

How to Apply

The necessary forms and instructions may be obtained by writing or visiting the Kirkwood Financial Aids Office in Room 123 of Linn Hall. The address is:

Financial Aids Office
Kirkwood Community College
P.O. Box 2068
Cedar Rapids, Iowa 52406

Application forms are available after January 1 of each year. **It is considered the student's responsibility to make sure all the necessary documents have been submitted to be considered for financial aid.** Remember, grants are gifts, but loans must be repaid.

General Student Information

Student Housing

The college does not provide on-campus housing. Therefore, all student housing is located in private facilities off campus.

The college itself does not directly place students in off-campus housing. However, the Information Desk in Iowa Hall does maintain a listing of housing to assist students in locating rooms and apartments. A copy of the housing list can be obtained by writing or calling the Student Activities Office in Iowa Hall, 398-5578. If at all possible, housing arrangements should be made prior to the date of registration.

Student Accident and Health Insurance

Students may participate in an optional accident and health insurance plan. The plan is based on a group policy. Students may choose between comprehensive accident and health coverage or accident coverage only. Students may enroll in these plans at registration or by contacting Campus Health Service, Iowa Hall.

Health Service

Kirkwood's Campus Health Service, located in Iowa Hall, is staffed daily by a registered nurse under the direction of a consulting college physician. The service offers emergency treatment for injury and illness, and assistance in obtaining the services of local physicians if necessary. It will cooperate in every way possible to administer medical care or carry out instructions of the student's personal or family physician. Confidential counseling on a variety of health-related problems is available. Cost of hospitalization, doctor's appointments, prescription medicine, x-rays and laboratory fees must be covered by the student.

Infant/Child Care Center

Licensed, quality infant and child care is available at a minimal fee to all persons attending Kirkwood classes or activities. Kirkwood's infant/child care center is designed to provide care in a warm, nurturing environment. Kirkwood students are entitled to use the center on a full-time or part-time basis and are not limited to using the center only while attending classes. The center is open day and evening, depending upon the needs of the parents.

Professional staff workers qualified in early childhood education operate the center. They are assisted by students in Kirkwood's preparatory programs in education,



nursing and social services. The center is located at Kirkwood's Lincoln Community Education Center, Sixteenth Avenue and Ninth Street S.W. in Cedar Rapids.

Parking

All cars parked on the Kirkwood Community College campus are subject to regulations imposed by the College. These regulations are published each year in the student handbook and are available at the Iowa and Linn Hall Information Desks.

Bus Service

Bus transportation around Cedar Rapids and to Kirkwood is provided by the city bus company. The bus stops in front of Linn Hall, Johnson Hall and also at the East Campus. Special rates are available to Kirkwood students and bus schedules may be obtained at the Information Desks in Iowa Hall and Linn Hall. Tickets and passes are also available at the Linn Hall Desk.

Food Service

Cafeteria service is available in Iowa Hall from 10:30 a.m. to 1:30 p.m. weekdays. An array of a la carte, grill and deli-bar selections, as well as salads, desserts and beverages are available. Vending machines are available in the Iowa Hall Games Room, Linn Hall lobby and the East Campus lounge during all hours that the buildings are open.

Bookstore

The College Bookstore is located in Iowa Hall. It is owned and operated by Kirkwood Community College with all of its assets, obligations and policies under administrative control. All earnings are returned to student-related functions.

Besides maintaining a sufficient supply of textbooks needed for all courses at Kirkwood, the bookstore carries a full complement of supplies, soft goods, gift items, greeting cards and paperback books.

To help reduce textbook costs, the bookstore operates a used book facility which allows a student to sell back a previously purchased book. This also affords other students the opportunity to purchase these used copies at reduced prices. A representative of a reputable used-book company is on campus at the end of each quarter during final week for several days. He/she will buy those books being dropped from course schedules, providing no new edition is pending and providing the book has a market value.

Bookstore hours are 9 a.m. to 4 p.m., Monday through Friday, and 5:30 to 7:30 p.m., Tuesday and Wednesday evenings, during the school year. Evening hours are subject to change during registration days and summer quarter.



Co-Curricular Activities

Student Association

The official representative of the students of Kirkwood Community College is the Executive Board of the Student Association. Six Executive Board members are elected in May. Additional input is also provided by the Student Life Council, the Inter-Club Council and the Finance Council. The objectives of the Student Association are to:

1. Provide a means of organized student expression in the college.
2. Encourage and promote interest in college affairs and activities.
3. Provide a means whereby the administration of the college may be made aware of student needs, opinions and attitudes.
4. Develop and promote activities that will enrich the social, cultural and academic life of students at Kirkwood Community College.

The Student Association offices are located in the Student Activities Office on the ground floor of Iowa Hall.

Publications

Student Newspaper: *Communique*, a bi-weekly community college newspaper, is written and edited by a student staff with the consultation of a staff advisor. Any student interested in working on the staff or in submitting material for publication should contact the Student Activities Office in Iowa Hall.

Newspaper Supplement: *In Full View* is published by

a student staff with the consultation of a staff advisor. Any student interested in contributing or working on the staff should contact the Student Activities Office.

Clubs and Organizations

The Student Clubs and Organizations on campus sponsor the majority of activities held during the year. Approximately one-fifth of the students enrolled at Kirkwood are club members. Clubs are formed through academic programs and special interest groups, and given formal recognition by the Executive Board of the student government. Faculty or staff are designated as advisors to the student groups. Each club elects officers and has a representative on the Inter-Club Council, which has the authority to grant permission for clubs to carry out activities. Information about student clubs can be obtained at the Student Activities Office, Iowa Hall.

Social and Special Events

Special social activities are coordinated through the Student Activities Office on recommendations from the Inter-Club Council and the Student Programming Committee. Some of these events take place during noon activity hours while other events, such as dances and film festivals, take place in the evening. These events are open to all Kirkwood students and their guests. Information on upcoming activities may be obtained from the Student Activities Office, Iowa Hall.

Intramurals

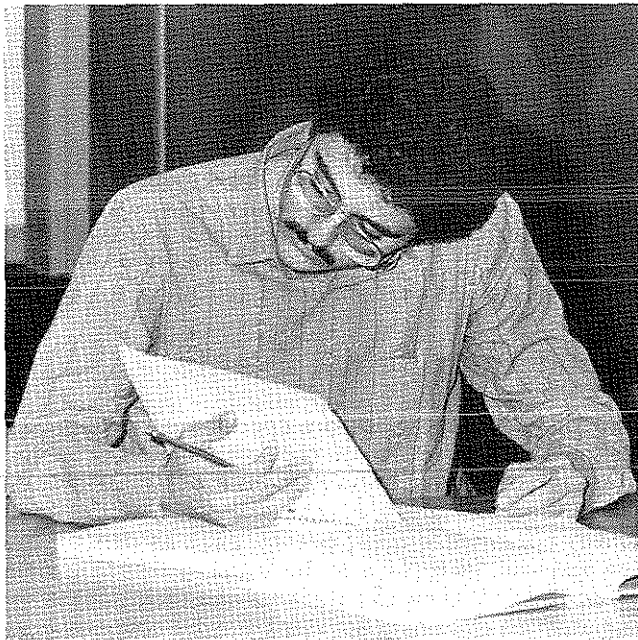
Kirkwood offers a wide variety of both team and individual activities as part of the intramural program. New activities are started at the beginning of each term. All students are invited to take advantage of the opportunities offered them by the intramural program. Stop in the Athletic Office in Johnson Hall or call 398-4909. We hope you will become involved with our intramural program.

Intercollegiate Athletics

Kirkwood offers an intercollegiate athletic program for both men and women in a variety of sports. The college has women's teams in basketball, softball and golf. The men's teams include basketball, baseball, golf and wrestling. Kirkwood competes with teams from junior colleges in Iowa and bordering states.

Kirkwood belongs to the NJCAA and participates in tournaments sponsored by the association. All students at Kirkwood are admitted to all regularly scheduled athletic contests at no charge. The athletic offices are housed in Johnson Hall. If you have any questions regarding KCC athletics, please stop by the Athletic Office or call 398-4909.

POLICIES AND REGULATIONS



Admission

It is the policy of Kirkwood Community College to accept for admission into its Arts and Sciences and Vocational-Technical Divisions all individuals with either a high school diploma or its equivalent, as determined by the General Education Development testing program. Mature adults who have not completed high school may be admitted, on an individual basis, to various programs offered by the college.

Admission to the college does not, however, ensure admission to all programs offered. The college reserves the right to guide the placement of students on the basis of counseling, examination, pre-enrollment interviews, and past academic achievement.

Generally, admission to programs is granted on a continuous basis as applicants complete required admissions procedures. Applicants will, therefore, find it to their advantage to apply as soon as they have decided to seek admission to a program. Prospective students may apply at any time after beginning their senior year in high school. Applications are accepted up to the

day of registration in many college programs; however, if the college staff is to be of maximum assistance with pre-enrollment matters, applicants should complete their applications well in advance of the expected entrance quarter.

Equal Opportunity

It is the policy of Kirkwood Community College not to discriminate on the basis of race, color, creed, national origin, or religion, handicap, age, sex, or marital status in granting admission to and participation in its educational programs, college activities and services, or in its employment practices.

Inquiries regarding compliance with state and federal non-discrimination requirements may be directed to the dean of Student Affairs or Equal Employment Opportunity Office, Kirkwood Community College, P.O. Box 2068, Cedar Rapids, Iowa 52406.

Admissions Office

The Office of Admissions is located in Room 134, Linn Hall, 6301 Kirkwood Boulevard S.W. For admissions information, call the Office of Admissions, 398-5517.

Admission Requirements and Procedures

Materials and procedures required for admission are listed below. All admissions materials are to be submitted to the Enrollment Services Office, Room 123, Linn Hall, Kirkwood Community College, P.O. Box 2068, Cedar Rapids, Iowa 52406.

Arts and Sciences

Kirkwood has an "open door" policy. This permits high school graduates or equivalent to apply and be accepted regardless of past academic achievements. The procedure includes:

1. Application Form: May be obtained from the Admissions Office.
2. High School Transcript: Prospective students, after submitting an application, should request their high school counselor or principal to send their final high school transcript to the Enrollment Services Office.
3. College Transcripts: Transfer students expecting to transfer credits to Kirkwood must submit an official transcript from each college or university attended previously.
4. Student Health Form: The completed student health form required in some programs is not submitted until after the student has been notified of acceptance. The form should be sent to the student health center. Applicants to programs that require a health form will be notified of the requirement.

Vocational-Technical

Shortly after all admissions materials are received, an applicant will be notified regarding admission. The procedure includes:

1. Application Form: May be obtained from the Admissions Office.
2. High School Transcript: Prospective students should request their high school counselor or principal to send their final high school transcript to the Enrollment Services Office.
3. College Transcripts: Transfer students expecting to transfer credits to Kirkwood must submit an official transcript from each college or university attended previously.
4. Health Certificates: A health exam is required in some programs but not until after the student has been notified of acceptance. The health certificate should be sent to the student health center. Applicants will be notified about this requirement.
5. Personal Interview and/or Qualifying Examination: A personal interview and/or qualifying examination may be required before a student can apply or be admitted to some programs.

International Students (Non-immigrant Aliens)

Students from foreign countries who wish to be admitted into regular credit programs and courses must submit:

1. Secondary School and College Transcripts
2. Evidence of Adequate Financial Resources
3. Health Certificate
4. Information showing the degree of mastery of the English language: a minimum total score of 500 on the Test of English as a Second Language (TOEFL)
5. A \$100 admissions processing fee

Students from foreign countries or refugees in the United States who wish to be admitted to the credit program in English as a Second Language must be 18 years or older and must submit the following:

1. Application Form
2. Secondary School and College Transcripts
3. Evidence of Adequate Financial Resources

Refugees in the United States who wish to be admitted to the English as a Second Language program on a non-credit basis should enroll under the procedures that apply to Adult Basic Education. Interested persons should contact the Community Education Division.

Community Education

Admission to adult education programs is varied and flexible. Individuals interested in admission to General Studies, general adult education, and adult part-time vocational programs are advised to contact the Com-

munity Education Division at 398-5668 for information regarding admission and course offerings. See the Community Education section of this catalog for information on Kirkwood's Community Education programs.

Tuition and Fees

Credit Programs

The following are tuition and fees for credit programs. They are subject to change at any time.

Residents of Iowa (See "Residence Qualifications")

Part-time study: \$20.50 per credit hour

Full-time study: \$246.00 per quarter

13 credit hours and up: \$3.00 each additional credit hour

Students "auditing" or carrying courses for "no credit" are assessed tuition at the same rate as regular credit course work.

Non-Iowa Residents (See "Residence Qualifications")

Part-time study: \$41.00 per credit hour

Full-time study: \$492.00 per quarter

13 credit hours and up: \$6.00 each additional credit hour

Students "auditing" or carrying courses for "no credit" are assessed tuition at the same rate as regular credit course work.

International Students (Non-immigrant aliens)

Part-time study: \$41.00 per credit hour

Full-time study: \$492.00 per quarter

13 credit hours and up: \$6.00 each additional credit hour

Students "auditing" or carrying courses for "no credit" are assessed tuition at the same rate as regular credit course work.

Definitions of terms used above:

Full-time study: 12 quarter hours credit or more

Part-time study: less than 12 quarter hours of credit

Residence Qualifications

Students enrolling at Kirkwood Community College shall be classified as residents or nonresidents of Iowa or as international students for admission, fee and tuition purposes by the Enrollment Services Office. The decision shall be based upon information furnished by the student and all other relevant information. The department is authorized to require such written documents, affidavits, verifications or other evidence as are deemed necessary to establish the domicile of a student, including proof of emancipation, adoption, award of custody, or appointment of a guardian. The burden of establishing that a student is exempt from paying the nonresident tuition is with the student.

The decision of the Enrollment Services Office on the residence of a student for admission, fee and tuition

purposes may be appealed to a review committee. The finding of the review committee shall be final.

For further information on residence classifications, contact the Enrollment Services Office.

Special Fees

Most courses in the Arts and Sciences Division and in the Vocational-Technical Division carry a **materials fee**. This fee is paid quarterly. The materials fee ranges from \$.50 per credit hour for predominantly lecture courses up to \$3.00 per credit hour for courses that are predominantly laboratory in nature.

All students pay a **student fee** each quarter according to the schedule below:

Seven or more enrolled hours.....	\$11
Less than seven enrolled hours	\$ 2

This fee covers a variety of items and services like activities, ID card and the student newspaper.

Registration Fee

All students are required to pay a registration fee each quarter as follows:

Full-time (12 or more hours).....	\$10
Part-time (less than 12 hours).....	\$ 5

This fee covers parking, changes in course registration, transcripts and a variety of other items usually charged separately at other colleges.

Other Fee Arrangements

Part-time vocational: Tuition for part-time vocational programs depends upon the length and nature of the course. Normally, books and materials are not included in tuition.

Refund of Tuition

Students who withdraw from the college will receive a tuition refund according to the following schedule:

Time of Withdrawal	Percentage of Refund
1st through 5th class day of term:	75%
6th through 10th class day of term:	50%
11th through 15th class day of term:	25%
After 15th class day of term:	No refund

Refunds will be made only when an "Exit Interview

Form," signed by a Kirkwood counselor, is filed in the Registrar's Office. Refunds will be computed based on the date that the form is received by the Registrar's Office.

During the first five class days of a term, a student who reduces his/her schedule below full-time will receive a 75 percent refund for the difference between the original tuition paid and the amount applicable to the reduced schedule.

Full refunds will be made only for students who: (a.) withdraw for reasons of personal health as certified by a licensed physician on a form provided by the Registrar's Office, (b.) are inducted, but not enlisted, into the nation's armed services, (c.) are forced to do so by college-initiated action like the cancellation of a course. Fees other than tuition are non-refundable.

Academic Regulations and Policies

Unit of Credit

A unit of credit is a quarter hour. A quarter hour of credit is normally given for one hour in class each week for a period of twelve weeks.

Course Load

Arts and Sciences Division:

Individuals pursuing 12 quarter hours or more during any quarter will be considered full-time students. To earn a degree in six quarters, a student should plan to enroll for an average of at least 15 hours per quarter.

Students may not carry more than 18 hours of credit in any quarter without approval of their advisor and the division dean.

Students may not take a course for more or less credit than that assigned in the college catalog or the schedule of courses.

Vocational-Technical Division:

Individuals pursuing 12 quarter hours or more during any quarter will be considered full-time students. To earn a degree in six quarters, students should plan to enroll for an average of at least 16 hours per quarter.

Part-time course work may be undertaken in many programs. Students with an interest in attending part time in the Vocational-Technical Division are advised to contact the Office of Admissions or the appropriate Vocational-Technical department for details.

Students may not take a course for more or less credit than that assigned in the college catalog or the schedule of courses.

Grading System

The Kirkwood grades or marks and their meanings are given below:

- A Excellent
- B Above average
- C Average
- D Below average
- P Passing-credit
- T Credit by examination
- E Excused without credit
- N Audit
- Q No credit
- W Withdrew from course
- I Incomplete
- X Course repeated
- L **Credit for prior education or experience (11/24/76)
- F *Failing
- FW **Failure to withdraw (3/1/71)
- NI **Irresponsible audit (3/1/71)

*The F grade was discontinued fall, 1972, and reinstated fall, 1981.

**Discontinued grade. Discontinuation date shown.

The grades A, B, C, D, F and FW are included in computing the grade point average.

Credit toward graduation is granted for A, B, C, D, P, T and L.

Requital of Failing Grades

Students who receive "F" (failing) grades at Kirkwood may request that these grades be changed to "Q" (no credit) when these conditions are satisfied in resident Kirkwood coursework:

1. The student has earned at least 24 quarter hours of credit since receiving the "F" grade(s), and
2. The cumulative grade point average earned since receiving the "F" grade(s) is not less than 2.0.

Forms for filing requests for requital of failing grades are available from Enrollment Services, Room 123, Linn Hall.

Grade Reports

Grade reports are mailed to students approximately three to four weeks after the close of a quarter. Grades will not be given over the phone.

Repeating Courses

Students who achieve a personally unsatisfactory grade in a course may, according to procedures described below, repeat the course in an attempt for a better grade and have the original grade removed and replaced by "X" upon completion of the repeat of the course.

Students wishing to take advantage of this policy must file a notification with Enrollment Services. Forms for this purpose are available in that office.

Provisions of this policy are as follows:

1. Students may repeat a course as many times as they wish in an effort for a better grade.
2. Students must file notification of their repeat of a course for a better grade with Enrollment Services for each course repetition.
3. The original grade will be changed to an "X." (The "X" carries no credit nor does it affect a student's grade point average.) A student may not repeat a course and then choose the better of the two grades. The repeat grade is the one that will be computed in the student's record.

Students who have questions regarding how this policy applies to their own situation should discuss it with a member of the counseling staff.

Incomplete Grades

A student who fails to complete the assigned work of a course during a quarter or session can be assigned the grade "I" (incomplete). The length of time a student will be permitted to complete the course work must be worked out with the instructor assigning the "I." The "I" may be changed to an "F" if the student hasn't, after a period of time deemed reasonable and sufficient, made up the incomplete work.

Auditing Courses

Audit enrollment in courses provides students the opportunity to attend a class as a non-credit participant, usually as a listener-observer. This kind of enrollment may have value for the student who wants an introduction to a subject outside his or her major field, a review or refresher in a subject, or other purposes where credit and grade either are not needed or would pose an unnecessary academic threat.

With the permission of the instructor and/or the assistant dean, a student may enroll in any course on an audit basis. It is required of audit enrollments that the student and instructor agree about what portion(s) of the course the student plans to audit and the requirements the instructor has about the student's class attendance and participation in class work. If the student fulfills the agreement for the audit, he or she will receive the grade of "N" (audit) for the course and it will be entered on the student's academic transcript. If the student does not fulfill the audit agreement, the Registrar, upon request of the instructor, will delete the course from entry on the student's academic transcript.

Audit enrollments carry no credit nor grade point value. No inference is made, nor should conclusions be drawn, about the quality or quantity of a student's mastery of the course subject matter.

Standard tuition and lab charges apply to all audit enrollments regardless of the length or scope of the audit.

Credit Assignments in Emergency Situations

Upon completion of two-thirds of a quarter, a student may request a grade and, therefore, credit for all courses in progress at the time of:

1. Induction but not enlistment into the Armed Forces.
2. Serious personal or family illness requiring the student to drop out of school.
3. A death in the immediate family.
4. Other emergency circumstances that prevent a student from finishing the quarter.

No refund of tuition or fees will be made for a withdrawal handled under this policy.

Adds and Drops

Students may add a course at any time through the fifth class day of a quarter or session, subject to the course load conditions and tuition schedule listed earlier.

Students may drop individual courses from their schedule any time up to 8 p.m. three weeks prior to the last day of the quarter. After this time, students must remain in scheduled courses. Students who quit attending a class without officially dropping it will receive, at the discretion of the instructor, an "I" or an "F" grade.

A change in registration is not official until it is received in the Office of the Registrar, and all deadlines as stated herein apply to the day by which it must be received in that office. It is the responsibility of the student to see that all necessary forms reach that office and that they carry signatures as indicated on the forms.

Dates, as indicated herein, are listed on the college calendar.

Change in Registration forms are available from counselors and the Office of the Registrar.

Withdrawal Policy

Students may withdraw, that is cancel their entire registration, at any time up to the final exam period. Students officially withdrawing through the Office of the Registrar will be assigned a "W" for all courses for which they are then registered. In all cases of withdrawal, except in cases of physical or circumstantial impossibility, a student must secure the approval of a counselor. In cases of tragedy (death, disability, etc.),

the Office of the Registrar can initiate a withdrawal for the student, even retroactively when the situation becomes known.

Students failing to withdraw officially will receive the grade deemed appropriate by the instructor, not to include a "W."

Change of Majors

Vocational-Technical students who change their major or Arts and Sciences students who change to a major in the Vocational-Technical Division will be accountable in terms of graduation requirements only for work done in the new major. The course work and grade point average earned in the initial major will continue as part of their transcript and record, but will not affect them in meeting graduation requirements of the new major. If course work successfully completed in the initial major is applicable to the new major, a student may petition the dean or the assistant dean for permission to apply these credits toward graduation requirements of the new major. Where permission is granted, the courses and the earned grades for those courses would be credited toward the new major.

Students who contemplate a change of major under this policy are advised, as an initial step, to discuss their plans fully with a member of the counseling staff.

Academic Progress

In order to graduate from Kirkwood, students must satisfy all course requirements and achieve the cumulative grade point average established for the award sought.

Students in Arts and Sciences majors who achieve and maintain a cumulative 2.0 grade point average and students in Vocational-Technical majors who achieve and maintain a 1.8 grade point average and complete course requirements in the prescribed sequence are considered to be progressing satisfactorily.

The records of students who fail to meet these standards shall be reviewed each quarter. Failure to meet these standards for two consecutive quarters could result in academic suspension. In any case, such students' educational benefits from the V.A. and/or Financial Aid will be discontinued until satisfactory progress has been attained.

Disciplinary Probation and Suspension

Disciplinary probation and suspension from the college are managed under the procedures described in the Board Policy Manual of the College. In general, such matters are handled by the Student Affairs Division with procedures for due process and appeal made available as appropriate.

Re-admission

Students who have been suspended for academic reasons may petition the Enrollment Services Department for re-admission. There is a mandatory period of one quarter before petitions for re-admission will be considered.

Students who have withdrawn from the college in good standing and who desire to be re-admitted should apply to the Enrollment Services Department. If they have attended another college or university, they must file an official transcript from that institution if they want transfer credit. Students who are re-admitted after absence from the campus and who desire an associate degree will be required to fulfill the current graduation requirements.

Assignments and Examinations

Students are expected to complete all class assignments and examinations on time. It is the student's responsibility to contact his or her instructor to make up any work missed during absence from each class. In cases where a test is given during the absence of a student, it is sometimes possible for the instructor to substitute another test at a later date. There may be occasions, however, when substitution of a test may not be feasible. When a student anticipates missing a test,

a telephone call in advance to the instructor may save a great deal of difficulty later and prevent a possible lowering of the grade for that course in cases when a test is of a type that is difficult to make up.

A student must be present as scheduled for the final examinations. In cases of illness or emergency during examination times, a student may be excused and re-scheduled by the instructor. In cases where such illness or emergency may extend more than a few days, the procedure for incomplete course work should be followed.

Student Record Retention Policy

Kirkwood Community College retains the official academic record (transcript) of enrollment and credit earned in Kirkwood's credit programs in perpetuity. All other student record documents are destroyed two years after the student's last enrollment at Kirkwood.

Students who believe there is any inaccuracy in their official academic record (transcript) must notify the Enrollment Services Department immediately. Upon the destruction of the supporting student record documents three years after the student's last enrollment at Kirkwood, the official academic transcript is regarded to be the final accurate record of academic accomplishment.

Notice to Students Regarding Family Educational Rights and Privacy Act of 1974

In accordance with provisions of Public Law 93-380 as amended (P.L. 93-568), the Family Educational Rights and Privacy Act of 1974, commonly known as the "Buckley Amendment," notice is hereby given to Kirkwood Community College students and their parents as follows:

It is the intention of the college to comply with provisions of this law. The college rules and regulations to implement compliance procedures are available to interested parties, and may be reviewed during normal business hours in the following campus locations: Enrollment Services, Student Affairs Office and the Learning Resource Center. Students who believe the college is not complying with this law are hereby informed of their right to file a complaint with the U.S. Office of Education.

The college maintains only those "Education Records," within the definition of this law, which are essential to the process and procedures required to develop and maintain an accurate academic record for each student and to support such student accounting needs and requirements as are imposed by law, state and federal regulations, and college operational procedures. These records may be found in some or all of

the following offices: Enrollment Services, divisional, departmental, major program, Student Activities and advisors. Subject to provisions of the college rules, they may be reviewed by students upon request.

This law permits the college to make public certain "directory information" about students. It is the intention of the college to do so, within the scope of regular college policies and as may be appropriate to the normal course of college business and operations. The following information is regarded to be "directory" type information, and some or all of it may be made public: name, address, telephone listing, major field, class schedule, courses of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, age and/or date of birth, dates of attendance, degrees and awards received, and previous educational programs and institutions attended by the student. Any student objecting to his or her directory information being made public must file notice of such objections with the Enrollment Services Department.

Dr. Bill F. Stewart
President

Degree and Graduation Requirements

Arts and Sciences Division

Transfer of Credit From Other Institutions

The Arts and Sciences Division will accept the credits given to a student who has done successful work at any properly accredited college, provided that the work was part of the curriculum of a two-year associate degree — equivalent to any of the associate degrees offered by the Arts and Sciences Division at Kirkwood, or a baccalaureate degree or was part of such a program. Courses in any of these degree programs will transfer even though the student may have been involved in non-degree work at that institution. In order to receive the associate degree granted by the Arts and Sciences Division, the student must also fulfill the requirements for those degrees as are listed in this catalog.

In the evaluation of transfer students' transcripts from institutions previously attended, Kirkwood applies the following general policies:

1. *Grades of "F" (or any other "failing" grades) of transfer students will be ignored in the computation of a cumulative transfer grade point average if any of the following conditions are met:
 - A. The courses involved were taken during or after the 1972 fall quarter and before the 1981-82 fall quarter; or
 - B. The student has not been enrolled in any program of higher education leading to an associate or baccalaureate degree for a period of at least three consecutive years; or
 - C. The student has served in the Armed Services of the United States for at least two years or any smaller portion thereof if discharged with a service-connected disability.
2. Grades corresponding to "D" or better will be accepted for transfer if from a properly accredited institution.
3. Decisions about the applicability of transfer courses toward Kirkwood requirements will be made by the Enrollment Services Department and reported to the student. Any questions regarding this should be directed to that office.

When a transfer student's credits are accepted toward the associate degree of Kirkwood, the college cannot guarantee how other colleges will treat these same credits.

*This provision applies in equal measure to Kirkwood students.

Acceptance of Vocational-Technical Credit Toward AA or AS Degrees

Kirkwood Community College will accept for credit toward Associate of Arts or Associate of Science degrees, vocational-technical credits earned in courses which are part of two-year Associate of Applied Science degree technical programs at Kirkwood or other accredited Iowa Area Schools. (Such credits are hereinafter referred to as "technical" credits.) These technical credits are acceptable toward Associate of Arts or Associate of Science degrees subject to the following provisions and conditions:

1. A maximum of 24 quarter hours of technical credits earned in Kirkwood resident course work will be accepted toward Associate of Arts or Associate of Science degrees. They may not be used to satisfy core or general education requirements.
2. Kirkwood will accept for transfer (from another accredited Iowa Area School) a maximum of 24 quarter hours of earned vocational-technical credits toward Kirkwood Associate of Arts or Associate of Science degrees which the sending Area School has accepted toward their own Associate of Arts or Associate of Science degrees provided that:
 - A. A statement of that Area School's policy on internal articulation of vocational-technical credits toward their own Associate of Arts and Associate of Science degrees in on file with the Enrollment Services Department of Kirkwood;
 - B. The sending Area School's transcript clearly indicates which vocational-technical courses are acceptable toward their Associate of Arts or Associate of Science degrees.

After application of technical credits, a student must complete the following requirements to receive an Associate of Arts or Associate of Science degree:

1. Satisfactorily complete all general education requirements established for the degree being sought.
2. Earn a minimum of the last 24 quarter hours of degree applicable course work in residence.
3. Earn a minimum of 90 quarter hours of credit acceptable toward the Associate of Arts or Associate of Science degrees (as defined under this and any other applicable policies of Kirkwood).
4. Earn the required minimum cumulative grade point average on all course work applied toward the degree sought. This cumulative grade point average will be computed using as many of the best earned technical credits as required to bring the degree applicable credit total to 90 quarter hours.

General Requirements for the Associate of Arts, Associate of Science and Associate of Science/Career Option Degrees

1. Earn a minimum of 90 quarter hours of credit. Remaining hours after specific requirements for the degree are satisfied will be taken from Arts and Sciences electives designed for transfer, with the understanding that 24 quarter hours of vocational-technical courses could be included.
2. Earn the last 24 quarter hours in residence at Kirkwood in a degree program for which the degree is sought.
3. Maintain a minimum cumulative grade point average of 2.0.
4. Satisfactorily complete 8 quarter hours in Composition and 4 quarter hours in Speech.

Specific Requirements for the Associate of Arts Degree

1. Complete general requirements described earlier.
2. Complete group requirements as follows:¹
 - A. Humanities — 12 quarter hours (at least 4 hours in Literature and at least 4 hours in Arts and Ideas);
 - B. Mathematics/Science — 12 quarter hours (at least 1 course in Math and at least 1 course in Science);
 - C. Social Sciences — 12 quarter hours;
 - D. Historical Cultural — 8 quarter hours;
 - E. Distributed requirements — 4 quarter hours from Communication Arts, Humanities, Math/Science, Social Sciences or Historical Cultural.

Programs begun prior to fall, 1983, and completed by summer, 1986, may complete different group requirements. See Enrollment Services or the Advising Center for details.

Specific Requirements for the Associate of Science Degree

1. Complete general requirements described earlier.
2. Complete group requirements as follows:¹
 - A. Humanities/Historical Cultural 8 quarter hours
 - B. Social Sciences 8 quarter hours
 - C. Mathematics/Science 30 quarter hours
3. The remaining 32 quarter hours will be taken from Arts and Sciences electives designed for transfer.

Specific Requirements for the Associate of Science/Career Option Degree

1. Complete general requirements described earlier.
2. Complete group requirements as follows:¹
 - A. Humanities/Historical Cultural 8 quarter hours
 - B. Social Sciences 8 quarter hours
 - C. Mathematics/Science 8 quarter hours
 - D. Career Option Emphasis 30 quarter hours

¹For a complete definition of which courses fulfill which group requirements, see the Arts and Sciences course description section.

Vocational-Technical Division

Transfer of Credit From Other Institutions

The Vocational-Technical Division may accept credits awarded to a student who has done successful work at any recognized accredited college or vocational institution provided that the work is equivalent to the course work requirements of the vocational-technical program that the student is enrolled in. No grade will be issued for a transfer course and the transferred course(s) will not be used in the computation of the cumulative grade point average. In order to receive the certificate, diploma or Associate of Applied Science degree granted by the Vocational-Technical Division, the student must also fulfill the remaining requirements for those awards as well as the residency requirements as listed in the college catalog.

Decisions about applicability of transfer courses toward Kirkwood requirements will be made at the appropriate department level in conjunction with the Enrollment Services Department and reported to the student. Any questions regarding this should be directed to the appropriate departmental office.

Requirements for the Associate of Applied Science Degree

1. Earn a minimum of 90-111 quarter hours of credit for a 6 quarter program.
2. Earn the last 24 quarter hours in residence at Kirkwood in a program for which the degree is sought.
3. Maintain a minimum cumulative grade point average of 1.80.
4. Satisfactorily complete group requirements as follows:
 - A. Diploma, where applicable — 45-66 quarter hours
 - B. Applied general education support courses — 20 quarter hours (14 if 6 are already met with diploma requirements)
 - C. Additional technology courses — 0-21 quarter hours
 - D. Electives — 0-10 quarter hours

Requirements for the Diploma

1. Earn a minimum 45-66 quarter hours of credit for a 3 quarter program.
2. Earn the last 12 quarter hours in residence at Kirkwood in a program for which the diploma is sought.
3. Maintain a minimum cumulative grade point average of 1.80.

4. Satisfactorily complete group requirements as follows:
 - A. Technology vocational certificate, where applicable — 28-42 quarter hours
 - B. Applied general education support courses — 6 quarter hours unless already met with certificate requirements.
 - C. Additional related technology courses — 15-24 quarter hours

Requirements for the Vocational or Technical Certificate

1. Earn a minimum 28-42 quarter hours of credit.
2. Earn the last 9 quarter hours in residence at Kirkwood in a program for which the certificate is sought.
3. Maintain a minimum cumulative grade point average of 1.80.
4. Satisfactorily complete group requirements as follows:
 - A. Selected technology core — 22-36 quarter hours
 - B. Applied general education support courses — 6 quarter hours

For a complete definition of which courses fulfill which group requirements, see the Vocational-Technical Instructional Program section.

Other Graduation Information

Filing a Graduation Application

Each student who plans to earn an associate degree, diploma or certificate of program completion, must file a graduation application with the Enrollment Services Department during the first week of the quarter in which he or she plans to complete the necessary course work.

While students may complete their requirements for graduation during any quarter, commencement exercises will be held at the end of the spring and summer terms. Students completing requirements in the fall or winter terms are encouraged to participate in the spring commencement exercises.

Transcripts

Official transcripts are available through the Enrollment Services Department. Transcripts sent to other institutions and employers are free of charge. Each transcript given or mailed to the student costs \$1.00 and must be paid for at the time it is requested.

Requirements for the Adult High School Diploma

1. A Kirkwood adult high school diploma will be granted when the student meets the requirements toward graduation.
2. The high school completion program is operated on

both a quarter system (12 weeks) and by individualized instruction at area Community Education centers.

3. Students may begin at any time.
4. A student must earn a minimum of 48 quarter hours of credit.
5. Six quarter hours of study in residence at Kirkwood are required in the High School Completion program regardless of the number of remaining credits needed.
6. Credit may be awarded for military school, vocational training and work experience.

Requirements for the Iowa High School Equivalency Diploma

The Iowa High School Equivalency Diploma is granted on the basis of the attainment of an average standard score of 45 on the General Education Development (G.E.D.) tests. The tests are offered at several locations including Iowa City Community Education Center, Anamosa Reformatory, Lincoln Community Education Center, Monticello, Washington, Vinton, Williamsburg, Marion, Hartwick, Tipton, Oakdale and the Kirkwood main campus.

A high school equivalency diploma issued by the Iowa Department of Public Instruction is awarded and a permanent transcript file is maintained by the college.

A high school equivalency diploma will not be given until an applicant has reached his or her eighteenth birthday and his or her high school class has graduated.

Further information is available through Kirkwood's Community Education Division.

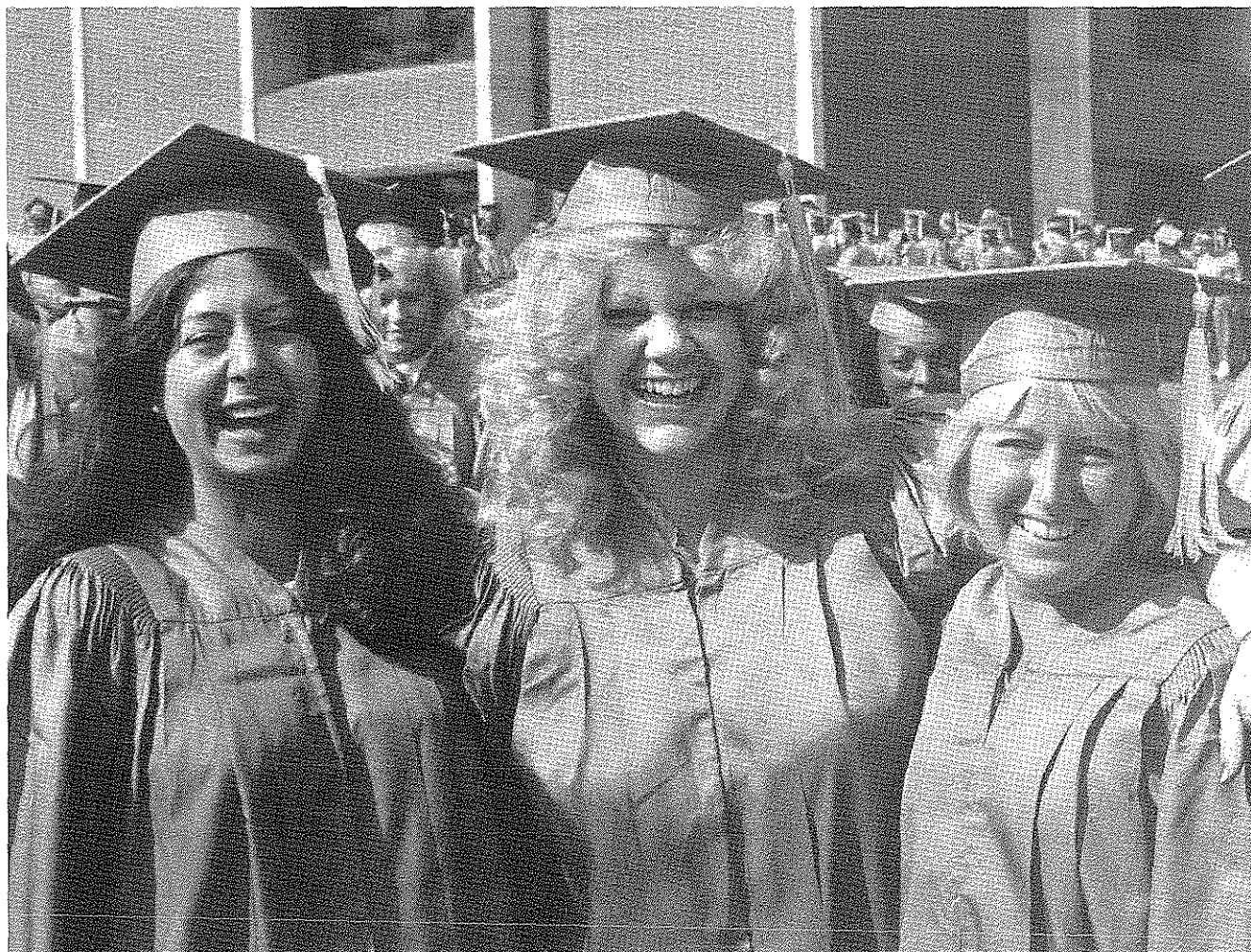
Student Responsibility for Catalog Information

Each student is responsible for being familiar with the information appearing in this catalog. Failure to read the regulations will not be considered an excuse for non-compliance.

The college reserves the right to change policies or revise curricula as necessary due to unanticipated circumstances.

Waiver of Regulations

Rules and regulations in this catalog have been adopted by the faculty, administration and board of directors of the college. When a student finds that extenuating circumstances might justify the waiver of a particular college regulation, however, the student may file a petition with the dean of Student Affairs, according to established procedures.



COURSE DESCRIPTIONS

Guide to Areas of Study

The course descriptions in this section are listed according to the following prefixes assigned for each area of study:

AC — Accounting
AG — Agriculture
AM — Administration and Management
AT — Art
BY — Biological Science
CE — Cooperative Education
CH — Chemistry/Nutrition
CM — Communication
CO — Corrections
CP — Computer Science
CS — Construction
DA — Dance
DN — Dental
DP — Data Processing
DR — Drama
EA — Earth Science
EC — Economics
EG — Engineering
EL — Electricity and Electronics
EV — Environmental Studies and Pollution Control
FL — Foreign Languages
FS — Fire Science
GE — Geography
GR — Graphics
GS — General Studies
HE — Home Economics
HU — Humanities
HY — History
IS — Interdisciplinary Studies
JO — Journalism
LE — Law Enforcement
LS — Library Services
LT — Literature
LW — Law
MA — Mathematics
MF — Manufacturing
MH — Mechanics
MK — Marketing
MM — Metals and Manufacturing
MS — Medical and Surgical
MU — Music
NS — Nursing
OE — Office Education
PD — Personal Development

PH — Physics/Astronomy
PR — Philosophy and Religion
PS — Political Science
PY — Psychology/Education
RE — Recreation
SO — Sociology
SS — Social Science
SW — Social Welfare
TH — Therapy

A list of courses no longer taught at Kirkwood is available from the Registrar's Office.

Course Numbering System

Each course description in this section is preceded by a course number such as **AC001T**. Below is described what the letters and figures mean in each number:

1. The two-letter prefix in the number denotes the area of study in which the course may be found in this section. The area of study is the academic discipline that most nearly describes the content of the course. (For example, "BY" is the prefix for courses that have biology as their basic subject matter.) The various areas of study and their prefixes are listed on this page. Since this section is organized alphabetically by prefixes, it is best to know the number of the course for which you are looking.
2. The three numerals in the body of the course number are random, and are not intended to imply any sequence for taking courses.
3. The letter at the end of the course number represents the level of instruction according to the following code:
 - D — Developmental
 - G — General Studies
 - T* — Transfer
 - U — Voc. Tech. (Applies to AAS)
 - V — Voc. Tech. (Applies to Diploma)

*T - Courses asterisked are under review by the curriculum instruction committee for permanent approval.

The credit value of each course is indicated in quarter hours following the title of the course. Where possible, the description also indicates the number of lectures and lab sessions involved. Thus, (3/1) indicates three lecture hours and one lab hour per week.

AC: ACCOUNTING

	Credit hours	
AC001T Principles of Accounting I	4	Approaches accounting theory and procedures from the business entity concept. Accounting principles covered include understanding the balance sheet and income statements, matching costs and revenues, working paper development and debit-credit relationships. (4/0)
AC002T Principles of Accounting II	4	Emphasizes partnership and corporate entities, worksheet adjustments and assessed valuation. Prereq: AC001T. (4/0)
AC003T Principles of Accounting III	4	Emphasizes management uses and studies introduction to cost accounting, cost analysis, budgeting, fund flow and statement analysis. Prereq: AC002T. (4/0)
AC004T Cost Accounting I	4	Relates principles and methods of handling materials, labor cost and manufacturing expenses to the formulation of reports to management. Prereq: AC003T. (4/0)
AC005T Cost Accounting II	4	Emphasizes standard costing and budgeting. Prereq: AC003T. (4/0)
AC006T Intermediate Accounting I	4	Includes a review of accounting procedures and the reporting process. Provides in-depth analysis of cash, receivables and inventories. Prereq: AC003T. (4/0)
AC007T Intermediate Accounting II	4	Emphasizes investment accounting, tangible and intangible assets, and liabilities. Prereq: AC006T. (4/0)
AC009T Intermediate Accounting III	4	Covers corporation accounting, consignment and installment sales, and income correction and statement changes. Prereq: AC007T. (4/0)
AC0010T Analyzing Financial Statements	3	Covers goals, methods and tools of analysis of profit and loss, accounts receivable, inventories and balance sheets; the relationship of balance sheet accounts to sales; and projected statements and cash budgets. This course could prove to be difficult to students with little background in accounting. (3/0)
AC015T Personal Income Tax	2	Provides a basic knowledge of individual income taxation, its purpose and development, possible future modifications and its significance for individual tax planning. (2/0)
AC018T Income Tax	4	Studies the federal income tax law, its purposes and development, and its significance for tax planning. Emphasis is placed on the application to the individual and the single proprietorship business. Prereq: AC001T. (4/0)
AC019T Agricultural Accounting	1-4	Appraises methods of keeping farm and farm supply business records and accounts for farm and tax management, and interprets capital, credit, income accounts, production records and net worth statements. Farm income tax procedures and management are also studied. (2-4/0-4)
AC021T Computer Applications: Accounting	4	Consists of "hands-on" applications of the microcomputer to real-world accounting problems. Imparts a basic knowledge of the capabilities and limitations of existing small business computers. Prereq: DP010T; AC001T or AC001V. (2/4)
AC005U Small Business Record Keeping	2	Designed to help the small business person keep simple cash flow, expense and receipt records. It also includes necessary record keeping for basic payroll and sales tax records. The assumption is made that students have not previously had any experience with bookkeeping or record keeping. (2/0)
AC006U Management Accounting	4	Presents management's viewpoint on cost analysis, budgeting, fund flow and statement analysis. Prereq: AC001T. (4/0)
AC009U Accounting Problems	2	Provides the student with the opportunity to secure assistance in accounting course work, and provides an opportunity for more in-depth study. Time arranged. (1/2)
AC013U Agricultural Tax Accounting	1-3	Studies federal and state income tax laws that pertain to individual and agricultural business enterprises. Related problems and tax forms are part of this course. (1-3/0)
AC016U Office Accounting	4	Provides an understanding of basic accounting concepts and procedures. Includes the recording of transactions, preparation of financial statements, and payroll problems. A practice set will be completed. (4/0)
AC018U Agribusiness Accounting	1-4	Applies principles of double entry accounting to the agricultural supply industry. Involves journalizing transactions and posting to the ledger, and preparing and analyzing financial statements. (1-4/0-4)
AC019U Medical Bookkeeping	3	Covers basic principles of bookkeeping from the viewpoint of the medical assistant. Areas of study include journalizing, posting to the ledgers and taking a trial balance, and preparation of financial statement. Special attention is given to patient billing, preparing for audits, peg board accounting, use of data processing services and insurance tax forms. (2/2)
AC020U Business Simulation	4	Integrating skills the student has learned in the preceding three quarters, the student will be placed in office situations which will use the knowledge already gained. Manual accounting will be done, the computer used and various office skills brought into use. Phone skills, filing and typing will be used. The student will see how his/her job fits in with other employees (students). (0/8)
AC021U Professionalism	1	This course is designed to give the two-year accounting student insights into the various areas of accounting. It is a two-quarter course (offered Fall and Winter only) which will bring members of the accounting profession on campus to talk to students. The student will also investigate job opportunities in the accounting area. (0/2)
AC001V Accounting Fundamentals I	5	Introduces the complete accounting cycle for personal service and merchandising enterprises. Application of fundamental principles covered in laboratory practice. (5/0)
AC002V Accounting Fundamentals II	5	Continues Accounting Fundamentals I, with further study of accounting for purchases, sales, inventory, prepaid expenses, long-lived assets and accounting for owner's equity. Prereq: AC001V. (5/0)
AC003V Accounting Fundamentals III	5	Continues Accounting Fundamentals II, with emphasis on corporate organizations and an introduction to cost accounting. Prereq: AC002V. (5/0)
AC005V Floriculture Bookkeeping	4	Studies the basic theories of accounting concepts and procedures as they apply to the floral shop. Special attention is given to recording basic transactions, credit, payroll and banking. (4/0)
AC008V Income Tax Procedures	3	Training in the preparation of federal and state income tax returns. (3/0)

AG: AGRICULTURE

AG001T Fundamentals of Soil Science	3-4	Introduces physical, chemical and biological properties of soils, their formation, classification and distribution. Prereq: CH001T. (3-4/0)
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- AG002T Principles of Horticulture 3-4**
Explores horticulture in daily living: plant growth, environment, propagation, cultivation, pruning, protection, harvesting, quality control and selection. Also covers home grounds development and maintenance. (3-4/0)
- AG004T Introduction to Agricultural Education 1**
Reviews the agriculture teaching profession in secondary and post-secondary schools. (1/0)
- AG005T Animal Production 4**
Focuses on basic elements of the comparative characteristics and bodily functions of farm animals, their place on animal agriculture, and the production, evaluation and marketing of their products. Includes cattle for meat and milk, horses, sheep, swine and poultry. (3-4/0-2)
- AG006T Principles of Crop Production 3-4**
Introduces principles of plant-soil climate relationships in crop production. (3-4/0)
- AG002U Forage and Oat Production 1-3**
Involves study in the technical areas of various forages and oat production, including varieties, fertility, tillage methods and various pasture and forage management methods. (1-3/0-4)
- AG003U Agribusiness Procedures 3-4**
Reviews terminology used in agribusiness, the handling of money from sales, inventory control, customer credit control, business money management and basic double-entry bookkeeping. (1-4/0-4)
- AG005U Agricultural Chemicals 3**
Relates pesticide terminology, labels, uses, cost and safety, and also covers establishing herbicide test plots. (3/0)
- AG006U Career Planning Seminar .5-2**
Assists the student in managing his or her affairs as an employee. Includes "mini-courses" on current topics and also includes planning the student's courses and activities while at Kirkwood. (.5-2/0-2)
- AG010U Park Maintenance Programs 4**
Includes development and analysis of maintenance programs for buildings, campgrounds, lake areas and related recreational facilities. (3/2)
- AG012U Employment Experience 1-6**
Offers employment or field study arranged to give students practical, on-the-job training or similar applied experience and study. (3-2/6)
- AG015U Park and Recreation Administration 4**
Examines the organization and administration of park employees and related programs. Budgeting and record keeping are discussed. (3/2)
- AG016U Feed Rations 2-4**
Includes selection of ingredients, types of feeds and use of feed additives to formulate proper rations for different classes of livestock. (1-4/0-8)
- AG017U Field Crop Production 1-6**
Develops and applies understandings and abilities in crop production covering management practices, plant growth factors, seed variety, tillage and harvesting practices. (1-4/0-6)
- AG018U Wildlife Reserves 4**
Concentrates on proper wildlife management through carefully planned and maintained reserves, preserves and refuges. Management techniques presented include those for game, non-game and aquatic animals. Prereq: BY113U, BY114U, BY115U. (3/2)
- AG022U Horse Nutrition 1-6**
Includes knowledge and understanding of feed stuffs used to fulfill required amounts of nutrients for different types of horses used under different conditions. (1-6/1-6)
- AG026U Garden Center Operations 4**
Introduces marketing, merchandising, advertising and business analysis as they pertain to the garden center industry. A systematic approach to garden center management is developed. (3/2)
- AG027U House Plants 1-4**
A survey of 25 to 75 common house plants. Students learn culture, use and propagation of each species. (0-4/0-8)
- AG029U Landscape Construction 4**
Involves the design and construction of retaining walls, patios and walkways. Students learn area, volume and other calculations essential to construction. (2/4)
- AG030U Basic Landscape Drawing 4**
Presents instruction in graphic communications as utilized in landscape design formal drawings and informal sketches. Use of drafting equipment and application of drafting techniques are stressed. (2/4)
- AG031U Residential Landscape Design 4**
Studies the landscape design process and functional and aesthetic organization of space and plant materials as involved in residential landscaping. (2/4)
- AG034U Commercial Landscape Design 4**
Involves preparation of landscape designs for commercial and institutional buildings. Analyzes landscaping as a business and includes specifications, bidding and record keeping. (2/4)
- AG035U Commercial Plant Production 4**
Teaches production of plants for profit. Includes growing techniques, scheduling, record keeping and cost analysis for nursery and greenhouse businesses. (3/2)
- AG036U Fruit and Vegetable Production 4**
Introduces the student to the production of midwestern fruit and vegetables with emphasis on cultural practices, variety selections and storage. (3/2)
- AG042U Weed Identification 2-4**
Includes material on identification, classification and control of midwestern broadleaf and grassy weeds. Students learn to observe many individual plant characteristics as a means of identification. Much emphasis is placed on control. (1-4/0-8)
- AG044U Plant Materials I 4**
Develops skills in the identification and cultural requirements of 75 varieties of deciduous trees, conifers and shrubs native to Iowa. (3/2)
- AG045U Plant Materials II 4**
Studies the identification and cultural requirements of 75 ornamental trees, shrubs and vines. Prereq: AG044U. (3/2)
- AG046U Plant Materials III 4**
Studies the identification and cultural requirements of 75 ornamental trees and shrubs including some of the exotics and named varieties. Prereq: AG045U. (3/2)
- AG047U Herbaceous Plant Material 4**
Studies the identification and cultural requirements of 25 annuals, 30 perennials and 20 bulbous plants. Includes production and marketing practices and principles of design. (2/4)
- AG048U Plant Propagation 4**
Introduces student to techniques used in reproducing plants through sexual and asexual methods. Seedlings, vegetative cuttings, grafts and buddings are practiced in the laboratory. (2/4)
- AG050U Horse Production I 1-6**
Applies actual feeding and care of college's light horses under a practical management situation. Certain competency tests are performed related to an efficient stable master schedule and the implementation of a schedule. (0-6/2-12)
- AG051U Horse Shows Management 1-6**
Identifies and applies necessary requirements to prepare and show a horse for show, and includes instruction in participation of setting up and conducting a horse show. (0-6/2-12)

- AG053U Soil Fertility 4**
Provides a working knowledge of soils and fertilizers. This course prepares a student to make proper amendments to an existing soil as a means of improving its productivity. (1-4/0-8)
- AG054U Horsemanship: Balanced Seat 1-6**
Studies horse care before and after riding, initial seat position, elements of the seat, posting trot, aids, turns, leads off the canter, equitation and coordination of the aids. (0-6/2-12)
- AG056U Soil and Water Conservation 4**
Studies the different components of soil, soil forming factors, soil erosion and soil conservation. Introduces the student to surveying techniques and use of soil survey reports. (3/2)
- AG057U Turfgrass Management 4**
Considers the culture of turf with emphasis placed on establishments, turf varieties and pest identification and control. (3/2)
- AG061U Principles of Ruminant Nutrition 3**
Examines the anatomy and functions of ruminant digestive system along with discussions and demonstrations of feeding requirements and efficiencies of various classes of beef cattle. Prereq: AG150U. (2/2)
- AG062U Horticulture Equipment 4**
Introduces the student to basic engine theory, operation and troubleshooting. Provides a working knowledge of equipment used in the horticulture industry. (2/4)
- AG063U Beef Industry 2-4**
Relates an overview and introduction to the beef industry and applies methods in starting cattle on feed, husbandry practices in the beef herd, and forage harvesting. (1-4/2-8)
- AG064U Beef Feed Lot Management 2-4**
Relates methods of starting cattle on feed and fall management of weaned calves, including branding, castration, vaccination and dehorning. Appraises feedlot budgeting and fall husbandry practices for the beef cow herd. Includes off-campus laboratory assignments to reinforce class presentation. (2-4/0-4)
- AG065U Applied Ruminant Nutrition 2-6**
Treats the selection of feed rations for specific classes of beef cattle, based on economics of ingredients and cattle net energy requirements. Students relate the causes and effects of various feed deficiencies and use current ration formulation techniques, such as operating a programmable calculator. (1-6/2-12)
- AG067U Sheep Production 1-3**
Examines the principles of sheep breeding, reproduction, feeding, marketing, and building and equipment requirements. (1-3/0-4)
- AG071U Swine Breeding and Genetics 2-4**
Reviews basic livestock genetics and swine heritability, and identifies swine breeds, breeding programs, swine selection and swine record systems. (1-4/2-8)
- AG072U Swine Records and Management 2-6**
Identifies records needed in swine production and record keeping techniques. Students prepare and assess budgets, income and expense records, and cash flow as they relate to swine production. (2-6/0-12)
- AG073U Swine Breeding Stock Selection 2-4**
Recognizes swine reproductive characteristics and their importance, and identifies type and confirmation necessary for economic production. Covers breeding stock selection based on visual appraisal and performance records. (2-4/0-4)
- AG075U Horse Production II 1-6**
Continues application of actual feeding and care of college's light horses under a practical management situation. Certain competency tests are performed related to an efficient stable master schedule and the implementation of a schedule. (0-6/2-12)
- AG079U Field Crop Planning II 3**
Develops land planning skills through a simulated project of renting new property. Students use a soil survey, choose a soil fertility program, and propose a partial budget and cash flow for selected crops. Prereq: AG131U. (2/2)
- AG081U Dairy Production 1-3**
Examines dairy selection, breeding, housing and equipment, nutrition, herd health and husbandry practices. (1-3/0-4)
- AG088U Swine Production 1-4**
Examines the fundamentals of swine production for the pork producer to enable improvement of the breeding, feeding and management of his or her swine enterprise. Includes basic skills and new research ideas that will be beneficial to both the new and experienced pork producer. (1-4/0-4)
- AG089U Agricultural Fertilizers 2-4**
Students will examine the studies of agricultural fertilizers that are being used today on field crops and will observe the different types of fertilizer and the different application methods. (1-3/0-6)
- AG092U Beef Breeding and Reproduction 2-6**
Covers applied breeding of beef cattle, including evaluation of breeding animals and developing breeding programs. Discusses tissue development of beef cattle and appraisal of performance data. (1-6/2-12)
- AG094U Grain Marketing (Futures) 1-3**
Develops skills and knowledge in futures marketing concerning grain commodities, with emphasis on pricing and services performed in the marketing system. (1-3/0)
- AG103U Agricultural Finance 1-4**
Identifies credit sources in agriculture - where and how to secure credit, interest rates and repayment capacities for maximum farm income. (1-4/0-4)
- AG108U Shop Facilities and Equipment 2-3**
Concentrates on the maintenance of physical plant and grounds of the farm equipment dealership in the areas of general carpentry, plumbing, electrical wiring and electric motors. (1-2/2-4)
- AG109U Agricultural Power Unit Operation 1-12**
Designed to familiarize students with KCC farm lab equipment. Requires students to demonstrate working proficiency with tractors, skid steer loader spreaders and livestock trailers. (1/2)
- AG110U Business Record Systems 3**
Includes assessing and using requisitions, purchase orders, invoices, balance sheets and other records and forms necessary in the operation of a farm supply business. Students use several agribusiness record systems. Applied record instruction is given during the operation of the Kirkwood Ag. Service Center. (2/2)
- AG111U Agricultural Service Center Retailing 2-6**
Includes interpreting and processing customer requests in a courteous and businesslike manner while operating the Kirkwood Ag. Service Center. Demonstrates finding the customer's need, product knowledge, closing the sale, and handling customer objections. Also includes cash register operations and completing sales records. (0-6/1-10)
- AG114U Crop Production Orientation 3**
Determines acreage and location of Kirkwood's fields and test plots, plus estimation of grain and forage yields, and comparison of grain grading and marketing procedures. (2/2)
- AG115U Corn Production 2-3**
Studies and compares different types of tillage methods, seed varieties, fertilizer programs, diseases, and chemical application used in modern corn production. (2-3/0)
- AG116U Crop Enterprise, Spring 1-6**
Identifies and compares different tillage methods of establishing forage and oats. In addition, the course looks at seed variety, seed rates and depths of

planting, inoculation of seed, and steps in forage improvement and renovation of pastures. (0-6/2-12)

AG131U Field Crop Planning I 2-6

Analyzes Kirkwood crop production records. Students develop a crop marketing plan and evaluate the Kirkwood farm lab machinery inventory and needs. Students also attend several industry-sponsored events such as the Agriculture Fertilizer and Chemical Dealer's Conference. (1-6/2-12)

AG137U Grain Grading and Processing 2-4

Studies principles and practices used in grading grain, including the official United States standards for grain and those factors which influence the quality of grain. (1-3/0-6)

AG147U Field Crop Analysis 3

Analyzes herbicide and pesticide performance on two crops as well as variety performance. Students are required to publish results and conduct a field day for the public. (2/2)

AG150U Livestock Nutrition 3

Course deals with basic feeds and feeding of swine and beef cattle. Class is intended for beginning students. (3/0)

AG152U Land Use and Conservation 3

Studies conservation practices such as terraces, contours and rotations in production agriculture. The course also studies soil types and their capacity to produce field crops. (2/2)

AG157U Inventory Control Procedures 2-6

Relates inventory control procedures using the mini-computer and the visi-records. Reviews merchandise pick up and delivery; physical and perpetual inventory and warehousing. Students apply inventory practices while operating the Kirkwood Ag. Service Center. (0-6/1-10)

AG159U Swine Nutrition and Feeding 2-4

Covers swine ration formulation, feed techniques and feed manufacturing. Treats the selection of feed rations for specific classes and ages of swine. (2-4/0-4)

AG179U Advanced Evaluation and Selection 2-4

Further develops students' potential in judging of livestock. Farm laboratory livestock and livestock farms will serve as a means for applying classroom knowledge. Students will also apply knowledge in various field trips to livestock exhibitions to judge and give reasons for their judgement. The course may be repeated for credit with instructor's consent. Prerequisite: AG230U. (0-4/0-8)

AG200U Animal Health Products 2-4

Concentrates on products used to control diseases and parasites in animals. This course deals with product recommendations, basic principles of disease prevention and control, and effect of weather and environment on disease and disease symptoms. (1-4/0-4)

AG201U Horse Physiology and Hoof Care 1-6

Discusses and identifies the conformation of the horse, the respiratory, digestive, nervous and circulatory systems, plus skeletal and muscle structure. Also provides instruction on the care and condition of horses' legs and feet. (0-6/2-12)

AG203U Horsemanship 1-6

Continues Horsemanship, Fall, with emphasis placed on advanced riding styles and techniques. (0-3/2-6)

AG204U Horse Breeding 1-6

Covers the physiology of breeding, brood mare selection and care, and stallion management. Also breeding techniques, including artificial insemination. (0-6/2-12)

AG205U Farmstead Planning and Mechanization 3

Includes the principles of farmstead planning and arrangement, particularly toward site selection, traffic and predominant selection factors. Emphasis will be placed on distance from water and other services. (2/2)

AG206U Greenhouse Practices 4

Studies growing techniques used in commercial greenhouse plant production. Involves the design of greenhouses, their environmental control systems and cultural practices. (3/2)

AG207U Agribusiness Management 3

Concentrates on developing decision-making and leadership skills. Covers business money management, analyzing cash flow and financial statements, and personnel management. Explains different leadership styles and management techniques. (3/0)

AG210U Fundamentals of Horse Training 1-6

Provides instructions for obtaining the abilities and skills of training various breeds and types of horses. (0-6/2-12)

AG211U Horse Judging Competition 1-6

Provides instruction in judging an intercollegiate horse judging contest. Students apply knowledge by competing in various intercollegiate horse judging contests. Students justify their placing by giving oral reasons in workout and official judging contests. Prereq: AG327U, AG325U, AG324U. (0-5/0-8)

AG212U Stable Management, Fall 1-6

Designed to provide understanding and abilities in the organization, business aspects, and operation of horse stables. Areas of study include records, care and health of horses in the management of stables. (0-6/2-12)

AG213U Livestock Marketing 1-6

Analyzes livestock marketing procedures including types of markets, prices, marketing costs, grading, consumer demand, marketing regulations and terminology. (0-6/2-12)

AG215U Farm Machinery Management 3

Examines the matching of proper size farm tillage equipment to farm acreage. Includes fuel usage, calculation of field efficiencies, and matching equipment to power and replacement. (3/0)

AG216U Stable Management 1-6

Relates stable facilities, equipment, records and money management. (0-6/2-12)

AG218U Independent Study: Agronomy 1-6

Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation and evaluation of the project development. (0-6/2-12)

AG219U Independent Study: Animal Service 1-6

Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation and evaluation of the project development. (0-6/2-12)

AG220U Special Projects: Horse Science 1-6

Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation and evaluation of the project development. (0-6/2-12)

AG221U Independent Study: Agribusiness 1-9

Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation and evaluation of the project development. (0-6/0-6)

AG222U Special Projects: Horticulture 1-6

Involves individualized study programs or projects supervised by instructional staff. Students resolve special interests/needs through research, experimentation or other related methods. (0/2-12)

AG223U Principles of Farrier Science 1-6

Covers basic concepts of correct preparation and shoeing of a horse, foot unsoundness, leg problems, and methods of correction by proper trimming and/or shoeing. Includes the examination of stance, gaits, unsoundness, breed requirements, methods of restraint and types of corrective shoes and how they function. (0-6/0-12)

- AG228U Training Management 1-6**
Provides instruction in management of the specialized training of various breeds and types of horses. Prereq: AG210U. (0-6/2-12)
- AG229U Extended Horsemanship Techniques 1-6**
Continues Horsemanship with emphasis on riding styles with basic principles and fundamentals in schooling. (0-6/2-12)
- AG230U Livestock Evaluation and Selection 1-4**
Relates the selection of meat animals based on their physical appearance. Students describe the parts of the animal, terminology and reasons for selection. Also reviews livestock production efficiency standards. (1-4/0-4)
- AG231U Pet Grooming 2-5**
Students acquire basic skills necessary for entry-level employment. Various breeds and types of animals are used, with an emphasis on poodle, schnauzer and small mixed breed dogs. Record keeping, state laws, customer relations and problem solving as related to the pet grooming industry are covered. (0-4/1-5)
- AG233U Swine Facilities and Equipment 2-4**
Identifies and evaluates swine production facilities and equipment. Also included is a discussion of basic heating, ventilation and manure-handling systems. (2-4/0-4)
- AG234U Small Animal Behavior 1-6**
Studies dogs' and cats' nervous mechanisms, including senses, reflexes and conditioned reflexes, instincts, needs, drives, hormones, and their effect on behavior. The course also studies how small animals learn and how to condition small animals for training. Students must provide a dog for obedience training. (1-6/0-6)
- AG235U Small Animal Health 1-6**
Includes state and federal laws regarding dogs and cats; anatomy and physiology, causes and preventions of common dog and cat diseases; veterinarian relationships; and determination of pulse, respiration and temperature. (0-6/0-12)
- AG236U Kennel Management 1-6**
Small animal observation techniques, nutrition, grooming and conditioning are areas of study. Also covers small animal health terms, and budgeting and records. (0-6/0-12)
- AG237U Special Projects: Animal Health 1,2,3,4,5,6,9**
Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation and evaluation of the project development. (1-4/2-18)
- AG239U Horse Industry Problems 1-12**
A supervised, independent study course. The student, in consultation with the instructor, designs the horse industry competencies to be learned. Students generally attain these competencies off-campus in various horse industry businesses. Prereq: approval of coordinator and/or department head. (0/2-24)
- AG249U Beef and Dairy Cattle Artificial Insemination 2**
Develops skills of artificial insemination, heat detection and supportive background knowledge for beef and dairy herds, and discusses recommended nutrition, management and genetics. (1/2)
- AG250U Beef Cow/Calf Production 2-4**
Covers participation in calving, including proper nutrition, health, husbandry and solving O.B. problems. Also includes records, identification, and a review of pasture management. Involves off-campus lab assignments. (2-4/0-6)
- AG251U Soybean Production 1-3**
Studies and compares different types of tillage methods, seed varieties, fertilizer programs, diseases and chemical application, as well as weed control and new harvest methods used in modern soybean production. (1-3/0-8)
- AG252U Plant Material Maintenance 4**
Studies pruning, fertilizing, staking and other maintenance practices utilized in tree and shrub care. Emphasis is placed on proper planting and transplanting procedures. (2/4)
- AG254U Grounds Management Problems 4**
Analyzes grounds maintenance needs and management problems for recreational and commercial grounds. The campus laboratory is utilized as a study project. (3/2)
- AG263U Agricultural Career Orientation .5-2**
Joins all first-year Agricultural Technologies Department students for the purpose of further understanding their present or pending career choices. Most career information presented is related to Kirkwood Community College. (.5-2/0-2)
- AG266U Agricultural Leadership 1-3**
Develops skills in using parliamentary procedure, business meeting agendas, techniques of delegation, communications module, organizational structure and listening skills. Includes determining cooperative activities, organization funding, committee functions and leading discussion groups. (1-2/0-2)
- AG268U Interior Plants 1-3**
Identifies commonly grown houseplants and their cultural requirements. Includes propagation techniques. (1-3/0-4)
- AG269U Greenhouse Production 1-3**
Studies the growing of bedding and potted plants in the greenhouse environment. Factors that effect profit and loss are stressed. (1-3/0-4)
- AG271U Swine Diseases Seminar 1-3**
Relates causes and prevention of swine diseases of economic importance in Iowa and swine diseases of current importance. Current state and federal health regulations are also covered. This course is generally taught by a veterinarian. (1-3/0)
- AG272U Horse Breeds 1-4**
Recognizes the major and minor horse breeds and their uses. Students identify the different breeds as to their breed characteristics, origins and capabilities, type and conformation. (1-4/0-4)
- AG274U Horticulture Pesticide Application 1-3**
Involves herbicides, insecticides and fungicides used to prevent and/or correct problems associated with plant growth. (1-3/0-4)
- AG276U Residential Planting Design 1-3**
Studies native and ornamental trees and shrubs. Involves basic drawing and design principles. (1-3/0-4)
- AG277U Native Trees and Shrubs 1-3**
Focuses on identifying native trees and shrubs of Iowa. Cultural requirements are stressed. (1-3/0-4)
- AG278U Ornamental Trees and Shrubs 1-3**
Involves the identification and cultural requirements of woody plant material commonly used in landscape planting. (1-3/0-4)
- AG279U Rural Facilities Maintenance 1-3**
Designed as a basic maintenance course related to rural facilities and related structures. Includes carpentry, wiring and plumbing. (0-4/0-8)
- AG280U Horse Diseases Seminar 1-2**
Relates causes and prevention of horse diseases of economic importance in Iowa and horse diseases of current importance. Current state and federal health regulations are described. This course is generally taught by a veterinarian. (1-2/0)
- AG282U Agricultural Service Center Operations 1-12**
Affords students an opportunity to work at their individual pace in the Kirkwood Ag Service Center, a supply-type store operated within the Agribusiness and Natural Resources Department. Students may take the appropriate number of credits to meet their personal career needs. Students will spend 24 hours per credit hour taken working in the store. (1-12/2-24)
- AG284U Crop Harvesting and Drying 3**
Prepares students to operate the Kirkwood graindrying system. Students will

also describe corndrying systems and determine grain shrink, assess harvest losses, corn and soybean yields, and adjust crops to moisture percent. (2/2)

- AG289U Horse Project 2-6**
Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation and evaluation of the project development. (1-3/2-12)
- AG290U Orientation to Horse Production 1-12**
Relates basic information on horse production and identifies basic horse terminology and horse industry happenings. The course also describes basic approved practices in horse nutrition, health, stable operations, breeds and selection, and is designed for the student with little or no experience with horses. (1-12/2-12)
- AG293U Orientation to the Animal Health Industry 2-5**
Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation and evaluation of the project development. (2/2-10)
- AG294U Laboratory Techniques: Animal Health 1-4**
Practices common livestock laboratory procedures. Some examples are identifying worms and worm eggs in animal feces using a microscope, examining blood microscopically to identify blood parasites, collecting a blood sample and performing blood cell counts, and prepare aerobic and anaerobic bacteria cultures. Prereq: BY030T or equivalent. (0-4/0-8)
- AG295U Beef Production 1-4**
Provides the basic principles of raising beef at different stages. Identifies the breeds and how to select breeding and feeder stock. Students develop basic fundamental skills in handling and working with beef operations. (1-4/0-4)
- AG297U Horse Husbandry 4**
Provides the basic information about occupational opportunities and principles of horse selection. The student studies and applies horse care and basic riding principles. (3/2)
- AG298U Basic Soils 3**
Introduces the student to the basic soil terms and principles of soil. The student applies the soil factors in determining soil tests. (2/2)
- AG299U Agricultural Careers 4**
Provides the student information about careers that are farm-oriented positions. The student examines each farm position carefully. Student becomes familiar with basic guidelines for getting a job. (3/2)
- AG300U Animal Feeding 4**
Studies the basic principles of animal feeding in the animal species including beef, horse and swine. Determines the nutrient requirements for all species and their different stages of growth. (3/2)
- AG301U Basic Small Grain Principles 4**
Studies the various areas in small grains including forages and oats production. Covers the basic principles of producing small grains. (3/2)
- AG302U Basic Corn Principles 4**
Provides the basic information about growing corn by analyzing the different methods used for having a successful corn crop, such as comparing seed varieties, tillage methods, and crop fertilizer and chemical programs. (3/2)
- AG303U Machinery Operations 4**
Involves participation in operating and maintaining different types of farm machinery. The student operates farm tractors, planting and tillage equipment. (3/2)
- AG304U Basic Soybean Principles 4**
Provides the basic information about growing soybeans by analyzing the different methods used for having a successful soybean crop. Compares seed varieties, tillage methods and chemical programs. (3/2)
- AG305U Soil Conservation 4**
Provides an overview of Iowa's soil resources and analyzes various erosion

threats. Students learn surveying techniques, native prairie grass establishment techniques and related items. (3/2)

- AG306U Plant Material Production 4**
Involves greenhouse growing techniques, house plant identification and care, and basic plant production methods. (3/2)
- AG307U Horticulture Practices 4**
Acquaints students with outdoor horticulture activities such as Iowa wild-flower identification, landscape construction, and fruit and vegetable production activities. Emphasis is placed on laboratory activities. (3/2)
- AG309U Natural Resources Appreciation 4**
Surveys the non-living natural resources of Iowa. Examines how park and recreation agencies integrate these resources into their overall programs. (3/2)
- AG310U Golf Course Maintenance 1-4**
Involves actual supervised experience on local golf course, with related technical information presented weekly. Emphasis is placed on fall maintenance and renovation practices. (0-4/0-96)
- AG311U Employment Practicum 1-6**
Offers employment arranged to give the student practical, on-the-job training with a business related to the student's instructional program. Student is required to prepare a training plan and other reports. The student is not paid during employment. Prereq: a student must have completed one quarter of animal health courses prior to enrollment. (0-2/0-6)
- AG312U Advanced Futures Marketing 2-4**
Covers advanced information on the futures marketing system from a hedging standpoint. In addition, forward contracting as a price protection for farm commodities is explained. (2-4/0-4)
- AG313U Crop Monitoring/Scouting Techniques 1-3**
Develops crop observation techniques and identifies symptoms of insect damage, weed and herbicide problems. Utilizes the concept of economic threshold in recommending control rescues. (1-3/0-6)
- AG315U Influencing American Agriculture 2-3**
Identifies the purposes of specific rural organizations and political groups. Relates methods of influencing these organizations and their impact on American agriculture. (1-3/0-4)
- G316U Chauffeur's Licensure 1**
Students obtain their chauffeur's licenses at the completion of this course. (0-1/0-2)
- AG317U The Care and Understanding of the Equine Leg 1-3**
Provides instruction on the care and condition of the horse's legs and hooves. (1-3/2-6)
- AG318U Special Projects: Horse Nutrition 1-6**
Designed as a self-planned, individualized instruction course for student work in the area of equine nutrition under the evaluation of an instructor. (0-6/2-12)
- AG319U Special Projects: Equine Job Shadow 1-6**
Employs planned project work in an individual area of the horse industry by observation and/or participation on a limited basis. (0-6/2-12)
- AG320U Special Projects: Horse Sale 1-3**
Designed as a self-planned, individualized instruction course for students working in the area of equine horse sales under the evaluation of an instructor. (1-3/2-6)
- AG321U Principles of Training 1-3**
Demonstrates training principles utilizing guest trainers and field trips to training stables. Prereq: AG210U. (1-3/2-6)
- AG322U Computer Applications: Agriculture 1-6**
Designed for students in the A.A.S. program who will be required, by job description, to have practical knowledge in writing programs and analyzing records. Heavy emphasis is placed on ability to interpret results from enter-

prise analysis, efficiency, and financial programs that will meet the needs of a specific area. Prereq: DPO10T. (1-6/2-12)

- AG324U Advanced Horse Judging 1-3**
Further develops students' potential in judging of horses. Farm laboratory horses and horse farms serve as a means for applying classroom knowledge. Students are required to give oral reasons to justify their live placing decisions. (1-3/2-6)
- AG325U Basic Horse Judging 1-3**
Provides instruction in the different parts of a horse and a basic introduction to the different breeds and their correlating conformation. (1-3/2-6)
- AG326U Western Horsemanship 1-6**
Provides applied instruction in developing the western rider and horse. Balanced seat approach is stressed with rider's role in controlling action and movement of the horse. (0-6/1-12)
- AG327U Introduction to Horse Judging 1-3**
A basic introductory course that provides the student with the foundation to become more familiar with horse judging such as parts and conformation of the horse. (1-3/2-6)
- AG328U Advanced Western Horsemanship 1-6**
Continues application of instruction in developing the western rider and horse. Balanced seat approach is stressed with rider's role in controlling action and movement of the horse. (0-6/1-12)
- AG329U Special Projects: Professional Horse Judging 1-3**
Provides instruction to students on how to judge professionally in local and approved horse shows. Students actually judge horse show as professional and amateur judges. (1-3/2-6)
- AG330U Park Planting Design 4**
Studies the landscape design process as it pertains to parks and recreational areas. Functional and aesthetic organization of space and plant materials is explained. (2/4)
- AG331U Swine Farrowing and Nursery Management 2-4**
Involves students in actual care and operation of farrowing and weaning facilities. Also develops skills in parturition and infant pig care and management. Develops skills in farrowing-nursery records and analysis. (2-4/0-4)
- AG332U Swine Production and Marketing 2-4**
Explores various swine marketing opportunities and practices and develops management skills in production of and management of finishing market swine. (2-4/0-4)
- AG333U Swine Enterprise Management 2-4**
Assists students in preparation of budgets, income and expense records, and cash flow as they relate to swine production. Explores management techniques related to the above practices. (2-4/0-4)
- AG334U Swine Reproduction and Management 2-4**
Discusses reproductive function of male and female breeding stock, breeding programs, breeding systems including artificial insemination and appropriate management techniques. (2-4/0-4)
- AG335U Swine Health Programs 2-4**
Course deals with swine health management from a prevention as well as a clinical approach. (2-4/0-4)
- AG336U Beef Enterprise Planning 2-4**
Combines the skills of previous management courses into developing an entire financial and production system for a total farming operation; involves some work with various data processing equipment. Prereq: AG337U. (2-4/0-4)
- AG337U Beef Science Management 2-4**
Develops students' decision-making abilities in financial cash flow and budgeting analysis of beef enterprises with an emphasis on genetics. Involves some work with various data processing equipment. Includes off-campus

laboratory assignments. Prereq: 6 cr. hrs. of beef production courses. (2-4/0-4)

- AG338U Alternate Agricultural Energy Systems 3**
Explores heating, ventilation, waste handling and other farm production support functions with the idea of increased economic and environmental protective efficiency. (2/2)
- AG339U Farm Land Acquisition 1-4**
Relates farm appraisal methods, financial leverage, and methods of financing and purchasing a farm. (1-4/0-4)
- AG340U Swine Orientation 1**
Introduces students to their career choices and develops a course of study to reach their goals. (1/10)
- AG341U Livestock Anatomy and Physiology 3**
Deals with anatomy and physiology of farm livestock. Includes the study of animal hormonal control and nervous, skeletal, muscular and cardiovascular systems. (2/2)
- AG342U Agricultural Genetics 2-3**
Deals with biology of heredity as it relates to farm livestock and crops, especially the study of mechanisms of heredity transmission and variation of organismal characteristics. (0-3/0-6)
- AG343U Beef Orientation 1**
Assists the beef major student in planning courses and activities while at Kirkwood. Develops an appreciation and understanding of the beef industry. (1/0)
- AG344U Swine Facility Management 3**
Prepares swine production students to understand, evaluate and properly plan for efficient operation of a swine production facility complex. Includes flow management for feed, waste and animals. Includes understanding of complex support systems such as electrical, ventilation, heating and waste handling. (2/2)
- AG345U Crop Orientation 1**
Introduces students to their career choices and develops a program of study to reach their goals. (1/0)
- AG346U Beef Marketing 3**
Studies contemporary problems in cattle marketing. Includes dress and grade, seasonal variation in market prices, USDA grading, and use of futures market for hedging. (2/2)
- AG347U Livestock Clinics and Events 3**
Addresses the role of modern beef cattle exhibitions, incorporating information on confirmation, quality and trends. Depending on availability, course includes the entering and showing of beef cattle. (2/2)
- AG348U Modern Farm Update 1-6**
Deals with contemporary problems, facility usage and management styles as viewed in the Midwest. Involves travel to appropriate sites. (0-6/1-12)
- AG349U Small Animal Law and Ethics 2**
Discusses moral, ethical and legal principles applicable to veterinarians and their employees, breeders, kennel operators and pet groomers. Considers state, local and federal regulations as they relate to the small animal industry. (2/0)
- AG350U Canine and Feline Nutrition 3**
Defines general considerations in nutrition, essential nutrients and their role in metabolism, feeding and management practices and nutritional therapeutics. Includes analysis of commercially prepared pet foods and supplements. (3/0)
- AG351U Agricultural Computer Survey 2**
Designed for students interested in the use of computers in agriculture. It includes a brief history of computers, determining computer needs, selecting software and choosing a computer. Students will explore the use of electronic spreadsheets, agriculture utility programs and record keeping programs. Students also write brief agriculture utility-type programs using BASIC language. (2/0)

AG352U Animal Shelter Operations 1-3
 Designed for in-service for animal shelter and humane society personnel. (1-3/0)

AG354U Equine Truck and Trailer Operation 2
 Students practice operating a horse trailer and truck. Trailer is attached by the 5th wheel attachment. Students must have a valid automobile operator's license. (0/4)

AG355U Training Horse to Drive 2
 Relates principles and techniques involved in driving a horse. Includes long lining and actually driving a horse pulling a cart. (1/2)

AG356U Plant Insects 3
 Identifies insects that infest horticulture crops and plant materials. Chemical and organic control measures are presented. (2/2)

AG357U Plant Diseases 2
 Covers an inventory of diseases effecting turf, shrubs, trees, fruits and vegetables. Inorganic and organic control measures are outlined. (2/0)

AG358U Plants of the Wilds 4
 Identifies plant materials existing in natural woodlands, roadsides and prairies. A special emphasis is placed on prairie forbs. (3/2)

AG359U Facility Construction A 4
 Competencies in carpentry and concrete are developed. Laboratory exercises include woodworking skills, forming for concrete, ordering and pouring concrete. (2/4)

AG360U Safety Regulations for Agri-Industry 3
 Develops actual strategies for influencing policy leading to safety legislation and for carrying out business related practices which conform to existing legislation. Of particular emphasis is the economics associated with the quality production, processing and marketing of food and fiber, as it is related to personal and product safety and liability. (3/0)

AG361U Occupational Safety and Health for Agricultural Workers 3
 Emphasizes concepts and practices of safety alert signs and symbols, protection equipment, environmental testing apparatus. Practice periods are required in identification and elimination of work-related hazards and in developing emergency response plans. (3/0)

AG362U Agricultural Energy Management 3
 Involves the use of computers and other electronic devices to study economic management practices involved in allocating more or less energy financial resources to the rural production, processing and marketing cycles. (2/2)

AG363U Personal Safety and Health for Agricultural Workers 3
 Includes a survey of accident hazards in the rural environment. Participant learns first aid, CPR, physical fitness and stress related activities involved with work, home and community. Emergency plans, facilities and equipment are examined. (3/0)

AG364U Agricultural Energy Audit 3
 Includes methods of conducting actual agricultural energy and energy related consumption studies for measurement of such. In some cases, installation strategies are included for use of the devices. Production practices and structures are included. (2/2)

AG365U Facility Construction B 4
 Competencies in plumbing and electricity are developed. Laboratory exercises include plumbing with copper, plastic and steel, and making electrical splices, circuits, etc. (2/4)

AG366U Meat Evaluation and Marketing 3
 Includes classroom and laboratory instruction in quality, quality control, cutability, handling, consumer awareness, marketing and consumption. The course investigates the inter-relationships of each component of the cycle from production to consumption. Prereq: AG367U. (2/2)

AG367U Introductory Meat Science 3
 Introductory meat course designed to provide student background and understanding of meat industry processing, grading, pricing and inspection. (3/0)

AG368U Natural Resources Interpretation 4
 This course develops skills in all of the facets of interpretation. Nature walks, public presentations, displays, news releases and photography are incorporated into interpretive exercises. (3/2)

AG369U Grounds Maintenance 4
 Introduces maintenance practices experienced in grounds operations. Turf-grass culture and equipment management are stressed. (3/2)

AG370U Advanced Turfgrass Management 3
 Presents management techniques used in high maintenance turf areas. Students receive advanced instruction in fertilization, pesticides, etc. (2/2)

AG013V Plant Identification and Care 3
 Studies identification and cultural requirements of green, flowering and bedding plants commonly sold in the retail flower shop. (3/0)

AG014V Plant Growth 3
 Studies the environmental factors of light intensity, temperature, moisture and aeration needed to produce optimum growth. Sexual and asexual propagation, bulb and root growth, chemicals, and bedding plant production and sales are also covered. (2/2)

AG016V Design Show Seminar 1
 Introduces the student to current technical information used for problem solving in the floral industry. Special emphasis is devoted to planning and conducting the annual floral design show which is managed by the students. (1/0)

AG017V Basics of Plant Growth 3
 Introduces plant parts and explains their functions. Sexual and asexual propagation are explained as are soils and plant nutrition. (3/0)

AG018V Diagnosing Plant Disorders 2
 Introduces plant disorders caused by environmental, soil, nutrient, disease and insect problems. Use of chemicals is presented as are the relevant safety factors involved. (2/0)

AM: ADMINISTRATION AND MANAGEMENT

AM001T Agricultural Finance 3
 Reflects the rapid growth of the off-farm agribusiness sectors, and emphasizes general principles associated with the evaluation of management and the use of capital. An understanding of agricultural finance should help the banker in satisfying the credit needs of modern agriculture. (3/0)

AM002T Principles of Finance 3
 Includes basic methods and principles concerning such topics as financing, working capital and fixed capital needs, stocks and bonds, the marketing of securities and the operation of financial institutions. Recommended: AC003T. (3/0)

AM003T Business Internship 1-12
 Provides an opportunity to receive experience though on-the-job training in an approved business establishment. Valuable learning experiences are structured by the program coordinator and the training sponsor. (0/3-36)

AM005T Introduction to Management 4
 Covers basic concepts, behavior, practices and principles applied to the functions of planning, organizing and controlling the business enterprise. Includes readings of leading management theorists. Prereq: Sophomore standing. (4/0)

AM029T Bank Management 3
 Presents new trends which have emerged in philosophy and practice of man-

agement. The study and application of the principles outlined provide new and experienced bankers with a working knowledge of bank management. (3/0)

AM030T Installment Credit 3

Presents the techniques of installment lending. Emphasis is on establishing the credit, obtaining and checking information, servicing the loan, and collecting the amounts due. Each phase of a bank's installment credit operation is carefully scrutinized. Other topics discussed are inventory financing, special loan programs, business development and advertising, and the public relations aspect of installment lending. (3/0)

AM031T Supervision and Personnel Administration 3

Is designed to enable students to understand human relations at the management level and the methods of getting things done through people. Basic principles and current practices of personnel administration are studied. (3/0)

AM032T Introduction to Business 4

Surveys American business and the environment in which it operates. Studies the economic, social and political influences, and business organization functions and responsibilities. (4/0)

AM080T Bank Investments 3

Analyzes the nature of primary reserve and loanable funds and how their uses are determined. (3/0)

AM081T Personal Finance 3

Approaches the financial problems of families. Explores decision making relative to acquiring and allocating income. Focuses on management of consumer credit, savings and investment, insurance, home ownership and estate planning. (3/0)

AM082T Law and Banking 3

Introduces basic American law, presenting the rules of law which underlie banking. Topics include jurisprudence, the court system and civil procedure, contracts, quasi-contracts, property, torts and crime, agencies, partnerships, corporations, sales of personal property, commercial paper, bank deposits and collections, documents of title, and secured transactions. Emphasis is on the Uniform Commercial Code. (3/0)

AM083T Elements of Farm Management 3-4

Applies farm accounts, economic principles and budgeting to the organization and management of a farm business. Includes risk and uncertainty, precautions and adjustments, size of business, capital acquisition and control, as well as crop, livestock, machinery and labor management considerations. (3-4/0)

AM084T Bank Cards 3

Presents an overview of the bank card industry with the dual objectives of helping the student understand the role of the bank card in the economy as well as the basic operational problems involved in the successful management of a bank card plan. Discusses the evolution of credit cards into electronic funds transfer, legal developments affecting credit cards, and the regulatory environment. (3/0)

AM086T Business and Society 4

Examines the role of business as world society's institution for creating the goods and services which fulfill society's needs. Examines at length the two major inducement systems of business formation and operation; i.e., government systems and profit systems. Students get involved in political, cultural and economic variables of world societies as these variables are related to the function of business in creating goods and services. (4/0)

AM087T Credit Administration 3

This course, directed toward the executive level, is concerned with factors influencing and determining loan policy. It is not a "how" or "whether to" guide to granting credit, but a discussion of methods of credit investigation and analysis, credit techniques, specific credit problems, and regular as well as unusual types of loans. (3/0)

AM088T International Banking 3

Introduces international banking to those working in international departments as well as to those involved in the domestic activities of their banks. Presents the basic framework and fundamentals of international banking; how money is transferred from one country to another, how trade is financed, and other topics. (3/0)

AM089T Negotiations 3

Describes techniques of negotiation, organization and operation of the procurement team, and the preparation and conduct of negotiations of contracts and contract modifications by the team concept. Mock negotiations are conducted using case studies. (3/0)

AM090T Cost and Price Analysis 3

Covers basic concepts of contract pricing for initial awards; changes and terminations by cost and price analysis techniques; cost estimating; pricing arrangements by contract type; analysis of direct and indirect costs; mathematical, statistical and other quantitative analysis pricing techniques; weighted guidelines and return on investment profit objectives; cost principles and accounting standards; and preparation for negotiation. (3/0)

AM091T Federal Regulation of Banking 3

Provides a comprehensive treatment of the "why" and "what" of federal bank supervision. Some of the topics covered are agencies regulating banks, bank charters, bank reports, and examinations. Emphasis is on supervision rather than the role of the federal government as it directly influences the operations of banks. (3/0)

AM092T Introduction to Commercial Lending 3

Provides an introductory overview of the commercial lending function. It is divided into four sections: commercial lending overview, the lending process, portfolio management, and regulation and business development. (3/0)

AM093T Branch Management Program: Series I 3

Designed to present a comprehensive overview of the branch function and the manager's role in its operation. Separate modules on branch operations and the branch lending function provide a complete introduction to the functional aspects of the branch management position. (3/0)

AM094T Management Fundamentals 3

Introduces students to the skills and techniques that all managers need, whether they work in banking or in other types of businesses. The text focuses on the basic management functions of planning, organizing, staffing, leading and controlling, and it discusses a variety of management theories and approaches. (3/0)

AM095T Inside Commercial Banking 3

An advanced introduction to the banking system, this course provides a topical look at the changing role of banks. Emphasis is conceptual rather than operational. Designed to familiarize the student with the broader issues facing the banking industry, it includes changes necessitated by technological advances, recent legislation, and new approaches to global banking. (3/0)

AM096T Corporate Banking 3

A common sense approach to understanding the lending environment within a bank, this course provides the new or less-experienced commercial lender with a firm grasp of the sequential nature of the lending process, giving bankers a solid foundation on which to construct sound lending practices. Emphasis is practical and technical rather than theoretical. (3/0)

AM097T The Business of Management 4

Designed for the managerial candidate who has not had formal training in business management. It is intended to provide essential skills in planning and organizing, staffing and directing, controlling, decision making, motivating, communicating, and applying managerial skills to the business organization. (4/0)

AM098T Effective Public Relations and Communications 3

A practical guide to developing and carrying out effective public relations

programs. Focuses on public relations as a management activity that calls for analyzing the policies and actions of the bank in relation to needs and attitudes of others. (3/0)

AM100T Statistical Quality Control: Transformation of American Industry I 3

This course covers the current transformation methods of business and industry towards a complete quality control system. Included are management theory on quality and productivity, the prevention versus detection system and various data collection techniques such as Pareto analysis, Ishikawa diagramming, and Crawford slip methods. (3/0)

AM101T Statistical Process Control (SPC): Transformation of American Industry II 3

Continues AM100T, focusing on statistical process control. Elements include basic statistical concepts, m & r charts, p & c charts, capability studies and continuing quality control programs. (3/0)

AM800T Independent Study in Business 1-4

Taken concurrently with a standard course in the student's area of speciality. Special projects and/or individual readings are assigned by the program coordinator or an individual staff member. Projects must be approved before the beginning of the quarter in which the work is to be done. Prereq: Consent of instructor and department head before registering. (1-4/0)

AM001U Merchandising Analysis and Control 3

Deals with techniques and procedures of determining profits, pricing of goods, inventories and merchandise control. Some of the problems faced by merchandisers are presented, analyzed and solved. Prereq: Basic mathematics. (3/0)

AM003U Business Practices 3

Covers common practices and procedures involved with the daily business operations in the vehicular mechanics industry. Included are employee productivity/relations, inventory control, warranties, service procedures, and the legal ramifications of negligence, liability, torts and artisan's liens, as applied to mechanics performing service functions and dealing with the public. (3/0)

AM005U Front End Management 3

Teaches proper cash register operation and checkout procedures for the modern supermarket. Emphasis is placed on checker training, supervision and control of the checkout function. (3/0)

AM012U Store Operations Management 5

Offers a comprehensive study of problem areas encountered in food marketing management. Policies and procedures in retail and wholesale food distribution are considered, and decision making or problem solving is explored through the use of case problem situations. (5/0)

AM019U Office Administration 3-4

Students develop knowledge and competencies in several functions of office administration, including file automation; the organization, structure and planning of office work; controlling office work activities; office forms, procedures and policies; and maintenance of a conducive working environment. Students may earn the fourth credit by completing a related project. (3-4/0)

AM020U Retail Management 4

Studies managerial principles as they apply to retailing and analyzes the functions of planning, organizing and controlling in relation to managerial policy and human relations. Decision-making skills are developed. Prereq: Sophomore standing. (4/0)

AM022U Principles of Supervision 3-4

Introduces the functions of management: planning, organizing, staffing, directing and controlling. The aspects of technical, conceptual and human skills are reviewed with the perspective of becoming a mature supervisor. (3-4/0)

AM023U Management and Medical Ethics 3

Provides an introduction to supervisory techniques, interviewing for jobs, budgeting, services, methods for making change, job descriptions, defining

roles and organization. Includes ethical practices, relationship between ethics and law, legal processes, malpractice, PSRO's and liability. (3/0)

AM025U Introduction to Agricultural Business 3-4

Describes the farm supply business, forms of organizations, budgets, financial statements and general operation methods. Also covers inventory control, customer credit control and customer relations. (2-4/0-2)

AM029U Wage and Salary Administration 2

Designed to provide a rational approach to the various elements of a compensation program: job description, job evaluations, salary surveys and administration policies. (1-2/0-2)

AM031U Management Information Systems 3

Covers nature of systems, parameters for the business system, measurement problems, information theory, models for management, decision making and control of systems, and the utilization of the computer in all of these areas. (3/0)

AM032U Production Quality Control 3

Covers the principles and techniques of effective quality control systems in the office and in production. Sampling techniques and methods of determining specifications and tolerances are practiced. (3/0)

AM033U Dental Office Management 4.5

Provides instruction related to dental business office management, handling mail, supplies, records, filing, telephone, appointment control, recall systems, financial arrangements, patient accounts, credit and collections, banking, salaries and ethical conduct. (4/1)

AM035U Introduction to Industrial Engineering 2

Considers management uses of industrial engineering techniques to plan, control and evaluate manufacturing projects. Also covers appropriation control, scheduling networks and economic lot sizes. (2/0)

AM036U Traffic and Transportation I 3

Examines the history of transportation. Provides an introduction to classification of freight and the principles of freight rates and tariffs. (3/0)

AM037U Traffic and Transportation II 3

Covers shipping documents and their applications, freight claims, tariff circulars, construction and filing of tariffs. Also introduces freight rates and tariffs in practical application. Prereq: AM036U. (3/0)

AM038U Traffic and Transportation III 3

Continues study of freight rates and tariffs, terminal facilities and switching, demurrage, reconsignment, stop-off, transit, routing, warehousing and distribution, materials handling and packaging. Prereq: AM037U. (3/0)

AM039U Traffic and Transportation IV 3

Covers rates, import-export rates and procedures, further in-depth study of rates and routes, milling-in-transit, loss and damage, overcharges and undercharges. Prereq: AM038U. (3/0)

AM040U Traffic and Transportation V 3

Reviews classification and rate committee procedures, tariff and rate interpretations, and provides an introduction to the Interstate Commerce Act. Prereq: AM039U. (3/0)

AM041U Traffic and Transportation VI 3

Studies the Interstate Commerce Act and other acts pertaining to transportation, plus the rules of practice before the Interstate Commerce Commission. Prereq: AM040U. (3/0)

AM042U Decision Making 3

Students examine their own role in the decision-making processes of society, government, working life and personal life. Decision-making techniques are discussed, including break-even analysis, statistics, PERT, participative problem solving, and the synectics approach to problem solving. (3/0)

AM044U Work Simplification 1

Designed for everyone in business, industry and education interested in the philosophy of work simplification. (.5-1/0-1)

- AM047U Principles of Personnel Management 4**
Includes managerial philosophy of personnel administration, emphasizing study of the personnel functions of recruiting, interviewing, selecting, placement, training and evaluating. (4/0)
- AM048U General Production and Inventory Control 3**
Designed to present the basic concepts and techniques of production planning and inventory control. The course stresses the influence that all usual departments within an industrial organization have upon the production planning and control function. (3/0)
- AM049U Labor Relations 4**
Reviews the history of current labor and management positions. The role of the supervisor in solving labor disputes and grievances is examined. Students participate in mock bargaining negotiations observing and critiquing conduct that occurs in live bargaining. Issues in the maintenance of union-free working environments are also discussed. (4/0)
- AM050U Results-Oriented Management (MBO) 3**
Students compare managerial philosophies of task and people orientation and develop a goal-oriented strategy to satisfy both philosophies. The Management by Objectives approach is stressed in classroom projects, case studies and exercises. Several other approaches are also examined in the perspective of anticipated results the approach would achieve. (3/0)
- AM051U Principles of Safety 1**
OSHA safety standards for offices and public buildings are compared. Students are trained to conduct their own inspections and to develop safety plans and programs. (1/0)
- AM052U Food Service Management I 4**
Provides experiences in mid-management supervisory skills. Studies food service promotions and advertising, employment policies and procedures, scheduling and other related management studies. (3/0)
- AM053U Food Service Management II 4**
Continues study of mid-management supervisory skills. Studies include meal/menu planning, buying, receiving, office accounting procedures, and cost control techniques. Prereq: AM052U. (0/8)
- AM054U Public Administration 3**
Designed to give the student a basic understanding of principles and concepts underlying the generic field of public administration in federal, state and local government. Includes line-staff, plan of control responsibility and accountability. (3/0)
- AM055U Current Topics in Management 1-2**
Designed for discussion and review of contemporary issues in the changing field of management. Course may be repeated for a maximum of four credit hours. A short-term course. (1-2/0-2)
- AM058U Work Habits and Absenteeism 1**
Normally taught as a one- or two-day workshop. Students are trained to develop a working atmosphere conducive to high productivity. Problem employees and their habits are identified. Students learn employee coaching techniques and policies that can be used to solve poor work habits and high absenteeism. (.5-1/0-1)
- AM059U Parts Room Management 1-8**
Practices purchasing, invoicing, transporting, billing, inventorying, storing, displaying and advertising as they relate to an ag. supply parts department, as well as records and record-keeping systems and sales. (1-8/0-16)
- AM062U Organizational Communications 3**
Based on a unified communications concept and built around the technical principles common to oral, written and visual communications. Includes aspects of listening, interviewing, writing, reading, speaking, briefing, conducting meetings, and visual communications display techniques. (3/0)
- AM064U Interstate Commerce Law and Practice I 3**
Prepares the student for the Interstate Commerce Commission's examination to practice, or the Number 4 examination of the American Society of Traffic and Transportation in: a) basic concepts, b) structure of the act, c) operating authority, and d) exemptions. (3/0)
- AM065U Property Management 3**
Examines a highly specialized but rapidly growing sector of the real estate profession. The course provides an overview of the field and deals with specific practices and problems in management of various properties. Designed for those who want a comprehensive introduction to the challenging field of property management and who wish to gain new, practical information. (3/0)
- AM067U Organizational Behavior 3**
Students explore problems and solutions of human behavior in organizations by studying the work of behavioral scientists and other experts. Actual case studies provide the transition from theory to practicality. Students develop skills to diagnose and improve group functioning and organizational effectiveness. (3/0)
- AM068U Interstate Commerce Law and Practice II 3**
Prepares the student for the Interstate Commerce Commission's examination to practice, or the Number 4 examination of the American Society of Traffic and Transportation in: a) causes of action, b) civil liability, c) statute of limitations, d) the I.C.C., e) statutory provisions, f) economics, and g) tariff interpretations. Prereq: AM064U. (3/0)
- AM069U Interstate Commerce Law and Practice III 3**
Prepares the student for the Interstate Commerce Commission's examination to practice, or the Number 4 examination of the American Society of Traffic and Transportation in: a) leading cases, b) rules of evidence, c) code of ethics, d) rules of practice, e) drafting the complaint, and f) judicial review. Prereq: AM068U. (3/0)
- AM074U Savings Accounts 2**
Focuses on the legal nature of savings accounts, types of savings account ownership, and ways to handle problems unique to savings accounts. Other competitive forms of investments are also reviewed. (2/0)
- AM075U Food Service Management III 4**
Continues experiences in mid-management supervisory skills with applied techniques demonstrated in program's production/dining facilities. Prereq: AM053U. (0/8)
- AM076U Time Management Seminar 1**
Introduces concepts and identifies techniques of personal and office-related time management skills. (1/0)
- AM077U Age of Robotics 1**
Students examine firsthand the operation of a robotic assembly line. Topics in the seminar also include a brief history of robotics development, their impact upon the workplace, programming and maintenance considerations, and implications for the future. (1/0)
- AM078U Time and Motion Study 1**
Normally offered as a one- or two-day seminar. Students are trained to conduct studies in their own place of business to determine current rates of efficiency of current work processes in order to develop or improve work standards. (.5-1/0-1)
- AM079U Performance Appraisal 1**
Normally taught as a one- or two-day workshop. Students learn how to help employees set their performance standards and objectives and to achieve them. Students learn employee appraisal and evaluation policies, programs, processes and forms, and to conduct the appraisal interview. (.5-1/1-0)
- AM080U Word Processing for Managers 3**
Covers the principles of a word processing center. Deals with information a manager needs concerning the operation, equipment needs and maintenance of a word processing center. (3/0)
- AM081U Professional Profile 2**
Students prepare themselves for job entry or promotion by the preparation

of a resume, the practice of job interviewing skills, and the application of other techniques that may enhance career progression. (2/0)

AM082U Risk Management 1

Normally offered as a one- or two-day seminar. Students are taught how to calculate personal and organizational risks and to select from alternative risk reducing options, particularly insurance programs, in order to reduce risk to acceptable levels. (.5-1/0-1)

AM083U Introduction to Savings and Loan Associations 2

Introduces the role of savings associations in the modern business world. Savings associations' historical development, present day organization, competition and future direction are presented. (2/0)

AM084U Residential Mortgage Lending 2

Reviews the steps in originating, processing and closing a mortgage loan. Examines the differences between FHA, VA and conventional loans; key regulations affecting residential mortgages, such as Truth-in-Lending and RESPA; and basic features of AML's, GPM's and other alternative mortgage loans. (2/0)

AM085U Savings Accounts Administration 2

Details savings accounts procedures and discusses decedent accounts, dormant accounts, savings account loans, and garnishments. Examines insurance limits and coverage. Enrolling students need a firm background in savings services. (2/0)

AM086U Financial Institutions 2

Examines the fundamental operations of our country's major depository financial institutions as well as the economic influence of the Federal Reserve System. (2/0)

AM087U Savings Association Operations 2

Covers the major operating areas of savings associations. Examines how regulatory changes affect operations and problems associated with savings accounts, mortgage loans and other investments. Delves into branch operations, the impact of computers, marketing and human resource management. (2/0)

AM088U Teller Operations 2

Examines specific operations of the teller function, including check negotiability and acceptability, savings account ownership, insurance of accounts, basic computations, and accounting and emergency procedures. (2/0)

AM089U Applied Organizational Study 3

Students examine organizational structure to learn structural logic and improve upon their own workplace organization. Students also learn the relationships of line and staff and how authority and responsibility are delegated to create the most effective interdepartmental efficiency and effectiveness. (3/0)

AM091U Advanced Supervision 3

Students examine their supervisory role in coping with and creating change and develop strategies for managing departmental and interdepartmental conflicts with superiors and subordinates. Students analyze current supervisory problems and issues. Prereq: AM090U. (3/0)

AM092U Employee Training and Development 4

Studies various approaches to organizational and departmental human resources development functions. Students design a departmental training plan for their own or a fictitious organization. Employee orientation and on-the-job training techniques are developed. Also, each student participates in a role-playing situation as a trainer. (4/0)

AM093U Time Management 1

Normally taught as a one- or two-day workshop. The student learns to select and prioritize goals in personal and professional life, then plot a time strategy to achieve them. Time wasters are identified, and tips and techniques for maximum time utilization are developed. (.5-1/0-1)

AM094U Productivity Improvement 3

Students examine organizational policies and programs which promote high

productivity rates. Specific case studies of companies, such as automobile and steel manufacturing in Japan, are applied to American business, industrial and governmental situations. Students develop departmental productivity strategies to measure and improve personal and subordinate productivity. (3/0)

AM095U Leadership Styles 3-4

Students discuss leadership styles of contemporary and historic foreign and American leaders (reading list). Characteristics of positive and negative leadership are examined. Students are encouraged to participate in a leadership role in a voluntary organization or personal undertaking. (3-4/0).

AM096U Industrial Safety 3

OSHA safety standards for offices, public buildings and industrial plants are compared. Students are trained to conduct their own inspections and to develop safety plans and programs. (3/0)

AT: ART

AT001T Art Appreciation 4

Provides an overview of art from a historical, contemporary and aesthetic frame of reference. Recommended for non-art majors. (4/0)

AT002T Art History: 15th Century 4

Studies architecture, sculpture and painting from pre-history to Rome. (4/0)

AT003T Art History: 15th Century to 19th Century 4

Studies architecture, sculpture and painting from the medieval period through the 18th century. (4/0)

AT004T Art History: 20th Century 4

Studies architecture, sculpture and painting in the 19th and 20th centuries. (4/0)

AT005T Fundamentals of Ceramics I 2

Introduces high-fire, hard-built and wheel-thrown pottery, and fundamental glaze and clay experimentation. (0/4)

AT006T Fundamentals of Ceramics II 2

Continues Ceramics I. Prereq: AT005T or permission of instructor. (0/4)

AT007T Fundamentals of Ceramics III 2

Continues Ceramics I and II with emphasis on form, throwing and advanced glaze techniques. Prereq: AT006T or permission of instructor. (0/4)

AT008T Fundamentals of Design I 2

Introduces basic design concepts utilizing contemporary concepts of the visual experience. (0/4)

AT009T Fundamentals of Design II 2

Continues Design I. Explores problems of design form and structure. Prereq: AT008T or permission of instructor. (0/4)

AT010T Fundamentals of Design III 2

Continues Design I and II with emphasis on the third dimension, motion, and space. Prereq: AT009T or permission of instructor. (0/4)

AT011T Fundamentals of Drawing I 2

Practices basic elements of perspective drawing, analytical drawing and figure drawing. (0/4)

AT012T Fundamentals of Drawing II 2

Continues Drawing I. Analyzes subject matter and accurate descriptive visual drawing. Prereq: AT011T or permission of instructor. (0/4)

AT013T Fundamentals of Drawing III 2

Emphasis is on figure, using the various media of drawing. Prereq: AT012T or permission of instructor. (0/4)

AT014T Fundamentals of Lettering 2

Studies basic letter forms and the use of reed pens, problems in page design, and manuscript writing. (0/4)

AT015T Fundamentals of Painting I 2

Introduces oil painting. (0/4)

- AT016T Fundamentals of Painting II** 2
Continues Painting I. Includes oil and various water color methods. Prereq: AT015T or permission of instructor. (0/4)
- AT017T Fundamentals of Painting III** 2
Continues Painting I and II with emphasis on composition and color. Prereq: AT016T or permission of instructor. (0/4)
- AT018T Creative Photography I** 2
Studies photography as an art form, including the theory of photography with an introduction to contemporary photography methods. The student must provide his or her own camera. (0/4)
- AT019T Intermediate Photography** 3
Continues development of skills in black and white picture-making techniques, as well as the development of a visual vocabulary necessary in understanding the aesthetics of black and white photography. Prereq: JO103T. (2/2)
- AT021T Fundamentals of Printmaking I** 2
Introduces wood cut, engraving, dry point and silk screen techniques in contemporary and traditional methods of reproduction. (0/4)
- AT022T Fundamentals of Printmaking II** 2
Introduces basic methods of intaglio printing and etching. Prereq: AT021T or permission of instructor. (0/4)
- AT023T Fundamentals of Printmaking III** 2
Continues Fundamentals of Printmaking I and II, with emphasis on advanced composition and technical methods. Prereq: AT022T. (0/4)
- AT024T Fundamentals of Sculpture I** 2
Introduces carving, modeling and casting. (0/4)
- AT025T Fundamentals of Sculpture II** 2
Continues Sculpture I, with emphasis on welding and combining media in the sculpture area. Explores form and color as they relate to sculpture. Prereq: AT024T or permission of instructor. (0/4)
- AT026T Fundamentals of Sculpture III** 2
Emphasizes advanced techniques and form with a concern for applying construction methods in a major sculpture project. Prereq: AT025T (0/4)
- AT032T Art America (TV Course)** 2-4
Emphasizes key concepts in the development of a fine arts tradition in America. Traces the history of American fine art from colonial times to the present, with a focus on painting, sculpture, architecture and photography.
- AT034T Humanities Through the Arts** 4
Approaches humanities through a study of seven major arts: film, drama, music, literature, painting, sculpture and architecture. (4/0)
- AT036T Color Photography** 3
Develops the skills required in processing and printing color photographs, and examines the aesthetics unique to the color photograph. Prereq: JO103T. (2/2)
- AT039T Advanced Black and White Photography** 3
Explores black and white sensitometry, archival printing techniques for fine printing, and the zone system. Advanced study of chemicals and processes is covered. Students are introduced to the 2 1/4 inch format camera and will print on large paper. Students further develop their personal aesthetic direction. Prereq: AT019T. (2/2)
- AT800T Independent Study: Ceramics** 1-8
Students work under instructor supervision to develop advanced skills in ceramics. Prereq: AT005T. (0-2/0-10)
- AT801T Independent Study: Studio Art** 1-8
Students work under instructor's supervision to develop advanced skills in studio area. Prereq: permission of instructor. (0/2-16)
- AT002U Decorative Accessories** 2
An analysis of the selling points, and use and coordination of accessories in the home. Knowledge is developed in artwork, flowers, table arrangements, porcelain and ceramics, and lighting and lighting theory. (2/0)
- AT003U Survey of Interiors I** 3
Surveys the development of architecture, ornament, decorative arts, interiors and furniture styles from prehistoric times to the 1800s. Projects require students to create their interpretations of a traditional interior through use of furniture, accessory selection, and a color materials board. (3/0)
- AT006U Survey of Interiors II** 2
Surveys the historical detail and interrelationships among architecture, home furnishings and the decorative arts of eighteenth century traditional styles of Europe and America. Prereq: AT003U or permission of instructor. (2/0)
- AT007U Design Relationships** 2
Covers the basic fundamentals of interior design. Studies the principles and elements of design and visual perception, and their relationship and application to home furnishings. (2/0)
- AT008U Color in Interiors** 2
Studies the principles and psychology of color and their application to designing environments. Includes a study of the characteristics of paints and pigments for residential decorating. Also includes lab projects in color planning, coordination and execution, oriented to sales and customer decorating services. Prereq: AT007U or permission of instructor. (2/0)
- AT009U Interior Plant Design** 1-3
Involves developing plant material designs for small containers such as terrariums and dish gardens, as well as major installations in atriums and other indoor gardens. (1-3/0-2)
- AT012U Design I** 3
Allows students opportunities to visit jewelry establishments to study and view various designs for rings, brooches, necklaces. The student will photograph various pieces of jewelry that will be studied and discussed in seminars in relation to aesthetic qualities. The student may also collect jewelry catalogs to be used for study purposes. Through the use of photography, jewelry catalogs, and visits to jewelry businesses, the students will collect materials for study and seminar-type discussion. (3/0)
- AT013U Design II** 3
Gives the student experience in design development. After study and evaluation of the design, the student will select three that he/she will complete into final drawings in black and white. Prereq: AT012U. (2/2)
- AT015U Survey of Interiors III** 2
Studies the foundations, characteristics and philosophy of nineteenth century and twentieth century design in the architecture and homes of the world. Covers the leading modern designers and their contributions in buildings and furnishings. Starts from the Industrial-Machine Age of Victorian to the contemporary time range, including the Specialty Arts. Prereq: AT006U or permission of instructor. (2/0)
- AT016U Gem Identification Nat./Mfg.** 3
Develops knowledge and skills required to identify colored gems in their rough and finished forms and shapes. Covers the manufacturing process and compares synthetic gems to the natural. (3/0)
- AT001V Floral Designing I** 5
Introduces basic floral design principles including geometric design of arrangements, corsages, Christmas arrangements, memorial flowers, and potted plants. Includes identification and care of cut flowers and foliage, use of tools and supplies, pricing and floral gift expediting. (1/8)
- AT002V Floral Designing II** 2
Studies advanced floral design for cut flowers, corsages, funeral and memorial arrangements. Pricing and expediting floral gifts are discussed. Prereq: AT001V. (0/4)
- AT003V Floral Designing III** 2
Studies those aspects of floral design that involve wedding arrangements, artificial flowers, and advanced cut flower arranging. Prereq: AT002V. (0/4)
- AT004V Floral Designing IV** 1.5
Involves advanced floral and wedding designing including interpretive design

work. Introduces current design trends and floral industry influences. Prereq: AT003V. (0/3)

AT008V Floral Design: Special Projects 1
Involves the planning, pricing and designing of special design projects. Prereq: AT003V. (0/2)

BY: BIOLOGICAL SCIENCE

BY019T General Botany I 4

Studies the general anatomy and physiological processes of plants. Initial studies are of plant cells, followed by a study of the vegetative organs and, finally, the reproductive organs. Such physiological processes as photosynthesis, transpiration, absorption, conduction, respiration, pollination and fertilization accompany the anatomical studies. Prereq: BY030T. (3/2)

BY020T General Botany II 4

Continues the work started in General Botany I. Surveys the plant kingdom from bacteria through the seed-bearing plants. General principles of plant taxonomy and ecology are emphasized throughout the course. (3/2)

BY030T Principles of Biology 4

Stresses the organization of plant and animal life at the molecular and cellular level: microscopic techniques, origin of life, cellular structure and function, plant and animal development, and genetics. (3/3)

BY031T Biology of Organisms 4

Emphasizes animal structure and function. Covers dissection of two representative vertebrates (the frog and fetal pig). Includes a study of the osmoregulatory, transport, digestive, skeletal, muscular, nervous, endocrine and reproductive systems, as well as evolutionary significance of each. Prereq: BY030T or departmental approval. (3/3)

BY032T Environmental Biology 4

Emphasizes living systems and their environmental interactions. Includes a study of basic ecological concepts, energy, nutrient and mineral cycling, animal behavior and population, and community ecology. Includes several field trips to terrestrial and aquatic habitats and a specialized applied ecological project. Prereq: BY030T or one quarter of Man and the Environment and departmental approval. (3/3)

BY034T Invertebrate Zoology I 4

Surveys the classification, diversity, morphology, physiology, development, behavior, ecology and evolutionary relationships of the major invertebrate phyla. Emphasis will be on living forms, both freshwater and marine. Field work will stress adaptations and ecological relationships. Prereq: BY030T (BY031T may be taken concurrently) or consent of instructor. (3/2)

BY035T Invertebrate Zoology II 4

A continuation of Invertebrate Zoology I. Groups covered will include mollusks, annelida, arthropoda and echinodermata in addition to numerous minor phyla. Laboratory work will stress both morphology and physiology in addition to ecological distribution. Prereq: BY034T. (3/2)

BY036T Vertebrate Zoology I 4

Introduces the principles of vertebrate zoology, emphasizing, such topics as vertebrate morphology; taxonomy and systematics; evolution, phlogenetic relationships and diversity. Fishes, amphibians and reptiles are covered. Laboratory work supplements the lectures. Prereq: BY030T (BY031T may be taken concurrently) or consent of instructor. (3/2)

BY037T Vertebrate Zoology II 4

A continuation of Vertebrate Zoology I with emphasis on birds and mammals. Ecological relationships and population dynamics also are stressed. Field trips, as well as in-lab experiences, supplement the material in this course. Prereq: BY036T. (3/2)

BY039T Human Anatomy and Physiology I 4

Designed primarily for the medically-oriented student in health occupations and prospective majors in pharmacy, medical technology, baccalaureate degree nursing, zoology and other natural science fields. Integrates the study of mammalian anatomy and physiology with emphasis on structure and func-

tion of the human body. Gross and microscopic aspects of the interdependence of the functional body systems are stressed. Includes the study of the body as a whole, its organization and appearance of the cells and tissues as basic structural-physiological units. Studies basic body structure, in addition to a concentrated study of body fluids, blood, R-E systems, and the endocrine system with applications to homeostasis. Lab work is based on current topics of study. (3/3)

BY040T Human Anatomy and Physiology II 4

Studies the structure and function of systems such as nervous, skeletal, muscular and cardiovascular. Laboratories are designed to show basic phenomena such as cardiology, muscle response and acid-base balance, as well as dissection to integrate overall structure. Prereq: BY039T. (3/3)

BY041T Human Anatomy and Physiology III 4

Studies of the structure and function of systems such as respiratory, digestive, excretory and reproductive are continued. Laboratory work is based on current topics of study with emphasis on homeostasis. Lectures and laboratories are designed to complement each other. Prereq: BY040T. (3/3)

BY042T Microbiology 5

Emphasizes pathogenic bacteria and viruses: their morphology, cultural characteristics and pathogenicity along with epidemiology, transmission, diagnostic test and an introduction to immunology. Laboratory emphasis is on culturing, identification, staining, sterilization, disinfection and asepsis. (4/2)

BY047T Introductory Genetics 4

Introduces the mechanisms of inheritance, the molecular basis of inheritance, and the concepts of mutation and potential change. The lecture approach will present material from the classical (historical) position. Provides an introduction in the laboratory to genetics procedures, sample and problem matings, and other investigative techniques considered of major importance in such a course. Prereq: BY030T. (3/2)

BY048T Introducing Biology (TV Course) 3

Covers a wide range of topics from atoms and molecules through human ecology. Examples of some of the topics covered include the cell, plant nutrition, animal behavior, basic genetics and evolutionary theory. The course is presented in 36 half-hour segments. (3)

BY800T Independent Study in Biology 1

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman before registering. (Hours arranged)

BY001U Dental Anatomy II (DLT) 2

Continues the study of dental anatomy through waxing techniques in restoring individual characteristics of each tooth in the permanent dentition as it relates to prosthetic dentistry. (1/2)

BY002U Dental Anatomy I (DLT) 3

Introduces terminology, identification, description and individual characteristics of the teeth and surrounding structure found in human dentition. Includes the drawing of various views of individual teeth, and the formulation of required surfaces in wax on stone casts. (2/2)

BY003U Oral Anatomy 2

Specifies the anatomical and physiological features, structures and function of the human head that must be considered in the fabrication of dental prostheses. (2/0)

BY006U Basic Anatomy and Physiology 4

Designed and required for students enrolled only in the following health occupation careers: Nursing Education, Orthopaedic Physicians Assisting, Medical Assisting, Medical Secretary, Occupational Therapy Assisting Technology, Medical Records Technology and Electroencephalographic Technology. A systems approach to human structure and function is covered in one quarter. (3/2)

BY009U Homeostatic Physiology 4

Designed specifically for associate degree nursing students. Major emphasis is on integrating mechanics of the nervous, muscular, endocrine, cardiovas-

cular, respiratory, digestive and excretory systems used in maintaining homeostasis and their deviations in pathophysiology. Lectures, discussions and demonstrations are used in the course. Prereq: BY006U or equivalent. (4/0)

BY011U Functional Anatomy 4

Designed only for Occupational Therapy and Orthopaedic Physicians Assisting students for a detailed presentation of applications of functional neurology, skeletal and muscular structure and function, and regional functional anatomy of the limbs and back. Course includes lectures, group study, seminars and discussions. Prereq: BY006U or equivalent. (4/0)

BY013U Respiratory Physiology 4

A detailed study of human cardiovascular and respiratory functions for respiratory therapy students. The makeup functions, control and interdependency of the two systems in other organ systems are stressed. Concepts are applied to clinical situations. Prereq: BY006U. (4/0)

BY109U Oral Microbiology 2.5

Designed to provide the student with the basic principles of dental office asepsis, and of the biological hazards of an infectious and noninfectious nature that occur in the dental office. Includes the morphology and physiology of bacteria and viruses, selected microbial diseases and their transmission and prevention, the biological hazards of mercury, splatter and aerosols, the special patient (the heart patient and patients with infectious disease), principles of sterilization and disinfection, and general office asepsis with emphasis on the prevention of cross contamination. (2/1)

BY110U Dental Anatomy 3

Examines the structure, function and form of the teeth, individual teeth and their supportive structures. (3/0)

BY111U Head and Neck Anatomy 3

Examines general plan of the body as an integrated whole. Emphasis is on the structure and function of the head and neck. (3/0)

BY112U Introduction to Pathology 4

Covers basic concepts and terminology associated with major cellular, metabolic, genetic and general systems disorders, and specific disorders associated with human body systems. The course is specifically designed for students enrolled in the Medical Records Technology program. Prereq: BY006U and BY009U. (4/0)

BY113U Aquatic Wildlife 2

Studies the identification of fish, amphibians and reptiles native to Iowa. Emphasis is placed on habitat requirements and management concerns. (2/0)

BY114U Avian Wildlife 4

Includes training in identification and management of nesting and game birds of the upper Midwest. Environmental requirements and relationships are included. (4/0)

BY115U Mammalian Wildlife 4

Provides training in identification and management of upper Midwest mammals. Environmental requirements and relationships are stressed. (4/0)

BY116U Iowa Trees and Shrubs 4

Emphasizes identification and care of Iowa plant material found in native and landscaping environments. (3/2)

BY117U Wildlife Conservation 4

Introduces the student to avian, aquatic and mammalian wildlife species. Students learn to identify individual species as well as develop an appreciation for needed conservation practices. (3/2)

CE: COOPERATIVE EDUCATION

CE001T Cooperative Education Experience 1-8

Offers a structured work experience providing career education on the job for Arts and Science students in a field related to their major academic interest. Prereq: Instructor approval. Must be taken with CE002T. May be repeated for credit. (0/3-24)

CE003T Cooperative Education Preparation 0-1

Designed to complete individual needs prior to a cooperative education work experience. Testing, interviewing and objective setting will be involved as needed by each individual. (0/2)

CE800T Coop Education Special Topics 1-4

Offers a learning experience in conjunction with a structured work situation. Instruction and readings will relate to and supplement the particular job experience. Prereq: Instructor approval. Must be taken with CE001T. (0/4-14)

CH: CHEMISTRY/NUTRITION

CH001T Principles of Chemistry 3,4

Designed for students who have not taken high school chemistry or those with otherwise deficient background. Covers the basis of inorganic chemistry. Topics include: introduction to measurement, atomic structure, chemical bonding, chemical reactions, kinetic molecular theory, chemical periodicity, and acids, bases and salts. The course may be taken as lecture only or lecture and laboratory.

CH002T Fundamentals of Organic Chemistry 4

Provides a survey of organic chemistry as a continuation of Principles of Chemistry, and is designed to give the student an introduction to the structures of organic compounds, nomenclature, physical and chemical properties, and organic reactions. Based primarily on the functional group approach. Prereq: Either high school chemistry or CH001T. (3/2)

CH003T Fundamentals of Biochemistry 4

Continues Fundamentals of Organic Chemistry to provide a survey of the chemistry of living organisms, including basic chemistry of carbohydrates, lipids, proteins and nucleic acids, and an introduction to metabolism. Prereq: CH002T or CH008T or departmental approval. The three courses, CH001T, CH002T and CH003T, are a normal sequence for students in nursing. (3/2)

CH004T Quantitative Analysis 6

Introduces methods of chemical analysis stressing gravimetric, volumetric and spectrophotometric approaches. Emphasis is placed on fundamentals of measurement, treatment of data, and error analysis. Prereq: CH006T. (3/6)

CH005T General Chemistry I 5

Studies the basic principles of inorganic chemistry with emphasis on such concepts as measurements and problem solving, chemical reactions and equations, stoichiometry, atomic structure and nuclear chemistry, periodicity, chemical bonding, kinetic molecular theory and gas laws, and the structure and properties of matter. Prereq: CH001T or high school chemistry, and a working knowledge of algebra. (4/2)

CH006T General Chemistry II 5

Studies colligative properties along with thermodynamics and kinetics, chemical equilibrium, electrochemistry, acids, bases and complexions, and an introduction to organic chemistry. Prereq: CH005T. (4/2)

CH007T Nutrition 4

Designed to show the relationship between sound nutrition and good health. Topics studied are: energy requirements, carbohydrates, lipids, proteins, vitamins, minerals, metabolism, physical exercise, dieting, weight problems, evaluation of nutritional claims, vegetarianism, and proper nutrition during pregnancy and lactation. (4/0)

CH008T Organic Chemistry I 4

Introduces theory and practice of organic chemistry with emphasis on the chemistry of functional groups. Areas stressed are nomenclature, stereoisomerism, chemical bonding, reaction mechanisms and the characterizations of hydrocarbons. The lab stresses development of appropriate organic chemistry separation and isolation techniques. Prereq: CH006T or departmental approval. (3/3)

CH009T Organic Chemistry II 4

Continues the study of aromatic compounds, alcohols, alkyl halides and ethers. Emphasis is placed on reaction mechanisms such as electrophilic and nucleophilic substitution processes, the use and interpretation of infrared spectra, and the development of organic syntheses. Stresses qualitative or-

ganic analysis, the use of the infrared spectrometer, and chemical syntheses. Prereq: CH008T. (0/3)

CH010T Organic Chemistry III 4
Continues the study of aldehydes, ketones, carboxylic acids and their derivatives, and amines. Biologically important fats, proteins and carbohydrates are also examined. The lab stresses multistep organic syntheses and qualitative organic analysis. Prereq: CH009T. (3/3)

CH800T Independent Study in Chemistry 1
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Department approval. (0/2)

CM: COMMUNICATION

CM101T Composition I 4
Develops expository writing with emphasis on organization, supporting details, style, vocabulary and library research skills. Mechanical accuracy required. Students should take this course before finishing 45 hours. (Required of all students for an A.A. or A.S. degree.) (4/0)

CM102T Composition II 4
Further develops student's ability in writing. Teaches careful and responsible use of research tools and requires analysis of reading materials, audiences and self when communicating content material. Tests student ability to use fair and logical techniques of persuasion and to analyze critically readings in literature. Prereq: CM101T. (4/0)

CM106T Effective Reading and Study 3
Provides instruction in college study skills including techniques for improving concentration, comprehension and retention of information from textbooks, graphic materials, lectures and seminars. Skills in using a library for research and in taking tests are also taught. Includes diagnostic testing of each student's reading and listening skills. (3/0)

CM111T Creative Writing 4
Offers students an opportunity to be creative in writing literary art forms of fiction, poetry and drama, and emphasizes structure, form and style. Also analyzes the publications market. Prereq: CM101T or consent of instructor. (4/0)

CM112T Speeded Reading Laboratory 1
Offers individualized work to increase reading speeds for students with no serious deficiencies in comprehension or vocabulary skills. Under the guidance of the instructor, students work independently using mechanical reading accelerators with self-corrected workbooks to develop the range of reading rates needed for efficient reading. (0/2)

CM117T Composition II: Technical Writing 4
Deals with objective precision in the writing of business correspondence, technical briefs, proposals and articles. Especially recommended for students in law enforcement, management, science or prelaw. Prereq: CM101T or equivalent. (4/0)

CM201T Public Communication 4
Studies the fundamentals of speaking, emphasizing the development of speaking skills. (4/0)

CM202T Group Communication 3
Examines the theory and techniques used in discussion and group processes. The development of leadership and group skills is provided through frequent practical application in varying group sizes and opportunities. (3/0)

CM204T Speech Communication 4
Studies basic communication fundamentals including communication process, interpersonal relationship, small group interaction, and public speaking. Practical experience in one-to-one, small group, and speaker-audience communication. (4/0)

CM212T Bank Letters and Reports 3
Designed for those bank officers, supervisors and employees who dictate or review correspondence. A review of letter forms that emphasizes fundamen-

tal principles underlying modern correspondence and examines different kinds of bank letters. (3/0)

CM213T Interpretative Reading 2
Develops skills in the oral presentation of literature. Students will learn to interpret prose, poetry and dramatic literature through bodily action, voice and facial expression. (2/0)

CM214T Media Lab 3
General introduction to media hardware and related software. Examines radio, TV, audio-visual and print technology. Students use equipment in lab setting. (2/2)

CM306T Radio and TV Presentation 2
Develops skills in announcing, speaking and performing before microphones and cameras. Considers various styles and presentation techniques. (2/0)

CM316T Special Projects 1-3
Provides opportunity to carry out a media project under professional direction. Advanced students are required to organize and direct a three-credit-hour project. Other students may work in supporting roles of the production and earn one credit. Instructor permission required. (Independent 3-9 hours per week)

CM317T Internship 4-8
Provides on-the-job training in the media field. Prereq: Consent of instructor. (20 hours per week)

CM318T Broadcast Writing 3
Develops competency in broadcast writing with emphasis on news and commercial styles. (3/0)

CM319T Legal and Ethical Issues 2
Deals with various legal and ethical issues affecting the media. Libel, privacy, obscenity, privilege, access, copyright and other contemporary issues involving the First Amendment are included. Also included is a section dealing with the duties and responsibilities of the media practitioner in contemporary society. Prereq: JO101T or instructor permission. (2/0)

CM320T Introduction to Audio-Visual Production 2
Students use production hardware such as 35 mm cameras, tape recorders, slide projectors and overhead projectors to produce training, promotional and entertainment programs. Pre-production planning, scripting and budgeting are covered. Of interest to the hobbyist as well as the career media student. Prereq: CM214T (2/0)

CM321T Introduction to TV Production 2
Presents basic principles, procedures and techniques of television production. Emphasis is on studio production, with students learning how to design and light a set, select and deal with live talent, operate cameras, serve as floor manager, director and producer. Remote production and editing techniques are also introduced. Prereq: CM214T (2/0)

CM322T Introduction to Audio Production 2
Teaches audio recording, editing, duplicating and mixing, use of sound effects, live talent and pre-recorded music. Students work in the on-campus production studio and in the field to produce audio packages targeted at a variety of audiences. Includes work with radio and A-V formats. Prereq: CM214T. (2/0)

CM323T Advanced Production 2-3
Students work four to six hours a week in Media Services or KCOCK-FM under the direction of professional media staff. Lab assignments vary, depending upon the workload in these areas. May be repeated three times. Prereq: Corresponding introductory course or permission of instructor. (0/4-6)

CM324T* Elements of Writing 4
Develops student fluency in communication and clarity in thinking through writers' notebooks, expository writing, analytical reading and listening, and exercises in logic. Students use structured assignments to explore personal goals and values, exercising skills needed for competency in reasoning and writing across the curriculum. (4/0)

CM800T Independent Study: Writing 1-4
Provides opportunity for independent writing projects under the guidance of a faculty member. Prereq: CM101T and prior approval of instructor and department head. (0/2-8)

CM801T Independent Study in Speech 1-4
Provides readings and research opportunities under the guidance of a staff member. Prereq: Consent of the instructor and department chairperson before registering. (1-4/0)

CM001U Business Communications 4
Develops skills and knowledge needed for effective oral and written communication in business, including training in listening and job-seeking techniques. (4/0)

CM002U Communication Skills I 3
Students apply communication skills through oral and written assignments. Emphasizes basic skills related to the workplace. Offered for students enrolled in vocational-technical programs. (3/0)

CM003U Communication Skills II 3
Offers additional practice and application of skills acquired in Communication Skills I, with application to the student's individual vocational needs. Emphasis is on developing writing skills in career situations. Prereq: CM002U. (2-3/0-2)

CM004U Communication Skills III 3
Studies principles of organization and interpretation as they apply to preparing technical reports. Research and descriptive writing skills needed for both informal and formal reports are emphasized. Prereq: CM003U. (3/0)

CM005U Oral Communications 3
Stresses the necessity of proper communications. Concentrates on public speaking, demonstrations and leading group discussions. (3/0)

CM007U Medical Communications 4
Provides skills in oral and written reporting that include chart and treatment auditing techniques. Prereq: TH002U. (4/0)

CM008U Business English 3
Course reviews and reinforces principles of grammar, punctuation, capitalization, abbreviations, writing of numbers, and sentence structure, with a concentration on the most common problems occurring in written business communication. Principles are applied through oral and written exercises, copy editing and paragraph writing. The course aims to help students acquire knowledge about the structure of the English language. (3/0)

CO: CORRECTIONS

CO002T Introduction to Community Corrections 3
Studies the correctional process as applied in the community by means of juvenile and adult probation and parole. (3/0)

CO004T Penology 4
Surveys the history of penal institutions, examines the theories and practices relating to penal institutions, and explores prison reform in relation to various objectives of modern penology. (4/0)

CO006T Race Relations in the Criminal Justice System 4
Examines race relations in the various segments of the criminal justice system. Explores social values and standards of minorities as they relate to the larger society. Looks at selected problems and possible solutions to conflict between races in the criminal justice setting. (4/0)

CP: COMPUTER SCIENCE

CP001T* Problem Solving Using PASCAL 5
Introduces computer programming and techniques using the PASCAL language. The course also introduces block structure and procedures. Data types included are numeric, character, boolean, enumeration, subrange, ar-

rays, record and sets. The course emphasizes program refinement involving documentation and programming style. Prereq: MA032T or MA043T. (5/0)

CP002T* Problem Solving Using PASCAL II 3
Continuation of Problem Solving Using PASCAL with topics including: single and multidimensioned arrays, sorting and searching of arrays, records, sets, data types, text files, sequential files, buffer variables, sorting and updating of files, and manipulation of character data. Prereq: CP001T (3/0)

CP003T* Introduction to Data Structures Using PASCAL 3
Introduces data structures using PASCAL; files and record structures, lists, stacks and queues; linked structures including trees and graphs. Also introduces recursive programming techniques. Prereq: C0002T. (3/0)

CP004T* Computer Organization and Assembly Language Programming I 3
Introduction to hardware organization, memory addressing, data conversions, data representation, assembly language versus machine language, use of condition tests, branches, loops and arrays, subroutines and parameter passing. Prereq: CP002T. (3/0)

CP005T Computer Organization and Assembly Language Programming II 3
Introduction to system processing and control programs using assembly language; assemblers, linkers and loaders; control transfers and parameter passing; macro processing and conditional assembly. Prereq: CP004T. (3/0)

CS: CONSTRUCTION

CS001T Agricultural Construction Materials and Procedures 1-3
Covers selection of building materials and their application to agricultural construction. (1-3/0-2)

CS002U Facility Construction 4
Includes basic knowledge and skill development in concrete, carpentry, plumbing and electricity. Horticulture applications are stressed. (2/4)

CS033U Estimating 3
Designed for architectural draftspersons. The course includes the techniques of estimating and quantity survey. (3/0)

CS034U Presentations 2
Includes instruction in color, proportion and delineation. Offered for architectural draftspersons. (2/0)

CS035U Construction Materials 3
Covers study of building codes, construction standards, wood, concrete, steel and unit masonry. (3/0)

CS036U Construction Methods 3
Covers study of floor/ceiling systems, masonry walls, foundation systems and sound control. (3/0)

CS055U Greenhouse Facilities and Equipment 1-4
Studies construction and operating plastic, fiberglass and glass in small and large greenhouse structures. Heating, cooling, watering and ventilating systems are evaluated for efficiency and effectiveness. (1-4/0-4)

CS056U Farm Facility Maintenance 4
Provides an opportunity for students to do maintenance on buildings and their support services, including heating, water systems and electrical systems. (2/4)

CS057U Rural Concrete and Masonry 3
Concrete forming, placing, curing and mix design are discussed. Concrete block construction and basic masonry skills are taught. (2/2)

CS058U Rural Plumbing 3
Deals with water and fluid piping and fittings. Plumbing fixtures along with threading, sweating and flaring make up course work. (2/2)

- CS059U Rural Carpentry 3**
 Primary maintenance skills are taught along with discussion on frame construction, fasteners, fixtures and construction materials. (2/2)
- CS060U Rural Electricity 3**
 Two-way, three-way, four-way switch circuitry is taught. Class includes work with EMT and discussion of AC electrical power including motors. (2/2)
- CS062U Agricultural Carpentry 4**
 Introduces the student to the basic carpentry skills. Identification and safe use of hand and power tools. This course teaches the student to demonstrate the correct use of hand and power tools. (3/2)
- CS070U Principles of Surveying and Construction 3**
 Designed to provide real estate personnel with basic knowledge of how to assess the physical characteristics of residential and commercial properties to be listed: land, structures and electro-mechanical systems. Also included is familiarization with blueprint reading. (2/2)
- CS071U Estimating II 4**
 Continues Estimating I. Applies concepts covered in Estimating I to estimate costs for a complete construction project. The student develops estimates of construction costs for a structure using actual work drawings. Prereq: CS086U. (2/4)
- CS072U Plumbing 4**
 Covers the installation of plumbing fixtures and piping as used in residential and commercial construction. Includes interpreting piping schematics and construction prints, layout and design techniques, and code requirements. (1.5/5)
- CS073U Electrical Wiring 4**
 Deals with the installation of electrical circuits which include outlets, switches, conduit, distribution panels, and lighting circuits. Covers code requirements, electrical schematics and interpretation of construction prints. (1.5/5)
- CS074U Contracts and Specifications 4**
 Introduces students to contract language, responsibilities, detailing of specifications, cost effectiveness, change orders and types of contracts. (3/2)
- CS075U Strength of Materials 5**
 Elementary course in common building materials and their strength. Covers spans and trusses, and soils and bearing values. (5/0)
- CS076U Steel Construction 2**
 Areas of instruction include the study of steel beams/columns, fasteners and steel construction techniques. (2/0)
- CS077U Construction Scheduling 4**
 Studies the organization, sequence, coordination, material shipment and handling. Also covers subcontracts, overruns and the critical path methods. (4/0)
- CS078U Energy in Construction 4**
 Studies the need for conservation of energy, developing energy saving habits, estimating heating and cooling loads, determining cost benefits and the care and maintenance of buildings to improve efficiency and specialized energy equipment and materials. (4/0)
- CS079U Wood Construction 11**
 Includes the care and use of power tools and equipment used in framing and finishing of a wood structure. Covers the techniques and practices of installing doors, windows, cabinets, trim, insulation, siding and roofing. (2/18)
- CS080U Concrete and Masonry Construction 11**
 This course begins with a historical perspective and covers the current state of the art regarding ingredients used, mixtures, testing and inspection, as well as forming, placement and finishing techniques of block and brick. A limited number of pours and applications of asphaltic concrete are included. (2/18)
- CS081U Construction Management 5**
 Studies labor relations, bonds, liens, contracts, legal aspects, unions, codes,

- OSHA and overruns. Also includes record keeping, insurance and the ethics of working within the construction industry. (5/0)
- CS082U Construction Print Reading 4**
 Studies the various aspects of reading prints that are used in construction. Also includes interpreting the plot plan, elevations, floor plans, electrical and mechanical, as well as specifications and schedules. (3/2)
- CS083U Construction Drafting 6**
 Covers drawing of orthographic projection, plot layout, foundation, floor plan, elevations, electrical and sections as related to light construction. Also includes freehand sketching. (2/8)
- CS084U Site Development 3**
 Deals with surveying instruments in the placement and layout of buildings. Also includes landscaping, drainage soils, compaction, utilities, excavation, grades and easements. (2/2)
- CS085U Construction Safety 1.5**
 Introduces construction safety with an emphasis on compliance with the Occupational Safety and Health Act, identifying and controlling hazards, and administering a safety program in the construction industry. (1.5/0)
- CS086U Estimating I 4**
 Covers the principles of estimating the cost of construction to include cost of materials, labor and overhead for a construction project. Presents the fundamentals of estimating and bidding as applied to subcontractors and general contractors. (4/0)
- CS005V Greenhouse Construction 1**
 Studies design and construction of greenhouses and other related growing structures, including floor plans and environmental equipment needed for optimum plant growth. (2.5/0)

DA: DANCE

- DA001T Fundamentals of Modern Dance 2**
 Introduces basic modern dance technique and choreography. Students practice standard movements and locomotor patterns and are introduced to creative concepts. (0/4)

DN: DENTAL

- DN001U Dental Materials 2-4**
 Gives students an opportunity to acquire a basic understanding of the various types of dental materials, their uses and their manipulating techniques. (1-2/2-4)
- DN002U Porcelain Techniques 4.5**
 Covers basic principles of design, fabrication and staining of restorations of porcelain, or porcelain to metal, including operation and maintenance of related equipment and use of supplies. Prereq: BY002U and BY001U. (1/7)
- DN003U Orthodontics 2.5**
 Studies irregularities of teeth and the fabrication of appliances as prescribed by the dentist to correct those irregularities. Prereq: BY002U, BY001U. (.5/4.5)
- DN004U DLT Orientation 2.5**
 Includes ability of student to dissect words used in dental terminology as to roots, prefixes and suffixes. Also includes a brief introduction to dental history, ethics and jurisprudence, work authorization, communicable disease, and professional organizations associated with the dental laboratory field. (2/1)
- DN005U Dental Equipment I 1**
 Studies proper arrangement, care and maintenance, safety procedures and availability of common types of dental equipment used within the first quarter. Includes some operation. (.5/1)

DN006U Clinical Experience and Seminar (DLT) 12
 Utilizes dental laboratories or dental offices to gain practical experience relating to instructional and manipulative skills learned in the classroom. (0/32)

DN007U Clinical Experience II and Seminar (DLT) 12
 Continuation of Clinical Experience I. (0/32)

DN008U Metal Design, Color and Contour 3
 Through the use of various dental materials, students develop skills related to metal design, color and contour by in-depth study. (1/4)

DN009U Precision Attachments Partials (DLT) 4
 Studies principles and design of various types of intracoronal retention for removable partial dentures, including actual construction of removable partial dentures, incorporating precision attachments. (1/6)

DN010U Cast Metal Base Dentures 2
 Continues complete denture construction involving the design and construction of complete dentures with cast metal bases (ticonium). (.5/3)

DN020U Laboratory Management (DLT) 3
 Study in surveying potential sites for new dental laboratories, their design, bookkeeping and cost analysis, and all facets dealing with the establishment and operating of a dental laboratory. (3/0)

DN021U Denture Techniques (DLT) 6.5
 Introduces the outline and study of procedures related to denture construction. Involves the fabrication of temporary removable partial dentures and complete dentures. (3/7)

DN022U Denture Techniques II (DLT) 6
 Adventures into the aesthetics, phonetics and function associated with complete dentures. Works with a special advanced articular and advanced tooth arrangements. (2/8)

DN023U Articulators and Articulation 2
 Introduces the study of mechanical devices used to simulate the movements of oral anatomy with relation to the construction of dental prostheses. (1/2)

DN024U Cast Inlay and Crown (DLT) 5
 Applies the techniques of pouring casts, mounting techniques, recognition of gingival margin preparations, preparation and trimming of individual dies, and the actual construction of inlays and crowns. (2/6)

DN025U Crown and Bridge (DLT) 10
 Studies types, designs and procedures used in constructing fixed partial dentures, including actual construction of various types of fixed partial dentures. (4/12)

DN026U Partial Denture Techniques (DLT) 4.5
 Examines the principles and theories of survey, design and blockout techniques for simple removable partial dentures, and actual construction of cobalt-chrome removable partial dentures. (1/7)

DN027U Partial Denture Techniques II (DLT) 5
 An advanced study in the design and fabrication of special types of removable partial dentures. (2/6)

DN028U Specialized Study: Orthodontics 6
 Allows the student and instructor to prepare a contract for individualized study in orthodontics. This contract will include the phase of orthodontics that the student and instructor feel is necessary to make the student knowledgeable and competent in this field of laboratory work. Prereq: Previous modules related to this subject. (0/12)

DN029U Specialized Study: Fixed Bridges 6
 Allows the student and instructor to prepare a contract for individualized study in fixed bridges. This contract will include the phases of fixed bridge-work that the student and instructor feel are necessary to make the student knowledgeable and competent in this area of laboratory work. (0/12)

DN030U Specialized Study: Ceramics 6
 Allows the student and instructor to prepare a contract for individualized

study in ceramics. This contract will include the phases of porcelain that the student and instructor feel are necessary to make the student knowledgeable and competent in this field of laboratory work. (0/12)

DN031U Specialized Study: Removable Bridges 6
 Allows the student and instructor to prepare a contract for individualized study in removable bridges. This contract will include the phase of removable partials that the student and instructor feel is necessary to make the student knowledgeable and competent in this field of laboratory work. (0/12)

DN032U Specialized Study: Full Dentures 6
 Allows the student and instructor to prepare a contract for individualized study in full dentures. This contract will include the phases of full dentures that the student and instructor feel are necessary to make the student knowledgeable and competent in this field of laboratory work. (0/12)

DN102U Dental Materials 4
 Includes the chemical and physical composition of the basic groups of dental materials. The laboratory phase offers clinical demonstration of the use of each material and individualized manipulative practice. (3/2)

DN103U Dental Assisting 6
 Provides the student with the basic principles of chairside assisting. Includes the identification, use and maintenance of equipment and instruments; sterilization and disinfection techniques; instrument transfer, oral evacuation and oral diagnosis procedures. Background material and chairside techniques concerning operative functions, crown and bridge work, and prosthetics will be included. (4/4)

DN109U Lab Practicum I 4
 Assigns each student to clinical areas at the College of Dentistry in Iowa City and Veterans Hospital to provide practical experience in the various departments of operative, crown and bridge, pedodontics, periodontics, endodontics, oral surgery, radiology and orthodontics. An overview of dental assisting in all areas of dentistry. (.5/7.5)

DN110U DA Practicum II 7.5
 Continues DA Practicum I at the College of Dentistry in Iowa City. (1/13)

DN111U DA Clinic I 3.5
 Applies knowledge and skills in a dental office internship to include: chairside procedures, business office procedures and dental laboratory procedures. (.5/9)

DN112U DA Clinic II 3.5
 Continues Clinic I in a private dental office. (.5/9)

DN113U Dental Radiography I 3
 Presents a basic background of the production of dental x-rays, hazards and safety. Emphasis is given to exposing, processing and mounting dental films. (2/1.5)

DN114U Dental Radiography II 2
 Continues Dental Radiography I with emphasis on exposure angulation, evaluation of films and corrective measures. (1/1.5)

DN115U Dental Lab Assisting 4.5
 Provides practice and application of laboratory skills commonly performed in a private dental office, such as pouring and trimming of study casts, construction of bite-blocks, soldering and construction of removable acrylic appliances. (2/5)

DN120U Dental Therapeutics 2.5
 Provides instruction in obtaining and recording vital signs. Discusses systemic diseases, conditions and potential emergencies, in addition to medications used in dentistry and for emergencies. Prereq: DN103U. (2/1)

DN121U Disease and Prevention 3.5
 Presents concepts of prevention through an understanding of oral disorders, problems and treatments, control of bacterial plaque formation and methods of oral hygiene instruction for patients. (3/1)

DN141U Dental Specialties 5.5
 Presents specialty areas of dentistry, pedodontics, endodontics, orthodon-

tics, periodontics, oral surgery and sterile procedures. Includes procedures, instruments and current concepts of assisting in these areas. (5/1)

DN143U Dental Assisting Advanced Practicum I 2.5
Enhances proficiencies in intra-oral functions. Prereq: DN109U. (1/3)

DN164U Dental Equipment II 1
Studies proper arrangement, care, maintenance, safety procedures and availability related to dental equipment used within the second and third quarters. Applies knowledge and skills by completing simple repairs on dental equipment. (.5/1)

DN165U Dental Equipment III 1
Studies proper arrangement, care and maintenance, safety procedures and availability related to the dental equipment used in the fifth, sixth and seventh quarters. Applies knowledge and skills by completing simple repairs on dental equipment. (.5/1)

DN168U Advanced Practicum II 5
Provides students with clinical proficiency in skills introduced in Advanced Practicum I. Students have more patient contact in each of the skills and are faced with abnormal and unusual conditions rather than normal conditions covered in Adv. Practicum I. Prereq: DN143U. (1/8)

DN169U Occlusion 2
Students learn in-depth information about the principles of occlusion and apply these principles by understanding and using a three-dimensional articulator. (1/2)

DP: DATA PROCESSING

DP006T Computer and Data Processing Concepts 3
Covers fundamentals of computers and computerized data processing, data processing concepts, computer terminology, computer devices, basic systems considerations, programming techniques, and data accuracy and control. (3/0)

DP007T Fundamentals of Bank Data Processing 3
Broadly based, non-technical, and designed for the manager who uses the computer as a tool, rather than the computer scientist. The course is geared to fundamental principles, concepts and functions on the basis of what everyone in banking must know about the characteristics of automation. Discusses computer systems and languages, the present and potential uses of computers, and societal influence of growing computer dependence. (3/0)

DP009T Making It Count 3
Introductory applications course on computers and computer operations including computer hardware and software. (3/0)

DP010T Introduction to Microcomputers and Data Processing 1-4
Familiarizes the student with business, personal and industrial uses of microcomputers. Broad-based overview of microcomputer topics is presented; concepts of storage media, file organization, and data representation are presented also. The fundamentals of computer problem solving and programming are discussed. (1-3/0-2)

DP011T* Introduction to Computers: The New Literacy 3
An up-to-date survey of electronic data processing, computer hardware and software systems, and developments that will provide the basis for further advancements in information processing. It provides a comprehensive overview of the computer and introduces computer science terminology, computer application, and prepares students to understand and utilize computers in both their professional and personal lives. (TELECOURSE) (3/0)

DP001U Self-Service Aids 1
Covers basic operation of data entry equipment. Intended to make students self-sufficient in preparation of programs and test data. (0/2)

DP003U Computer Operating Techniques 3
Includes study and practice of computer operating techniques, student study and performance in the areas of card/tape/disk handling, computer console control and peripheral equipment operation. (3/0)

DP005U Introduction to Computer Architecture 3
Presents the System 370 architecture and hardware. Includes direct storage and peripheral devices, and the techniques of file organizations for these devices. (3/0)

DP007U Assembler Language I 4
Studies IBM Basic Assembler Language programming concepts and techniques. Includes the writing and testing of Assembler Language programs and routines. Prereq: DP013U. (3/2)

DP009U Assigned Operations Projects 3
Assigns projects simulating actual operation of a data center. Provides hands-on experience with I/O devices, console operations and output handling. (1/4)

DP010U Computer Applications for Managers 3
Students learn several applications for microcomputers in management, including accessing data networks, financial planning, decision making, scheduling and communication. (2/2)

DP011U Introduction to Report Program Generator (RPG) 4
Presents the language facilities of RPG II. Students write and test several programs. (3/2)

DP012U Problem Solving with BASIC 4
A hands-on course in introductory computer programming focusing on problem solving and program design using the BASIC programming language for implementation. Flowcharts, pseudocode or other appropriate design tools will be used for problem analysis and algorithm testing. Will include computer concepts necessary for student understanding of program execution. BASIC statements required for condition testing, loop control, arithmetic operations, and single level arrays will be presented. Apple and IBM Personal Computers will be used. (3/2)

DP013U Introduction to COBOL Programming 4
Presents ANSI COBOL programming language fundamentals and coding techniques. This course includes the writing of COBOL programs using structured techniques. (3/2)

DP014U COBOL II Programming 4
Continues Introduction to COBOL Programming and extends exposure to more complex techniques including table handling, sorting and file maintenance. Prereq: DP013U. (3/2)

DP016U Introduction to FORTRAN Programming 4
Introduces FORTRAN programming concepts and techniques, with numerical mathematical/scientific/business problems. Prereq: DP013U. (3/2)

DP018U Introduction to Programming Language I 4
Introduces PL/I concepts and techniques emphasizing applications of the business world. Students write and test several programs. Prereq: DP016U. (3/2)

DP021U Operating System Concepts 4
Provides an introduction to the concepts and facilities of the disk operating system/virtual storage. Includes sufficient information to allow a student to run programs using appropriate statements and commands. (3/2)

DP022U Operating Systems Coding 4
Covers all facilities of the Disk Operating System, including the job control language, supervisor services, systems maintenance, the linkage editor functions and multiprogramming facilities. Is designed for programmers who plan to use the Disk Operating System of the S/370. Prereq: DP021U, DP013U. (3/2)

DP026U Operating Systems Survey 4
Presents the concepts and facilities provided by various manufacturers in

their operating systems. Also includes some commercial software systems (spoolers, librarians, reporters, etc.). Prereq: DP006T, DP021U. (4/0)

DP027U Systems Utilities 2

Develops knowledge and skill in the use of various systems utilities and offers actual working experience with a sort, merge, monitor and various utilities. Prereq: DP021U. (1/2)

DP036U Application Programming Projects 5

Offers supervised work experience at various data processing tasks which serve as learning tools as the tasks are completed. These tasks may be done within a real or simulated business organization. Prereq: DP083U, DP049U. (1/8)

DP041U Program Design and Documentation 3

Presents the techniques to analyze a problem for solution by computer, and designing and documenting the solution. Includes step-by-step documentation of solution algorithm. Techniques presented include flowcharts, decision tables, Warnier Charts and structured design. (3/0)

DP042U Program Testing 3

Presents the techniques of planning and documenting the testing, modifying and correcting of computer programs. Includes the coding techniques required to reduce coding and logic errors to improve error detection and correction. Also includes programming considerations for program maintenance. Prereq: DP013U. (2/2)

DP044U Data Management 4

Presents the concepts and techniques of data access methods. Storage methods presented include sequential, direct and virtual storage access methods. Prereq: DP014U, DP022U. (3/2)

DP048U Financial Applications of Data Processing 3

Presents computer considerations in dealing with general financial systems. Students are exposed to the characteristics of such areas as general register, receivables, payables and payroll. Prereq: DP049U. (3/0)

DP049U Structured System Analysis 3

Includes systems, procedures, systems analysis and design, purposes, responsibilities, applications and techniques of the systems activity as found in a business organization. Prereq: DP006T. (3/0)

DP083U Data Base Management 4

Continues Data Management. Includes concepts of data base organization and management. Provides coding experience for data base. Prereq: DP044U. (3/2)

DP084U Manufacturing Applications of Data Processing 3

Includes computer applications of dealing with nonfinancial systems. Students are exposed to applications such as personnel and inventory. Prereq: DP048U. (3/0)

DP085U Data Communications Concepts 3

Presents the concepts and considerations for programming in an on-line environment. Presents facilities of communications software including CICS. Prereq: DP083U. (3/0)

DP087U BASIC Programming II 4

A continuation of BASIC Programming I, this course more fully develops students' command of the BASIC language and skill in problem solving. Top-down design and program modularity with the use of procedures and user-written functions are stressed. Extensive matrix operations and file handling, including relative record access, are included. Prereq: DP095U. (3/2)

DP089U Business Applications of Data Processing 3

Presents a general exposure to financial, manufacturing and insurance systems. Prereq: DP006T. (3/0)

DP090U Computer Operation Support Activities 3

Covers all support activities associated with computer operation, tape library functions, input and output control, and related equipment (burst, decolator, etc.). (2/2)

DP091U COBOL III Programming 4

Continues COBOL II Programming and extends exposure to more complex techniques. Prereq: DP014U. (3/2)

DP092U Data Communications Coding 4

Covers data communication facilities under CICS. Students write and test online programs. Prereq: DP085U. (3/2)

DP093U Introduction to PASCAL 3

Presents the elements of PASCAL in increments from the less complex to the more complex. Students gain experience using syntax diagrams as reference tools, performing textile I/O using all four basic data types, creating complex structured data types, manipulating objects of a user declared type. Prereq: DP012U. (2/2)

DP094U Health Career Microcomputers 1-4

Provides an overview of microcomputers in a manner meaningful to the health career student. Course content, oriented toward a medical environment, includes microcomputer terminology, hardware, software, telecommunications, and exposure to word processing and patient data management system applications. (1-2/0-4)

DP095U BASIC Programming I 4

A programming course concentrating on design and implementation of common applications using BASIC. Includes interactive accounting and reservation systems, single and multiple control break reports, and table processing. BASIC statements for condition testing and loop control, arithmetic operations, string manipulation, single and multiple dimensional arrays, sequential file processing and a number of intrinsic functions are presented. This course uses the Waterloo Micro BASIC interpreter. Prereq: DP001U and DP012U or DP010T or DP041U or another programming language course. (3/2)

DP096U IBM PC Assembler Language Programming 4

Introduction to 8088/8086 Assembler language programming. Covers 8088 instruction set and macro Assembler pseudo operations. Elements of MS DOS operating system including BIOS and DOS function calls. Emphasizes industrial process control applications such as motor speed/position control, temperature sensing and data logging. Prereq: One prior programming language. (3/2)

DP097U Microcomputer Selection and Management 2

Designed to show the student how to select the proper hardware and software for an application. Includes how to manage, utilize and keep records in a computer facility. Prereq: DP010T. (1/2)

DP098U Microcomputer Communication Systems 2

Introduces the concepts of data communications and how to use a microcomputer to set up electronic mail, networks and communicate with mainframes. Prereq: DP010T (1/2)

DP099U Microcomputer Accounting Systems 2

Introduces the student to micro general ledger, accounts receivable, accounts payable, payroll, inventory and other accounting systems. Prereq: DP010T. (1/2)

DP100U Microcomputer Integrated Systems 2

Introduces students to the use of micro integrated systems to construct menu driven applications using graphics, text and database techniques. Prereq: DP010T. (1/2)

DP101U Microcomputer Data Bases 2

Presents the use of micro data bases to plan and create files, edit, sort, index and produce reports. Data bases are examined and used by students to prepare projects. Prereq: DP010T. (1/2)

DP102U Microcomputer Spreadsheets 2

Course examines different accounting electronic spreadsheets. Students learn to use software to do labeling, use formulas, replicate, save and retrieve data. Prereq: DP010T. (1/2)

DP103U Microcomputer Wordprocessing 2
Provides instruction in different micro-wordprocessing systems. The concepts of editing, formatting, printing, file and disk management are covered. Prereq: DP010T. (1/2)

DP104U Microcomputer Utilities 2
Covers the microcomputer operating system and the functions of preparing and copying diskettes, file operations, directories and advanced DOS commands needed by the microcomputer operator. Prereq: DP010T. (1/2)

DP001V Introductory Data Entry 3
Offers introductory training on data entry machines. Prereq: Typing skill of 35 wpm. (0/6)

DR: DRAMA

DR101T Introduction to Theater 4
This course requires no previous theater experience. Introduces the student to the roles of actor, director, designer, playwright and critic, and it provides a brief history of the art. The student also learns the basics of play analysis and the techniques for critiquing a live production. (4/0)

DR105T Theater Practicum I 2
Students work as actors or technicians (or both in the case of small acting roles) in one Kirkwood production. A minimum of twenty-four hours of practical work is required for a passing grade. (0/4)

DR106T Theater Practicum II 2
Students work as actors or technicians (or both in the case of small acting roles) in one Kirkwood production. A minimum of twenty-four hours of practical work is required for a passing grade. (0/4)

DR107T Theater Practicum III 2
Students work as actors or technicians (or both in the case of small acting roles) in one Kirkwood production. A minimum of twenty-four hours of practical work is required for a passing grade. (0/4)

DR108T Acting I 4
Introduces basic acting techniques, with emphasis upon improvisation, recreation of roles from dramatic literature, self-analysis and character analysis. Students present individual and group performances. (4/0)

DR109T Acting II 4
Continues training in basic acting techniques, with emphasis upon voice control, movement, script analysis and scene work. Students present individual and group performances. (4/0)

DR110T Stagecraft 4
Introduces the backstage crafts of the theater. Students are introduced to elementary scenic drafting, parts and uses of the theater, basic techniques of scenic carpentry, scene painting and stage lighting. Students are required to work on technical aspects for one Kirkwood production. (4/0)

EA: EARTH SCIENCE

EA001T Introductory Geology 4
Presents basic concepts in geology, i.e., earth materials and processes, historical geology and geological resources. Constructive and destructive forces involved in shaping the planet are discussed. Plate tectonics and sea-floor spreading serve as a unifying factor for the course. (4/0)

EA003T Introductory Geology Lab 1
Designed to be taken with EA001T. (0/2)

EA002T Evolution of the Earth 4
Considers interdisciplinary principles, techniques and methods essential to the interpretation of the geological history of the earth. The development of plate tectonics and continental drift through geological time, and the progression and evolution of life from Pre-Cambrian time to present time are also examined in some detail. Additional credit via directed study and preparation of a paper is available for students wishing 4 credit hours in historical geology. (4/0)

EA004T Evolution of the Earth Lab 1
Designed to be taken with EA002T. (0/2)

EC: ECONOMICS

EC008T Money and Banking 3
Stresses the practical aspects of money and banking, and emphasizes the basic monetary theory needed by the banking student in a job. Emphasis also is placed on such problems as economic stabilization, types of spending, the role of gold, limitations of central bank control, government, fiscal policy, balance of payments, and foreign exchange, showing their repercussions on the banking industry in affecting yield curves and the structuring of portfolios. Prereq: Recommend EC013T. (3/0)

EC009T Principles of Collective Bargaining 3
Covers problems of the industrial labor setting as applied to collective bargaining. Topics reviewed include wage determination and employment theory, internal and external problems of the labor force, union structure and government, growth and theory of labor movements and evolution of substantive labor law in the U.S. Emphasis will be placed on the historical, political and institutional setting of the collective-bargaining process. (3/0)

EC010T Labor Law (Taft-Hartley) 3
An institutional and historical approach to public policy considerations in labor relations law from 1806 to the present. Topics reviewed include the "Greek" of labor law, strikes, picketing, organizational boycotts, unfair labor practice, union security, duty to bargain. Relationships between the large group conflicts of labor relations and other large group conflicts (e.g., race relations) receive attention. Attention also is directed toward the public sector. (3/0)

EC011T Dispute Settlement and Labor Relations 3
Offers an analysis of problems encountered in the area of employer-employee differences with respect to the meaning and application of contract terminology. Cases in arbitration are used to illustrate problem areas in the industrial relations setting. Areas of study include: grievance handling, arbitration of grievances, discipline, wages, vacations and holidays, work assignments, seniority, distribution of overtime, subcontracting, technological change. Additional attention is directed toward the public sector. No prior course is required. (3/0)

EC013T Principles of Economics (Macro) 4
Introduces principles of the economizing problem with emphasis on national income and employment analysis. Includes national income accounting, the business cycle, money and banking, fiscal and monetary theory and policy, and economic growth. Recommended for students pursuing a baccalaureate degree. (4/0)

EC014T Principles of Economics (Micro) 4
Emphasizes markets, the price system and the allocation of resources, demand and supply, market structures, price and output determination, and income distribution. Recommended for students pursuing a baccalaureate degree. (4/0)

EC015T Principles of Business Economics 4
Acquaints the student with the business enterprise in the perspective of the modern economy, and introduces the economizing program and analysis of markets and the price system. The course also examines national income and employment theory. Recommended for associate degree programs only. Transfer status uncertain. (4/0)

EC016T Contemporary Economic Problems 4
Offers advanced analysis of some of the topics discussed in Principles of Economics (Macro and Micro). The course focuses on one or more contemporary economic problems. Individual and group projects are assigned. Prereq: EC013T and EC014T. (4/0)

EC018T Unions and the Political System 3
Describes the structure and functions of all levels of government including separation of authority, executive privilege and presidential appointive pow-

ers. The role of pressure groups, the unions' role in our two-party system, plus recent trends in the "labor vote" also are discussed, as well as the issues that unions want enacted into law. (3/0)

EC020T Labor Law (Landrum-Griffin) 3

Continues the study of labor law using an institutional and historical approach to public policy considerations in labor relations law. Topics reviewed include: individual rights and the duty of fair representation, admission to union membership, union elections, enforcement of the agreement, union democracy. Emphasis is placed on the public sector. (3/0)

EC800T Independent Study: Economics 1-4

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman before registering. (1-4/0)

EC003U Economics for Technicians 3

Studies macro and micro economics to present students with an understanding of the external and internal economic forces that affect the businesses and industries for which they will work. (3/0)

EC004U Agricultural Economics 3-4

Identifies economic concepts, principles and relationships as they relate to the agricultural industry. Reviews the principles of diminishing returns, marginal costs, opportunity cost, substitution, and the concept of risk and uncertainty. (1-4/0-3)

EG: ENGINEERING

EG007T Engineering Graphics 3

Includes study of sketching, lettering, freehand drawing, use of drawing instruments and principles of projection. Also lines, perpendicularity, parallelism, revolution, topography and piercing points and computer graphics. (2/2)

EG008T Engineering Computations 3

Emphasizes digital computer programming utilizing Fortran programming, engineering applications using logic operations, decision and transfer loops, subprograms, input/output and flow charts. It is a required course in engineering and is designed for undergraduate students who have had no, or only minimal, experience in digital computer programming. Equals 2 semester hours. Prereq: High school algebra and trigonometry or departmental permission. (3/0)

EG009T Materials Science 5

A foundation course in materials science designed to show relationships between structures and properties of various materials at the atomic, micro and macro levels. Equals 3 semester hours. Prereq: CH005T or departmental approval. (5/0)

EG010T Statics 3

Covers such topics as vector algebra, forces, couples, equivalent force-couple systems, Newton's laws, friction, equilibrium analysis of particles, and finite bodies and applications. This course principally serves both the civil engineering and mechanical engineering undergraduate engineering programs for which it is a required course. Equals 2 semester hours. Prereq: One semester or two quarters of college-level calculus. (3/0)

EG011T Dynamics 5

Emphasizes vector calculus, Newton's laws, dynamics of particle motion, multiparticle systems, and rigid bodies in plane motion and applications. It serves principally both the civil and mechanical engineering undergraduate programs for which it is a required course. Equals 3 semester hours. Prereq: EG010T and MA037T. (5/0)

EG012T Thermodynamics 6

Includes basic elements of classical thermodynamics, including first and second law, reversibility, irreversibility, Carnot cycle, properties of pure substances, closed simple systems and one-dimensional steady-flow open systems, and engineering applications. Equals 4 semester hours. Prereq:

CH0005T or equivalent and one semester or two quarters of college-level calculus. (6/0)

EG013T Introduction to Electrical Science 5

Covers elementary DC and AC passive circuits, complex impedance, network analysis, Thevenin's theorem and network theorems. Studies elements of transient response, elementary electromagnetic theory, Coulomb's law, Ampere's law and Gauss's theorem. Equals 3 semester hours. Prereq: Concurrent registration in MA036T. (3/2)

EG015T Introduction to Engineering 3

Is a required introductory level course for all entering freshmen engineering students. Surveys the multiple opportunities in the field and the education required to enter them. The student is introduced to the engineer's approach to problem solving through direct application. Equals 2 semester hours. Prereq: One year of high school algebra or equiv. (2/0)

EG001U Statics 7

Introduces applied engineering mechanics. Analyzes various force systems to produce an equilibrium condition acting on rigid bodies at rest or in uniform motion. Friction is also covered. Both graphical and analytical solutions are utilized. Prereq: MA013U. (5/5)

EG002U Kinematics of Mechanisms 6

Studies the analysis of kinematic systems for displacement, velocity and acceleration. Graphical and analytical methods are used in the solutions. Systems include linkages, cams and gear trains. (3/7)

EG003U Dynamics 5

Deals with the forces that produce or change the motion of rigid bodies in translation, rotation, or combination of the two. Solution methods include force, work-energy and impulse-momentum methods. Prereq: EG001U. (3/4)

AG004U Machine Design 7

An application course in which the skills acquired during the first four quarters are focused on problems involving the size, shape and material requirements of machine parts for various loading conditions. Machine components that are analyzed are: shafts, weldments, fasteners, springs, clutches and brakes, gears and gear trains, bearings, and chain drives. (5/5)

EG006U Strength of Materials I 4

An introductory portion of the course studies the terminology used in describing the mechanical properties of engineering materials. Lab experiments are used to verify reference data. The balance of the course is an analytical study of direct stresses caused by compressive, tensile and shear loads on structural joints and machine members. Other topics covered are: centroids, moments of inertia, shear and bending moments in beams. Prereq: EG001U. (3/2)

EG007U Strength of Materials II 4

Studies stresses and size selection of structural members subjected to bending and column loading. The topics of beam deflection, combined stresses, and statically indeterminate beams are covered. Prereq: EG006U. (3/2)

EL: ELECTRICITY AND ELECTRONICS

EL001U Introduction to Electronics Laboratory 3

Develops the student's ability to use electronic test equipment, function effectively in a laboratory and a shop environment, learn the basic skills necessary for a technician. Provides an overview of the field of electronics. Also covered are the standard color code, electronic symbols, schematic sketching and preferred values. (1/4)

EL002U Electric Circuits I 6

Introduces the physics of electricity, and covers circuit analysis techniques of DC circuits. Major network theorems are covered in detail. Prereq: MA031T. (5/2)

EL003U Electric Circuits II 6

Studies the steady-state sinusoidal analysis. Includes reaction, resonance and frequency response. Prereq: EL002U. (5/2)

- EL006U Communications Electronics 5**
This course covers general topics encountered by engineering technicians working with communications systems. It includes AM, FM, SSB, TDM and FDM. Although a "Block Diagram" or systems approach is emphasized, circuits are also discussed. Coreq: EL033U. (5/0)
- EL007U Communications Circuits I 6**
Studies the theory and servicing of mono and stereo audio amplifiers in both high and low power. Laboratory exercises give the students hands-on experience with the various types of audio systems. Designed to be taken concurrently with Solid State II (EL077U). Prereq: EL076U. (4/4)
- EL008U Communications Circuits II 6**
Studies the theory and servicing fundamentals of electronic receivers such as AM/FM broadcast, paging devices, CB and scanners. Laboratory exercises are in testing and measuring the various types of receivers. Prereq: EL007U. (4/4)
- EL012U Transmission Systems 6**
This course is a continuation of EL006U, Communications Electronics, and covers additional topics including antennas, transmission lines, propagation of electromagnetic waves, and waveguides. Prereq: EL006U. (5/2)
- EL013U Active Devices III 6**
Takes a theoretical as well as a laboratory approach to the analysis of control devices and circuits. Some of the topics covered include SCR's, UJT's, Op-amps and voltage regulators. Prereq: EL015U. (4/4)
- EL015U Active Devices II 6**
An analytical approach, with laboratory applications, to solid-state circuitry and basic transistor amplifier analysis and design. Topics covered include equivalent circuits and their parameters, small-signal amplifiers, large-signal amplifiers, multi-stage amplifiers, feedback and oscillators. The theory and application of field-effect transistors, unijunctions and new devices also are covered. Prereq: EL035U. (4/4)
- EL029U Electrical Circuits I 5-8**
Studies the theory and application of the physics of electricity. Included are definition, symbols, resistors, inductance and the basic laws that apply to these components in direct current circuits. Laboratory experiments are designed to enhance the learning of the theories studied. Prereq: Algebra. (3-5/4-6)
- EL030U Electrical Circuits II 8**
Studies alternating current and its effects on inductive, capacitive and restrictive circuits, including the effects of filters and resonant characteristics. Laboratory experiments are designed to enhance the learning of theories studied. Prereq: EL029U. (5/6)
- EL033U Electronic Test Methods 3**
Gives the student experience in lab procedures and use of various types of test equipment while designing and investigating the performance of circuits associated with communications systems. Requires concurrent enrollment in EL006U. (1/4)
- EL034U Transform Circuit Analysis 5**
Studies the use of Laplace transforms to analyze multiple time-constant circuits. Prereq: MA015U. (5/0)
- EL035U Active Devices I 6**
Provides the student with a basic understanding of biasing techniques, how active devices work, how amplifiers amplify, and how a circuit is analyzed and designed. The course provides a background needed to progress into more complex circuits and systems. Prereq: EL002U. (4/4)
- EL058U Design Projects I 2**
Gives the student experience in design, breadboarding, troubleshooting and evaluation of several functional blocks or subsystems. Prereq: EL006U, EL062U. (1/2)
- EL059U Design Projects II 3**
Gives the student experience in design, breadboarding, troubleshooting and evaluation of one or more functional blocks within a complex system. Other activities include working on part of an overall system, writing proposals, writing progress reports, keeping a design notebook and writing a design report. Prereq: EL058U. (1/4)
- EL060U Microprocessor Interfacing 3-4**
Covers programming and interfacing the 6502 microprocessor. Includes data transfer, I/O techniques, interval timers, address decoding, control signals, output ports, flags and interrupts. Prereq: EL061U. (3/0-2)
- EL061U Microprocessor Fundamentals 3-9**
Studies basic concepts of microcomputers including CPU, I/O and memory sections. The student learns how microprocessors are utilized in the system. Prereq: EL062U. (3-6/0-6)
- EL062U Digital Principles 5-6**
Introduces the basic digital concepts including number systems, logic gates, Boolean Algebra, flip-flops, registers, counters, arithmetic circuits. Prereq: EL035U. (5/0-2)
- EL063U Microprocessor Software 3-5**
Covers CP/M operating system, monitors, assemblers, editors and debuggers. The student learns to write programs in 6502 and 8085 assembly languages. Prereq: EL060U. (3-4/0-2)
- EL064U Basic Electricity 2**
Addresses the basic concepts of electricity including definitions, voltage and current measurement, and energy consumption. Circuit and equipment protection devices and personal safety also are discussed. (2/0)
- EL065U Advanced Microprocessor Interfacing 3-4**
Studies design techniques of circuits that can be used or adapted to virtually any situation where computer control is needed. Topics include: I/O ports, serial communications, timing, A/D and D/A conversion, data acquisition and closed-loop control. Prereq: EL060U. (3/0-2)
- EL066U Introduction to Robotics 3-4**
Covers general characteristics of industrial robots including support hardware, stepper motors and interface circuitry. The student writes simple programs that control the operation of the robot. Prereq: EL060U. (3/0-2)
- EL067U Digital Diagnostic Techniques 3-5**
Includes digital tests and measurements using logic probes, logic pulsers, current tracers, static stimulus testers, signature analyzers and digital analyzers. Prereq: EL060U. (3-4/0-3)
- EL068U Electronic Technological Trends 3**
Investigates some of the newest developments in communications electronics such as fiber optics, lasers and masers. Prereq: EL006U. (2/2)
- EL069U Practical Communications Systems 5**
This course allows the student to apply those principles covered in Communications Electronics and Transmission Systems, to understand actual complex systems including color TV and stereo FM. Prereq: EL006U, EL012U. (5/0)
- EL070U Radio Frequency Design 4**
Involves the student in designing various communications circuits including RT amplifiers, modulators, filters and others. Prereq: EL006U. (3/2)
- EL071U BASIC Programming for Technicians 4**
Covers programming in the BASIC language with application to electronic problems. Also, the student is introduced to Fortran programming. Prereq: MA031T. (3/2)
- EL072U Communications Circuits III 6**
Studies the theory and maintenance procedures for the following types of equipment: satellite systems, AM/FM transmitters, antennas and transmission lines. Laboratory experiments are designed to enhance the students' knowledge of the various equipment. Prereq: EL008U. (4/4)
- EL073U Digital Circuits I 3**
Introduces basic digital concepts for the electronic technician. Studies various number systems, basic gates and multivibrators. Laboratory experiments are designed to enhance the learning of the material studied. Prereq: EL029U, EL076U. (2/2)

- EL074U Digital Circuits II 3**
Continues Digital Circuits I, extending into counters, registers, D/A and A/D converters, memories, digital arithmetic and basic clocks. Laboratory experiments are designed to enhance the learning of the theories studied. Prereq: EL073U. (2/2)
- EL075U Digital Circuits III 3**
Applies the basic digital principles to more complex digital concepts directed toward the microprocessor. Laboratory experiments are designed to enhance the students' learning of the material covered. Prereq: EL074U. (2/2)
- EL076U Solid State I 8**
Studies the theory and applications of diodes, power supplies, and small signal applications of transistor amplifiers. Laboratory experiments are designed to enhance the learning of the circuits studied. Prereq: EL029U. (5/6)
- EL077U Solid State II 7**
Continues Solid State I, with preparation into large signal transistor amplifiers, JFETS, MOSFETS, OP amplifiers and integrated circuits. Laboratory experiments are designed to enhance the learning of the circuits studied. Prereq: EL076U. (4/6)
- EL078U Shop Methods 2**
Covers the shop skills needed by technicians in a modern electrical and/or service center. Topics included are soldering techniques, wiring, parts placement and the use and care of hand tools. (0/4)
- EL079U Introduction to Electricity and Electronics 6**
Designed to give the student an exploratory survey of the various fields in electrical and electronics maintenance and repair and a brief overview of some of the common systems in those fields. Laboratory experiments are designed to familiarize the student with the various pieces of electronics test equipment that are used in the industry. (4/4)
- EL080U Mechanical Devices I 10**
Designed to provide the student with the knowledge and skill necessary to service and maintain electro-mechanical devices such as: turntables, video and audio records, disc drives and computer keyboards. Lab exercises give students a hands-on approach to enhance the learning of the various types of devices. Prereq: EL030U. (5/10)
- EL084U Television Principles 8**
Provides the student with a comprehensive study of the theory and principles of television receivers. Laboratory experiments are used to measure the various signals found in video systems and television receivers. (4/8)
- EL085U National Electrical Code 3**
Develops skills in reading and drawing residential house wiring diagrams and working drawings. Also includes working with the current National Electrical Code residential section. (2/2)
- EL086U Electrical Wiring 3**
Combines theory and labs to study proper wiring of electrical devices for residential applications. (1/4)
- EL087U Motors and Transformers 5**
AC single-phase and three-phase motors, and transformers are covered in theory and laboratory exercises. Includes troubleshooting, wiring, motor starting devices and overload protection. (3/4)
- EL088U Motor Control Circuits 4**
Involves design and application for motor control circuits as found in industry and agriculture. Practical experience is obtained in laboratory exercises. (3/2)
- EL089U Air Conditioning and Refrigeration I 8**
Familiarizes the student with the basic refrigeration terms, the basic components and the specialized equipment necessary to service a refrigeration or air conditioning system. Practical skills are obtained in laboratory exercises. (7/2)
- EL090U Air Conditioning and Refrigeration II 8**
Fundamentals of refrigeration and air conditioning for domestic and light commercial applications are covered in theory and labs. Provides students with system troubleshooting, accessories and cooling load calculations. (6/4)
- EL091U Air Conditioning and Refrigeration III 5**
Includes commercial refrigeration systems such as ice-makers, walk-in freezers and coolers. Heat pump theory is covered along with split systems. (3/4)
- EL092U Heating, Ventilation and Air Conditioning Systems 3-5**
Provides the student with a working knowledge of commercial air handling units, heating-cooling systems and hydronic piping layouts. (1-3/2-5)
- EL093U Applied Industrial Electronics 7**
Consists of industrial instruments, solid state motor controllers, logic systems, environmental detectors, regulated systems and telemetering. Practical experience is achieved in lab exercises. (4/6)
- EL094U Heating, Ventilation and Air Conditioning Controls 5**
Pneumatic environmental temperature controls application, calibration and troubleshooting are covered in theory and laboratory exercises. (3/4)
- EL098U Microprocessor Troubleshooting 5-7**
A practical hands-on approach is used to learn how to troubleshoot a microprocessor system, isolate the microprocessor unit from the total system and detect the source of the malfunction. The course includes static stimulus testing, dynamic testing using logic analyzer, scopes and other electronic test equipment. (3-5/4-5)
- EL099U Fundamentals of Fluid Power 7**
Familiarizes the student with basic industrial hydraulics involving system components, theory of operation, application and common troubleshooting techniques. Course theory is supplemented with laboratory experiments. (5/4)
- EL100U Mechanical Devices II 10**
Studies the fundamentals of video cassette recorders, with the main emphasis on VHS type systems. Students make basic alignment tests and perform diagnostic troubleshooting for repair. Prereq: EL080U. (5/10)
- EL101U Radio and Sound Servicing 10**
This is the concluding course for the diploma program. Designed to give the student entry level skills in testing, measuring, troubleshooting and servicing AM/FM receivers and sound systems. (5/10)
- EL102U Industrial Process Controls I 4**
Fundamentals of pneumatic and electronic automatic control theory and common system components are discussed. Covers controllers, transmitters, actuators, valves and transducers. Laboratory exercises are included to enhance the understanding of the common control components. (2/4)
- EL103U Industrial Process Controls II 6**
Involves additional control theory including application, calibration and troubleshooting of electronic and pneumatic control systems. Classroom lectures, lab demonstrations and hands-on sessions are utilized. Prereq: EL102U. (4/4)
- EL104U Controls and Instrumentation 5**
Introduces the basic principles of instrumentation theory including types of measuring and recording instruments used with pneumatic, hydraulic, fluidic and electronic industrial processes. (4/2)
- EL105U Energy Management 4**
Energy saving systems utilizing load shedding, night set back, optimal start, and chilled water and hot water reset are covered in lecture and lab. (2/4)
- EL106U Commercial Wiring 6**
Surveys electrical power distribution systems used in industrial plants and commercial buildings. Includes motor, generator, transformer and lighting circuits. (3/6)

EL107U Electrical Power 6
 Designed to familiarize the student with the generation, transmission and distribution of electrical energy. (3/6)

EV: ENVIRONMENTAL STUDIES AND POLLUTION CONTROL

EV001T Man in the Environment: Atmosphere 4
 One of three non-sequential courses in the interdisciplinary area of man and the environment. All three quarters are taught cooperatively by a social scientist, a biologist and a physical scientist, with subject matter coming from a variety of disciplines. This quarter deals with weather, air pollution and noise. Problems, concepts and alternatives are studied for each topic. Three hours science credit and one hour social science credit. (4/0)

EV002T Man in the Environment: Hydrosphere 4
 Includes interaction of atmosphere, hydrosphere and lithosphere biology of a closed ecosystem, ecology, water environment, pollution of waters, thermal pollution, wastewater treatment, control technology, humanity and water, legislation and pollution control. Three hours science credit and one hour social science credit. (4/0)

EV003T Man in the Environment: Lithosphere 4
 Emphasizes land-based problems of environmental interactions. Topics are: the urban environment, transportation, population, food, solid waste, national priorities, economics of pollution, legal aspects of pollution, control enforcement, conservation, and comparative social and political systems' responses to environmental issues. Two hours science credit and two hours social science credit. (4/0)

EV007T Energy Today 4
 Designed to examine energy concepts, problems and alternatives. Topics include energy sources (solar, nuclear, coal, etc.), energy conservation for the consumer, energy in living systems, and politics and economics of energy production, distribution and use. Three hours science credit and one hour social science credit. (4/0)

EV004U Introduction to Environmental Health 2
 Includes an understanding of the history and philosophy of the environmental health profession and the development of a professional code of ethics. The basic elements of environmental control of water, air, food, insects, rodents and waste materials are included. (2/0)

EV009U Recreational Sanitation 2
 Examines the application of sanitation principles to recreational facilities. The study of sanitation control at mass gatherings, swimming pools and parks is included. Recreational sanitation programs are developed and evaluated. Prereq: EV004U, EV015U or approval of department head. (1/2)

EV010U Solid Waste Management 2
 Examines the principles of collection, handling, storage and disposal of solid wastes by landfilling, incineration and composting. Developing community solid waste control programs and codes are studied. The course includes studies of techniques for nuisance investigations and solid waste problem solving. (1/2)

EV013U Supervised Field Studies 12
 Offers supervised on-the-job training in inspection procedures, complaint investigations, food, water and milk sampling, report writing, and administration in a typical work environment. (0/36)

EV014U Seminar: Environmental Health 2
 Studies problems encountered during the student's field learning experience. (2/0)

EV015U Insect and Rodent Control 2
 Includes identification of insects and rodents of public health significance. The course explores techniques of surveying for insects and rodents. Special consideration is given to the techniques involved in the control methods for flies, mosquitoes, and household insects and rodents. (1/2)

EV018U Air Quality Management 4
 Considers the sources of air pollution, the classification of pollutants, the meteorological aspects, the effects of atmospheric pollution, the prevention and control of air pollution, and the monitoring of pollutants. (4/0)

EV024U Diseases of Man 2
 Develops an understanding of terms associated with disease transmission. The course examines various chains of transmission, and the cause and effect relationships of diseases associated with the environment. It studies the investigation of disease outbreaks caused by a breakdown of sanitation. (2/0)

EV025U Water Supplies I 2
 Considers the various sources of water, the physical characteristics of water, and sources of water contamination. The types, construction and protection of water wells are studied. Techniques of water-well inspection and code enforcement are emphasized. (1/2)

EV026U Wastewater Systems I 2
 Defines the terms associated with wastewater disposal. The sources of wastewater and the relationship to public health are studied. Soil percolation tests, and designing and inspecting septic tanks are practiced. Study of the sewage disposal code and its enforcement is included. (1/2)

EV027U Food and Milk Sanitation 6
 Includes a basic understanding of milk and food microbiology. Techniques for inspecting milk sanitation on dairy farms and in milk-processing plants are investigated. Restaurant inspection and food manufacturing plant inspection are studied. Presents techniques for sampling and testing of milk and foods. Prereq: EV004U, EV024U, or approval of department head. (4/4)

EV028U Shelter Environment 6
 Examines planning, zoning and proper land use. Techniques for housing and institutional inspection are included. Housing and sanitation surveys are made and evaluated. Studies code enforcement of laws involving housing, nursing homes and schools. Prereq: EV004U, EV024U, EV015U or approval of department head. (4/4)

EV029U Water Supply Systems II 3
 Examines methods of water acquisition and methods of water treatment as applied to small and large water systems. Sampling and analysis procedures for water quality are presented. Water distribution methods are discussed. Prereq: EV025U. (2/2)

EV030U Wastewater Systems II 3
 Offers additional knowledge in private wastewater system design and investigation. Studies methods of collection and disposal of sewage employed by municipalities and other public entities. Laboratory and field testing techniques are introduced. Prereq: EV026U. (2/2)

EV031U Quality Control Product Analysis 4
 Introduces methods of protein, moisture, fat, crude fiber, ash, vitamins and mineral analysis. Course includes methods of sampling and product inspection. (1/6)

EV032U Basic Chemical Instrumental Methods 4
 Introduces methods of chemical analysis stressing the use of instruments such as ultraviolet, visible and infrared spectroscopy, atomic absorption, potentiometric, and gas liquid chromatography. Students will also learn basic electronic troubleshooting, and preventive maintenance related to chemical instruments and equipment. (2/4)

EV033U Laboratory Management and Safety 2
 Introduces techniques in laboratory management in such areas as purchasing chemicals and equipment, chemical storage, record keeping, inventory control and quality control programs. Also includes techniques in lab safety procedures. (2/0)

EV034U Agricultural Product Analysis 3
 Introduces methods of basic soil analysis, fertilizer analysis for nitrogen, phosphorous and potassium, fecal stock analysis and moisture treating. (2/2)

EV035U Special Projects 2
Offers special investigative projects related to water or wastewater plant operations selected by the student with approval of the department advisor. (0/4)

EV036U Wastewater Treatment Plant Troubleshooting 1
Focuses on process control for plant operation. Students identify selected problems in plant processes and develop viable approaches to problem solving. (0/2)

EV037U Internship 12
Offers a supervised training period in a water or wastewater treatment plant. The student participates in the routine daily operation and maintenance of the host water or wastewater treatment facility. (0/36)

EV038U Treatment Plant Operation 2
Offers supervised training period in water and/or wastewater treatment plant operation. The student participates in routine operation and maintenance of the pilot plant. (0/4)

EV039U Environmental Analysis 2
Covers advanced water and wastewater analysis procedures such as oils and grease, COD, seeded BOD, fecal coliform, and phosphorus determinations. Discussion and demonstration of other advanced procedures are included. (0/4)

EV040U Sludge Treatment and Disposal 3
Discusses principles and concepts of operation and maintenance of sludge treatment and disposal unit. Topics include anaerobic digestion, aerobic digestion, dewatering and drying techniques. (3/0)

EV041U Activated Sludge Treatment 3
Emphasizes the operation and maintenance of activated sludge treatment units. Process control strategies covered include F to M, MCRT, SUI and west methods. (3/0)

EV042U Water Resources 2
Surveys the hydrologic cycle and its relationship to water as a resource for human consumption, and agricultural and industrial usage. Includes discussion of water pollution and its effects on man and the environment. (2/0)

EV043U Basic Environmental Science 3
Addresses cycles of nature, with emphasis on ecological and microbiological theory as it relates to water and wastewater treatment. An introduction to the organic chemistry and physics of wastewater treatment is included. (2/2)

EV044U Water Supply and Distribution 4
Focuses on design principles, installation, repair and operation of wells and water distribution and storage components, such as hydrants, meters and cross-connection prevention devices. Includes discussion of ground water, basic hydraulics and flow measurement. (2/4)

EV045U Water Analysis 2
Covers basic principles of approved chemical and microbiological analyses of potable water. Laboratory techniques include hardness, iron, alkalinity, fluoride, chlorine, turbidity and coliform determinations. Discussion and demonstration of advanced analytical procedures are included. (1/2)

EV046U Water Treatment 4
Offers instruction in water treatment methods, equipment, maintenance and plant control. Hands-on pilot plant operation of coagulation, softening, sand filtration and chlorination units is included. (2/4)

EV047U Wastewater Collection 2
Covers the collection of wastewaters by gravity and pumping. Discusses design, installation, maintenance and repair of wastewater collection systems. Manhole safety is emphasized. (1/2)

EV048U Lagoons 2
Discusses principles and concepts of operation and maintenance of waste

and stabilization lagoons, series flow, parallel flow, fill and draw operation, loading, detention time and drawdown. (2/0)

EV049U Wastewater Analysis 2
Provides instruction in the basic parameters of wastewater analysis, with emphasis on approved BOD, solids and ammonia analysis procedures as required by state and federal discharge permits. (0/4)

EV050U Wastewater Treatment 4
Focuses on the operation and maintenance of wastewater treatment processes. Pretreatment, sedimentation, trickling filters, and basic solids handling are covered. Hands-on operation of the pilot wastewater treatment plant is included. (2/4)

EV051U Pumps 2
Includes instruction in basic operating principles, maintenance and repair procedures of pumps typically found in water and wastewater treatment facilities. (1/2)

EV052U Water and Wastewater Plant Administration 2
Offers instruction and practice in planning and conducting an organized system of plant record keeping and report writing. Introduces personnel procedures, public relations and municipal management responsibilities in water and wastewater processing. (2/0)

EV053U Basic Laboratory Skills 2
Emphasizes the use and care of basic laboratory glassware and equipment, including laboratory safety procedures. Discusses basic chemical equations, solutions and acid/base titrations. (1/2)

EV054U Introduction to Water and Wastewater Treatment 2
Introduces the basic concepts and principles of water and wastewater treatment. Emphasis is placed on terminology and unit process identification. (1/2)

EV055U Supervised Plant Operation 12
Offers supervised training period at Kirkwood Community College wastewater treatment plant. The student participates in the routine daily operation and maintenance of the plant under the supervision of college staff. (0/24)

EV056U Introduction to Quality Control 3
Introduces the techniques and principles of statistical quality control within industry. Various techniques of sampling are utilized. Charting and graphing for observer results are accomplished. (2/2)

EV057U Introduction to Quantitative Measurement 3
Introduces methods of chemical measurement stressing volumetric, gravimetric, electrochemical and spectrophotometric methods. Emphasizes fundamentals of instrumentation, data collection and error analysis. Prereq: CH001T, EV053U. (0/6)

EV058U Municipal Treatment Plant Safety 2
Reviews water and wastewater plant safety. Includes steps in developing a safety program and a review of applicable OSHA and Right-to-Know rules. (2/0)

EV059U Municipal Treatment Plant Management 3
Instruction in managerial practice and approach to include management of work, the human side of management, the new supervisor and interpersonal relationships in management. This is an independent study course. (3/0)

EV060U Industrial Wastewater Treatment 2
An overview of common industrial treatment methods and their effluent expectations. Course includes a review of industrial pre-treatment agreement and other applicable standards. Prereq: EV050U. (2/0)

EV061U Water and Wastewater Treatment Plant Visitation 1
Visits are made to area water and wastewater treatment plants. Methods of operation, maintenance and process control are compared. Common flow patterns and treatment efficiency are discussed. Grading is pass/fail. (0/2)

FL: FOREIGN LANGUAGES**FL001T Elementary French I 4**

Develops fundamental skills in the French language. The emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. Includes activities that promote an understanding and knowledge of French-speaking peoples and their culture. (4/0)

FL002T Elementary French II 4

Continues Elementary French I. Prereq: FL001T or equivalent. (4/0)

FL003T Elementary French III 4

Continues Elementary French II. Prereq: FL002T or equivalent. (4/0)

FL004T Intermediate French I 5

Develops fundamental skills in the French language. The emphasis is on acquiring the proficiency to converse easily with the native speaker on general topics and to read contemporary materials. Includes activities that promote an understanding and knowledge of French-speaking peoples and their culture. Prereq: FL003T or equivalent. (5/0)

FL005T Intermediate French II 5

Develops fundamental skills in the French language. The emphasis is on acquiring the proficiency to converse easily with the native speaker on general topics and to read contemporary materials. Includes activities that promote an understanding and knowledge of French-speaking people and their culture. Prereq: FL004T or equivalent. (5/0)

FL007T French Civilization I 3

Provides readings on France, the French people and their way of life, and the provinces. Course is conducted in French. May be taken as independent study. Prereq: FL005T or equivalent. (3/0)

FL008T French Civilization II 3

Provides readings on French history, politics, unions, education and the economy. Course is conducted in French. May be taken as independent study. Prereq: FL005T or equivalent. (3/0)

FL009T French Civilization III 3

Provides readings on the cultural heritage of the French from the Middle Ages to the present. Units include literature, music, art, drama. Course is conducted in French. May be taken as independent study. Prereq: FL005T or equivalent. May be repeated for credit. (3/0)

FL010T Elementary German I 4

Develops fundamental skills in the German language. The emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. Includes activities that promote an understanding and knowledge of the people of Germany and their culture. (4/0)

FL011T Elementary German II 4

Continues Elementary German I. Prereq: FL010T or equivalent. (4/0)

FL012T Elementary German III 4

Continues Elementary German II. Prereq: FL011T or equivalent. (4/0)

FL013T Elementary Spanish I 4

Develops fundamental skills in the Spanish language. The emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. Includes activities that promote an understanding and knowledge of the Spanish-speaking peoples and their culture. (4/0)

FL014T Elementary Spanish II 4

Continues Elementary Spanish I. Prereq: FL013T or equivalent. (4/0)

FL015T Elementary Spanish III 4

Continues Elementary Spanish II. Prereq: FL014T or equivalent. (4/0)

FL016T Intermediate Spanish: Conversation 5

Develops fundamental skills in the Spanish language. Emphasizes acquiring the proficiency to converse easily with the native speaker on general topics. Includes activities that promote an understanding and knowledge of Spanish-speaking peoples and their culture. Prereq: FL015T or equivalent. (5/0)

FL017T Intermediate Spanish: Reading 5

Develops fundamental skills in the Spanish language. Emphasizes acquiring the proficiency to read contemporary materials. Includes activities that promote an understanding and knowledge of Spanish-speaking peoples and their culture. Prereq: FL015T or equivalent. (5/0)

FL019T Spanish Civilization 3

Provides readings on Spain, the people and the land, their history and way of life. Students may choose to emphasize a special interest area. Conducted in Spanish. May be taken as independent study. Prereq: FL017T or equivalent. May be repeated for credit. (3/0)

FL020T Spanish-American Civilization 3

Provides readings on the Spanish-speaking countries of the Western Hemisphere. Student may choose a special interest area: Mexico, Central America, South America or some common aspect of all or several of these countries. Conducted in Spanish. Prereq: FL017T or equivalent. May be repeated for credit. (3/0)

FL023T Intermediate German I 3

Develops fundamental skills in the German language. Emphasizes acquiring the proficiency to converse easily with the native speaker on general topics and to read contemporary materials. Includes activities that promote the understanding and knowledge of German people and their culture. Prereq: FL012T or equivalent. (3/0)

FL024T Intermediate German II 3

Continues Intermediate German I. Prereq: FL023T or equivalent. (3/0)

FL025T Intermediate German III 3

Continues Intermediate German II. Prereq: FL024T or equivalent.

FL031T Advanced German I 3

Provides for improvement of speaking, reading and writing skills through multimedia materials on contemporary German civilization. Prereq: FL025T or equivalent. (3/0)

FL032T Advanced German II 3

Continues Advanced German I. Prereq: FL031T or equivalent. (3/0)

FL033T Advanced German III 3

Continues Advanced German II. Prereq: FL032T or equivalent. (3/0)

FS: FIRE SCIENCE**FS001U Introduction to History and Philosophy of Fire Science 3**

Provides a basic description and explanation of the core courses required for the associate degree. Discusses history and philosophy of fire protection; organization at the local, state and national level; relationships with the insurance industry, governmental bodies and other agencies. Includes a study of how our fire services are organized, an introduction to basic fire problems, and an evaluation and survey of fire protection. (3/0)

FS002U Building Design for Fire Protection 3

Studies building construction as it relates to its reaction under fire conditions. Interpretation and application of fire prevention in building codes as they are related to the structural strengths of a particular design. (3/0)

FS003U Fire Protection Systems and Equipment 3

Examines the in-house devices and systems utilized to support the role of the fire service in the detection and suppression of fire. (3/0)

FS004U Industrial Fire Protection and Security 2

Develops the precautions and safeguards essential for protection of lives and property in various types of occupational establishments. (2/0)

FS005U Fire Protection Administration and Management 2

Includes application and implementation in the fire service: relationship of administration at various levels of the organization including communications,

legal aspects, budgeting and evaluation of fire data for statistical purposes. Provides an in-depth study of management as it is defined: a dynamic process that effectively utilizes all resources, human and material, in the achievement of policy and goals established for the department. (2/0)

FS006U Tactics and Planning for Fire Protection 3

Designed to help the student understand the overall fire problem at the area, community, multiple building complex or the individual building level. Describes the management tools and data collection systems that can be used. Includes discussion of organization for major fires, including preplanning, operations and utilization of personnel and equipment. (3/0)

FS007U Tactics for Fire Protection 3

Includes organization for major fires, including pre-planning, command post operations, utilization of manpower and equipment for large scale operations, and supply and communication. (3/0)

FS008U Fluid Flows and Hydraulics 3

Involves application of the laws of hydraulics, design features, flow characteristics and tests needed to ensure adequate water supplies on the fire ground. Flow testing is an integral part of this course. (3/0)

FS009U Hazardous Material and Incident Management 3

Discusses the properties of chemically active and hazardous materials, such as flammable liquids, combustible solids, oxidizing and corrosive materials, and radioactive compounds, as they are related to materials and processes connected with transportation, storage, usage and fire potentials. (3/0)

FS010U Fire Behavior 3

Involves a qualitative study of chemical and physical aspects of fuels, the combustion process and the products of combustion as these aspects apply to the causes, spread and the extinguishing of a fire. A combination lecture, demonstration and class participation course designed to teach the basic facts necessary to understand fire behavior. The latter part of the course includes the principles of fire suppression. (3/0)

FS011U Fire Investigation 3

Studies technical matters in a clear and useful manner, permitting the individual to go to the scene of a fire and come back with some answer as to what caused it, who set it, what defect was responsible, or generally, what happened. (3/0)

FS012U Fire Insurance 3

Presents basic concepts of how fire insurance industries operate. Discusses insurance contracts, basic insurance terminology, basic rate structures, how rates are set, how debts and credits are assessed, and buying an insurance contract. (3/0)

GE: GEOGRAPHY

GE001T Human Geography 4

Studies the geography of population and the principal ways of life with consideration of the capacity of the earth for future population growth. (4/0)

GR: GRAPHICS

GR001U Electronic Drawing 1.5

Studies drafting practices as applied to electronics. (.5/2)

GR002U Mechanical Drafting I 6

Deals with the use of drawing instruments, lettering, geometric constructions, orthographic projection, and freehand drawing. (2/8)

GR003U Mechanical Drafting II 6

Covers sectioning of parts, weights of mechanical parts, isometric and oblique pictorial drawing, auxiliary views, weld symbols, mechanical fasteners, and structural assembly. Also an introduction to CAD. Prereq: GR002U. (2/8)

GR004U Mechanical Drafting III 5

Studies dimensioning and tolerancing practices, and drawing of gears. A major part of the quarter is spent in drawing a complete set of working drawings including assembly, details, bill of material and calculation of weights. Prereq: GR003U. (1/8)

GR005U Design Problems I 3

Includes special topics in machine design, an individual creative design project, and general design procedure instructions ranging from problem recognition to problem solution. (2/3)

GR006U Design Problems II 6

Design principles and procedures are applied to a specific design project, culminating in a complete set of working drawings. Prereq: GR005U. (1/11)

GR007U Layout and Design 5

Studies two-dimensional design and its relationship to graphic reproduction in terms of balance, contrast, color, form and texture for specified communications. Covers the application of design theory to actual production work in a laboratory environment. (1/8)

GR009U Typography 3

Studies typefaces as related to typographic design and layout. Historical evolution of type is traced from the origins of the alphabet to the present. Discusses terminology, including several ways in which type is composed. A prerequisite for this is a typing course. (1/4)

GR011U Copy Preparation I 9

Introduces basic fundamentals and techniques in preparing camera ready art for production. Students have hands-on experience with equipment that is used to produce a paste-up. (2/14)

GR012U Copy Preparation II 4

Covers advanced preparation of artwork with intent for color, photomechanical transfer techniques, and line and halftone considerations. Prereq: GR011U. (.5/7)

GR019U Platemaking I 1

Presents an introduction to the kinds of lithographic plates, nomenclature and specific applications for each in the printing cycle. Exposure and development of plates are stressed. (.5/1)

GR020U Platemaking II 1

Surveys the chemistry involved in preparing plates as related to problems encountered on the press: length of run, additions, deletions, and proper application of preservatives. Prereq: GR019U or consent of instructor. (.5/1)

GR021U Process Camera I 1

Studies high-contrast photography as it relates specifically to the lithographic process. Emphasis is placed on the production of line negatives and positives, with an introduction to contact printing. (.5/2)

GR022U Process Camera II 3

Presents advanced techniques of line and halftone negatives, including an introduction to the theory of special effects. Related darkroom operations and nomenclature. Prereq: GR021U or consent of instructor. (1/4)

GR023U Process Camera III 2

Offers advanced theory and practical application of photographic sensitized materials applicable to the lithographic printing processes. Attention is given to special effects, photographic techniques, and an introduction to the theory of color separation. Prereq: GR022U or consent of instructor. (1/2)

GR024U Image Assembly I 1

Covers simple stripping of negatives and positives to layout specifications for duplicator size presses. (.5/2)

GR025U Image Assembly II 2

Covers advanced stripping techniques including multiple impositions, color register and pin register systems. Introduces step-and-repeat and multiple-burn stripping applications. Prereq: GR024U or consent of instructor. (.5/3)

- GR026U Image Assembly III** 3
Offers a systematic application of advanced stripping techniques for single color and multiple color runs on duplicator and larger lithographic presses. Prereq: GR025U or consent of instructor. (1/4)
- GR027U Offset Presswork I** 4
Emphasizes the practical and technical aspects of offset printing including all machine parts and operations in the "make-ready" cycle related to duplicator size presses. (2/4)
- GR028U Offset Presswork II** 4
Emphasis is placed on tone control and the press as related to line and halftone reproduction. Fountain solutions and formulae related to inks, paper, plates, pH control and associated techniques are studied. Prereq: GR027U or consent of instructor. (1/6)
- GR029U Offset Presswork III** 4
Advanced study of theory and practical aspects relating to color reproduction and plating, including operation of presses larger than duplicator. Consideration is given to troubleshooting and maintenance of large and small presses. Prereq: GR028U or consent of instructor. (1/6)
- GR030U Copy Preparation III** 3
Studies advanced principles of preparing artwork for commercial offset, including newspaper, magazine and book publication techniques. Prereq: GR012U (5/5.5)
- GR031U Bindery Operations** 1
Offers practical application of the various binding operations, including fastening and covering printed materials, folding, stitching, cutting, trimming, punching and other associated finishing operations. (0/2)
- GR032U Architectural Drafting I** 13
Covers sheet layout, orthographic projection, dimensioning, line quality, sketching, perspective and lettering. (2/22)
- GR033U Architectural Drafting II** 10
Teaches the proper procedures in developing site plans, plan views (footing plans, floor plans and framing plans), elevations and wall sections. Prereq: GR032U. (2/16)
- GR034U Architectural Drafting III** 11
Covers the development of a set of working drawings for a commercial or institutional type building. Students learn to use manufacturer's reference materials. Prereq: GR032U, GR033U. (2/18)
- GR035U Architectural Drafting IV** 14
Enables student teams to develop a set of working drawings for an addition to an existing building. Prereq: GR032U, GR033U, GR034U. (2/27)
- GR036U Basic Mechanical/Electrical** 2
Covers graphic application of electrical, plumbing and mechanical work as related to architectural working drawings. (2/0)
- GR041U Landscape Drawing** 4
Emphasizes basic drawing techniques, site analysis and design principles. Students work on residential and recreational design problems. (3/2)
- GR042U Elementary Drawing** 2
Introduces the use of drafting tools and the methods and skills of drawing as a visual tool for the interior designer. (0/4)
- GR043U Phototypesetting I** 3
Covers basic techniques in phototypesetting terminal operation and read out. Students perform assignments that will develop keyboard skills. Prereq: Typing (2 cr). (5/5)
- GR044U Phototypesetting II** 2
Technological skills are introduced and developed including search and replace tabbing and paging. Includes hands-on experience developing these skills. Prereq: GR043U. (0/4)
- GR045U Phototypesetting III** 1
Develops advanced skills in the use of phototypesetter including code trans-

lations. Students do production work to maintain and develop marketable skills. Prereq: GR044U. (0/2)

GR046U Copy Preparation IV 3
Advanced skills in paste-up with use of overlays and keyline art are developed. Students use support equipment and prepare camera ready art in a lab setting. Prereq: GR045U. (0/6)

GR047U Platemaking III 1
Advanced techniques of platemaking are explored and a working knowledge of pin registration is developed. Prereq: GR020U. (0/2)

GR048U Printing Estimating 2
Covers estimating production costs, specification of equipment, materials inventory and control, and the study of systems that expedite graphic reproductions. Emphasizes application of techniques in estimating to actual job production specifications and cost. (1/2)

GR050U Introduction to Computer Graphics 3
Introduces the student to the new technology of interacting with a computer for the purpose of creating a two-dimensional drawing and creating a data base. Actual computer-aided drafting (CAD) drawings are created using the command structure similar to that of CADD3 (TM) Computervision Corporation. Students are expected to be familiar with a typewriter keyboard; however, prior computer knowledge is not required. Prereq: GR032U. (2/2)

GR051U Computer Problems 3
Two principal areas of personal computer use are explored: 1) a review and extension of the CADD course, GR050U, through the use of more complex problems, and 2) the application of the basic programming language and electronic spreadsheet to the solution of technical problems that the student has encountered in previous course work. Prereq: DP010T, GR050U, EG004U. (2/2)

GR001V Graphic Skills 2
Develops basic drafting skills, both freehand and with layout instruments. (1/2)

GS: GENERAL STUDIES

GS001G Introduction to the Associate of General Studies Degree 3

Introduces the goals, components and policies of the Associate of General Studies degree program. The student determines the appropriateness of this degree for achieving his or her educational goals, and acquires skills for developing a portfolio, securing available learning resources, writing learning objectives, developing evaluation procedures and developing a preliminary plan. (3/0)

GS002G Portfolio Development 1-4
Emphasizes the portfolio, which is the formal written communication in which the student defines and documents his or her learning experiences and requests college recognition toward the attainment of an Associate of General Studies degree. The process of developing a portfolio is for persons who have prior learning that cannot be easily measured through CLEP or proficiency exams. (1-4/0)

GS003G Final Plan Development: Associate of General Studies 1

Provides an opportunity for students to consult and receive direction and assistance from a mentor in the development of a final plan. Prereq: GS001G. May be repeated with permission of department chairperson and mentor. (1/0)

GS004G Independent Projects: Associate of General Studies 1-12

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. The course allows students to explore and experience material not offered in other Kirkwood class offerings. Independent projects may be taken each quarter to a maximum of 12 credit hours. Prereq: Permission of department chairperson. (1-12/0)

HE: HOME ECONOMICS

- HE002U Fashion History 3**
Covers the development of costumes and accessories as a part of a socio-economic and cultural force from ancient times to the present and its relationship to fashion design and trends of today. (3/0)
- HE003U Textiles 4**
Studies basic fiber properties, yarn processing, fabric construction and fabric finishes. Fabric qualities are analyzed in relation to factors of design, strength, durability and serviceability. Directed laboratory activities provided. (3/2)
- HE005U Food Production I 6**
Provides experience in the use and care of small and large quantity cooking equipment. Emphasizes kitchen procedures, work simplification processes, and kitchen safety and sanitation. Introduces food preparation skills and techniques for yeast breads, quick breads, pastry, cakes, cookies, other desserts, salads, dressings, sandwiches, eggs, beverages, fruits, vegetables, appetizers, relishes, milk and milk products, breakfast dishes, condiments and seasonings. (0/12)
- HE006U Food Production II 6**
Provides continued experience in the use and care of equipment, safety, sanitation and work simplification procedures. Includes large and small quantity food production in meat, poultry, fish, seafoods, soups, sauces, gravies, yeast breads, convenience and synthetic foods, dehydrated and concentrated foods. Prereq: HE005U. (0/12)
- HE007U Food Production III 6**
Provides continued experience in quantity food preparation, use and care of equipment, safe food handling, and some specialized food preparation and service. Prereq: HE006U. (0/12)
- HE008U Menu and Servicing Fundamentals 3**
Applies basic nutrition principles and aesthetic values to menu planning, and directs study toward the various forms of commercial/institutional menus, and their relationships to food purchasing, costing, personnel, equipment and determination of selling price, dependent upon the types of establishment. (3/0)
- HE009U Food Service Sanitation and Safety 2**
Studies the relationship and requirements of food, food handling and food preparation necessary to produce safe and sanitary foods. Includes the study of food-borne illnesses, pest control, commercial dishwashing and local sanitation regulations. Identifies safe working practices, conditions, equipment safety, OSHA requirements, and basic first aid procedures and CPR. (2/0)
- HE010U Food Composition I 3**
Examines the basic principles of nutrition in relation to feeding individuals of all ages. Begins studies of foods, their nutritional contributions, compositions, characteristics, and requirements in handling, preparation, service and storage. (3/0)
- HE011U Food Composition II 3**
Continues study of foods, their nutritional contribution, composition, characteristics, and requirements in handling, preparation, service and storage. Emphasis is on yeasts, flours, baked products and pastries. Prereq: HE010U. (3/0)
- HE012U Equipment and Design 4**
Studies the types and capabilities of commercial/institutional food service equipment available. Studies floor plans of commercial/institutional kitchens in relation to menu needs, work flow, space and personnel. Students design a commercial or institutional floor plan, including equipment, specifications and approximate cost. Includes field trip studies of large quantity kitchens and equipment companies. (3/2)
- HE013U Garde Manger 3**
Specializes in cold foods and buffet preparation, with emphasis on chaud froid work, aspics and en croutes, food/ice sculpturing, costing and presentation. Prereq: Permission of instructor. (0/6)

- HE016U Quantity Food Purchasing 3**
Studies the requirements for quantity food purchasing related to food specifications, specification writing, and determining specifications according to various menu requirements. Includes study of inventories and relation of inventory records to purchasing. (3/0)
- HE020U Interior Analysis and Design 5**
Analyzes the interior including the construction materials and mechanical systems. Studies graphic presentation as it interprets design for the consumer, including blueprint reading, perspective, elevations and medias. Emphasizes graphic presentation as a selling aid and communication tool with client and tradesperson. Includes units on schedules, estimates, bids and contracts. Prereq: GR042U or permission of instructor. (4/2)
- HE021U Kitchen and Bath Planning 3**
Provides standards and skills in judging, designing and implementing kitchen layouts. Includes the study of work space needs, cabinet locations, evaluation, purchasing and installation, countertops, storage, appliances, lighting and ventilation needs of clients. Assignments include studio design work and kitchen design experiences to increase skills and use lecture information. Prereq: HE020U or permission of instructor. (3/0)
- HE022U Food Composition III 3**
Continues study of foods, their nutritional contribution, composition and characteristics, and requirements in handling, preparation, service and storage. Emphasis is on red meats, poultry and fish. Prereq: HE011U. (3/0)
- HE023U Buffet Decorating 3**
Covers artistic food displays in relation to catering and banquet presentations. Includes tallow, ice, chocolate and bread sculpturing, pastillage and other decorative works. (0/6)

HU: HUMANITIES

- HU007T Encounters With Ethics 2**
Introduces theoretical ethics, the study of standards of conduct, human values and moral judgment. Ethical concepts such as justice, human rights and responsibility are examined from different perspectives. An inquiry method is applied to the discussion of ethical issues drawn from life experiences, literature and current periodicals. (2/0)

HY: HISTORY

- HY001T U.S. History (17th and 18th Century) 4**
Surveys the social, political and economic history of the United States with emphasis on the forces resulting in the emergence of the new nation to the Age of Jackson. (4/0)
- HY002T U.S. History (19th Century) 4**
Surveys the social, political and economic history of the United States from the Age of Jackson to the Progressive Era. (4/0)
- HY003T U.S. History (20th Century) 4**
Surveys the social, political and economic history of the United States from the Progressive Era to the present. (4/0)
- HY016T Europe in the Age of Monarchy 4**
Explores the social, cultural, intellectual, economic and political foundations of Western civilization in Europe from the Middle Ages to Absolutism and Constitutionalism. (4/0)
- HY017T Europe in the Age of Revolutions 4**
Studies four revolutions — the Scientific, the French, the Industrial and the 19th Century Liberal revolutions — that changed the traditional Western society into the modern world. (4/0)
- HY018T Europe in the Age of Nationalism 4**
Examines themes of modern European civilization. Emphasis is on the development of nationalism, the rise of Communism and Fascism, and the changes in the present society. (4/0)

HY800T Independent Study: History 1-4
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairperson before registering. (1-4/0)

IS: INTERDISCIPLINARY STUDIES

IS008T Science and Society 4
Considers the interactions of science and society during past ages, in the present and for the future. Topics include fads and fallacies in science; interactions of science, music, art, literature and politics; government support of science; role of science in various civilizations; energy production and use; the space program; and "consumer survival." (4/0)

IS009T Death and Dying 4
Examines selected topics dealing with death and dying, including health care, religious, social, legal and funeral practices. (4/0)

IS010T Man Evolving 4
Considers biological evolution and applications to the history of man. Hypotheses and theories concerning origins of the earth, life, levels of life, man and races are examined. Topics investigated include primate classification and relationships, human evolution, anthropological and archaeological techniques, the evolution of prehistoric culture and man's migration into North America. Concept-building subject areas include scientific method and logic, genetic principles, population genetics, evolutionary principles and paleontological principles. (4/0)

IS014T Irony in Latin American Fiction 1
Introduces plot and theme analysis as applied to four satirical Latin American short stories. (1/0)

IS027T Environmental Encounters 3-4
Utilizes a wilderness area as a living classroom to teach the concepts of environmental science, outdoor living skills, sensory awareness and self-expression, leadership training, group dynamics, history and personal values clarification. (0/9-12)

IS033T Non-verbal Dimensions of Intercultural Communication 1
Emphasizes the concept that examining the non-verbal behaviors of other cultures can broaden our awareness and understanding of ourselves as well as others. (1/0)

IS038T Introduction to Latin American Fiction 1
Emphasizes perceptual tendencies in Latin American cultures revealed through the use of satire, symbolism and fantasy in novelettes and short stories. (12/0)

IS041T Human Sexuality 4
An overview of the psychological, sociological and biological aspects of human sexuality. Explores issues such as gender, sexual response, behavior, motivation, values, homosexuality, conception, contraception, sexual dysfunction, pornography and legal issues. (4/0)

IS042T Encounters in Humanities 4
By asking a series of questions about various examples of human activity (literature, philosophy, history, visual arts and music), the course teaches a method of inquiry for use in understanding and appreciating the humanities. (4/0)

IS047T Understanding Cultures 4
Examines the culture of a particular country. Special emphasis is placed on contemporary political, economic, religious, business and social institutions. The student also learns "survival" skills useful in business trips to the country under study. (4/0)

IS048T The American Dream 4
An interdisciplinary course that examines the cluster of myths, values, ideas and promises known as the American Dream in terms of such key elements as the idea of success, national identity, individualism, "the good life," our

Puritan heritage, dissent and others. Readings are in history, literature and the social sciences. (4/0)

IS001V Homemaker-Home Health Aide I 5
A preparatory course for persons who desire employment as homemaker-home health aides. This course addresses orientation to this occupation, and the following topics as they relate to this occupation: human relationships, food/nutrition, home management, child care, elderly care and care of the disabled. (5/0)

IS002V Homemaker-Home Health Aide II 3
Addresses health needs as they relate to this occupation, including medical ethics, types of patients, body mechanics, routine care procedures, and caring for patients in isolation. The second phase of 120-hour training for persons who desire employment as homemaker-home health aides. (1/4)

JO: JOURNALISM

JO101T Introduction to Communications Media 4
Presents a broad, yet incisive, picture of communications media. Print media, radio and television, advertising and public relations are examined from both historical and contemporary perspectives. Use of educational media is also discussed. (4/0)

JO102T Practical Reporting 1 or 2
A laboratory for basic reporting and newswriting. Combines weekly meetings and independent work on college publications. May be taken twice. (0/2-4)

JO103T Introduction to Photography 3
Introduces students to the 35 mm camera and to techniques of shooting, processing and printing black and white photographs. (2/2)

JO104T Photojournalism 3
Covers the use of photography in newspapers, magazines and brochures. Includes the study of the image and its layout. Emphasizes black and white photography with some examination of color. (2/2)

JO105T Newswriting and Reporting I 4
Involves an in-depth study of objective news reporting and advocacy journalism as well as training in writing the news story, writing headlines, layout, copyright and editing. Prereq: CM101T. (4/0)

JO106T Promotion and Public Relations 3
Designed to teach students how to plan an effective promotion campaign by identifying target audiences, understanding the effect of mass communication media, and preparing materials for media campaigns. Students are involved with campaign projects. (3/0)

JO107T Principles of Design and Layout 3
Includes work with typography and two-dimensional design. Production-oriented assignments result in dummy sheets and actual paste-ups for newspaper, magazine, brochure and advertising formats. Prereq: CM214T. (2/2)

JO108T Newswriting and Reporting II 3
Emphasis is on advanced reporting and writing. Students cover topics ranging from government and the courts to business, economic and social issues. Prereq: JO105T. (3/0)

LE: LAW ENFORCEMENT

LE002T Patrol Procedures 4
Studies the basic methods used by a police officer. Subjects covered are planning the patrol, methods of patrol, problems faced by the officer, relations with the public, specialized patrol activities, response for various types of emergency calls, and dealing with persons presenting such special problems as illness, intoxication, amnesia and mental illness.

LE004T Criminal Investigation 4
Presents the basic techniques of criminal investigation, including examination of the crime scene, collecting physical evidence, interrogation and investigation, drawings, report writing and basic photography. Investigative meth-

ods related to specific crimes such as arson, burglary and homicide are treated. Specialized detection methods and services of the crime laboratory are included.

LE005T Crime Scene Investigation 4

Deals with advanced methods of criminal investigation, utilizing special methods and techniques as they apply to felony and misdemeanor cases. (4/0)

LE009T Introduction to Criminal Justice 4

Covers the various sub-systems in our present and past criminal justice system. Hints at the future and studies proposed changes that effect the major components of this sphere of knowledge. The major sub-components, including law enforcement, corrections (both adult and juvenile), and the courts are discussed. (4/0)

LE010T Traffic Safety and Accident Investigation 4

Examines the development, purpose and organization of the vehicle code, supervision and control of traffic, selective enforcement procedures, and accident prevention and investigation. Also examines the purposes and analysis of accident statistics, report writing and courtroom presentations for prosecution of violators. (4/0)

LE012T History of Police in America 4

Traces the development of the police officer and the police organization, from the colonial period to modern times. Investigates the problems encountered during various periods of development of American police agencies. (4/0)

LE014T Motorcycle Safety Education 4

Develops the knowledge necessary to organize and administer the program. Includes class scheduling, instruction of staff, physical support, cycle procurement, community support and promotion. (3/2)

LE015T Crash Injury Management for Law Enforcement Officers 3

Examines the roles and responsibilities of law enforcement officers at the scene of a vehicle collision resulting in injuries. Emphasis is placed on emergency care, training and a majority of the course deals with the practical aspects of emergency care required at an accident scene. Legal aspects regarding same are also examined. (2.5/1)

LE000T Independent Study: Criminal Justice 1-3

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairperson. (Hours arranged)

LS: LIBRARY SERVICES

LS001T Instruction in Educational Media 3

Covers the planning and production of different types of projected and non-projected teaching materials for use in the classroom, and selection, utilization and evaluation of audio-visual materials in educational programs. (3/0)

LS011T Library Technician Practicum 4

Offers experience in a library setting where students serve as aides. Students spend 10 to 12 hours per week working under the supervision of a librarian. Prereq: Consent of instructor. (0/10-12)

LS012T Introduction to Uses of the Library 2

Provides self instruction in basic skills of library research. Students are allowed to proceed at their own pace with guidance in the LRC. Research skills in using indexes, reference sources and library catalogs are introduced. (2/0)

LT: LITERATURE

LT001T Children's Literature 4

Provides a broad overview of children's literature, with emphasis upon work done by American writers and illustrators. Students explore ways to interest children in literature appropriate at various levels of mental development. They use standard techniques of literary analysis to critique the literature explored in the course. Prereq: CM101T or consent of instructor. (4/0)

LT002T Science Fiction 4

Includes the study of short stories and novels of the science fiction genre. Special emphasis is on utopian and fantasy science fiction. Prereq: CM101T or equivalent. (4/0)

LT003T Selected Topics 2,3

Offers specialized study in interest areas. Areas may include special courses in mythology, American culture, detective novels or other concentrations. (2-3/0)

LT004T American Literature I 4

Examines the major works and writers of American literary heritage from its beginning to the mid-19th century. Works are studied in their cultural and historical context. Prereq: CM101T. (4/0)

LT005T American Literature II 4

Examines the major works and writers of American literary heritage from the mid-19th century to the present. Works are studied in their cultural and historical context. Prereq: CM101T. (4/0)

LT101T Introduction to Fiction 4

Examines a variety of short stories and novels from the 19th century to the present. Teaches the student a method of interpretive analysis, and introduces the student to a wide variety of problems and themes that one typically explores through fiction. Prereq: CM101T or consent of instructor. (4/0)

LT102T Introduction to Dramatic Literature 4

Explores drama as a unique literary genre. Students examine major movements and themes in the development of dramatic literature in the West. The standard dramatic literary analysis techniques are used to examine a number of major plays. Prereq: CM101T or consent of instructor. (4/0)

LT103T Introduction to Poetry 4

Develops skill in interpreting the elements of the formal structure of poetry, and evaluates different theories of how poems gain meaning. The study develops a perceptive acquaintance with a large number and variety of the world's poetry. Prereq: CM101T or equivalent. (4/0)

LT105T The Shakespeare Plays I 2 or 4

An introduction to the drama of William Shakespeare. Students view professional television productions of each play studied. Staging, plot, characterization and the use of language are discussed within the context of each play. (2,4/0)

LT201T Masterpieces of Literature: The Ancient World 4

Analyzes selected writings from the Bible, Greek drama, and Greek and Roman narrative poetry. These works are approached primarily on their contextual basis, with some attention to style, meaning and form. Prereq: CM101T or equivalent. (4/0)

LT202T Masterpieces of Literature: Medieval, Renaissance and Neo-classical Periods 4

Studies epic poetry of the medieval period, some of Chaucer's works, and some of Shakespeare's plays and poetry. These works are explored using a combination of generic, social-cultural, mythical and comparative approaches. Prereq: CM101T or equivalent. (4/0)

LT203T Masterpieces of Literature: 19th and 20th Centuries 4

Discusses selected prose and poetry of 19th and 20th century Europe and America. Works will be read as masterpieces of art and studied by employing a combination of critical approaches. Prereq: CM101T or equivalent. (4/0)

LT204T Black Literature 4

Analyzes American Black literature as art forms and for sociological impact, and provides a historical overview of significant Black writers. Prereq: CM101T or equivalent. (4/0)

LT209T Literature of Terror 4

A fiction course that emphasizes a method of interpretive analysis applied to literature that deals with the subjects of fear and the supernatural. Readings include such authors as Franz Kafka, Jerzy Kosinski, Nathaniel Hawthorne and Edgar Allen Poe. Prereq: CM101T or consent of instructor. (4/0)

- LT210T Popular Literature** 4
Includes a survey of popular literature which covers genres such as the thriller, the romance, the detective, the western and science fiction. The course attempts to evaluate their effect on modern society and to give these types of literature their place in the literary scene. Prereq: CM101T or equivalent. (4/0)
- LT211T Introduction to Film** 4
Covers film history, criticism and analysis of major films. The works of Chaplin, Renoir, Cocteau, Bergman, Antonioni and Truffaut are viewed and analyzed. Emphasizes criticism and analysis of film as an artistic medium, and the historical and societal implications of film. Prereq: CM101T or equivalent. (4/0)
- LT800T Independent Study: Literature** 1-4
Provides readings, papers and/or research projects in literature under the guidance of a staff member. Prereq: Consent of instructor and department chairperson required before registering. (1-4/0)
- LW: LAW**
- LW001T Criminal Procedural Law** 4
Deals with the procedural aspects of the criminal justice system. Includes the limits on prosecution, proceedings prior to trial, and the rights and privileges of the defendant. Emphasis is on the safe-guards and protections of "due process" as they relate to procedures. (4/0)
- LW002T Criminal Evidence** 4
Studies the kinds and degrees of evidence, and the rules governing the admissibility of evidence in court. (4/0)
- LW003T Criminal Law** 4
Reviews the historical development of criminal law and the resulting philosophy of law that has developed. The law-making process, with the societal and political influences, is examined and discussed. Comparisons of common law with contemporary law are analyzed in an attempt to determine what impact historical events and societal changes have had in bringing about change. (4/0)
- LW004T Applications of Criminal Law** 4
Examines specific definitions of criminal behavior as set forth by law. Subjects include: homicide, robbery, burglary, arson, larceny, rape, auto theft and others. Study will progress from historical definitions to contemporary Iowa law. (4/0)
- LW005T Business Law I** 4
Surveys principles of law as applied to business relationships and transactions. (4/0)
- LW006T Business Law II** 4
Studies negotiable instruments, sales, insurance, trusts and estates, government and business, agency and business structures. Prereq: LW005T. (4/0)
- LW007T Constitutional Law** 4
Studies the development of fundamental principles in Constitutional law, integrating both case-by-case study of United States Supreme Court decisions and broad examination of the judicial legal processes. Coverage includes the nature of judicial review, powers of the Supreme Court, President and Congress, and Federalism. (4/0)
- LW009T Legal Research** 3
Studies how to use the law library and conduct legal research. (3/0)
- LW011T Estate Planning** 3
Provides the basic legal concepts of the more common forms of wills and trusts, and their ramifications. Studies lifetime and testamentary estate planning and applicable tax laws. (3/0)
- LW012T Estate Administration** 3
Studies post-death estate planning and probate proceedings. Studies the Iowa District Court relating to probate, administration of estates in probate court, and estate and inheritance taxes. Prereq: LW011T. (3/0)
- LW013T Tax IV: Estates and Gifts** 3
Focuses on the basic legal concepts of the more common forms of wills and trusts and their ramifications, and studies the Iowa District Court regarding probate, administration of estates in probate court, and estate and inheritance taxes. Prereq: LW012T. (3/0)
- LW014T Legal Internship** 2-6
Provides practical experience in the functions and responsibilities of a legal assistant. The student researches legal problems utilizing the law library, understands the more common forms of legal procedures and agreements, and performs the functions of a legal assistant in an office setting. The student is evaluated by the coordinator and the employer. Prereq: One year in the Legal Assistant curriculum. (0/6-18)
- LW015T Torts** 3
Studies the principles of the law of tort, and preparation and use of pleading and other deductions involved in the trial and appeal of the civil action. (3/0)
- LW016T Civil Litigation** 3
Studies the rules of court and focuses on the preparation of pleadings and discovery in a civil trial. Prereq: LW015T. (3/0)
- LW017T Business Organizational Law I** 3
Provides a study of the attorney's role in the formation of business entities. This includes proprietorships, partnerships, corporations and other business vehicles, with a survey of the fundamental principles of law applicable to each, and the training to prepare the necessary documents for the organization and operation of each entity. (3/0)
- LW019T Real Estate Law** 4
Studies the law of real property and surveys the more common types of real estate transactions and conveyances such as deeds, contracts, leases, deeds of trust and recording systems, and public documents. (4/0)
- LW020T Law Office Management** 3
Aids in effective planning and use of financial resources. Topics include management techniques, human relations, fees, accounting for time, planning and development in the law office, training, law library management and maintenance, tickler procedures, and word processing future trends. (3/0)
- LW023T Bankruptcy Law** 3
Provides a study of the Bankruptcy Act and applicable case law. The filing requirements under the act and related court rules are emphasized. (3/0)
- LW024T Domestic Relations** 3
Provides a study of laws of marriage, divorce, child custody and support, tax aspects of divorce and separation, separations, annulments, paternity, adoptions, and mental health commitment procedures. The emphasis of the course is on the procedural and practical aspects of the laws. (3/0)
- LW025T Personal Law** 4
Offers coverage of the individual's rights in the court systems together with an introduction to criminal law, tort law, divorce law, insurance law, employment law and student rights. (4/0)
- LW027T Contract Law I** 3
Designed to provide purchasing personnel with the knowledge of legal principles governing contracts as evolved from common law, statutes, regulations, and court and board decisions. Emphasizes the direct application to the legal aspects of purchasing. (3/0)
- LW028T Contract Law II** 3
Continues legal principles governing contracts as evolved from common law, statutes, regulations, and court and board decisions, with emphasis on the direct application to the legal aspects of purchasing. (3/0)
- LW029T Legal Writing** 3
Studies the fundamentals of legal writing of office memorandum, case briefs and appellate briefs. Prereq: LW009T. (3/0)
- LW030T Legal Ethics** 1
Studies the canons of professional ethics and disciplinary rules applicable

to lawyers and legal assistants, together with applicable disciplinary proceedings and court decisions. (1/0)

LW031T Substantive Criminal Law 3

Provides a case study of Iowa and federal criminal procedure and pertinent substantive law. (3/0)

LW032T Legal Assistant Student Orientation 1

Provides college orientation and introduces to the Legal Assistant student the legal community and proficiencies expected of the para-professional. (1/0)

LW033T Administrative Law 3

Provides a working knowledge with practical skills for advocacy before an administrative agency. (3/0)

LV002U Agricultural Law 3

Considers the local, state and federal laws as they relate to farm management and agribusiness. Includes contracts, mortgages, environmental protection, taxation, real estate, tenancy and other legal problems relating to agribusiness. (2/2)

LW004U Ethics and Legal Aspects 3

Studies the ethics and the legal aspects of purchasing, sales, manufacture and repair of jewelry. (3/0)

LW005U Food Service Law 4

Studies the concept of common law and its specific application to the food service industry; includes contracts, business organizations, OSHA, sanitation laws, franchises, selecting a lawyer, employee/employer rights. (4/0)

LW006U Medical Law 2

Studies medical jurisprudence as applied to health personnel in performing activities in health care centers. (2/0)

MA: MATHEMATICS

MA031T Intermediate Algebra 5

Includes the properties and manipulation of real numbers, polynomials, rational expressions, rational exponents, and radicals. Develops techniques for solving first degree equations and inequalities, second degree equations, and systems of two dimensional linear equations. Introduces the concepts of function and graphs. Prereq: MA020D or one year of high school algebra. (5/0)

MA032T College Algebra 5

Includes extensive methods of solving linear, quadratic, and higher degree polynomial equations and inequalities. Systems of equations are solved by various methods including matrices and determinants. Exponential, logarithmic and other functions are studied and graphed. The concepts of binomial theory, series and sequences are introduced. Prereq: MA031T or equivalent. (5/0)

MA033T Trigonometry 5

Studies functions, inverse functions, periodic functions, circular functions, identities. Includes trigonometric equations and applications using the properties of the trigonometric functions. Prereq: MA032T. (5/0)

MA034T Analytic Geometry 5

Includes point and plane vectors, direction cosines, the straight line, the conics, transformations, polar coordinates, the point and space vectors, surfaces and curves. Prereq: MA033T or equivalent. (5/0)

MA035T Calculus I 5

Includes limits, derivative, differentiation, the differential elementary applications of calculus, and introduction to integration. Prereq: MA034T. (5/0)

MA036T Calculus II 5

Continues Calculus I and includes study of the integral, integration, application of integration, logarithmic and exponential functions, trigonometric functions, and techniques of integration. Prereq: MA035T. (5/0)

MA037T Calculus III 5

Continues study of technique of integration and also includes polar coordinates, vectors in two and three-space, parametric equations, function of several variables, and multiple integrals. Prereq: MA036T. (5/0)

MA040T Linear Algebra 5

A post-calculus course that includes a study of vector spaces, determinants, linear transformations and matrices, bilinear and multilinear forms, and polynomial rings. Prereq: MA036T. (5/0)

MA041T Fundamentals of Statistics 5

Includes descriptive statistics (mean, median, mode, standard deviation and variance). The emphasis is on inferential statistics and probability distributions as applied to confidence intervals, hypothesis testing of mean and standard deviation, and applications in business and other fields. Correlation and linear regression lines are also introduced. Prereq: MA032T or MA043T. (5/0)

MA043T Finite Mathematics 5

Includes matrices, systems of linear equations, linear programming, functions, combinatorial techniques, probability, math of finance, and applications. Prereq: MA031T or departmental approval. (5/0)

MA050T Mathematics for Liberal Arts 4

Provides an overview of some basic principles in mathematics. Topics which may be covered include patterns of numbers, basic concepts in math of finance, elementary probability and statistics, logic, use of calculators and computers, and an introduction to algebra. Prereq: MA020D or one year high school algebra. (4/0)

MA051T Business Calculus 4

Studies the techniques of differential and integral calculus likely to be encountered in undergraduate course in business economics. Applications are emphasized in these areas. Prereq: MA032T or MA043T. (4/0)

MA052T Calculus IV 5

Includes study of line integrals, infinite series and an introduction to differential equations. Topics include exact equations, separable equations and linear equations. Prereq: MA037T. (5/0)

MA053T Differential Equations 5

Continues differential equations topics covered in Calculus IV. Includes physical applications, series solutions, systems of linear differential equations, and methods of approximating the solutions to first-order equations. Laplace transforms are introduced and used to solve differential equations. Prereq: MA052T. (5/0)

MA001U Mathematics I: Agriculture 1-4

Stresses problems relating to agronomy, animal science, agricultural business, agricultural economics and agricultural mechanics. This course is designed to aid the student in reviewing mathematics practical to agriculture. (1-4/0-6)

MA003U Mathematics II 1-5

Covers basic algebra as it relates to fundamental equations, ratios, proportion and percentages. Covers applied geometry as it relates to finding length, areas, volumes, etc. Also covers basic right angle trigonometry and gives more practice in solving "stated" problems. (2-5/0)

MA004U Mathematics III 1-5

Includes the study of algebraic symbols, directed numbers, fundamental operations and factoring of algebraic expressions. Graphs, linear and simultaneous equations, and trigonometric functions are also covered. Emphasis is placed on application to technology. (1-5/0-2)

MA007U Technical Problems 3

Approximately one-fourth of the course is devoted to using the hand-held scientific calculator to find numerical answers to a wide variety of mathematical expressions. The balance of the course deals with applied trigonometry and geometry, and with dimensional analysis problems. Problem solving format as well as correctness of the solution are emphasized. (2/3)

MA011U Mathematics I: Industrial 1-5
Covers basic math skills such as addition, subtraction, multiplication, and division of whole numbers, decimals and fractions. Covers specifically dimensional analysis and significant digit concepts. Also gives practice in solving "stated" problems and covers introductory algebra concepts. (1-5/0)

MA012U Technical Mathematics I 3-5
Includes a brief review of basic algebra, graphs, introduction to trigonometry, systems of linear equations, factoring and fractions, quadratic equations, vectors, exponents and radicals. (3-5/0)

MA013U Technical Mathematics II 4-5
Continues Tech. Math I. Covers J-operator, exponential and logarithmic functions, systems of equations, inequalities, variation, progressions, additional topics in trigonometry, plane analytic geometry and introduction to derivative calculus. Prereq: MA012U. (4-5/0)

MA015U Technical Mathematics III 4-5
Continues Tech. Math II. Covers application of derivatives, introduction to integration, application of integration, derivatives of transcendentals, methods of integration, and introduction to differential equations. Prereq: MA013U. (4-5/0)

MA036U Health Data Statistics 4
Emphasizes techniques used in health information retrieval, analysis, and report preparation. (4/0)

MA037U Mathematics I: Business 1-5
Covers basic business skills such as addition, subtraction, multiplication and division of whole numbers, decimals and fractions. Covers specifically dimensional analysis and significant digit concepts. Also gives practice in solving business math problems and covers introductory algebra concepts. (1-5/0)

MA038U Mathematical Problem Solving for Water and Wastewater 4
Covers formulas and mathematical problem-solving specific to the water and wastewater industry. Topics include: organic and hydraulic loadings, detention time, chemical dosages, weir overflow rate, surface settling rate, sand filter loading, backwash rates. Also includes flow measurement and conversions using both English and Metric units. (4/0)

MA039U Mathematics II: Electromechanical 4
Expands the knowledge of mathematics required for the study of electricity begun in Mathematics I: Electromechanical. Covers the concepts of ratio and proportions, right angle trigonometry, j-operators, phasors, and basic logarithms for AC circuit analysis. Prereq: MA040U. (4/0)

MA040U Mathematics I: Electromechanical 4
Provides the student with a knowledge of mathematics required for the study of electricity. Begins with the fundamental concepts of algebra, including number notations, graphs and functions, SI measuring system, and simplifying algebraic expressions for DC circuit analysis. (4/0)

MF: MANUFACTURING SERVICES

MF001U Jewelry Fabrication 4
Introduces the student to the selecting, adapting, soldering and finishing of pre-fabricated ring shanks, mountings and/or various metal shapes. (2/4)

MF002U Repair I 3
Includes ring sizing, chain repair, restringing pearls, clasp straightening and other similar repairs. (1/4)

MF003U Repair II 4
Develops the knowledge and skills necessary to complete more difficult repairs. Prereq: MF002U. (2/4)

MF800U Internship (Jewelry Repair) 1-15
Applies the knowledge and skills of the student in a jewelry establishment under the supervision of an establishment supervisor and a Kirkwood faculty person. (0/3-45)

MH: MECHANICS

MH002U Hydraulics I 3-5
Studies the use of hydraulic pumps and systems. Special emphasis is given to pumping, controlling and measuring flows, and to system design and analysis. Special emphasis is also placed on distinguishing the difference between types of valves, pumps, hose and connection arrangement and flow patterns. (1-2/2-6)

MH013U Engines I 3-5
Covers fundamentals of two- and four-stroke cycle engine operation, servicing and adjustment. Emphasis is placed on proper disassembly, measuring and reassembly of actual engines. (1-3/0-6)

MH016U Power Transfer Systems I 2-4
Includes a study of basic gear, friction, and fluid drives. Emphasizes theory, operation, diagnosis, repair and maintenance procedures. Course includes clutches, propeller shafts, rear axle assemblies and planetary gears. (1-2/2-4)

MH018U Power Transfer Systems II: Standard Transmissions 2-3
Teaches theory of operation, maintenance, diagnosis and overhaul procedures of standard sliding gear, collar shift, and synchromesh transmission. (1/2-4)

MH019U Equipment Reconditioning and Repair 2-3
Covers reconditioning and repairing used equipment other than power units, using arc and acetylene welding, pop riveting, soldering, grinding, lathe work and fiberglassing. (1-3/0-3)

MH021U Unit Diagnosis and Overhaul I 8
Covers diagnosis and overhaul of gasoline and diesel power units with special emphasis on student work with a minimum of instructor supervision. (3/10)

MH030U Fundamentals of Automotive Mechanics 6
Covers the introduction to the automobile and auto servicing. Includes steering, suspension, alignment, tires, lights and the total automotive vehicle in relation to servicing. (4/4)

MH031U Brakes I 3
Covers theory of brake systems and the repair of both disc and drum types as well as the various components. (1/4)

MH032U Electrical Systems I 3-5
Covers the diagnosis and repair of electrical problems as they relate to tractors, trucks and small engines. Modern test methods and equipment are stressed. (1-2/2-6)

MH033U Electrical Systems II 3-5
A continuation of Electrical Systems I. Emphasis is placed on overhaul and servicing of electrical components and total system. On-the-unit diagnosis and testing are stressed. Prereq: MH032U. (1-2/4-6)

MH034U Vehicle Inspection 1
Provides vehicle inspection procedures for new and used cars and trucks. The student performs several inspections and makes corrective recommendations. (1/0)

MH035U Automotive Engine Overhaul 6
Covers instruction in the theoretical procedures necessary to rebuild completely an automotive engine, and includes the disassembly and assembly techniques along with the restoring of tolerances by the machining of engine components. The student identifies and lists the procedures for engine diagnosis, removal, disassembly, rebuilding and service to worn parts. (2/8)

MH036U Fuel Systems I 4
Covers basic fuel systems up to and including conventional carburetor overhaul. (2/4)

MH037U Tune-Up I 4
Emphasis is placed on performing maintenance tune-up work and the fundamentals of tuning an engine properly. (2/4)

MH038U Advanced Tune-Up	6	MH060U Diesel Fuel Systems II	2-5
Covers troubleshooting diagnosis and repair. Techniques used for detecting faulty coils, distributor components and engine emission components are studied. Laboratory exercises involve the use of the infrared exhaust emission analyzer and other advanced equipment. (3/6)		Continues Diesel Fuel Systems I. Emphasis is placed on servicing and adjustment of injectors and related components. Specific pump and injector applications are discussed. Prereq: MH050U. (2-4/0-6)	
MH042U Vehicular Air Conditioning	1-6	MH061U Field Crop Harvesting Equipment Repair	3-5
Designed to teach the theory of vehicular air-conditioning systems with emphasis on the basic air-conditioning cycle and servicing procedures. The objective of this course is to enable a student to obtain a working knowledge of air-conditioning systems, be able to identify the components, and develop proper servicing techniques. (.5-3/1-8)		Includes repair and reconditioning of combine and chopper units covering basic hydraulics, electrical, power train, monitor, chassis, air conditioning adjustments. Prereq: MH049U. (1-2/4-6)	
MH047U Farm Machinery Maintenance	3	MH062U Planting and Tillage Equipment Servicing	3-5
Course centers on practical maintenance work with KCC Farm Lab mechanic. Involves work with power units and other farm implements. (2/2)		Covers set-up, pre-delivery, shop and field adjustments. Servicing of monitor components, hydraulic systems and equipment repairs is emphasized. Correct field operation techniques are stressed. Prereq: MH048U. (1-3/4-6)	
MH048U Planting and Tillage Equipment Operation and Adjustment	3-5	MH063U Technical Manual Interpretation	1
Covers latest types of planters, tillage equipment and sprayers. Equipment field adjustments and calibration are stressed. Operation of actual units is covered. (1-3/2-6)		Covers techniques of using service manuals and microfiche information. Deals with specialized electrical, engine, and tractor manual interpretation. (1/0)	
MH049U Field Crop Harvesting Equipment Operation and Adjustment	3-5	MH064U Front End Service I	3
Introduces the basics, theory and operation of combines and choppers with actual in-the-field adjustment and operation of machines. (1-2/4-6)		Gives students an understanding of the principles of operation of front suspension systems and their components. Includes fundamentals of front suspension and steering geometry, and diagnosis of steering and suspension troubles including overhaul techniques for various steering and suspension systems. (2/2)	
MH050U Diesel Fuel Systems I	2-4	MH065U Advanced Alignment	3
Covers the many types of diesel pumps and injectors and their operation. Fuel systems maintenance and servicing are also stressed. Emphasis is placed on turbo and super chargers, air cleaner design and functions. (1-4/0-4)		Wheel alignment factors, equipment and procedures are covered in detail. Students practice rebuilding of the different types of front and rear suspensions including strut types. Prereq: MH064U. (1/4)	
MH051U Unit Diagnosis and Overhaul II	8	MH066U Cooling Systems I	4
Continues the diagnosis and overhaul of gasoline and diesel power units with special emphasis on student work with a minimum of instructor supervision. Prereq: MH021U. (3/10)		Covers basic principles of cooling systems and components, testing and light servicing of system. (2/4)	
MH052U Unit Diagnosis and Overhaul III	8	MH067U Shop Practices and Safety	1-6
Covers advanced diagnosis and overhaul of gasoline and diesel power units with special emphasis on student work with a minimum of instructor supervision. Prereq: MH051U. (3/10)		Discusses the rules and regulations of the shop, and includes the necessary materials and equipment the students need in mechanics programs. Demonstrations are given on the proper use of all general mechanics' laboratory equipment that the student will use on a regular basis. Covers the care and handling of equipment and the safety aspects involved in a mechanic's laboratory. (1-3/0-6)	
MH054U Basic Two- and Four-Cycle Engines	2	MH070U Metal Working I	10
Covers the basic designs and functions of two- and four-cycle single cylinder engines with student involvement in the disassembly and assembly of both types. (1/2)		Provides for the study of the effects of impact on sheetmetal structure, proper roughout and panel alignment, pick and ding work, hot and cold shrinking. The student develops basic skills in metal working, leading, filling, shaping, chassis sheetmetal, body shell, body glass and trim. The use of a variety of hand and power equipment is incorporated in the lab activities. (4/12)	
MH055U Tool Crib Operation	1-2	MH079U Refinishing I	6
Involves checking out, checking in of tools and equipment. Gives the student a chance to work with and for other people and develop accountability for tools and equipment. Reconditioning of tools is included. (.5-1/1-2)		Covers metal conditioning, types of finishes, types of thinners and compounds, and refinishing steps. (3/6)	
MH057U Power Transfer Systems III: Power Shift	6	MH080U Refinishing II	6
Covers operation and theory as well as diagnosis and overhaul of fluid driven equipment. Includes power shift, hydrostatic, and hydraulic assist transmission. Also includes torque converters. Prereq: MH018U. (2/8)		Continues Refinishing I, focusing on various problems associated with refinishing, such as humidity, temperature, gun setting and air pressure. (3/6)	
MH058U Hydraulics II	3-5	MH081U Refinishing III	6
Continues Hydraulics I. Emphasis is placed on diagnosis, repair and maintenance of hydraulic systems and components such as valves, pumps and cylinders. Prereq: MH002U. (1-2/4-6)		Continues Refinishing II, involving the finer points of refinishing. Skills are developed in two-tones, tape striping, blemish troubleshooting, blending, matching, touch-ups and professional quality gun handling. Prereq: MH080U. (3/6)	
MH059U Engines II	3-5		
Continues Engines I with primary emphasis on disassembly, measuring, reconditioning and reassembly of multi-cylinder engines. Prereq: MH013U. (1-2/4-6)			

MH082U Agricultural Mechanization Update 2
 Course deals with latest models of agricultural equipment and stresses operation servicing, maintenance and troubleshooting procedures. Equipment studied may include tractors, loaders, drawn farm equipment, stationary farm equipment or their components. Prereq: Instructor's permission. (2/0)

MH088U Diesel Engines 6
 Defines in class the difference between a gasoline engine and a diesel engine with particular emphasis on the fuel systems. (3/6)

MH089U Cooling Systems II 3
 A continuation of Cooling Systems I, with more in-depth repairs such as back flushing, motor pump and clutch fan reconditioning and repair. (1/4)

MH090U Tune-Up II 3
 A continuation of Tune-up I. More involved tune-ups, methods of testing electrical and carburetor systems related directly to engine performance are studied and practiced. (1/4)

MH091U Fuel Systems II 3
 A continuation of Fuel Systems I. Covers the later more exotic carburetors and various fuel injection systems. (1/4)

MH092U Brakes II 3
 Continues Brakes I, with concentration on the various brakes systems. Enables the student to become more specialized in this area. (1/4)

MH093U Front End Service II 3
 A continuation of Front End Service I, dealing more extensively with the new front wheel drive applications and alignment of independent rear suspension systems. (1/4)

MH094U Power Transfer Systems III 4
 A continuation of Power Transfer Systems II, with emphasis on diagnosis and overhaul of transmissions, automatic and standard. (2/4)

MH095U Diesel Fuel Systems II (Ag) 2-5
 Continues Diesel Fuel Systems I (Ag). Emphasis is placed on servicing and adjustment of injectors and related components. Specific pump and injector applications are discussed. Prereq: MH050U. (2-4/0-6)

MH096U Hydraulics II (Ag) 3-5
 Continues Hydraulics I. Emphasis is placed on diagnosis, repair and maintenance of hydraulic systems and components such as valves, pumps and cylinders. Prereq: MH002U. (0-2/2-6)

MH097U Power Transfer Systems III: Differentials Final Drives (Ag) 3
 Covers operation and theory as well as diagnosis and overhaul of fluid driven equipment. Includes power shift, hydrostatic and hydraulic assist transmissions. Also includes torque converters. Prereq: MH018U. (0-2/4-6)

MH098U Rural Metal Applications 3
 Develop skills to successfully work with various metals, shapes and types. A variety of tools and equipment are used which is relative to agricultural application. Assumes a prerequisite of basic arc and oxy skills. (2/2)

MH099U Equipment Setup and Delivery (Ag) 8
 Covers preparing new equipment and power units for delivery to customers. (6/8)

MH100U Tool Reconditioning and Repair (Ag) 2
 Students learn to properly recondition hand tools such as drill bits, chisels and punches. (1/2)

MH101U Engine Powered Equipment Operation (Ag) 3
 Covers operative engine powered units such as tractors, combines, balers, mower-conditioners, back-hoes, end-loaders, and other pertinent equipment in the field. (2/2)

MH102U Power Transfer Systems IV (Ag) 3-5
 Torque converter operation and testing are covered along with in depth op-

eration, repair and troubleshooting of power shift-type hydraulic assist transmissions. Prereq: MH097U. (1-2/4-6)

MH103U Unit Diagnosis and Overhaul I (Ag) 8
 Farm power unit projects are brought in by students or instructors for students to work on. Extensive testing, troubleshooting, repair, inspection and proper assembly is done using any special tools necessary. Prereq: MH110U. (1/14)

MH104U Unit Diagnosis and Overhaul II (Ag) 8
 Continues the diagnosis and overhaul of gasoline and diesel power units, with special emphasis on student work with a minimum of instructor supervision. Prereq: MH021U. (1/14)

MH105U Unit Diagnosis and Overhaul III (Ag) 8
 Covers advanced diagnosis and overhaul of gasoline and diesel power units, with special emphasis on student work with a minimum of instructor supervision. Prereq: MH051U. (1/14)

MH106U Electrical Systems II (Ag) 3-5
 A continuation of Electrical Systems I. Emphasis is placed on overhaul and servicing of electrical components and total system. On-the-unit diagnosis and testing are stressed. Prereq: MH032U. (0-2/2-6)

MH107U Engines II (Ag) 3-5
 Continues Engine I with primary emphasis on disassembly, measuring, reconditioning and reassembly of multi-cylinder engines. Prereq: MH013U. (0-2/2-6)

MH108U Engines III (Ag) 3-5
 Focuses on the relationship between component parts by the disassembly and reassembly of multi-cylinder engines. Prereq: MH059U. (0-2/4-6)

MH109U Hydraulics III (Ag) 3-5
 Continues Hydraulics II (Ag). Emphasis is placed on laboratory oriented hydraulic testing and diagnosis procedures using Flow-rater and other hydraulic testing equipment. Prereq: MH058U. (0-2/4-6)

MH110U Diesel Fuel Systems III (Ag) 3-5
 Covers diesel fuel systems in relation to the engine itself. Diagnosis and testing or troubleshooting take place using special testing tools. Also, particular fundamentals are covered in compression-testing, pump timing, engine component testing, and injector removal and repair. Prereq: MH060U. (0-2/4-6)

MH111U Machinery and Equipment Servicing (Ag) 4
 Students recondition used farm equipment such as combines, planters, sprayers, disks and other tillage equipment. Does not include engine powered part of the machine. (0/8)

MH112U Electrical Systems III (Ag) 3-5
 Studies tractor ignition systems and develops skills in electrical troubleshooting. Prereq: MH033U. (0-2/4-6)

MH113U Power Transfer Systems II: Standard Transmissions (Ag) 3
 Covers disassembly and reassembly of sliding collar transmissions, differentials and final drives. Prereq: MH016U. (0-2/2-6)

MH114U Metal Working II 12
 Continues Metal Working I, with the student working on vehicles in the lab area. Special emphasis is placed on damage analysis, repair procedures, choice and application of fill materials, and total damage repair to better understand repair shop and customer expectations. The student also learns body shell construction and repair, chassis sheetmetal construction and repair, body glass and trim installation, interior vinyl plastic and urethane repair and replacement. Also, unit body construction alignment and repair, and necessary welding of body and related frame repair areas are included. (4/16)

MH115U Metal Working III 12
 Continues Metal Working II, with emphasis placed on quality of work, speed

of repair in relationship to body shop flat rate schedules, and procurement of parts and materials needed to complete the repair. The student analyzes damage and prepares an estimate according to industry standards. (4/16)

MK: MARKETING

MK001T Principles of Marketing 4

Studies the concepts, institutions, procedures, methods and problems in moving goods or services from the producer to the consumer. (4/0)

MK002T Principles of Retailing 4

Studies retailing and its functions in a free enterprise system. All facets of retail operation are considered, including planning, organization, personnel, facilities, control, pricing, buying, selling and promotion. (4/0)

MK003T Principles of Selling 4

Provides the basic skills needed to sell goods and services in a free enterprise economy. Theory is followed by practical application by each student. (4/0)

MK006T Principles of Insurance 3

Exposes students to different types of insurance contracts, the concept of risk, and government's relationship with the industry. (3/0)

MK007T Principles of Banking 3

Presents the fundamentals of bank functions in a descriptive fashion so that beginning bankers can view their chosen profession in a broad perspective. (3/0)

MK008T Trust Business 3

Provides an overview of the trust department, including how the trust department fits into the overall banking business, the services it provides, and in general, how those services are delivered. The changing role of the trust department is highlighted.

MK013T Marketing for Bankers 3

This course discusses the basis of public relations, both internal and external, and explains the why, the what, and some of the how of public relations and marketing. It is intended as an overview for all bankers, in terms of what everyone in banking should know about the essentials of bank public relations and marketing. (3/0)

MK014T Exploring World Trade 3

Provides students with an overview of the concepts of international trade. Students acquire an awareness of the effects of monetary exchange, trade duties and restrictions, sociological problems and other areas of involvement in international trade. (3/0)

MK016T Counselor Selling 4

Presents the technical aspects of customer assistance. The student should have previous sales experience before enrolling in this course. Prereq: Instructor's consent. (4/0)

MK017T Techniques of Exporting 3

Covers terminology, payment terms, financing, drafts, letters of credit, and United States foreign government trade controls. The course is structured for the person who has no previous foreign trade experience. Prereq: MK014T or consent of instructor. (3/0)

MK019T Real Estate Portfolio 3

Approaches the subject from the viewpoint of the mortgage loan officer who seeks to develop a sound mortgage portfolio. A picture of the mortgage market is presented, followed by the acquisition of a mortgage portfolio, mortgage plans and procedures, mortgage loan processing and servicing, and finally, the obligations of the mortgage loan officer in overall portfolio management. (3/0)

MK020T Savings/Time Deposit Banking 3

Presents the historical development of savings institutions and an awareness of the basic economic function of the savings and policies of these institutions. Different types of financial savings are reviewed in order to describe the system of financial flows of income to capital investment. (3/0)

MK021T Foreign Trade Documentation 3

Involves the student directly in the actual details of processing an export order from the time it is received until payment is received. Covers export shipping, documents, packaging, traffic procedures and insurance. The course is structured for the person who has had no previous foreign trade experience. Prereq: MK014T or consent of instructor. (3/0)

MK022T International Transportation 3

Covers the functions of the movements of goods from the point of origin to international and intercontinental destinations. These functions include choice of carrier, port of exit and entry, routing, packaging, insurance, claims, rates and freight forwarder functions. Prereq: MK014T or consent of instructor. (3/0)

MK023T Business Potential Seminar 3

Designed around a series of seminars for the small business owner/manager and employee. Deals with the image of business, customer potential analysis, advertising and promotion, merchandising for more sales, the satisfaction of the customer and the development of the master plan for a profitable business. (3/0)

MK024T International Business 3

Intended to teach the theoretical and practical concepts of international business that are related to international trade. The course outlines world effects of private and governmental trade, as well as the effects of foreign and domestic economic policy on overseas trade. Prereq: MK014T or consent of instructor. (3/0)

MK025T Principles of Advertising 4

Acquaints the student with the philosophy of advertising, historical concepts and practical applications of advertising at the local and national levels. Includes media and media selection, copywriting and layout, with an emphasis on product selection for advertising. (4/0)

MK027T Advanced Documentation 3

A case problem course involving application of transaction theories. Students gain experience with actual transaction problems involving performance, letters of credit, ocean freight documents and other control systems. Prereq: MK021T. (3/0)

MK800T Independent Study in International Trade 1-4

Provides opportunities for International Trade students to augment their formal education with learning experiences outside the traditional classroom. Activities involving international experiences and culture are designed to help students achieve their goals. Consent of program coordinator required. Course is not available to first quarter freshmen. Prereq: MK014T. (1-4/0)

MK002U Basic Agricultural Salesmanship 2-4

Leads students to recognize personal traits needed for success in a sales career and identify basic sales principles as they relate to the agricultural industry. (2-4/0-4)

MK004U Agricultural Futures Marketing 2-4

Covers the futures marketing system from a hedging standpoint. In addition, forward contracting as a price protection for farm commodities is explained and discussed. (2-4/0-4)

MK006U Fashion Merchandising Seminar 1

Explores current practices in specialized areas of merchandising. Includes current designers and design concepts in marketing. Explores trends through field trips, guest speakers, and review of marketing literature. (0/2)

MK007U Principles of Fashion Merchandising 3

Provides a historical and evolutionary introduction to the field of fashion merchandising. Includes sociological, psychological and economic aspects of fashion; fashion terminology; fashion cycles and current practices in fashion retailing. (3/0)

MK008U Fashion Show Procedures 3

Includes the principles of fashion show production with emphasis on planning, coordinating and directing the fashion show. (1/4)

- MK011U Food Store Seminar 1**
Provides various instructional approaches to practical problems in food marketing, with special emphasis on the technical study of the food merchandising field and the development of projects through the use of food store marketing facilities. May be repeated for a total of six hours. (0/2)
- MK012U Introduction to Food Store Marketing 4**
Offers an introduction to the specialized field of food merchandising. Study and materials are based on the principles, practices and procedures relating to the retail and wholesale food industry. (4/0)
- MK013U Food Store Planning and Layout 3**
Includes the study and actual development of the organization, planning necessary for proper merchandising, and layout of a retail or wholesale food operation. (3/0)
- MK014U Merchandising 4**
Studies principles and methods of successful merchandise selection, analyzing the market, and coping with the problems of buying. Inventory control and pricing procedures are included. (4/0)
- MK015U Marketing Study Tour 1-2**
Provides a short period of orientation (lectures, films, discussion and study) prior to tour departure. Written report is due after termination of the tour. Cities and itinerary vary to include educational appointments with retail stores, manufacturing companies and showrooms, advertising agencies, national conventions and market-week activities. (1/1-2)
- MK018U Visual Merchandising 2**
Offers basic instruction in display construction, the relationship of display to the total promotional program, the role of display manager, elements of display design, construction materials and merchandise selection. A laboratory provides the student an opportunity for display construction. (1/2)
- MK019U Small Business Organization 3**
Designed to examine the fundamentals of organizing a small business. Covers such topics as finance, demographics, promotion, market competition, and site location and analysis. The student is involved in a business simulation project. Prereq: Instructor's consent. (3/0)
- MK022U Employment Seminar 1-3**
Provides preparatory training in job seeking skills for students prior to their supervised on-the-job training period. Emphasizes application, resume, interviewing techniques, philosophy and purpose of career program. All placement activities prior to on-the-job training are coordinated through this course. Students register for the lecture activities only once. (0-2/2-4)
- MK023U Industrial Marketing 3**
Introduces and investigates the functional areas of industrial marketing. Industrial distributor and manufacturer marketing principles and methods are examined. Simulated experiences are given through an industrial marketing business game. (3/0)
- MK024U Business Internship Seminar 1**
Offers arranged seminars for business students concurrently enrolled in Business Internship. Includes goal setting and learning objectives for internship period. Discusses and evaluates internship experiences and work problems encountered. (1/0)
- MK032U Home Furnishings I 3**
Studies furnishings, including fundamentals of good design, color in interiors, background materials, window treatments and fabrics. Emphasis is on practical aspects of home furnishings, including measurements and estimates. Prereq: AT007U or permission of instructor. (3/0)
- MK033U Home Furnishings II 4**
Studies sales/servicing in a home furnishings store through projects requiring the student to select the elements employed in the creation and coordination of an interior. The course covers the fundamentals of space planning, product knowledge, trade sources, furniture arrangement, room coordination and the solution of specific customer problems. Prereq: HE020U, MK032U, or permission of instructor. (4/0)
- MK035U Agribusiness Sales 1-4**
Describes the application of selling aids, selling innovation, prospecting for customers, importance of customer relations, handling customer objections, meeting the competition, and the preparation of sales calls, sales reports and the necessity of organization. (1-4/0-4)
- MK041U Food Store Merchandising I 3**
Offers a basic look at the principles involved in retail food merchandising, with practical examples and illustrations of how they maximize profits and customer satisfaction when properly applied. (3/0)
- MK042U Food Store Merchandising II 3**
Offers a continuation of the principles involved in retail food merchandising, with emphasis on advertising and promotions, display, profit planning and control, government regulations and trends affecting merchandising. Prereq: MK041U. (3/0)
- MK043U Trends and Practices Fashion Merchandising I 1**
Explores current practices in specialized areas of merchandising. Includes current designers and design concepts in marketing. Explores trends through field trips, guest speakers, and review of marketing literature. (0/2)
- MK048U Window Design Treatment 3**
Studies the factors involved in designing and planning the window area for aesthetics, function and energy conservation. Includes terminology of windows and window treatment, measuring, construction and installing of window treatments. Prereq: AT006U, HE019U. (3/0)
- MK049U Professional Practices 4**
Emphasizes the development and maintenance of business principles and practices for a professional standard of practice in the field of interior design. Includes review of legal qualifications, statutory licensing, and review of the national qualification exam. A client project is assigned to a student for presentation to a professional design jury for evaluation. Prereq: All other design classes must be completed or permission of instructor. (4/0)
- MK050U Precious Gem Appraisal 2**
Studies the characteristics of precious gems and the use of that knowledge to evaluate and appraise such stones. (1/2)
- MK055U Merchandising: Horticulture 3**
Introduces the student to basic sales procedures and stresses product knowledge of horticulture products and services. Students concentrate on relating product information to customers. (2/2)
- MK056U Principles of Agricultural Marketing 1-4**
Studies the concepts, institutions, procedures, methods and problems in moving goods or services from the producer to the consumer. (1-4/0-6)
- MK057U Agricultural Merchandising/Retailing 2-4**
Covers planning, creation and use of advertising related to the agricultural economy and marketing of agricultural products. Purposes of advertising, displaying of merchandise and produce, methods of appeal, copy problems, layout and design problems, and media selection are included. (2-4/0-4)
- MK058U Real Estate Appraisal 3-4**
Presents definitions and terminology of real estate appraising, analyzing the real estate market and explaining the appraisal process. Includes basic approaches to estimating value-cost, income and market data. Covers mechanics of inspecting, measuring improvements and cost estimating. A term case study project is assigned providing practical experience in writing an appraisal report for a single family residence. Prereq: MK060U, LW019T. (3-4/0)
- MK059U Real Estate Finance 4**
Designed to explore the financial aspects of real estate with primary consideration of the fundamentals of mortgage banking, source of funds for mortgage lending, loan application procedures and processing, inspection and appraisal of collateral, attracting new business, investing, and the effects of governmental monetary and fiscal policies. Prereq: LW019T, MK060U. (4/0)

MK060U Real Estate Principles/Practices I 4
 An introductory course designed for those interested in entering the real estate field as salespersons or brokers, as well as the general public. Covers the general background of real estate law, terminology, practice and procedures. Includes extensive coverage of real estate mathematics. (4/0)

MK061U Real Estate Principles/Practices II 4
 Covers brokerage firm management with primary study of techniques of sales promotion, the role and functions of the manager, selection and training of staff, and the systems and techniques to employ in order to produce a profitable business operation. Prereq: MK060U, LW019T, MK059U. (4/0)

MK062U Real Estate Seminar 4
 Offers in-depth study of special interest areas, including case studies of problems in real estate where specialized knowledge of taxation, planning and analysis, and current market and legislative activities is needed. Prereq: The basic GRI series; may be waived by the instructor if the previously acquired expertise of the student warrants it. (4/0)

MK063U Purchasing I 3
 Introduces the purchasing function as an element of an industrial business operation. Covers organization techniques and coordination of other functions, concepts of materials management, and economy effected by prudent buying. (3/0)

MK064U Purchasing II 3
 A continuation of Purchasing I. Prereq: MK063U. (3/0)

MK065U Telemarketing I 3
 Introduces students to the field of marketing products and services by telephone communication. Discusses product knowledge, overcoming objections, closing, selling simulations, telephone courtesy and listening skills. Tours of telemarketing facilities may be conducted. (3/0)

MK066U Residential Appraising 2
 Presents definitions and terminology of real estate appraising, analyzing the real estate market and explaining the appraisal process. Includes basic approaches to estimating value-cost, income and market data. Covers mechanics of inspecting and measuring improvements and cost estimating. A term case study project is assigned providing practical experience in writing an appraisal report for a single family residence. (2/0)

MK067U Techniques for Customer Counseling 2
 Training combines theoretical and practical information to use when counseling financial institution customers. Among the topics covered are communication skills, customer expectations, problem solving techniques, and the special concerns of the counselor in a financial environment. (2/0)

MK069U Management Seminar I 2
 Independent analysis of those facets of the business industry that would enable students to become better acquainted with the business environment to which their career goals are directed. Students develop a project which will entail extensive interaction with the business community. (Open only to Retail Management majors.) (1/2)

MK070U Management Seminar II 2
 Independent analysis of those facets of the business industry that would enable students to become better acquainted with the business environment to which their career goals are directed. Students develop a project which will entail extensive interaction with the business community. (Open only to Retail Management majors.) Prereq: MK069U. (1/2)

MK001V Retail Advertising and Display 2-4
 Emphasizes instruction and practical experience in the areas of ad layout, design and construction for use with local advertising media. Includes relationship of display to the total promotional program. Studies elements of display, construction materials, merchandise selection and the actual display construction. (2-4/0-4)

MK011V Retail Flower Shop Operation I 5
 Introduces the florist business and efficient shop layout. Studies the proc-

essing of floral orders, terminology, telephone procedures and floral product sales. (5/0)

MK012V Retail Flower Shop Operation II 3
 Studies the aspects of the floral business involving funeral arrangements, funeral directors, etiquette and sales. Holiday preparations and diversifications are also discussed. Prereq: MK011V. (3/0)

MK013V Retail Flower Shop Operation III 3
 Analyzes the floral business as a center of employment, personnel policies, shop management and operation. Sales of floral products is included. Prereq: MK012V. (3/0)

MK014V Retail Flower Shop Operation IV 3
 Studies floral business etiquette, sales of wedding flowers, and purchasing and pricing of floral products. Prereq: MK013V. (2/0)

MM: METALS AND MANUFACTURING

MM001U Manufacturing Processes 4
 Designed to expose the student to a wide range of manufacturing processes ranging from measurement and layout to CNC machine tools. The student is given an opportunity to do measurement, layout, use hand tools, and operate machine tools such as drills, saws, lathes, milling machines, grinders and shapers. Materials and heat treating processes are covered. (2/4)

MM006U Metals and Welding 4
 Studies shaping, cutting, forming, fastening, drilling, finishing and welding of various types of metals used in farm construction. (3/2)

MM007U Cast Jewelry I 3
 Develops skills in designing, waxing, investing, casting and finishing pieces of jewelry using non-precious alloys. (1/4)

MM008U Cast Jewelry II 5
 Continues Cast Jewelry I by making three different pieces of jewelry cast in precious alloys. Stonesetting is also emphasized. Prereq: MM007U. (2/6)

MM030U Fundamentals of Welding I 2
 Covers basic welding techniques with oxyacetylene and electric welders. Designed for the general tradesperson working in the areas of mechanics and automotive technology. Students are introduced to a variety of welding situations, including cutting, brazing, and various welding positions on lighter gauges of metal. (0/4)

MM031U Fundamentals of Welding II 3
 Continues Fundamentals of Welding I. Covers a more advanced type of welding involving welding of cast iron, aluminum, and a variety of different welding situations encountered in the trades. Prereq: MM030U. (.5/5)

MM032U Production Machinery 2
 Covers classroom study and shop practice on the use of metal-forming machinery and maintenance of welding equipment. (0/4.5)

MM033U Machinist Related Theory 3
 Provides instruction on the principles, characteristics, application and use of lubricants, bearings, taps and dies, fasteners, precision tools, precision measurements, shop tools and safety in the machine shop environment. (3/0)

MM034U Machinist Math I 3
 Begins with a review of fractions and decimals as they are used to solve shop problems. Use of the calculator is introduced along with handbook tables and formulas. Students are introduced to the solution of problems involving powers and roots, tapers and angles. (3/0)

MM035U Machinist Math II 3
 A continuation of Machinist Math I. Introduces students to more advanced practical math. Includes metric conversion, area and volume calculation, temperature conversion and expansion of metals. Right angle trigonometry is introduced along with calculations that relate to numerical control programming. (3/0)

- MM036U Machinist Math III** 1
A continuation of Machinist Math II, with increased application to shop problems. Concludes with a review of all math concepts presented in Machinist Math I and II. (1/0)
- MM037U Machinist Print Reading I** 3
Introduces student to the importance of prints in industry. Covers the alphabet of lines and principles of sketching. Continues with an introduction to orthographic projection, auxiliary views, detail and assembly drawings, dimensions and tolerances, and sectional views. Title block information is covered along with materials lists, drawing notes and drawing change system. (3/0)
- MM038U Machinist Print Reading II** 2
A continuation of Machinist Print Reading I. Covers geometric dimensioning and tolerancing and the interpretation of advanced prints including numerical control programming and documents. (2/0)
- MM039U CNC Machine Operation** 4
The principles of CNC operation and production are applied to operating our NC and CNC lathe and mill. Stresses input languages, codes, function, set up, operation, inspection and communication with peripherals. (0/8)
- MM040U Introduction to Shop Processes** 15
Introduces the beginning student to basic measuring tools, elementary layout and inspection tools and methods, hand tools and bench work. Students are instructed in the setup and operation of power saws, drills, engine lathes, mills, surface and cylindrical grinders. Principles of speeds and feeds are taught as they relate to specific machines. Metallurgy is introduced as it applies to the manufacture and identification of iron and steel and elementary heat treatment of steel. Safety is taught as it applies to each machine and process. (6/18)
- MM041U Application of Shop Processes** 13
A continuation of Introduction to Shop Processes. More advanced principles in setup and operation of lathes, mills and grinders are covered. Introduces carbide lathe tools and milling cutters, with an increased emphasis on productivity and accuracy. Basic shaper setup and operation are covered along with an introduction to basic turret lathe setups. Job shop work is introduced. Safety continues to be taught as it applies to new machines and processes. (5/16)
- MM042U Advanced Shop Processes and Numerical Controls** 17
A continuation of Application of Shop Processes, with an introduction to computer material control. Students continue to apply basic principles learned and skills developed to more advanced shop work. Special projects, along with job shop and production work are emphasized. (5/24)
- MM010V Welding for Automotive Mechanics** 2
Covers the setup and operation of metallic arc and oxyacetylene welding equipment. Welding techniques used for welding in the flat position with arc welding, gas welding and brazing also are included. Welding safety is stressed. (0/48)
- MM011V Introduction to Arc Welding** 1
Includes operation of AC and DC welding equipment. Covers striking an arc, beads of weld in all directions in the flat position, and building beads of weld. Welding safety is stressed. (2/24)
- MM012V Welding Special Projects** .5 5
An individualized course for those needing specific welding training other than the regular courses, or practice for various weld tests. Also for those needing review or upgrading of methods and skills. (0/12-120)
- MM017V Semi-automatic Welding** 3
Studies the setup and operation of the semi-automatic welding process, using both hard wire and flux core wire. (6/54)
- MM019V Heliarc Welding** 5
Covers all position welding techniques on ferrous and nonferrous materials, using the heliarc welding process. (6/98)
- MM020V Special Arc Welding Techniques** 3
Studies the welding methods used on cast iron, stainless, hard surfacing and all position weld techniques used on light gauge metal. (6/54)
- MM022V Welding Inspection** 2
Studies shop and lab welding inspection techniques, and provides practice in the selection, preparation and interpretation of both destructive and non-destructive welding tests. (0/56)
- MM023V Student Project** 2
Provides for preparation of an original project by the student in the areas of fabrication, inspection or the welding process. (0/56)
- MM024V Welding Technology** 4
Studies welding processes and power sources, including welding metallurgy, strength of materials, design of weldments, cost of welding and production methods. (60/0)
- MM025V Weaving the Electrode** .5
Covers the welding techniques used to make beads of weld any width. Three basic weave patterns are taught. Prereq: MM011V. (0/12)
- MM026V Introduction to Joint Welding** 1
Studies in detail fillet welds in the flat position using single and multiple pass techniques. Includes an introduction to welding metallurgy. (4/24)
- MM027V Powdered Iron Weld Methods** 1
Covers the methods used to make fillet welds using large diameter powdered iron "drag rods"; also includes the selection and the A.W.S. numbering system of covered electrodes. (4/24)
- MM028V Flame Cutting** 1
Develops the skills needed in oxyacetylene flame cutting, including setup, operation and maintenance of equipment. Oxyacetylene safety is stressed. (6/12)
- MM029V Butt Joints: Flat** 1
Introduces the basic methods of preparing and welding butt joints in the flat position, with and without backing strips. Also includes the use of the A.W.S. welding symbols. (6/24)
- MM030V Horizontal Welding Techniques** 1
Introduces horizontal welding techniques and methods used to make various types of joints in the horizontal position. (0/24)
- MM031V Vertical Welding Techniques** 1
Introduces vertical welding techniques and methods used to make various types of joints in the vertical position. (0/26)
- MM032V Overhead Welding Techniques** .5
Introduces overhead welding techniques and methods used to make various types of joints in the overhead position. (0-18)
- MM033V A.W.S. Test: Low-hydrogen Electrodes** 3.5
Covers the testing of welds, including the preparation and welding of A.W.S. Welder Certification Guided Bend Tests in all positions, using E-7018 electrodes. Students must pass this test to complete the metallic arc welding section of the welding program. (8/70)
- MM034V Blueprint Reading for Welders** 3
Covers lines and views, size description, and welding layout, with emphasis on welding terms and symbols. Also includes interpreting welding prints. (36/0)
- MM035V Oxyacetylene Light Gauge Steel Welding** 1
An introduction to oxyacetylene welding including the setup and operation of equipment and accessories. Welding procedures for light gauge steel sheet metal in all positions and common joint types are taught. (4/16)
- MM036V Oxyacetylene Heavy Steel Welding** 1
Provides instruction in the correct welding procedures to use for heavy steel plate in all positions and various joint types. (4/16)

MM037V Brazing and Silver Solder 1
 Introduces the techniques and procedures used to braze, braze weld, and silver solder. (4/16)

MM038V Oxyacetylene Cast Iron Repair 1
 Studies the various methods of oxyacetylene repair welding of cast iron. (4/16)

MM039V Oxyacetylene Nonferrous Materials 1
 Covers methods and procedures used for oxyacetylene welding of nonferrous materials. Aluminum welding techniques are stressed. (4/16)

MM065V Pipe Welding Techniques 8
 Studies shielded metal arc welding of pipe joints in all positions and in accordance with A.S.M.E. and A.P.I. pipe welding codes. Prereq: MM033V. (26/134)

MS: MEDICAL AND SURGICAL

MS003T First Aid .5
 Provides instruction in first aid procedures consistent with the Red Cross Multi Media Basic First Aid requirements. (.5/0)

MS004T Cardiopulmonary Resuscitation .5-1
 Offers certification in basic rescuer training according to guidelines of American Heart Association. Additional topics include related adjuncts to CPR such as use of air-mask-bag units for manual resuscitation. (1/0)

MS005T Cardiopulmonary Resuscitation: Faculty .5
 Provides instructor level training in basic cardiac life support for persons who are currently certified in basic CPR, as required by the American Heart Association. (.5/0)

MS004U Orthopaedic Conditions I (OPA) 4
 Investigates specific orthopaedic disorders, their etiology, course and varied treatment modalities. Incorporates orthopaedic history and physical examination techniques, and fundamentals of roentgenology. Subject areas include the upper extremity, neck and back. (4/0)

MS005U Orthopaedic Conditions II (OPA) 4
 Deals with dysfunction of the lower limb. Metabolic, endocrine, neuromuscular and neoplastic disease states are discussed. (4/0)

MS006U Operating Room Techniques I (OPA) 3
 Provides the basic principles and skills necessary to assist with surgical procedures in the operating room, including sterile techniques, positioning and instrumentation. Selected operative procedures are studied. (2/2)

MS007U Immobilization Techniques I 4
 Focuses on the principles and techniques of casting (plaster and synthetic) and splinting of the extremities, utilized in the treatment of musculoskeletal trauma and disease. Included are care of the cast and the involved patient, radiographic identification of fractures, healing and complications. (2/4)

MS008U OPA Clinic I 4
 Provides practical experience in a hospital emergency room, orthopaedic operating room and orthopaedic outpatient clinic. In the emergency room, the student assists with the care, treatment and transportation of patients, especially those with traumatic injuries. In the orthopaedic operating room, the student functions as an operating room technician. In the orthopaedic outpatient clinic, the student observes and assists staff with patient evaluations and treatments. Students are assigned a minimum of six weeks in each area. Performance is based on knowledge and skills acquired through the first-year course offerings. Emphasis is placed on patient/personnel relations and the development of technical skills. (0/8)

MS009U OPA Clinic II 4
 Continues OPA Clinic I. (0/8)

MS010U OPA Clinic III 7
 Focuses on developing skills in surgical assisting. The student is assigned

to a local orthopaedist in private practice to assist with the care of office and hospitalized patients, with special emphasis on assisting with all types of orthopaedic surgical procedures. Activities involve patient positioning, draping and prepping for surgery, and retracting and maintaining hemostasis during surgery. Students develop surgical case studies during operating room rotations. (0/20)

MS011U OPA Clinic IV 7
 Offers an intensified, comprehensive clinical practicum in St. Paul, Minnesota. Emphasis is placed on increasing skills in assisting with the immediate care and treatment of patients with traumatic injuries, and also offers the student an opportunity to assist a number of orthopaedists with a variety of procedures in the hospital and office environment. (0/20)

MS012U OPA Clinic V 13
 Involves a three-month assignment in a private orthopaedic office or clinic. Under the direction of the orthopaedist(s) and guided by predetermined learning objectives, the student participates as an OPA, including assisting with office procedures and emergencies, accompanying the orthopaedist on hospital rounds and assisting in surgery. (0/40)

MS013U Immobilization Techniques II 3.5
 Investigates advanced techniques of fracture bracing, plaster and synthetic immobilization of the spine and uses of skin and skeletal traction in the treatment of musculoskeletal disorders. The principles involved as well as the special considerations and complications of these treatments are emphasized. An opportunity to increase skills in radiographic identification of orthopaedic disorders is provided. The concepts of non-rigid immobilization and internal fixation are introduced. Prereq: MS007U. (2/3)

MS014U Respiratory Therapy I 3
 Presents theory of equipment operation and therapeutic procedures related to gas therapy humidity and aerosol therapy, environmental control systems, and bulk oxygen supply systems. Prereq: MS025U, algebra elective. (3/0)

MS015U Introduction to Physical Therapy, Orthotics and Prosthetics, (OPA) 3
 Studies the basic concepts of biomechanics and physical therapy in relation to the care and rehabilitation of the orthopaedic patient. Includes principles of orthotics and prosthetics, with emphasis on terminology, gait concepts, recognition of abnormalities and problem-solving techniques. (3/0)

MS019U RT Clinic I 8
 Provides closely supervised clinical practice in gas therapy, humidity and aerosol therapy, aerosol medication, and general orientation to hospital procedures and record management. Limited introduction to airway care and chest physical therapy is provided. Prereq: MS014U. (0/16)

MS020U RT Clinic II 8
 Requires the student to participate actively under direct supervision of a clinical instructor. Clinical skills in gas therapy, airway management and chest physical therapy are expected to be refined to the point where there are few mistakes. The student should demonstrate sound judgment in interpersonal skills, but clinical judgment is not expected at this time. The student observes and participates in IPPB therapy to a limited extent. Prereq: MS019U, MS082U, MS083U. (0/16)

MS021U RT Clinic III 5
 Provides clinical rotations through pulmonary function labs, EKG and bronchoscapy labs. Continues practice started in previous clinic and starts observational rotations in neonatal areas. Prereq: MS020U. (0/10.5)

MS022U RT Clinic IV 8
 Emphasizes active participation in clinical areas of general medical-surgical wards, intensive care units, coronary care units, pediatric wards and neonatal intensive care units. The student should be able to judge the appropriateness of a physician's orders for basic therapy and recognize contraindication to therapy. The student will, to a limited extent and under close supervision, establish continuous ventilation. Prereq: MS021U. (0/16)

- MS025U Introduction to Health Care** 4
Offers an overview of the medical care system, medical specialties and allied health fields, and an insight into the hospital organization and the interrelationship of its personnel in meeting the needs of the clientele. The course also stresses the fundamentals of patient care, safety and comfort, and includes basic nursing procedures, medical terminology, medical ethics and legal responsibilities. (2/4)
- MS032U Pediatrics and Perinatology** 4
Provides instruction in fetal growth and development, assessment of the high risk newborn, thermoregulation and respiratory care, therapeutic procedures in treatment of the perinatal and pediatric patient. Reviews specific pharmacology related to pediatrics and perinatology, and medical/surgical pathophysiology of newborn and pediatric disorders. Prereq: MS014U, MS053U, MS083U. (3/0)
- MS033U RT Clinic V** 8
Offers continued active participation in all areas of the hospital. The course goal is to refine the student's skills in the care of critically ill patients. Emphasis is on experiences in pulmonary rehabilitation. Prereq: MS022U. (0/16)
- MS036U Studies in Health Science** 1-4
Provides readings, papers, seminars and/or basic research. Prereq: Consent of instructor and program coordinator. (12-48/0)
- MS037U Clinical EEG Lecture I** 1
Provides basic knowledge of electroencephalography to understand how the EEG is utilized for diagnosis of various cerebral disorders. Includes history, development, basic neurophysiological concepts of EEG, normal and abnormal brain wave patterns in adults and children, effect of consciousness level or mental process upon EEG, pharmacology and various electroencephalographic signs of cerebral disorders. (1/0)
- MS038U Introduction to EEG Laboratory Techniques/Seminar** 8
Introduces the student to basic EEG techniques in the classroom and their practical application in the laboratory; includes basic instrumentation and operation. (2/12)
- MS040U Applied Electronics/Instrumentation** 3
Provides theory and application of systems operant in EEG instruments. Laboratory sessions provide practical applications of the course material. (2/2)
- MS041U General Neurology I** 2
Provides medical and neurological terminology, neurological symptoms and signs, and neurological examination in relation to functional neuroanatomy. Includes neurological diagnostic methods. Introduces the disorder epilepsy. (2/0)
- MS042U Clinical Lab I/Seminar** 11.5
Continues introduction to laboratory techniques. Applies basic EEG techniques of recording in the clinical laboratory. History taking, patient handling and recording techniques are correlated in a seminar. Normal and abnormal adult EEG are introduced. (2/19)
- MS043U General Neurology II** 2
Studies neurologic disease entities including toxic and metabolic disorders, headaches, cerebrovascular disease, tumor and infectious processes. Also covers neurosurgical techniques, trauma, demyelinating, degenerative diseases, and diseases of peripheral nerves and muscles. (2/0)
- MS044U Clinical Laboratory II (EEG)** 15
Continues Clinic Lab I. Provides additional knowledge of EEG findings. Pediatric EEG, development, both normal and abnormal, and appropriate techniques are stressed. Seminars are designed to compliment clinical experience and recording techniques. (1/28)
- MS045U Special Instrumentation Techniques I** 2.5
Provides an introduction to new advances in the field of electrodiagnostics. Concentration is based on event-related potentials. (1.5/2)
- MS046U Clinical Laboratory III (EEG)** 13
Introduces techniques in intensive care and outside laboratory settings. Emphasis is on abnormal patterns of all age groups and special techniques. Students are required to exercise judgment initiative in techniques and instrumentation. (1/24)
- MS047U Special Instrumentation Techniques II** 4
Provides an introduction to related aspects in the field of electrodiagnostics. Includes research techniques, EEG telemetry, telephone EEG, monitoring techniques, depth recording and electrocardiography. Evoked Potential Lab proficiencies are stressed in clinical lab. (.5/.5/7)
- MS048U Clinical EEG Lecture II** 2
Provides integrating information of EEG characteristics and specific patterns for cerebral disorders. Emphasis is on disorders in which EEG serves as a critical diagnostic tool. (2/0)
- MS049U Clinical Laboratory IV (EEG)** 9
Emphasizes the ability to demonstrate clinical and technical competencies and problem solving in a varied clinical setting; includes laboratory management. Students develop and present related reports for discussion in seminar. (1/16)
- MS050U Diagnostic Laboratory Techniques** 3
Provides theory of equipment operation and testing procedures, and interpretation of data in pulmonary function testing, arterial blood gas analysis, electrocardiograms and fiberoptic bronchoscopy. Prereq: BY013U, CH001T. (3/0)
- MS053U Clinical Medicine** 4
Provides general overview of general medicine and medical/surgical subspecialties and their relationship to the health care team. Presents theory of body response to disease, essentials of diagnosis and treatment of adult and pediatric medical/surgical disorders. Prereq: BY006U, BY013U, MS054U. (4/0)
- MS055U RT Pharmacology** 2
Studies the autonomic nervous system and cardiorespiratory drugs affecting it, cardiac drugs, anesthetics and muscle relaxants, antibiotics, steroids, narcotics, barbiturates, diuretics, bronchial asthma inhibitors, anticoagulants and drugs used in cardiopulmonary resuscitation. Prereq: MS054U. (2/0)
- MS056U Educational Techniques** 3
Presents methods for assessing educational needs developing behavioral objectives, planning learning activities instructional strategies and evaluating outcomes for patient and in-service instruction. (3/0)
- MS057U RT Clinic VI** 12
Provides clinical practice for refinement of all clinical skills, and expects the student to demonstrate sound clinical judgment and ability to function independently in critical care areas. The student selects a limited number of elective rotations to supplement particular areas of interest. Prereq: MS033U. (0/24)
- MS058U Advanced Life Support** 2
Provides a review of cardiopulmonary resuscitation. In addition, lecture and laboratory practice are provided in endotracheal intubation, cardiac defibrillation, intravenous therapy and fluid replacement, and treatment of immediate life-threatening conditions. Prereq: MS055U, MS004T. (1/2)
- MS059U Advanced Pathology** 3
Offers an in-depth study of cardiorespiratory disorders, relating to the respiratory therapists' role in diagnosis, treatment and support. Prereq: MS052U, MS053U, MS050U and Advanced Pharmacology. (3/0)
- MS060U Respiratory Therapy III** 3
Integrates selection, review and interpretation of clinical cardiopulmonary data on the management of respiratory failure in the intensive care setting.

Provides theory of equipment operation and therapeutic procedures in adult and neonatal mechanical ventilation and cardiopulmonary monitoring. Prereq: MS082U, MS083U. (3/0)

MS061U Medical Terminology I 2-3.5
An orientation course in the vocabulary of medicine. Efforts are directed toward correct pronunciation and spelling of words through self-paced learning with videotapes as well as classroom participation. (2-3/0-1)

MS062U Medical Terminology II 3-3.5
Continues Medical Terminology I. Concentrates on spelling, defining and applying terminology common to systems of the body by the medical field. Prereq: MS061U. (3/0-1)

MS063U Pharmacology 2
Introduces the history and development of Pharmacology, drug actions and effects, how the body reacts to drugs and other chemicals, standards and controls, as well as drug and chemical abuse and use of over-the-counter drugs. Reviews metric conversions used in drug calculations. Drugs used in treatment of specific disorders are studied for action, effect, indications and contraindications. (2/0)

MS066U Physical Assessment and Interpretation 3
Offers the basic principles and techniques of physical assessment, and provides insight into the pathology that may be found. (1/4)

MS067U Health Occupations Leadership .5-3
Develops leadership skills in using parliamentary procedures, techniques for conducting business meetings, committee functions, communications, and project design and implementation for organizational structures. Provides insight in developing public relations with the community and in furthering career services to the community. (.5,1,2,3/0)

MS069U Limited Practice Radiographer 7
Designed to meet requirements of the rules and regulations for radiation emitting equipment of the State of Iowa. Emphasis is placed on providing the knowledge and skills necessary to provide maximum protection from ionizing radiation for patients and personnel. Included is basic physics as applied to x-ray machines and technology, film processing, patient position and preparation for radiographs of the chest, extremities and spine, film evaluation and radiation protection. Prereq: Health career experience or education. (6/2)

MS070U Clinical Procedures I 3
Provides introduction to back office techniques, microbiology, aseptic techniques, vital signs and fundamentals. (2/2)

MS071U Clinical Procedures II 3
Provides basic skills in sterile techniques, setting up for minor surgery, ward duties, physiotherapy, basic x-ray techniques and electrocardiogram techniques. Prereq: MS070U. (2/2)

MS072U Medical Office Procedures I 2
Provides an introduction to medical office assisting and front office techniques including making appointments, scheduling, history taking, telephone techniques, decision-making and patient relationship. (1/2)

MS073U Medical Office Procedures II 2
Provides a working knowledge of basic medical insurance programs forms utilized and the record keeping of insurance claims. Prereq: MS072U. (2/0)

MS074U MA Clinic I 6
Offers experience in private doctors' offices, hospitals, clinics, industry or wherever medical treatment is given under supervision of doctors, registered nurses and school instructors. (1/16)

MS075U MA Clinic II 11
Continues MA Clinic I. Prereq: MS074U. (1/32)

MS076U MA Psychiatry 2
Examines current concepts, techniques and procedures used in treatment, prevention and rehabilitation of mental illness as related to patients in doctors' offices. (2/0)

MS077U MA Pharmacology 2
Provides techniques in administration of drugs, and studies of basic mathematics and dosages. Prereq: MS063U. (1.5/1)

MS078U Medical Lab I 4
Provides basic principles and skills in hematology and urinalysis, necessary for medical personnel in a medical setting. (1.5/5)

MS079U Medical Lab II 1.5
Continues the study of hematology. Prereq: MS078U. (.5/2)

MS080U Life Styles, A Health Perspective 4
Interpersonal relationships and behaviors are explored. Emphasis is to encourage an appreciation of others' perspectives and of the feelings of minorities, handicapped and/or others in special circumstances. (4/0)

MS081U Respiratory Therapy Lab I 2
Provides laboratory exercises in selection, operation, application and maintenance of gas therapy, humidity aerosol therapy, environmental systems, and bulk oxygen supply equipment and procedures. Prereq: MS025U, MS014U. (0/4)

MS082U Respiratory Therapy Lab II 2
Provides laboratory exercises in patient assessment, airway management, chest physical therapy, inventive breathing, IPPB and adult mechanical ventilation. Prereq: MS014U, MS081U. (0/4)

MS083U Respiratory Therapy II 7
Presents theory of patient assessment, equipment operation and therapeutic procedures related to airway management, breathing assistance, chest physical therapy and adult mechanical ventilation. Prereq: BY013U, MS014U, MS081U. (7/0)

MS084U Respiratory Therapy Lab III 1
Provides laboratory exercises in pulmonary function testing, arterial blood gas analysis and sampling techniques for electrocardiography. Observations in bronchoscopy and body plethysmography are provided. Prereq: MS082U. (0/2)

MS085U Respiratory Therapy Lab IV 2
Provides laboratory exercises in initiating, conducting and modifying prescribed mechanical ventilation of the adult and neonatal patient. Provides exercises in perinatal ventilators and therapeutic procedures. Provides exercises in CPAP systems and operation of cardiopulmonary monitors. Prereq: MS084U. (0/4)

MS086U Emergency Medical Technician: Ambulance 9
The overall objective of the course is to improve the quality of emergency care rendered to victims of accidents and illness. The course develops skills in patient assessment, symptoms recognition, and in all procedures and techniques currently within the realm and responsibilities of an EMT-A providing emergency medical care. Students are charged an additional fee for the National exam. At the conclusion of the course the students will take the National practical and written exam. Prereq: CPR; 18 years old. (8/2)

MU: MUSIC

MU007T Vocal I 2
Designed to teach beginning students in a group situation, the basic skills of singing. Various concepts of voice are presented concerning these skills. Includes overcoming self-consciousness, breath control, tone production, interpretation and performing musical exercises. A varied repertoire will be learned so that students can apply concepts and techniques to simple songs. (0/4)

MU008T Vocal II 2
Continues Vocal I. (2/0)

MU010T Voice	1	MU122T Jazz Ensemble	1
Offers private instruction for advanced students in voice. Periods to be arranged. (1/0)		A performance-oriented class designed around the traditional stage band instrumentation. Audition required. (0/3)	
MU011T Music Appreciation	4	MU123T Show Choir	1-2
Includes elements and types of music with some attention to major periods and composers. (4/0)		A performance-oriented class that gives students the opportunity to work with music in rock, show and jazz idioms. Fully choreographed. Audition required. (0/3-4)	
MU012T Advanced Music Theory and Aural Skills I	4	MU124T Music Theory and Aural Skills I	4
Continues the first-year music theory. Prereq: MU025T. (4/0).		A comprehensive study of the fundamentals of harmony, ear training and sight singing. Includes notation, scales, modes, intervals, key, tonality, the anatomy of melody, harmony and melodic organization. (4/0)	
MU013T Advanced Music Theory and Aural Skills II	4	MU125T Community Chorus	1
Continues Advanced Music Theory and Aural Skills I. Prereq: MU012T (4/0).		Performs a variety of vocal music ranging from repertoire from the Renaissance to several 20th century styles. Prereq: Permission of instructor. (0/20)	
MU014T Advanced Music Theory and Aural Skills III	4	MU126T Jazz Improvisation I	4
Continues Advanced Music Theory and Aural Skills II. Prereq: MU013T (4/0).		Study theoretical principles and techniques used in the jazz idiom. Provides opportunity for application of music theory at the performance level, to include scales, chord progressions, melodic patterns and rhythmic elements. Recommended for both instrumentalists and vocalists. Prereq: MU124T and permission of instructor. (4/0)	
MU015T Band	1	MU127T Jazz History and Appreciation	4
Designed for students with ability and desire to play in a band. May be repeated for a total of six credits. Prereq: Permission of instructor. (0/3)		A historical approach to the development of jazz in America. Jazz styles are studied through the analysis of recorded examples played in class. (4/0)	
MU016T Chorale	1	MU128T Pep Band	1
Designed for students with ability and desire to sing in a mixed voice group. May be repeated for a total of six credits. Prereq: Permission of instructor. (0/3).		Pep Band is organized each Winter Quarter to provide support and entertainment for the Kirkwood Eagles basketball teams. Students play standard pep band arrangements. Prereq: Instructor permission (0/2)	
MU019T Beginning Piano	2	MU129T Dixieland Band	1
Designed to teach beginning piano in a group situation. The basic music skills and vocabulary are taught and developed into the techniques needed to perform music. Simple, familiar folk and popular songs are learned to develop these basic skills and techniques. The course is also designed to help the student overcome self-consciousness while playing the piano and to stimulate ensemble playing in order to perfect the skills and to learn from one another. (0/4)		This performing group plays in the New Orleans and Chicago dixieland styles. Prereq: Permission of instructor. (0/2) 9	
MU022T Ensemble	1	MU130T Jazz Combo	1
Offers instruction and performance in small vocal groups. May be repeated for a total of six credits. (0/3)		Designed for small group performance of various jazz styles with major emphasis on improvisation. Prereq: Instructor permission. (0/2)	
MU024T Music Theory and Aural Skills II	4	MU131T Chamber Ensemble	1
Continues Music Theory and Aural Skills I. Includes instruments and voices, four-part choral writing, harmonic progression, style periods, the major-minor dominant 7th chord and leading-tone chord. Prereq: MU124T. (4/0)		Students practice and perform traditional literature for trios, quartets and other small groups. Prereq: Instructor permission. (0/2)	
MU025T Music Theory and Aural Skills III	4	MU132T Intermediate Piano/Keyboard Harmony	2
Continues Music Theory and Aural Skills II. Prereq: MU024T. (4/0)		Continues the skills taught in Beginning Piano. Students improve ability to transpose at sight, to "fake" harmonies to a given melodic line and to sight read at the keyboard. Helpful in preparing music majors to take the piano proficiency exam. Prereq: MU019T or instructor permission. (0/4)	
MU034T Beginning Guitar	2		
Designed to teach beginning guitar in a group situation. The basic skills and vocabulary are taught and developed into the technique needed to perform music. Simple, familiar folk and popular songs are used to develop these skills and techniques. (0/4)			
Applied Music	1		
For each hour of credit, the work in applied music requires 10 lessons during the quarter. Unless otherwise directed by the department head, these lessons are on a weekly basis. It is possible for a student to enroll for two hours of the same instrument with the permission of the department head. The appropriate faculty member determines the level of the student's qualification by audition and/or previous study in the instrument or vocal area. The following are the instrument areas. Each represents one hour of credit. (.5/0)			
MU101T Organ		MU111T Coronet-	
MU102T Piano		Trombone	
MU103T String Bass		MU112T French Horn	
MU104T Cello		MU113T Saxophone	
MU105T Viola		UM114T Bassoon	
MU106T Violin		MU115T Clarinet	
MU107T Percussion		MU116T Oboe	
MU108T Tuba		MU117T Flute	
MU109T Baritone		MU118T Guitar	
MU110T Trombone			

NS: NURSING

NS001U Changing Patterns of Health Care and Nursing (ADN)	2
Focuses on changing patterns of the health care delivery system and the complex team relationships that affect the quality of health service. Prereq: NS008U. (2/0)	
NS002U Metrology	1
Uses a programmed instruction text to assist learning of conversion and application of apothecary, metric and household systems of measurement. A nursing core course (pass/no-credit evaluation). (1/0)	

NS003U Nursing I (Fundamentals of Nursing) 9

Focuses on functions of the nurse in beginning clinical practice and the behavioral changes required to implement fundamental care for all patients and/or residents (care, comfort, safety, nutrition and elimination). The patient as an individual and the physical-emotional-cultural relationships also are studied. Students with reading and/or mathematics deficiencies may be required to enroll in the personal achievement courses. (5/8)

NS004U Nursing II (Introduction to Medical-Surgical Nursing) 10

Continues Nursing I with focus on fundamental nursing knowledge and techniques for the care of all patients. Special emphasis is on the nursing care of patients having surgery. Fluid and electrolytes, oxygen, nutrition, pharmacology and elimination are stressed. Concepts of stress in self and others, death as a progressive, individual process, health care and health promotion are included. A nursing core course. Prereq: NS003U, NS002U, NS013U and BY006U. (5/10)

NS005U Nursing III (Maternal and Child Nursing) 12

Focuses on physical and mental changes occurring during pregnancy and the birth process. The study of the needs of the ill child in relation to the well child is emphasized. Includes identification of community health agencies and services through study and visitation. A nursing core course. Prereq: NS004U. (5/14)

NS006U Nursing IV (Medical-Surgical Nursing) 13

Focuses on nursing care of the patient with healing problems requiring hospitalization. Principles underlying nursing care and nursing techniques are learned with focus on the nursing process. Prereq: NS005U. (5/16)

NS007U Nursing V (Medical-Surgical Nursing) (ADN) 12

Focuses on the systematic application and analysis of care given to, for and with the hospitalized person with more complex medical-surgical health problems. Supportive and therapeutic modalities are continued throughout the nursing care. Includes fluid and electrolytes, pharmacotherapeutics, surgery and diet. Prereq: NS006U. (4/16)

NS008U Nursing VI (Psychiatric Nursing) 10

Focuses on the care of persons with emotional problems utilizing the nursing process. Principles relating to communication, the nurse-patient relationship and psycho-social needs are applied to the nursing care. The role of the nurse in caring for patients in various settings and in coordination with other professionals is explored. Attitudes, values, feelings and emotions as present in all persons and as an integral part of all interpersonal relationships are used in the continuing development of a philosophy of human caring in nursing. Prereq: NS007U. (5/10)

NS009U Nursing VII (Advanced Maternal and Child Nursing) (ADN) 12

Focuses on the care of obstetrical, newborn and pediatric patients. Nursing content is focused on the care of patients with complications. The psycho-social and learning needs of persons at the various stages of development. Complex health problems are explored in depth. Specific nursing measures are developed, which are utilized in planning, implementing and evaluating nursing care for the patient and family. Prereq: NS008U. (4/16)

NS010U Nursing VIII (High Priority Care and Management Principles) 16

Focuses on the role of the nurse in planning, implementing and evaluating nursing care for groups of patients and those requiring priority care utilizing the nursing process. The student is assisted with the transition to the nurse practitioner role. The team-leading method of patient care is studied in relation to managerial skills. Prereq: NS009U. (4/24)

NS011U Nursing IX Seminar 2

Focuses on the legalities and guidelines within which the nurse's patient care responsibilities are defined by the law and by nursing practice. Prereq: NS009U. (2/0)

NS012U Advanced Placement Seminar (ADN) 1

Open to advanced placement nursing students to explore the role expectations of the associate degree nurse, develop skills in problem-solving, communication, self-evaluation and self-directed learning. (1/0)

NS013U Normal Nutrition 2

Designed to provide the foundation of knowledge of normal nutrition necessary to application of nutritional therapy in the nursing care of the patient with special nutritional needs. A nursing core course. (2/0)

NS017V PN Nursing Seminar (LPN) 2

Deals with the legal and ethical implications and responsibilities of the licensed practical nurse. Consideration is given to the rights and privileges of the patient. A nursing core course. Prereq: NS005U. (2/0)

OE: OFFICE EDUCATION**OE001T College Shorthand I 4**

Presents shorthand theory and develops the student's ability to take dictation consisting of basic vocabulary. For students with no knowledge of shorthand, or instructor's approval. (3/2)

OE002T College Shorthand II 4

Offers a review of shorthand theory and continues to develop shorthand dictation ability on gradually increasing vocabulary levels. Introduces typewriter transcription. Prereq: OE001T or instructor's approval. (3/2)

OE003T College Shorthand III 4

Emphasizes increased rate of dictation with emphasis on developing the student's ability to transcribe difficult material from shorthand notes and to polish related transcription skills. Prereq: OE002T or instructor's approval. (3/2)

OE004T College Shorthand Transcription 3

Continues shorthand sequence with emphasis on increasing the student's ability to transcribe difficult material from shorthand notes and to polish related transcription skills. Prereq: OE003T or instructor's approval. (2/2)

OE006T College Typing I .5-3

Consists of modules 1 through 6. Module 1 covers the alphabetic keyboard; Module 2, the number keys; Module 3, beginning tables; Modules 4 and 5, personal and business letters; and Module 6, manuscripts. May begin with Module 1 or Module 3. Speed goal is 35 wpm. (0/1-6)

OE007T College Typing II .5-3

Consists of Modules 7 through 12. This sequence begins with a thorough review of Modules 1 through 6 and is designed to improve the knowledge and skill developed in these modules. Includes learning additional letter styles as well as more complex manuscripts, tabulations and business forms. Speed goal is 45 wpm. Prereq: OE006T or instructor's approval. (0/1-6)

OE008T College Typing III .5-3

Consists of Modules 13 through 18. This sequence is designed to develop expert typing skill and knowledge and is primarily for the office education major. Begins with a review of previous instruction. Offers an opportunity for extensive practice of very difficult material. Concludes with off-style projects. Speed goal is 55 wpm. Prereq: OE007T or instructor's approval. (0/1-6)

OE009T Electronic Office Machines 2-3

Provides for integration of basic mathematics and office machines. Mathematical concepts are applied to the operation of electronic calculators. Introduces the use of micro-computers. Prereq: Knowledge of basic mathematics. (1-2/2-2)

OE010T Filing Systems 2

Teaches rules for alphabetic, numeric, geographic, subject and chronological filing methods with introduction to storage and retrieval procedures. (2/0)

- OE011T Administrative Office Procedures 4**
Integrates the skills, knowledges, and personal qualities necessary for an administrative secretary to perform the operational and supervisory functions for today's office. Provides simulated office activities, problem-solving techniques and decision-making experiences, with special emphasis on creativity and professionalism. Prereq: OE007T, OE002T or instructor's approval. (3/1)
- OE012T College Typing IV .5-3**
Provides practice in developing advanced typewriting production skills in a structured class. Includes training on electronic typewriter. Also available on an individualized office simulation basis as Modules 19 through 24. Speed goal is 65 wpm. Prereq: OE008T or instructor's approval. (0/1-6)
- OE038T Electronic Typewriter .5**
Consists of learning how to operate an electronic typewriter and applying the automated features to type business applications. Prereq: OE007T (0/1)
- OE041T Automated Typing I 1**
Consists of Module 26. Designed to teach the basic operations of the memory typewriter in order to complete beginning text-editing tasks. (0/2)
- OE042T Automated Typing II 1**
Consists of Module 27. Designed to apply the text-editing features of the memory typewriter to advanced production typing projects. Prereq: OE041T (0/2)
- OE043T Automated Typing III 1**
Consists of Module 28. This course provides hands-on experience with a stand-alone non-display word processor. Prereq: Permission from the instructor. (0/2)
- OE044T Records Management 2**
Introduces principles governing record retention, storage and retrieval methods, micrographics, electronic media, and selection of records equipment and supplies. Prereq: OE010T or placement test. (2/0)
- OE045T Keyboarding 1**
Designed for students who wish to learn touch typing and the correct techniques for operating the alphabetic/numeric keys. This course is especially recommended for the person who desires faster input speed on a microcomputer. (1/0)
- OE001U Office Procedures I 4**
Provides for an understanding of the concepts, terminology, skills and procedures leading to realistic preparation for office employment. Instruction includes units on ethics, professionalism, telephone, mail, meetings, travel, reprographics, resources, references, supplies and telecommunications. Students prepare a comprehensive resource manual. Prereq: OE006T. (4/0)
- OE002U Office Procedures II 4**
Provides simulated office activities and problem-solving situations that develop and apply a wide range of office skills. Students are rotated through different office positions and undergo realistic patterns of interaction, which will better prepare them to perform day-to-day operations, to develop self-confidence and to cultivate the personal traits and the human relations skills necessary for success in office occupations. Prereq: OE007T. (2/4)
- OE005U Business Spelling/Proofreading 2**
Provides instruction in spelling and proofreading skills through classroom presentations, drills, application exercises, and self-paced learning activities from taped materials. (2/0)
- OE007U Office Procedures (OPA) 2**
Develops procedures necessary to assist the orthopaedic surgeon and related personnel with care of patients in the office environment. Includes communications procedures, inventory management, ordering orthopaedic shoes and adjustments, and applied pharmacology. (2/0)
- OE009U Medical Record Science II 3.5**
Emphasizes the role of the medical record professional with ancillary departments and the medical staff. Includes accrediting agencies in the health care field, organization of medical record departments, and trends in health care as related to medical record departments. Prereq: OE015U. (3/1)
- OE010U Nosology 4.5**
Provides instruction in the use of approved disease and procedure classification systems. Emphasizes coding and payment assignment and explores specialty coding systems. Prereq: BY006U, BY112U, OE009U. (4/1)
- OE011U MRT Practicum 2-13**
Students are assigned practical experience in the medical record area of an affiliating agency. The practical experience progresses from basic functions and procedures to the more technical aspects of medical records. Students gain experience in medical record analysis, filing, storage, coding and indexing, analysis of statistical data, quality assurance, medical record management and other medical record functions. Prereq: Determined by program coordinator. (1/3-35)
- OE012U Medical Record Science III 4.5**
Emphasizes quality assurance activities including utilization review and patient care evaluation. Prereq: OE009U. (4/1)
- OE013U Documentation of Medical Records 3.5**
Includes the requirements for completion of medical records in various health care facilities. Students analyze medical records for completeness, accuracy and abstracting. Computers are used to abstract information from the medical record including payment and statistical data for analysis. Prereq: OE010U, OE009U. (3/1)
- OE014U Legal Aspects of Medical Records 2**
Enables the student to know what medical information can be released to proper authorities—proper release of information from the medical records. (2/0)
- OE015U Medical Record Science I 4**
Surveys the health history of medical science and the profession. Includes admission techniques, content of medical records, numbering and filing systems, and retention of medical records. Also covers indexes and registers, and correspondence procedures. (4/0)
- OE016U Medical Secretarial Machine Transcription I 3**
Develops transcription skills with emphasis on medical terminology and gives practice in transcribing medical letters, forms and reports. The course provides a review of English grammar as used in medical reports and introduces students to medical case histories, consultation reports, discharge summaries, x-rays, and reports used in specialized medicine (e.g. pediatrics, ophthalmology) (2/2)
- OE017U Medical Secretarial Office Procedures 4**
Designed as a comprehensive advanced office simulation. Basic secretarial skills are combined with skills needed to perform secretarial duties in a doctor's office, hospital record room or specialized hospital department. Prereq: OE007T or approval of instructor. (4/0)
- OE018U Medical Typing 2**
Concentrates on typing forms, letters and reports common to physicians' or hospital offices. Provides for an introduction to transcribing machines. (1/2)
- OE019U Machine Transcription 3**
Teaches efficient use of transcribing machines. Emphasis is placed on application of English skills and formatting decisions in transcribing realistic office-style dictation. Prereq: OE007T. (2/2)
- OE020U Office Careers 1-2**
Provides an atmosphere to analyze the career opportunities available to clerical and secretarial workers. Special emphasis is placed on tours, personal development and projects related to individual interest areas. (1-2/1-2)

OE021U Medical Secretarial Machine Transcription II 3

Develops speed and accuracy in transcribing reports of medical specialties and introduces students to problem-oriented medical records used in many hospitals and clinic offices. Physicians' dictation is used in this class. Prereq: OE016U. (2/2)

OE022U Medical Record Science IV 4

Designed to give the student an understanding of the function of accrediting agencies in the health-care field. Other units include use of medical records in long-term care facilities, trends in the health-care field, problem-oriented medical records and special registries. Prereq: OE012U. (4/0)

OE025U Certified Professional Secretarial Review 1-5

Reviews the six areas of the Certified Professional Secretary exam: Behavioral Science in Business, Business Law, Economics and Management, Accounting, Office Administration and Communication, and Office Technology. (1-5/0)

OE026U Word Processing I 3

Introduction to modern word processing concepts and careers. Provides basic hands-on training on current text-editing equipment. Prereq: Typing speed of 45 wpm. (1/4)

OE027U Medical Transcription 5

Develops the skill of transcribing with emphasis on the use of medical terminology and medical reports. Provides information on and helps students realize the importance of confidentiality in transcribing of medical reports. Students prepare an evaluation instrument which is tested on classmates. (4/2)

OE028U Information Processing Systems Management 4

Includes units on organizing, implementing, and managing a word processing center; evaluating word processing equipment; and analyzing work measurement methods. Prereq: OE031U. (4/0)

OE030U Professionalism 1

Develops and recognizes leadership in the professional association for office education students. Prereq: Instructor's approval. (0/2)

OE031U Word Processing Production 2

Covers the application of basic word processing skills using text-editing and dictation equipment. Simulates the word processing cycle. Prereq: OE026U. (0/4)

OE032U Word Processing II 3

Provides further development of word processing techniques. Advanced applications on text-editors include the following: stat math, forms and variable entry, stored keystrokes, records processing, and equations. Prereq: OE026U. (1/4)

OE002V Law Office Procedures 3

Designed as a finishing course in specialized legal secretarial training, combining skills previously learned in legal typing and terminology, shorthand and office procedures. Through lectures, class discussions, simulated projects, field trips and panel discussions, students are acquainted with typical law office procedures applicable to different areas of legal work: probate work, real estate transactions, civil actions, etc. Prereq: OE005V, OE006V. (3/0)

OE003V Legal Dictation 3

Develops student's ability to take dictation of difficult materials and to transcribe in legal document form. Prereq: OE003T, OE006V. (2/2)

OE004V Legal Machine Transcription 3

Develops student's ability to transcribe legal materials in document form from machine dictation. Prereq: OE006V, OE019U or instructor's approval. (2/2)

OE005V Legal Typing 3

Provides instruction in typing information on printed legal forms and in completing legal instruments and documents common to local jurisdictional practice. Equal emphasis is placed on typing speed and accuracy of production work. Prereq: OE008T. (2/2)

OE006V Legal Terminology 3

Provides instruction in the correct definitions, spelling and application of approximately 400 terms commonly used in legal secretarial work. (2/2)

OE012V Medical Secretarial Typing 3

Concentrates on typing medical letters and forms, case histories, consultation reports, operative records, discharge summaries, x-ray and EKG reports and the preparing of abstracts and articles for medical journals. Prereq: OE008T. (2/2)

OE031V Business Skills (Insurance) 2

Promotes a working knowledge of basic medical insurance programs and forms utilized in record keeping of insurance claims. (2/0)

OE032V Medical Insurance Seminar 1

Introduces preparation of basic medical insurance claims and provides for a basic insurance workshop from Blue Cross and Blue Shield, Title XIX and Medicare personnel. (0/2)

OE033V Legal Terminology Review 2

Provides review and reinforcement of terminology as applied to local jurisdictional usage. Prereq: OE006V. (2/0)

PD: PERSONAL DEVELOPMENT**PD002D Personal Achievement Math 1-2**

Designed on an individualized basis to help students master the basic skills of mathematics as well as to help students who need a review of math skills. The course may cover any one or all of the following modules: whole numbers and fractions, whole numbers and decimals, ratios, proportion, percent, pre-algebra, basic geometry, metric system and technical math. (0-2/4)

PD003D Personal Achievement Reading 1-2

Designed to measure the student's present reading skills and from that measurement provide an individualized program for the improvement of skills. The course is divided into three main areas: pronunciation, vocabulary and comprehension. The reading materials utilized are related to the student's interests. (0-2/4)

PD004D Personal Achievement Basic Writing 1-2

A course designed to assess a student's writing strengths and weaknesses. The student receives instruction on an individualized basis in the areas of skill needs while building on skills already mastered. The course is divided into two parts: knowledge about language and experience using the language. The course prepares the student to take Composition I and may also be supplemental support for those students enrolled in Composition I, Composition II, Communications Skills and/or other courses. (0-2/4)

PD006D Orientation to American Culture 1

Presentation of information that will help the student function in American society and at Kirkwood Community College. Topics to be covered include American institutions and customs, and the educational system. Student activities include conversation, oral reports, notetaking and quizzes. This course is required during the first term for those enrolled in English as a Second Language.

PD007D Personal Achievement Basic Study Skills 1

Basic study skills include instruction and practice in the following areas: time schedule and management, using textbooks, systematic study attack methods, notetaking, concentration and retention, test-taking and listening skills. This class is six weeks in length. (2/0)

PD012D Job Seeking Skills 1

Provides students with training in resume preparation, self appraisal, job searching, application and interviewing. (.5/1)

PD013D Spelling Techniques 1

Designed to help students improve their spelling ability. Teaches the most commonly used and misspelled words in English. The course is individualized (6 levels) and self-paced. Uses the test-study-test method, a success-oriented program, based on 50 years of research in the teaching of spelling. (0/2)

PD014D Personal Achievement Math (Pre-Algebra) 3

Pre-algebra is taught on a small group basis for students planning to take Beginning Algebra. Reviews fractions, decimals, ratios and percents. Introduces exponents, operations with negative and positive number, combining algebraic expressions and solving simple equations. (2/2)

PD015D Techniques for College Success 2

Designed to initiate the distant learner not only into the Kirkwood educational experience but into the effective use of the TV delivery system. The student receives specific instruction in TV learning techniques, becomes acquainted with Kirkwood degree and program requirements, and learns how to function successfully as a KCC student. The course provides assessment of basic study, reading, writing and math skills. (1/2)

PD016D Personal Achievement Math (Lec/Lab) 2

Designed on a small group basis to help students master the basic skills of mathematics as well as to help students who need a review of math skills. The course may cover any one or all of the following modules: whole numbers and decimals, ratios, proportion, percent, pre-algebra, basic geometry, metric system and technical math. A one-hour weekly lecture on specific topics in math is required. (1/2)

PD017D Personal Achievement Writing (Lec/Lab) 2

Designed to assess a student's writing strengths and weaknesses. The student receives instruction on an individualized or small group basis in the areas of skill needs while building on skills already mastered. The course is divided into two parts: knowledge about language and experience using the language. A one-hour weekly lecture is required. (1/2)

PD018D Personal Achievement Reading (Lec/Lab) 2

Designed to measure the student's present reading skills and from that measurement provide an individualized program for the improvement of skills. The course is divided into three main areas: pronunciation, vocabulary and comprehension. A one-hour weekly lecture on specific topics in reading is required. (1/2)

PD019D Personal Achievement Reading-Writing (Lec/Lab) 3

Intended for those student who need to build their basic skills in reading and writing. Class format includes group lectures as well as individualized lab work. Topics covered include sentence structure, punctuation, paragraph development, vocabulary, comprehension and textbook reading. Typical assignments require the student to read and write in order to strengthen basic skills in these areas. (2/2)

PD020D Agricultural Experience (Introductory) .5-12

Provides a student-centered format for securing basic background-type farm experiences. Students entering Farm and Ranch Technology and Agribusiness Technology programs, as well as some other agricultural technology programs, are expected to perform selected minimum competencies at or

near the beginning of the programs. Units covered are careers, machinery, animal husbandry, crops, soils, buildings and facilities, economics and other topics. (.25-6/.5-12)

PD021D Occupational Work Experience Assessment 1-4

Designed to assist the student in preparing the necessary documentation of specific learning outcomes of past life or work experiences relevant to their current program of study that were gained in a nonacademic setting. This course should be utilized when such prior learning may not easily be demonstrated through written proficiency exams or CLEP. Grading is on a pass/fail basis. (1-2/0-4)

PD001T Group Dynamics 2

Emphasizes small group procedures for personal development in education. Structured group procedures and micro-counseling skills supplement materials relevant to academic adjustment and success. (2/0)

PD005T Human Potential Lab 2

Designed to allow the student to become involved in group interaction in an atmosphere that assists in the formation of a realistic, positive self-concept. Emphasis is on the personal growth of the individual and development of attributes important in establishing harmonious interpersonal relationships. (2/.5)

PD010T Lifestyle Planning .5-1

Assumes that the student is raising some basic questions about life and/or work, or the circumstances have raised these questions. Its purpose is to help identify the direction the student wants to take in life and work, and then move in that direction. (.5-1/0)

PD012T Assertive Behavior Training 2

An introduction to the assertiveness model for communication and behavior. Identification of individual communication problems and practice in assertive communication in small groups are the focus of this course. (1/0)

PD013T Career Decision Making 3

Designed to provide a grasp of the process of making a career decision. This is to be accomplished by identifying the individual's desires, relating these to the requirements of various career fields, and developing an understanding of the trade-offs involved in making a career decision. (3/0)

PD014T Financial Management: Independent Study 1

This course is designed to prepare students to be effective money managers. The study examines personal values, long and short range goals, and priorities. The course also deals with development of a workable budget, record keeping, savings and credit. Permission of instructor required. (1/0)

PD800T Career Exploration: Independent Study 1-3

An individualized, career process which focuses first on broadening the individual's knowledge of personal skills, talents, interests and strengths. The individual is then assisted in matching these to a career direction by extending his/her knowledge of career choices and then assisting in decision strategies. The student chooses up to three of the five modules offered, with the assistance and approval of the instructor. (0/2-6)

PD001U Personal Development 1-2

Provides the study and application of techniques for improving personal appearance, mental attitude, poise and personality, such as hair care, skin care, wardrobe selection, weight control and personality development. (1-2/0)

PD006U Occupational Work Experience Assessment 1-4

Designed to assist the student in preparing the necessary documentation of specific learning outcomes of past life or work experiences relevant to their current program of study that were gained in a non-academic setting. This course should be utilized when such prior learning may not easily be demonstrated through written proficiency exams or CLEP. Grading is on a pass/fail basis. (1-2/0-4)

PH: PHYSICS/ASTRONOMY**PH008T 21st Century Introductory Physics 4**

A one-quarter introductory course with lab experience. Provides basic work with scientific reasoning and with fundamental concepts in classical and modern physics. Recommended for students who plan to take college or general physics, as well as all liberal arts students desiring an introductory science course. (3/2)

PH001T College Physics I 4

Open to all students wanting a non-calculus level physics course. Designed primarily for students interested in pre-medical, pre-dental, pre-pharmacy, pre-forestry or pre-teacher education programs, and all who seek to meet science requirements in their professional programs. Emphasizes introductory physics concepts and methods of scientific reasoning. First quarter of this sequence treats the structure and properties of matter, descriptions of motion, Newton's Laws, conservation laws, rotation and vibration, and unifying principles. Prereq: Introductory algebra course in high school or college. (3/2)

PH002T College Physics II 4

Continues Physics I and covers wave motion, liquids, gases, the gas laws, heat and the heat laws of thermodynamics. Applications to the life sciences are integrated with material throughout the quarter. Prereq: PH001T. (3/2)

PH003T College Physics III 4

Continues College Physics II, and includes static and current electricity, electromagnetism, optics and optical devices, and nuclear physics. Applications to the life sciences are integrated with material throughout the quarter. Prereq: PH002T. (3/2)

PH004T General Physics I 5

Designed primarily for students in engineering, mathematics and physics, as well as those needing a problem-solving physics course using calculus-level mathematics. The first quarter of this three-quarter sequence covers the topics of vectors, Newton's Laws, momentum, energy and rotational dynamics with applications to engineering problems. Prereq: MA035T. (4/2)

PH005T General Physics II 5

Continues General Physics I. Includes the subjects of oscillatory and wave motion, gas laws, thermal properties of materials and the laws of thermodynamics. Quarter ends with an introduction to electricity. Prereq: PH004T and MA036T concurrently. (4/2)

PH006T General Physics III 5

Continues General Physics I and II. Includes work in current electricity, electromagnetism, waves, optics and application of physics to current problems. Prereq: PH005T. (4/2)

PH007T Astronomy 4

An introductory course centered around a variety of topics including the universe and the earth in space, properties of stars, nuclear energy sources, the solar system, quasars, black holes and life in the universe. Laboratories and observations are incorporated. (3/2)

PH011T Medical Physics 4

Designed for students enrolled in respiratory therapy and pre-nursing. Deals with theory and applications of the gas laws, fluid dynamics, hydrostatics, simple machines and electricity as they apply to respiratory therapy and the life sciences. (3/2)

PH013T Project: Universe (Introduction to Astronomy) 3

A basic introduction to astronomy. Via this television course, students are given a comprehensive introduction to the origin, characteristics and evolution of the solar system, the stars, galaxies and the universe as a whole. (1.5/0)

PH800T Independent Study: Physics 1-4

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Offers advanced work in the topics of general physics. The work is an extension in breadth and depth of the materials covered in PH004T, PH005T and PH006T. Prereq: General Physics and consent of instructor. (1-4/0)

PH001U UTC Physics I 4

Studies the concepts of force, parameter, rate, resistance and energy loss, and introduces magnetism. (This course uses UTC format, that is, all topics are presented with cross-disciplinary applications: mechanical, fluid, electrical and thermal.) Prereq: EL003U. (3/2)

PH002U UTC Physics II 4

Continues UTC Physics I. Studies the concepts of capacities, inertance, and energy storage. Includes energy transfer and storage in resistive-capacitive-inertive systems. Prereq: PH001U. (3/2)

PH004U Technical Chemistry and Physics I 3.5

Includes study of weight and measurements, charts, proportions, chemical and physical properties, and reactions relating to the mixing, gelation and solidification of dental materials. Includes the laws of physics as they relate to dental laboratory fabrication. (2/3)

PH005U Technical Chemistry and Physics II 4

The study and application of principles contained in Technical Chemistry and Physics I. (1/6)

PH006U Technical Physics III 2

Studies forces, stresses and support relating to anatomical structures, dental materials or designs. Covers principles of splinting and broken stress and color or optical illusions created in restorations. Applicable to the construction of crowns, and fixed or removable partial dentures. (1/2)

PH008U UTC Physics III 4

Continues UTC Physics II. Studies the concepts of forced oscillation in resistive-capacitive-inertive systems, waves and radiated energy. Prereq: PH002U. (3/2)

PH009U Applied Physics I 2-4

Studies pressure, work, power, energy, thermodynamic processes, and psychrometric properties of air. (1-3/2)

PH010U Applied Physics II 4

Studies mechanical power transmissions, friction, lubrication, fluid power, and light energy. (3/2)

PH011U Mechanisms 2

Studies the theory of mechanics and machines. Included are topics on forces and their effects, balance, equilibrium, gravitation, motion and mechanical movements. Also covered are simple machines, mechanical power transmission, friction and lubrication, and pressure. (2/0)

PH012U Physics (Unified) 6

Studies principles of force, work, rate, momentum, resistance, power, potential and kinetic energy as related to mechanical, fluid, electrical and thermal devices. (2/8)

PR: PHILOSOPHY AND RELIGION**PR001T Introduction to Philosophy 4**

Examines the foundations of philosophical thought in the West from Descartes to the present day, with emphasis on problems of ethics, aesthetics, epistemology and metaphysics. (4/0)

PR002T Introduction to Religion 4

Includes a consideration of the great religious traditions. Basic forms, beliefs and functions of religion are examined in relation to society. (4/0)

PS: POLITICAL SCIENCE**PS002T American Government 4**

Studies American policy based on a close examination of the processes of decision making. Emphasis is placed on voting behavior and citizen interaction within the system. Empirical data is employed as a basis for many analytical techniques. (4/0)

PS004T International Relations 4

An analysis of governments interacting in political, security and economic dimensions. Emphasis is on the sources of foreign policy. Problems are examined through current world concerns. (4/0)

X PS008T Comparative Governments 4

Examines political institutions, problems, processes and ideologies in selected countries. "First," "Second" and "Third World" states will be studied and their interrelationships examined. (4/0)

PS800T Independent Study: Political Science 1-4

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairperson. (1-4/0)

PS002U Citizen's Role in Government 3

Provides an experience in community politics. Students develop an understanding of community leadership and organization, community governmental process and ways they can participatively influence government as a citizen or a business entity. (3/0)

PS003U Political Action 2

Analyzes political events and policies and develops the knowledge and skills needed for meaningful political participation. Examines the electoral process, the impact of government on business, lobbying, the media and other topics. (2/0)

PY: PSYCHOLOGY/EDUCATION**X PY002T General Psychology 4**

Provides an introduction to the study of human and animal behavior with emphasis on such topics as learning, motivation, personality and abnormal psychology. Wherever possible, psychological theories and principles are utilized to explain and predict behavior. (4/0)

PY004T Educational Psychology and Measurement 4

Considers and evaluates the following items: factors of physical and mental development; child and adolescent characteristics as they may effect the general learning situation; problems of classroom management, construction, use, interpretation and evaluation of standardized and teacher-constructed tests. Prereq: PY002T. (4/0)

PY005T American Public Education 4

Explores the multimillion dollar education industry that touches and shapes the lives of all of us. Examines the impact of schooling on the person in terms of individuality, creativity, self-concept and socialization. Students examine current beliefs about education and its effectiveness. (4/0)

PY007T Field Experience/Education I 4

Offers experience in classroom or education settings in which students serve as teacher aides. Student spends 10-12 hours per week at a practicum site working under the supervision of a teacher. Students may choose to work in preschools, elementary or secondary schools. Prereq: Consent of instructor. (0/10-12)

PY009T Introduction to Teaching 4

An introduction to the concerns and activities of beginning teachers. The primary focus is on teaching in public schools, K-12, though many topics are applicable to any learning situation. (4/0)

PY020T Psychology of Growth and Development: Conception to Senescence 4

Examines the process of human development with special emphasis on the formative years birth to adolescence. Topics range from socialization and personality development to identity crisis and death. Prereq: PY002T. (4/0)

PY024T Exceptional Child 4

Studies children who are exceptional in the context of mental, emotional, physical and social development. The adult manifestations of the above developmental patterns also are examined. Prereq: PY002T. (4/0)

PY025T The Young Child 4

Characteristics and development of the young child are examined via current literature on early childhood. Observations and readings provide students with an understanding of educational strategies relating to the developing child. (4/0)

PY026T Handicapped Services Orientation 2

Examines the roles of paraprofessionals within various basic delivery settings. Basic terminology dealing with mental, learning, physical and behavioral disabilities is presented. Discussions are centered around situations that students may face while in a practicum. Following visits to local agencies and schools, the student selects a practicum placement for the following quarter. (2/0)

PY027T Observation and Management of Behavior 4

Develops skills needed to work as a paraprofessional in educational and community agencies. The course consists of four modules: Observation of Behavior, Developing and Maintaining Behavior, Behavior Contracts and Token Economies, and Eliminating and Decreasing Behavior. (4/0)

PY028T Mainstreaming and Mild Disabilities 4

Develops skills needed to work as paraprofessional with students having mild mental, behavioral and learning disabilities. The course consists of four modules: The Special Education System, Developmental Activities, Teaching Academic Skills, and Communication Skills. (4/0)

PY029T Handicapped Services Practicum and Seminar I 4

Places the student in an agency or educational setting working as a paraprofessional. Students develop specific objectives related to program competencies. Bi-weekly seminars are held to assess progress and discuss student experiences. Prereq: PY026T and one Skill Development course. (1/9)

PY030T Handicapped Services Practicum and Seminar II 8

Places the student in an agency or educational setting working as a paraprofessional. Students develop specific objectives related to program competencies. Bi-weekly seminars are held to assess progress, discuss student experiences, practice job-interviewing skills and prepare resumes. Prereq: PY026T and two Skill Development courses. (1/21)

PY031T Physical and Multiple Disabilities 4

Develops skills needed to work as a paraprofessional in educational and community settings. The course consists of four modules: Physical Health and Self Management, Multiple Disabilities, Psychological Aspects of Disabilities, and Community Living. (4/0)

PY033T Teacher Associate Seminar 1

Stresses the practical aspects of the teacher associate's role in an educational environment. Responsibilities, expectations and attitudes on the job will be examined. Class work includes projects in story reading, bulletin boards, motivation, classroom management and learning games. (1/0)

PY037T Field Experience/Education II 4
Offers additional experience in a classroom or educational setting, from pre-school to adult education. The student spends 5 to 12 hours per week at the practicum site working under the supervision of a teacher. (0/12)

PY038T Field Experience/Education III 4
Offers additional experience in a classroom or educational setting, from pre-school to adult education. The student will spend 5 to 12 hours per week at the practicum site working under the supervision of a teacher. (0/12)

PY039T Social Psychology 4
Studies the individual in society. Topics include interpersonal attraction, person perception, group process, aggression, attitude formation and change, persuasion, conformity and deviation, and leadership. Human behavior is examined from the perspective of the experimental method. (4/0)

PY041T Psychology of Personality and Adjustment 4
Familiarizes students with the major theories of personality and examines the concept of adjustment from theoretical and clinical viewpoints. Teaches techniques for relieving stress and maintaining adjustments. Prereq: PY002T. (4/0)

PY800T Independent Study: Education 1-4
Provides readings, papers and/or basic research or other projects under the individual guidance of the staff members. Prereq: Consent of instructor and department. (1-4/0)

PY801T Independent Study: Psychology 1-4
Provides readings, papers, and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department. (Hours arranged). (1-4/0)

PY003U The Profession 1
Familiarizes students in architectural drafting with ethics and procedures. Personal appearance and human relations are also stressed. (1/0)

PY004U Human Relations 3
Covers application of psychological principles of human behavior. Designed to help students understand themselves and those persons with whom they will work. The course is adapted to the needs and interests of students depending on the program in which they are enrolled and is open to students in vocational or technical programs only. (3/0)

PY005U Psychology of Human Relations 2-4
Open to students in vocational/technical programs. The course includes a study of self-concepts and individual and group relationships and adjustment factors, and considers the special needs of persons at various ages from early childhood through adulthood. (2-4/0-2)

PY007U Sales Psychology and Human Relations 3
Explores the human motivational and behavior factors. Emphasis is placed on understanding human behavior from a supervisor's point of view. Basic fundamentals of salesmanship are studied, with emphasis on successfully approaching professional people. (3/0)

PY001V Human Relations and Shop Supervision 1
Covers organizational principles and patterns of shop leadership. (1/1)

RE: RECREATION

RE001T Foundations of Recreation 4
Designed to introduce the basic philosophical, historical and scientific foundations and development in leisure and recreation, the function and setting of organized recreation, and a survey of organizations and agencies concerned with recreation. (4/0)

RE003T Recreation Leadership 4
Designed to enhance leadership skills in the student by examining various techniques used in the recreation and educational fields. (4/0)

RE006T Bowling 1
An activity course designed to improve the bowling skills of each student regardless of the degree of previous experience. Qualified instructors, instructional lanes and instructional films will be available, in addition to hours of actual bowling experience. (0/2)

RE013T Orientation to Community Recreation Agencies 3
Provides the student with an opportunity to visit local facilities that deliver leisure services. Includes lectures by agency staff members describing their role in the community. (2/2)

RE015T Theory of Coaching Basketball 3
Introduces the coaching profession, with specific emphasis on basketball fundamentals, strategy, organization, public relations, and coaching psychology. (3/0)

RE016T The Nature of Backpacking 3
Provides students with opportunities to learn the skills of hiking and living in the backcountry. (3/0)

RE017T Recreation Activities Project 1-4
Provides an opportunity to participate in various recreation experiences, including backpacking, canoeing, whitewater rafting and others. (0/2-8)

RE018T Recreation for Special Populations 4
Designed to examine the recent trend in recreation toward serving the physically and mentally handicapped as well as the elderly. (4/0)

RE019T Fundamentals of Golf 1
Develops the basic skills necessary for a beginning golfer. (0/2)

RE020T Beginning Archery 1
Familiarizes students with the fundamentals of archery. Correct methods of bow stringing, safety and short-range target practice are stressed. Equipment is provided. (0/1)

RE021T Sports Participation 1
Designed to give credit for knowledge and skills gained through varsity sports participation. Students may earn one credit per term up to a maximum of six credits. Although participation in a single sport can earn only one credit per year, a second credit can be earned for additional year's participation in the same sport. Prereq: Permission of the instructor. (0/2)

RE022T Administration of Physical Education and Athletics 3
Examines the policies, procedures and current problems associated with the administration of physical education and athletic programs, with major emphasis on the secondary level. (3/0)

RE023T Prevention and Care of Athletic Injuries 3
Introduces conditioning programs and training methods that tend to prevent athletic injuries. Provides basic skills in injury evaluation and acquaints the student with treatment procedures, while providing practical experience in taping techniques. (2/2)

RE024T Beginning Tennis 1
Introduces the basic skills (forehand, backhand, service), strategy and rules of tennis. (0/2)

RE025T Recreation Programming 4
Provides the student with knowledge in setting up and administering recreation classes. (4/0)

RE026T Volleyball Techniques 1
Instructs students in the basic rules and fundamentals of volleyball, including on-court participation. (0/2)

RE027T Principles and Theory of Lifetime Fitness 1
Provides students with an understanding of the value of physical fitness, the alternative methods for achieving and maintaining fitness, and actual experience in developing a personal plan for fitness. (1/2)

- RE028T Elementary Activities 3**
Familiarizes students with the methods, techniques, materials and safety concepts involved in organizing and managing an elementary activities program. Includes some lab experiences. (2/2)
- RE029T Beginning Tae Kwon-Do 1**
Provides instruction in blocking, kicking, punching and thrusting techniques. Through traditional form techniques, controlled sparring and free sparring, the student learns methods of self-defense against one or more attackers. All students are required to adhere to the tenets of Tae Kwon-Do: courtesy, integrity, perseverance, self-control and indomitable spirit. (0/2)
- RE030T Introduction to Physical Education 3**
An overview of the foundations, philosophies, history and principles of physical education. (3/0)
- RE031T Techniques of Teaching Dual Sports 3**
Covers techniques and methods of teaching badminton, table tennis and racquetball. (1/2)
- RE032T Intermediate Tae Kwon-Do 2**
Provides continued instruction from Beginning Tae Kwon-Do in blocking, kicking, punching and thrusting techniques. Through intermediate form techniques, controlled sparring and free sparring, the student learns additional methods of self defense against one or more attackers. Prereq: RE029T. (0/4)
- RE033T Advanced Tae Kwon-Do 2**
Advanced instruction in blocking, kicking, punching and thrusting techniques. Through advanced form techniques, controlled sparring and free sparring, the student learns advanced methods of self-defense against one or more attackers. Prereq: RE032T. (0/4)
- RE034T Techniques of Teaching Individual Sports 2**
Covers techniques and methods of teaching archery, golf and bowling. (1/2)
- RE035T Techniques of Teaching Team Sports 2**
Covers techniques and methods of teaching secondary basketball, softball and track skills. (1/2)
- RE036T Beginning Racquetball 1**
Introduces students to fundamentals and rules of the sport. (0/2)
- RE037T Intermediate Racquetball 1**
Teaches students safe play using higher level shots—singles, cutthroat, doubles. (0/2)
- RE038T Advanced Racquetball 1**
Advanced students learn competitive level skills. (0/2)
- RE039T Weight Training (Nautilus) 1**
Improves muscle tone and overall strength. Increases flexibility through full-range lifting on the Nautilus machines. Changes body composition, either by gaining or losing weight. (0/2)
- RE040T Basketball Techniques 1**
Offers development of basketball skills necessary for analyzing and demonstrating purposes in teaching and coaching. Emphasis is on fundamental mechanics and teaching progressions. (0/2)
- RE041T Officiating Softball 2**
Includes rule interpretation and mechanics of officiating for softball. (2/0)
- RE042T Officiating Basketball 2**
Includes rule interpretation and mechanics of officiating for basketball. (2/0)

- RE001U Equestricise 1-3**
Applies modern forms of recreation to enhance and develop specific parts of the body for riding. (1-3/2-6)

- RE002U Exercises for Horsemanship 1-3**
Practices the use of suppling exercises for riding. (1-3/2-6)

SO: SOCIOLOGY

- SO004T Introduction to Sociology 4**
Surveys the basic principles, concepts, research strategies and empirical findings representative of the field today. The course examines the range of sociological thought, identifies areas of specialization within the discipline, and establishes a basis for further study in the field. (4/0)
- SO005T Marriage and the Family 4**
The nature of contemporary family institutions is explored by studying the family as an ideological, demographic, historic, economic and legal entity. The marital life cycle is documented through current research. Marital dissolution and remarriage are also examined. The course emphasizes both the continuities and discontinuities in the family experience of individuals and the society as a whole. (4/0)
- SO006T Social Problems 4**
Examines objective social conditions that have been defined as social problems. Problems are viewed as consequences of given types of social organization. Social causation is emphasized. The course focuses on gaining factual and theoretical knowledge to build better explanations for the existence and persistence of social problems. (4/0)
- SO007T Criminology 4**
Surveys the nature, causes and extent of crime and delinquency; major consideration is given to various "explanations" from numerous disciplines. (4/0)
- SO008T Introduction to Cultural Anthropology 4**
Considers group life in various cultures. Involves anthropological insights relative to human behavior in a comparative perspective. Includes selected aspects of both physical and cultural anthropology. (4/0)
- SO011T Juvenile Delinquency and Deviancy 4**
Analyzes the various components of delinquency, home, school, peer group and community structure. Explores the role of therapeutic and detention centers, and the juvenile court, as well as approaches to prevention and treatment. (4/0)
- SO013T Sociology of Poverty 4**
Focuses on structured social inequality and its consequences for the life chances of the poor in the United States. Poverty is studied as one aspect of the distributive system. A general theory of the distributive system is advanced. The special concerns of low income groups are explored as a problem in distributive justice. (4/0)
- SO015T Sociology of Aging 4**
Considers many of the issues associated with the role of the elderly in our society. By analyzing current research, students investigate the attitudes, preferences and lifestyles of the aging. (4/0)
- SO800T Independent Study: Sociology 1-4**
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department. (Hours arranged) (1-4/0)
- SO001U Industrial Organization 3**
Studies the union systems in the United States. Studies wages, union policy, local and national union organizations, and the laws pertaining to the union and the employer. (3/0)

SS: SOCIAL SCIENCE

SS004T Methods of Social Research 4
Examines the basic techniques and concepts used in research in the social sciences. The emphasis is interdisciplinary, covering the major methods common to all the social sciences as well as special problems with disciplines. The course is recommended for students with advanced standing and/or strong interests in social research. Prereq: Consent of instructor. (4/0)

SW: SOCIAL WELFARE

SW005T Field Experience and Seminar I 6
Places the student as an aide in a human services agency 15 hours a week. The experience is discussed at a one-hour seminar, the purpose of which is to maximize the experience by gaining insights from other students and the instructor. These insights should enable the student to objectify his or her work experience. (1/15)

SW007T Field Experience and Seminar II 9
Provides on-the-job training for mastery of competencies of human service values, communication skills, problem solving and job skills. Prereq: Consent of instructor. (1/24)

SW009T Introduction to Human Services 4
Introduces the value base of human services and evaluates problems that can be encountered in working with people when these values conflict with client needs. Introduces the framework of the human services approach, specifically systems analysis and problem-solving techniques. Concepts of systems analysis are accompanied by applications of these concepts to problems. (4/0)

SW010T Human Service Policy and Programs 4
Investigates the relationship between social service programs and related social issues in the context of cultural conditions. Introduces historical trends in human services, as well as acquaints students with current human services available to various client groups. (4/0)

SW011T Making Observations 4
Focuses on learning the distinction between inference and behavior, and recording behaviors in a systematic way. This also includes learning the importance of environment as an influence on human behavior. Closely related competencies to be addressed are writing behavioral objectives and contracts. (4/0)

SW012T Intervention Skills 4
Includes an overview of various intervention techniques. Students also learn principles of helping interview and practice interviewing in beginning, middle and ending phases. (4/0)

SW014T An Overview of Substance Abuse 4
Provides an introduction to the problem of substance abuse. Topics include addiction process, treatment modalities, family involvement, problems of special populations, and psychology/pharmacology effects and an introduction to social psychological explanations of substance abuse. (4/0)

SW015T Substance Abuse Detection and Prevention 4
Provides the skills to identify substance abuse problems in the clientele of human service workers. Focus is on appropriate prevention and intervention techniques and referral processes. Consideration is given to the minority perspective. (4/0)

TH: THERAPY

TH001U Occupational Therapy Management Skills 2
Provides knowledge of sound equipment maintenance procedures, purchasing procedures and supplies maintenance. Also provides knowledge of rudimentary personnel management skills. Prereq: TH003U, TH005U, MS080U. (2/0)

TH002U Health-Illness-Health 10
Provides knowledge of the factors which influence/interfere with an individual's ability to function in basic life concerns such as self-care, play-leisure and work experiences. This includes knowledge of physical and psychosocial disease and disease processes. This is supplemented by practicum experience appropriate to didactic material. Prereq: BY011U. (8/6)

TH003U Therapeutic Crafts I 4
Provides knowledge and skills relating to the major crafts used in Occupational Therapy, including weaving, leathercraft, ceramics and woodworking. (1/6)

TH004U Development Processes 6
Provides a knowledge of normal physical and psychosocial development processes that affect a person throughout life. Stresses integration of the physical with the psychosocial. Prereq: PY002T. (5/2)

TH005U Therapeutic Techniques 4
Provides a knowledge of the general aspects of occupational therapy and the work environment by didactic work and field observation. Includes defining the role of the occupational therapy assistant. (4/0)

TH008U OTA Clinic C 4,8
Advanced level clinical experience emphasizing psychosocial dysfunction occupational therapy. Prereq: All O.T. courses except MS036U. (0/12,24)

TH009U OTA Clinic B 4,8
Offers learning activities in an occupational therapy clinic emphasizing the physical disability aspects of therapy. Prereq: All occupational therapy courses except MS036U. (0/12,24)

TH010U OTA Clinic A 4,8
This clinic experience encompasses pediatric developmental and/or geriatric experience. Objectives are consistent with the projected need and/or desire of the student. Prereq: All occupational therapy courses except MS036U. (0/12,24)

TH012U O.T. Theory and Techniques 5
Presents the O.T. theory, the methods and means by which the client is treated as a total person using physical and psychosocial means. Prereq: TH002U, TH003U, TH004U. (3/5)

TH013U O.T. Planning 5
Emphasizes planning for the client's therapeutic program from the evaluation process through treatment to outpatient care and the recommendations for continued health maintenance activities. Prereq: TH002U, TH003U, TH004U. (3/5)

TH014U Therapeutic Crafts II 4
Provides knowledge and skills in leathercraft, woodworking and weaving as used therapeutically. Prereq: TH003U. (1/6)

ADMINISTRATIVE STAFF AND FACULTY

Board of Directors

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