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**KIRKWOOD**  
Community College  
1988-89 Catalog

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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.

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# ***THE COLLEGE***

President's Letter  
Philosophy and Mission  
History  
Facilities  
Foundations  
Academic Calendar

# ***A Purpose in Mind***

Kirkwood Community College offers a purpose . . . a vision of the potential that lies ahead for students of all ages, interests and academic backgrounds. Since its inception in 1966, the College has grown to become a full-service educational institution situated on a beautiful 320-acre campus in southwest Cedar Rapids.

In addition to providing unique educational opportunities for students in Linn county, Kirkwood serves the six other counties in Area X through satellite learning centers linked to the main campus via microwave television classrooms. A full schedule of credit courses and continuing education classes are made available through more than 20 convenient locations.

Kirkwood Community College has long been recognized as a leader in innovation and excellence in education. In 1982, Kirkwood became the only community college in Iowa invited to join the prestigious League for Innovation in the Community College, a selected consortium of 17 of the nation's finest two-year colleges.

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 honored only three colleges in the nation with this distinction. This recognition was made possible through the commitment and dedication of Kirkwood staff and faculty who have

been diligent in their efforts to make the Kirkwood education the best education possible. Kirkwood is committed to preparing today's student for tomorrow's job market.

Through Kirkwood's own Economic Development Center and on-campus Regional Economic Development Satellite Center, the College provides customized training programs for area business 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 businesses. Through the Center, business, government and education are brought together by a commitment to productivity, profitability, and quality through a strong work force.

Kirkwood is caring, yet progressive. It's a conduit . . . preparing people for a world of exciting challenges . . . working hand in hand with area business, high schools, colleges and universities. Kirkwood is dedicated to preserving the strength of this region—its people. We hope you'll find that Kirkwood's unique approach to meeting the needs of the student and the community offers a standard of excellence for the benefit of those with goals to pursue . . . and a purpose in mind.



Dr. Norman Nielsen  
President



## ***Our Philosophy and Mission***

Kirkwood Community College believes that developing capacities consistent with both 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 applies available resources to provide accessible and comprehensive programs. These programs 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 contributes 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.

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 will 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.

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.

## ***Kirkwood***

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.

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. This area represents a total population of 348,000 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.

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 legislation which made possible the establishment of a system of community colleges and area career education 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 career education 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 career education programs, which had been provided by the Cedar Rapids Community School District since 1964. The Arts and Sciences, Student Services and Community Education Division were established in 1967.

## ***The Legal Foundation***

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.

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.

## **College Facilities**

Located on the south edge of Cedar Rapids, Kirkwood's campus is set on a 320-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 Career Education 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 career education 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 Kirkwood Telecommunications Center is located in Linn Hall in addition to the college's public radio station, KCCK-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, game 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, lecture hall and Ballantyne Auditorium, a 476-seat theatre for the performing arts. The facility was completed in 1983.

Completed in the fall of 1988, Kirkwood Hall is the newest facility on campus. It houses the registrar's office, personnel, data processing services, bookkeeping, the grants office, several administrative offices and the Board Room.

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

Johnson Hall, a physical education and recreation center, provides much needed space for both educational and community activities. A large central gymnasium contains seating for 1500 spectators at 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 Agri-Marketing Technology, Horse Science Technology (in-

cluding 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, Industrial Fire Brigade training and Hazardous Materials training programs.

Located near the Environmental Training Center is the Auto Collision Repair Center, a state-of-the-art facility for teaching automobile body repair and refinishing.

## **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.

## **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. It is open 71 hours per week, including evenings and Saturdays.

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, two copy machines, a research paper lab, the vertical file and work space for the LRC staff.

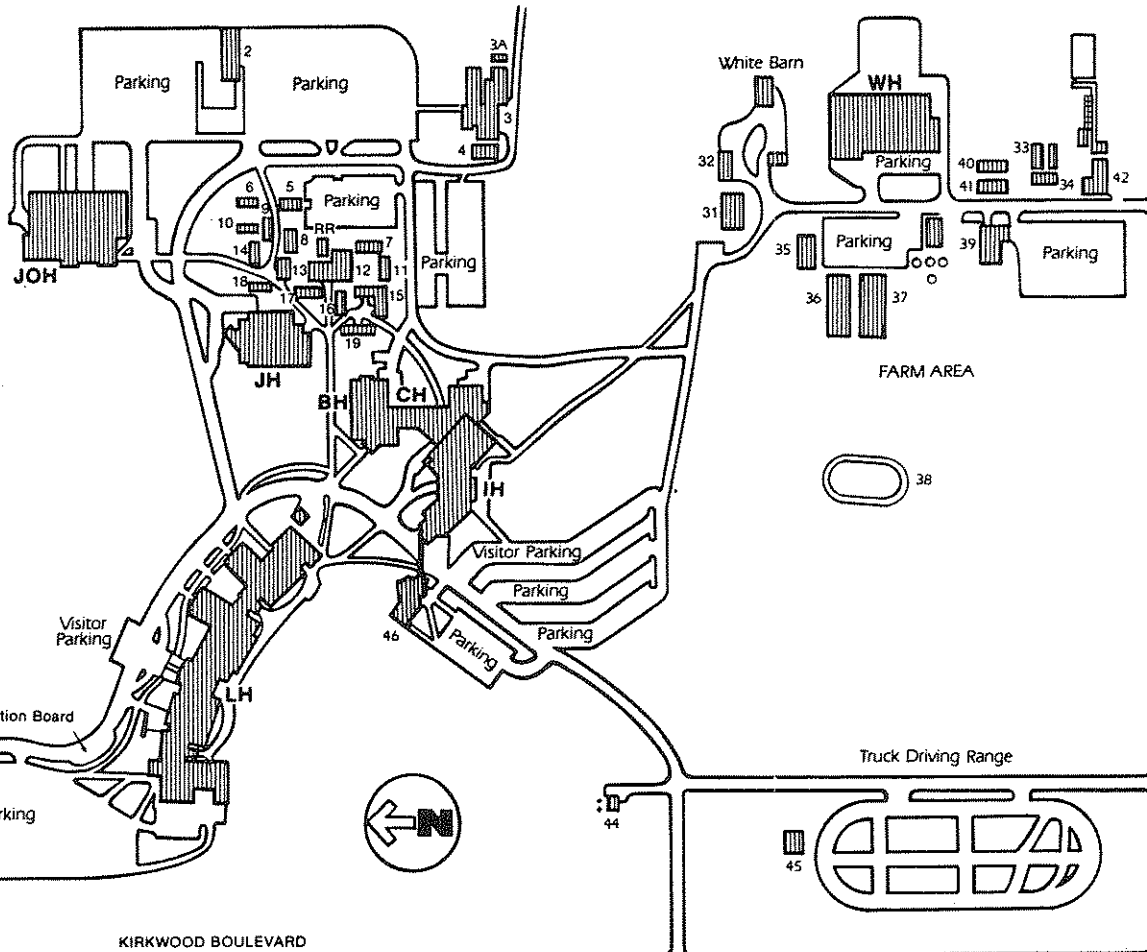
The second floor contains a flexible arrangement of non-traditional learning spaces for viewing videotapes, other audio visual materials and listening to audiotapes. Also on the second floor are typewriters, a legal reference collection, a library instruction center, the Personal Achievement Department and the Writing Lab.

The 49,000-volume book collection is located on both the first and second floors, as are study and lounge areas for students. The LRC staff organizes the material necessary to support the curriculum and provides the professional guidance necessary for the effective utilization of these materials. The LRC cooperates with other libraries in the area and the state to expand access to materials.

### Campus Map Key

- ET Environmental Training Center
- LH Linn Hall
- IH Iowa Hall
- CH Cedar Hall
- BH Benton Hall
- JH Johnson Hall
- JOH Jones Hall
- AC Auto Collision Center
- 2 Maintenance
- 3 Horticulture
- 3A Raptor Center
- 4 Floriculture
- WH Washington Hall
- 5-19 East Campus (see inset)
- 31 Agri-Marketing Technology offices
- 32 Agronomy & Nat. Resources classrooms
- 33 Animal Technician classrooms
- 34 Small Animal Services
- 35 Horse Husbandry offices & classrooms
- 36 Horse stable
- 37 Indoor arena
- 38 Outdoor arena
- 39 Central Receiving
- 40 Ag. Production & RDEC offices
- 41 RDEC main offices
- 42 Swine classrooms & labs
- 43 Beef classrooms & labs
- 44 Transmitter building
- 45 Truck driving range building
- 46 Kirkwood Hall

# KIRKWOOD Community College



- ### East Campus Buildings
- Classrooms
  - 5, 6, 7, 11, 12, 14, 18
  - Studio Arts
  - 15, 16, 19
  - Community Education
  - 8, 13
  - Dislocated Workers Center
  - 17B
  - Economic Development
  - 9
  - Heritage Agency
  - 10

## ***KCCK-FM Public Radio***

KCCK-FM is a 10,000-watt radio station which broadcasts to communities throughout the college's seven-county area. The station broadcasts daily from 5 a.m. to midnight at 88.3 FM. KCCK offers a variety of contemporary and traditional jazz, news and public affairs programming.

KCCK 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.

KCCK's studio and offices are located in Linn Hall.

## ***Computer Literacy Center***

The Kirkwood Computer Literacy Center offers students and staff a modern lab with current hardware and software resources. A host of microcomputers allow users to gain experience with electronic spreadsheet, wordprocessing, accounting, programming languages and tutorial software. In addition, the lab contains display terminals which are linked to a large IBM computer located in Kirkwood's Computer Information Systems Department. The terminals are used by Computer Education students for completing assigned projects and by the Kirkwood Registrar for computerized student registration.

Visit the Computer Literacy Center in Room 121 Linn Hall or call 398-5606 for further details.

## ***Off-Campus Learning Centers and More***

Lincoln Community Education Center, in southwest Cedar Rapids, is the site of general interest classes, adult basic education and high school completion classes, the Literacy 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 Kirkwood Centers offer similar educational programs in Iowa City, Marion, Monticello, Tipton, Vinton, 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 semester 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 on KTS which employ an interactive television system linking 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 Career Education, 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 thirteen-college consortium of community colleges nation-wide who are active in international activities.

## ***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. The Educational Development Center also houses the Region 10 Regional Satellite Center and the Iowa Procurement Outreach Center.

## ***Kirkwood Foundations***

The primary objective of the Kirkwood Community College Foundation and the Kirkwood Community College Facilities Foundation is the strengthening of Kirkwood's educational programs. As two private non-profit corporations, the foundations are empowered to solicit and receive tax deductible gifts, bequests, trusts, and memorials—all for the benefit of Kirkwood Community College students. 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, 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.

## ***Kirkwood Alumni Association***

The Kirkwood Alumni Association was formed in 1972 for the purpose of fostering a continuing and growing fellowship among Kirkwood graduates and to advance the interests, support the needs and promote the welfare of Kirkwood Community College.



The Association is governed by a fifteen member Board of Directors chosen from the Alumni body to represent the interests of over 20,000 graduates of the college. The Board meets monthly to plan the activities of the Association which include fundraising and service oriented projects. The Alumni events, held annual arts and craft shows, hosted scholarship concerts and graduation receptions. Proceeds from these events are used for student scholarships and to buy needed equipment for the college. The two special events of the year for the Association are the Homecoming Reunion and the Outstanding Alumnus Recognition Ceremony.

Kirkwood Alumni remain visible and active on campus, in the community and across the country. Graduates can be found in all professions from presidents of companies to state legislators, managers of agri-businesses to law enforcement officers, restaurant managers to computer programmers. The college is proud of the many accomplishments of its graduates and views the Alumni as a vital resource of the college.

The Alumni Association strives to stay in contact with graduates to keep them informed of the activities of the association and the college. Information regarding Al-

umni activities or membership can be obtained from the Alumni Office in Iowa Hall.

### ***Non-Traditional Student Organization***

Kirkwood offers special activities for adult students through its Wednesday noon workshop program and Adult College Planning Workshops. These programs are special seminars and workshops on topics of interest to the returning older student, as well as career advising and counseling activities designed to assist in returning to school or entering careers. A non-traditional newsletter is mailed to prospective re-entry students, including information on Arts and Sciences courses, Career Education programs, Community Education classes and other educational opportunities. Newstart and Women's Assistance Sessions prior to each semester help those who would like to continue with their education and possibly pursue a career. These sessions provide information on counseling services, financial aid, study skills, and registration procedures at Kirkwood.



# Academic Calendar

Kirkwood's academic year begins the last part of August and ends in late August of the following year. The year is divided into two semesters, with two short sessions and one long session held during the summer. No classes are held on Labor Day, Thanksgiving Day, Christmas Day, New Year's Day, Good Friday, the Fourth of July or Memorial Day. Additional student recess days are as indicated on the Academic Calendar distributed prior to the beginning of the fall semester.

## Fall 1988

August 17-23	Registration
August 24	Classes begin
August 30	Last day to add classes
September 5	College holiday, no classes, offices closed
November 16	Last day to drop classes
November 24-25	College holiday
December 12-16	Finals week
December 19-January 2	Student recess days

(The college will be closed December 26-January 2.)

## Spring 1989

January 3-6	Registration
January 9	Classes begin
January 13	Last day to add classes
March 20-24	Student recess days
March 24	College holiday, no classes, offices closed
April 11	Last day to drop classes
May 3-9	Finals week
May 13	Commencement
May 29	College holiday, no classes, offices closed

## Summer College 1989

June 2	Registration <b>for all summer courses</b>
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## Full Summer Session

June 5	Classes begin
June 9	Last day to add classes
July 4	College holiday, no classes, offices closed
July 28	Last day to drop classes
August 18	End of eleven-week session

## June Session

June 5	Classes begin
June 9	Last day to add classes
July 4	College holiday, no classes, offices closed
July 5	Last day to drop classes
July 12	End of first short session

## July Session

July 13	Classes begin
July 19	Last day to add classes
August 11	Last day to drop classes
August 18	End of second short session
August 19	Commencement

# ***INSTRUCTIONAL PROGRAMS***

Guide to College Programs  
Arts and Sciences Division  
Career Education Division  
Community Education

# Guide to College Programs

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## ARTS AND SCIENCES DIVISION GENERAL DEGREE REQUIREMENTS

The Arts and Sciences Division offers three degrees: the Associate of Arts, the Associate of Science and the Associate of Science/Career Option. Certificate and Diploma Options are also available and are described in Career Option Program information.

1. Earn a minimum of 62 semester 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 16 semester hours of career education courses could be included as well as 2 semester hours of developmental credit.
2. Earn the last 16 semester hours in residence at Kirkwood.
3. Maintain a minimum cumulative grade point average of 2.0.
4. Satisfactorily complete 8 semester hours in Communication Arts with at least 5 semester hours in Composition and 3 semester hours in Speech.

### Specific Requirements for the Associate of Arts Degree

1. Complete general requirements described earlier.
2. Complete Intermediate Algebra or its equivalent. Successful completion of two years of high school algebra, the completion of a math course above the level of Intermediate Algebra or an appropriate mathematics placement test score will serve as the equivalent of Intermediate Algebra.
3. Complete group requirements as follows:
  - A. Humanities - 9 semester hours (at least 3 hours in Literature and at least 3 hours in Arts and Ideas);
  - B. Mathematics - 3 semester hours; (MT110T or higher)
  - C. Science - 6 semester hours;
  - D. Social Sciences - 9 semester hours; and
  - E. Historical Cultural - 6 semester hours.

Programs that began prior to fall 1988, and completed by summer 1991, 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:
  - A. Humanities and/or Historical Cultural - 9 semester hours;
  - B. Social Sciences - 6 semester hours; and
  - C. Mathematics and/or Science - 20 semester hours (at least one college algebra level mathematics course or its equivalent)

### Specific Requirements for the Associate of Science/Career Option Degree

1. Complete general requirements described earlier.
2. Complete Beginning Algebra or its equivalent. Successful completion of one year of high school algebra, the completion of a math course above the level of Beginning Algebra or an appropriate mathematics placement test score will serve as the equivalent of Beginning Algebra.
3. Complete group requirements as follows:
  - A. Humanities and/or Historical Cultural - 6 semester hours;
  - B. Mathematics and/or Science - 6 semester hours;
  - C. Social Sciences - 6 semester hours; and
  - D. Career Option emphasis (see specific programs).

### Credit by Examination

Students in the Arts and Sciences Division may earn up to 24 semester 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

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CC114T	Composition II	3
	or	
CC115T	Composition II: Technical Writing	3
CC130T	Speech Communication	3
	or	
CC132T	Public Communication	3

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##### Literature

LR220T	American Literature to 1865	3
LR221T	American Literature since 1865	3
LR230T	Introduction to Fiction	3
LR231T	Introduction to Dramatic Literature	3
LR232T	Introduction to Poetry	3
LR210T	Masterpieces of Literature: Ancient World	3
LR211T	Masterpieces of Literature: Medieval, Renaissance and Neo-Classical Periods	3
LR212T	Masterpieces of Literature: 19th & 20th Centuries	3

## Arts & Ideas

AR100T	Art Appreciation	3
AR105T	Art History: Ancient to 1400	3
AR106T	Art History: 1400 to Modern	3
LR234T	Introduction to Film	3
PN109T	Introduction to Ethics	3
PN101T	Introduction to Philosophy	3
PN105T	Basic Reasoning	3
DM110T	Introduction to Theatre	3
MC100T	Music Appreciation	3

## Interdisciplinary Humanities

HM100T	Encounters in Humanities	3
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## SOCIAL SCIENCES

EO120T	Principles of Macro Economics	3
EO130T	Principles of Micro Economics	3
EO300T	Contemporary Economic Problems and Policy	3
EP120T	The Environment: A Systems Approach	1
EP125T	The Environment: Human Impact	1
GY100T	Human Geography	3
IN100T	Intro to Social Sciences	3
CJ100T	Introduction to Criminal Justice	3
CJ240T	Juvenile Delinquency	3
CJ250T	Criminology	3
PO100T	American Government	3
PO120T	Iowa Government	3
PO130T	International Relations	3
PO140T	Comparative Governments	3
PC100T	General Psychology	3
PC200T	Developmental Psychology	3
PC210T	Social Psychology	3
HA200T	Exceptional Persons	3
SY100T	Introduction to Sociology	3
SY110T	Marriage and the Family	3
SY120T	Social Problems	3
SL110T	Human Service Policies and Programs	3
MD100T	Mass Media	3

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MT125T	Fundamentals of Statistics	4
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MT151T	Pre-Calculus II	5
MT160T	Calculus I	4
MT162T	Calculus II	4
MT250T	Linear Algebra	4
MT262T	Calculus III	4
MT270T	Differential Equations	4

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BI111T	College Biology II	4
BI120T	General Botany	4
BI130T	Microbiology	4
BI140T	Genetics	4
BI150T	Human Anatomy and Physiology I	4
BI151T	Human Anatomy and Physiology II	4
BI200T	Vertebrate Zoology	4
BI210T	Invertebrate Zoology	4
CN100T	Introduction to Chemistry	3
CN101T	Introduction to Chemistry Laboratory	1
CN102T	Bio-Organic Chemistry	4
CN110T	General Chemistry I	4
CN111T	General Chemistry II	4
CN120T	Nutrition	3
CN200T	Quantitative Analysis	4
CN210T	Organic Chemistry I	4.5
CN211T	Organic Chemistry II	4.5
EN285T	Introduction to Electrical Science	3
ES110T	Introductory Geology	3
ES111T	Introductory Geology Laboratory	1
ES120T	Evolution of the Earth	3
ES121T	Evolution of the Earth Laboratory	1
EP120T	The Environment: A Systems Approach	2
EP125T	The Environment: Human Impact	2
IN160T	Science and Society	3
IN170T	Human Evolution	3
PA101T	Introductory Physics	2
PA102T	Introductory Physics Laboratory	1
PA105T	Astronomy	3
PA115T	Medical Physics	3
PA150T	College Physics I	4
PA151T	College Physics II	4
PA210T	Classical Physics I	5
PA211T	Classical Physics II	5

## HISTORICAL/CULTURAL

HI100T	The Ancient Mediterranean World	3
HI110T	Europe in the Age of Monarchy	3
HI120T	Europe in the Age of Revolution	3
HI130T	Europe in the Age of Nationalism	3
HI140T	U.S. History: Agrarian America	3
HI150T	U.S. History: Industrial America	3
IN120T	Understanding Cultures	3
SY130T	Introduction to Cultural Anthropology	3
PN115T	Introduction to World Religions	3
FO200T	Elementary French II	4
FO300T	Intermediate French: Written Communication	3
FO310T	Intermediate French: Oral Communication	3
FO210T	Elementary Spanish II	4
FO320T	Intermediate Spanish: Oral and Written Communication	3
FO330T	Intermediate Spanish: Reading and Conversation	3
FO230T	Elementary Russia II	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
  - Banking and Finance
  - Accounting
  - International Business
  - Marketing Management
- Communication 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

### **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
- Agricultural Science
- Airway Science
- Anthropology
- Art
- Biochemistry
- Biology
- Biophysics
- Broadcasting
- Business Administration
- Chemistry
- Computer Science
- Dental Hygiene
- Drama
- Economics
- Education
- Engineering
- English
- Environmental Studies
- Finance
- Foreign Language
- Forestry
- History
- Industrial Safety
- Journalism
- Liberal Arts
- Literature
- Mathematics
- Medical Technology
- Music
- Nursing
- Physical Education
- Physical Therapy
- Physician Assistant
- Political Science
- Pre-Dentistry
- Pre-Medicine
- Pre-Pharmacy
- Pre-Veterinary Medicine
- Public Relations
- Psychology
- Recreation
- Sociology
- Speech
- Statistics

## **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 prepares 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 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.

## **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 ap-

plied toward either A.A. or A.S./C.O. and toward a baccalaureate program at a four-year university or college. Descriptions of the college transfer/career option programs follow.

## **BUSINESS PROGRAMS**

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 Area Advisor regarding requirements for the various transfer institutions.

### **Business Administration**

Jobs for business graduates exist in every profit and non-profit institution in the country. Graduates are employed in many diverse fields such as banking and finance, computer science, accounting, personnel management, marketing, agri-business, international business and sales.

Kirkwood's Business Administration program gives students exposure to many phases of business and a solid foundation for further study.

Graduates are awarded an Associate of Arts Degree which is designed for students planning to transfer to a four-year college or university. With the help of your advisor, you can chart an academic program that will prepare you to transfer with full junior class status.

### **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 and electives listed below, for a minimum of 62 semester credit hours.

<i>Course No.</i>	<i>Course Name</i>	<i>Credits</i>
AO101T	Principles of Accounting I	4
AO102T	Principles of Accounting II	4
AO108T	Computer Applications of Accounting	4
AO104T	Intermediate Accounting I	4
AO105T	Intermediate Accounting II	4
AO107T	Income Tax	4
AO103T	Cost Accounting	4
DG102T	Introduction to Micros and DP	3
MT120T	Finite Math	3
MT125T	Fundamentals of Statistics	4
EO120T	Principles of Macroeconomics	3
LA160T	Business Law I	3
EO130T	Principles of Microeconomics	3
AD144U	Employment Seminar	1



## Banking/Finance

The banking and finance industry promises to be one of the fastest growing fields through the next decade. The curriculum in Banking/Finance is designed for students seeking careers with financial institutions, as well as for those students seeking career enhancement skills.

Students currently employed in the banking and finance field may receive various certificates from the American Institute of Banking or the Institute of Financial Education upon completion of identified required courses.

Students must fulfill the general requirements for the Associate of Science/Career Option degree and the required program courses listed below, then may select from a wide variety of Banking/Finance and general education courses to complete the 62 credit hour requirements. Courses are offered both day and evening and students may enroll full or part-time.

Course No.	Course Name	Credits
MR101T	Principles of Marketing or	3
MR112T	Marketing for Bankers	3
FN101T	Principles of Banking	3
DG102T	Introduction to Micros and DP	3
AO101T	Principles of Accounting I	4
AO102T	Principles of Accounting II	4
AO106T	Analyzing Financial Statements	3
EO120T	Principles of Macroeconomics	3
EO130T	Principles of Microeconomics	3
LA160T	Business Law I or	3
LA170T	Law & Banking	3
MT120T	Finite Math	3
MT125T	Fundamentals of Statistics	4
PC105U	Human Relations	3
AD144U	Employment Seminar	1

## International Business

The International Business program prepares students to meet the challenge of increasing world trade. Students who complete the program are prepared for employment managing the import and export 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.

Students planning to transfer to a four-year college should arrange their program to meet the requirements of the transfer institution. Enrollment may be on a full-time or part-time basis.

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 and electives listed below, for a minimum of 62 semester hours. The student must also be bilingual or complete six semester hours in a foreign language.

Course No.	Course Name	Credits
MR107T	World View: Introduction to International Business	3
MR110T	Foreign Trade Documentation	3
MR109T	International Transportation	2
MR111T	Advanced Foreign Trade Documentation	3
IN120T	Understanding Cultures	3
MR108T	International Marketing	2
DG102T	Introduction to Micros and DP	3
MR101T	Principles of Marketing	3
EO120T	Principles of Macroeconomics	3
EO130T	Principles of Microeconomics	3
AD144U	Employment Seminar	1

### Elective Courses\*

AO101T	Principles of Accounting I	4
CV800T	Cooperative Education Experience	3
OF106T	Typing I	2
MR103T	Principles of Selling	3

\* These electives are optional.

## 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, and data processing.

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

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 and electives listed as follows, for a minimum of 62 semester credit hours.

Course No.	Course Name	Credits
AO101T	Principles of Accounting I	4
MR103T	Principles of Selling	3
MR101T	Principles of Marketing	3
DG102T	Introduction to Micros and DP	3
AD102T	Introduction to Management	3
EO130T	Principles of Microeconomics	3
EO120T	Principles of Macroeconomics	3
AD144U	Employment Seminar	1

Plus 9 hours from the following courses:

MR105T	Counselor Selling	3
AD101T	Introduction to Business	3
MR106T	Principles of Advertising	3
MR107T	World View: Introduction to International Business	3
AD141U	Small Business Entrepreneurship	2
PC105U	Human Relations	3
CV800T	Cooperative Education Experience	3
LA160T	Business Law I	3
AD104U	Principles of Supervision	3

## Social Sciences Programs

### Communications Media

Kirkwood's program in Communications Media 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 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 and specific requirements for either the Associate of Arts or Associate of Science/Career Option degree and complete the required program courses.

Course No.	Course Name	Credits
MD100T	Mass Media	3
MD110T	Media Lab	2
MD130T	Promotion and Public Relations	3
MD120T	Newswriting and Reporting	3
MR106T	Principles of Advertising	3

or

MR101T	Principles of Marketing	3
MD999T	Special Projects	1
MD800T	Internship (optional for A.A., required for A.S./Career Option)	3-6

### Additional Required Program Courses

Depending upon the career specialization chosen, students must complete specified courses from the list that follows. Areas of specialization are: Public Relations 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.

Course No.	Course Name	Credits
AR170T	Lettering	2
AR120T	Design I	2
AR121T	Design II	2
AR130T	Drawing I	2
AR131T	Drawing II	2
MR103T	Principles of Selling	3
MR101T	Principles of Marketing	3
PG100T	Beginning Photography	3
PG200T	Intermediate Photography	2
MD200T	Photojournalism	2
MD120T	Newswriting and Reporting	3
MD205T	Introduction to Electronic Production	2
MD210T	Advanced Audio	2
MD215T	Advanced TV	2
PG220T	Color Photography	2
CC132T	Public Communication	3
MD220T	Broadcast Writing and Performance	3
MD105T	Practical Reporting	1

### Criminal Justice

The Criminal Justice program has two areas of emphasis: Law Enforcement and Community 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 is flexible in meeting individual student needs; therefore internships, experience credit examinations and certification procedures are offered. All components of the program are designed to assist the student in preparing 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 and specific requirements for the Associate of Arts or Associate of Science/Career Option degree, in addition to completing the required program courses listed as follows.

Course No.	Course Name	Credits
*CJ100T	Introduction to Criminal Justice	3
*CJ110T	Criminal Law	3
*CJ250T	Criminology	3
*CJ240T	Juvenile Delinquency	3
*CJ230T	Constitutional Law	3

*Elective Courses*

CJ120T	Patrol Procedures	3
CJ140T	Traffic Safety and Accident Investigation	3
CJ160T	Applications of Criminal Law	3
CJ150T	History of the Police in America	3
CJ270T	Race Relations in the Criminal Justice System	3
CJ260T	Criminal Evidence	3
CJ130T	Criminal Investigation	3
CJ210T	Community Corrections	2

\*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**

Course No.	Course Name	Credits
*CJ100T	Introduction to Criminal Justice	3
*CJ110T	Criminal Law	3
*CJ250T	Criminology	3
*CJ240T	Juvenile Delinquency	3
*CJ230T	Constitutional Law	3

*Elective Courses*

SY120T	Social Problems	3
PC200T	Developmental Psychology	3
CJ220T	Penology	3
PC210T	Social Psychology	3
CJ270T	Race Relations in the Criminal Justice System	3
CJ210T	Community Corrections	2

\*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**

The Education Careers program is designed to prepare students to work in schools, day care centers and other educational settings as paraprofessionals. 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 program consists of specific skills training, general education and experience working with children or youth in a school setting.

The student who completes the program will be prepared to function in a variety of roles as part of an educational team. Three program options are available:

- 1) *Child Development Certificate* (30 hours) - Prepares students for entry level positions in child care settings.
- 2) *Associate of Science/Career Option Degree* (62 hours) - Prepares students for work as a teacher associate.
- 3) *Associate of Arts Degree* (62 hours) - Prepares students for transferring into teacher education programs at a four year college.

\*Required Program Courses (Education Careers)

Course No.	Course Name	Credits
PC100T	General Psychology	3
PC200T	Developmental Psychology	3
EU300T	Educational Psychology	3
	or	
HA200T	Exceptional Persons	3
EU110T	Introduction to Teaching	3
EU130T	American Public Education	3
EU140T	Audio Visual Communications	3
EU100T	Education Careers Orientation	1
EU800T	Field Experience in Education I	3
EU810T	Field Experience in Education II	3

Students working toward an Associate of Arts or Associate of Science/Career Option Degree must fulfill the general and specific requirements for the degree, in addition to the required program courses listed above.

\*Child Development Certificate Required Courses

Course No.	Course Name	Credits
PC100T	General Psychology	3
PC200T	Developmental Psychology	3
HA200T	Exceptional Persons	3
EU110T	Introduction to Teaching	3
EU120T	Activities for the Young Child	3
EU820T	Field*Experience in Child Development	3
SY120T	Social Problems	3
	or	
SY110T	Marriage and the Family	3
	or	
SL110T	Human Services Policies and Programs	3
CC113T	Composition I	3
CC231T	Oral Interpretation	3
	or	
CC130T	Speech Communication	3
	First Aid and C.P.R. Certification	

## Handicapped Services

The Handicapped Services program prepares students to work as paraprofessionals in a variety of school or community agencies serving the handicapped or to pursue a four-year degree in a related field such as special education, recreation, therapeutic social work, or psychology. Students may choose a one year program leading to a diploma or a two year program leading to an Associate of Science/Career Option or an Associate of Arts degree.

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

Course No.	Course Name	Credits
HA100T	Introduction to Handicapped Services	3
HA120T	Observation and Management of Behavior	3
HA130T	Mainstreaming and Mild Disabilities	3
HA110T	Health Aspects of Disabilities	2
HA800T	Handicapped Services Field Experience and Seminar	6
PC100T	General Psychology	3
PC200T	Developmental Psychology	3
HA200T	Exceptional Persons	3
CC130T	Speech Communication	3
CC113T	Composition I	3
	C.P.R. Certification	

## Human Services

The Human Services program is a competency-based program that focuses on human behavior, 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.

The 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 and specific requirements for an Associate of Arts or Associate of Science/Career Option degree, in addition to completing the required program courses listed as follows.

Course No.	Course Name	Credits
SL100T	Introduction to Human Services	2
SL110T	Human Service Policy and Programs	3
SL120T	Observation Skills	3
SL130T	Intervention Skills	2
SL800T	Field Experience and Seminar	7
PT100T	Human Potential Lab	1
CC130T	Speech Communication	3
PC100T	General Psychology	3
PC200T	Developmental Psychology	3
SY120T	Social Problems	3
CC230T	Group Communication	3

## Legal Assistant

Approved by the American Bar Association and the Iowa Bar Association, the Legal Assistant program is designed for students desiring employment as legal assistants. Students may choose either an Associate of Science/Career Option degree or an Associate of Arts degree. It is the goal of the Legal Assistant program to provide experiences and guidance toward the further development of the attributes and values listed below:

### Personal Attributes

- Integrity
- Responsibility
- Empathy
- Assertiveness
- Self-Awareness

### General Value Orientation

- Commitment to the ethics of the legal profession
- Commitment to detail
- Commitment to personal and professional growth
- Commitment to the role of legal assistant
- Commitment to advocacy

The focus of the Legal Assistant program is the development of the following skill areas:

- Legal problem-solving skills
- Interpersonal skills
- Writing skills
- Research skills
- Civil procedural skills
- Office skills

Course No.	Course Name	Credits
LA100T	Paralegal Orientation	4
LA102T	Legal Ethics	1
LA110T	Civil Litigation	3
LA115T	Contracts/Torts	4
LA105T	Legal Research/Writing	4
LA800T	Legal Assistant Internship	3
<i>Elective Courses (8 hours of electives needed for AS/Career Option)</i>		
LA117T	Criminal Procedural Law	2
LA125T	Real Estate	2
LA120T	Estate Planning/Administration	2



LA145T	Business Organization	2
LA135T	Family Law	2
LA130T	Bankruptcy	2
LA140T	Administrative Law	2
AO107T	Income Tax	4
CJ110T	Criminal Law	3
CJ230T	Constitutional Law	3

Nineteen hours of Legal Assistant core will be completed by all students. Those pursuing the Associate of Science/Career Option degree will take an additional 17 hours of electives, 8 of which must consist of legal assistant courses. All students must fulfill the general and specific requirements for the Associate of Arts and Associate of Science degrees.

## **DEVELOPMENTAL EDUCATION**

This department is comprised of services and course work that has been developed to assist Kirkwood students in achieving their academic and career goals. The Developmental Education Department offers both academic and non-academic support and assistance to help Kirkwood students identify, carry out and achieve these goals.

Personal Achievement (PA) offers developmental classes in reading, writing, spelling, mathematics, pre-algebra and basic study skills. Upon enrollment, the student's current skill level is determined through diagnostic testing for the purpose of identifying his/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. The classes are offered in an individualized or small group setting.

Personal Achievement classes are available day and evening, every term, all year long. Students can earn a maximum of two credits toward the Associate of Arts degree requirements through successful completion of Personal Achievement classes. Personal Achievement is located upstairs in the LRC.

### **Test Center**

As part of the Development Education Department, the Test Center offers a wide variety of testing services to prospective students, current students, graduates and the community at large.

Prospective students may participate in free Academic Assessment testing to help determine their academic readiness for college level classes. Individuals who are qualified may earn college credit by participating in College Level Examination Program (CLEP) testing. The Test Center is responsible for administering both Arts & Sciences placement testing and Project ASSET which is offered by the Career Education Division. Many current students use the Test Center to complete make-up exams, G.E.D. testing, Open Learning Lab and KTS tests.

Kirkwood graduates and other community members are served through the administration of COPA, College for Financial Planning, PEP and a variety of other exams which are used for certification, promotion and/or other job related requirements. The Test Center is located upstairs in the LRC.

### **English as a Second Language**

This program, also a part of the Developmental Education Department, is designed to help students whose native language is not English become proficient in English. Students who are required to enter the ESL program must complete all mandated ESL subjects/levels prior to becoming a full-time Arts & Sciences or Career Education student.

The ESL program offers developmental classes in the following subjects/levels:

Composition	-	2, 3, 4, 5
Communication	-	2, 3, 4
Grammar	-	2, 3, 4, 5
Reading	-	2, 3, 4, 5

Prospective ESL students complete a battery of tests to determine their appropriate beginning subjects/levels placement. ESL students may be able to register for credit classes when they advance to ESL level four or five classes. Credit class registrations must be approved by the Director of Development Education and/or the International Student Advisor. ESL is located on East Campus, Bldg. 14.

### **Tutor Program**

The Tutor Program is offered and funded by the college to provide specific course tutoring to Kirkwood students. The tutors must be recommended and/or verified by instructors but do not have to be current Kirkwood students.

Tutoring services are available on request by any Kirkwood credit student. The college pays tutors to work with learners for no more than three (3) hours weekly per subject area. There is no charge to the learner. Tutoring is available every term, day and evening.

### **Special Support Services**

This federally funded grant Project exists to help qualified participants remain in college and graduate.

Participants must be a citizen or national of the United States who is currently enrolled in a Kirkwood credit program. Other eligibility requirements may include the following: a first generation college student, low income and/or physically handicapped.

The Project offers free services to participants in order to enhance their change of success at Kirkwood. These services are: counseling, tutoring and computer writing/editing.

## The Meaning of Career Education

### Why the Need for Career Education Has Arisen

A technology revolution, underway the last several decades, has transformed the educational requirements of the professional employee. In the past, the professional (the product of four or more years of college) had the time to perform many practical functions in his/her work. An engineer, for example, could spend hours drawing or routinely testing a new product. New scientific discoveries and technological advances have greatly increased theoretical knowledge underlying many of the professions. Now there is little 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 the technician or para-professional. And, to prepare him/her to work with the professional, the technician requires a different type of post-secondary education. He/she must understand 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 is designed to prepare the student for effective employment upon graduation. Such a program is career education.

The need for technicians, already great, is growing rapidly. The federal government estimates that great numbers of new technicians' jobs will come into existence in the nation during the 1990s. Hence the urgent need for expanded career education.

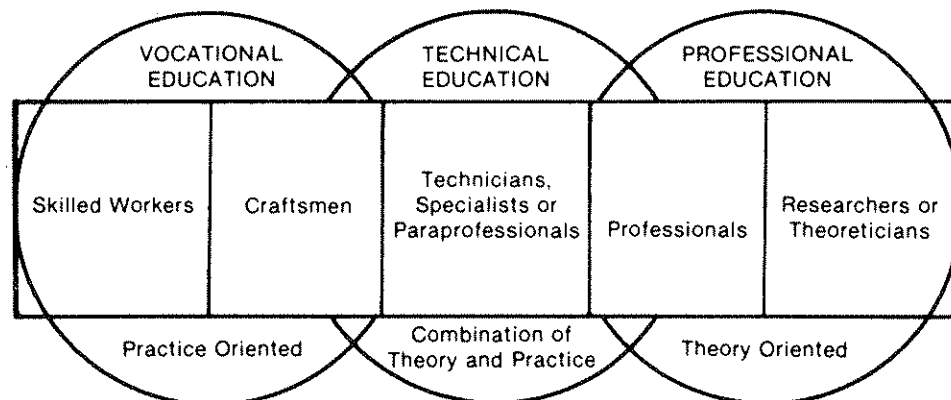
### How a Technical Education Differs From Other Types of Higher Education

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 career 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.

Career education, to be effective, requires a special educational environment: a faculty dedicated to practical education, laboratory equipment 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 Career Education Division of Kirkwood Community College provides that special environment.

## The World of Career Education



## **Career Education Requirements**

### **Requirements for the Associate of Applied Science Degree**

1. Earn a minimum of 62-77 semester hours of credit for a four semester program. Additional hours will be required for those programs requiring summer attendance. Because these curricula vary in length and content, each curriculum should be checked for graduation requirements.
2. Earn the last 16 semester hours in residence at Kirkwood in a program for which the degree is sought.
3. Maintain a minimum cumulative grade point average of 2.0.\*

### **Requirements for the Diploma**

1. Earn a minimum 30-43 semester hours of credit for a two semester program. Additional hours will be required for those programs requiring summer attendance. Because these curricula vary in length and content, each curriculum should be checked for graduation requirements.
2. Earn the last eight semester hours in residence at Kirkwood in a program for which the diploma is sought.
3. Maintain a minimum cumulative grade point average of 2.0.\*

### **Requirements for the Career Education Certificate**

1. Earn a minimum 14-40 semester hours of credit.
2. Earn the last six semester hours in residence at Kirkwood in a program for which the certificate is sought.
3. Maintain a minimum cumulative grade point average of 2.0.\*

\*Students enrolled in any Career Education program as of or previous to fall 1987, will have through summer 1990, to graduate with a 1.8 grade point average, **provided** they remain in that **same program** during that time frame.

### **Waiver of Course Requirement or Credit by Examination**

The Career Education Division will recognize credits awarded by the credit by examination process. This may be done either through the College Level Examination Program (CLEP) or by Department Examinations where available.

The Career Education Division will allow for the waiver of up to 1/3 of the course requirements in a program.

This waiver of course requirements will be based on the evaluation of previous experience of a student. Waiver of any particular course requirement will reduce the total remaining earned credit hours required. Upon satisfactory completion of a minimum of 15 credit hours at Kirkwood, the student request will be officially processed. The student's transcript will indicate the courses that were waived under this policy. 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. This may be done through the Work Experience Assessment Course or by individual course examination.

Waiver of course requirement and/or credit by examination must have the final approval of the Assistant Dean in each respective department.

Questions regarding waiver of course requirement and/or credit by examination should be directed to the appropriate Career Education department office.

### **Transfer of Credit from Other Institutions**

The Career Education Division may accept as transfer credits those credits awarded to a student from any recognized accredited college or vocational institution with the provision that the course work, including elective credits, is equivalent to the course work requirements of the Career Education program that the student is enrolled in. All passing grades (D and above) for these courses will be accepted and will be used in the computation of the student's cumulative grade point average. Before being granted a certificate, diploma or Associate in Applied Science degree, the student must fulfill the remaining requirements for these awards along with the residency requirements of the college.

All approvals of transfer credits will be made by the Assistant Dean of the appropriate Career Education department. A transfer evaluation form will be completed and submitted to enrollment services for processing and notification of the student. Any questions regarding this policy should be directed to the appropriate departmental office.

### **Veterans Educational Benefits**

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

## AGRICULTURAL TECHNOLOGIES

### AGRICULTURAL SCIENCE (TRANSFER)

The Agricultural Science curriculum will provide you the courses appropriate to most agricultural baccalaureate majors. With careful planning, you can complete your first two years of college with Agricultural Science courses and Arts and Science courses to receive an Associate of Science or Associate of Arts Degree. A student will be required to complete 60 semester hours to attain an Associate of Science or Associate of Arts Degree.

Most of our students transfer to four-year institutions in the midwest. We provide individual assistance with your planning in transferring to the college of your choice. The Agricultural Science program has: (1) a computer laboratory where students receive up-to-date instruction on the latest computer technology; (2) classes which will transfer to four-year agricultural institutions; (3) outstanding laboratory facilities where students could be involved with beef and swine production, horse husbandry, grain drying, feed processing, crop production; (4) leadership instruction as a member of the Kirkwood Community College National Agri-Marketing Association Student Chapter Club including attending industry events with a professional in a mentor program.

Course No.	Course Name	Credits
AEI01T	Feeds and Feeding	3
AE102T	Agricultural Accounting	3
AEI03T	Elements of Farm Management	3
AEI04T	Principles of Crop Production	3
AEI05T	Fundamentals of Soil Science	3
AEI07T	Survey of Animal Industry	3
AEI08T	Agricultural Finance	3

### AGRI-MARKETING TECHNOLOGIES

The Agri-Marketing program offers an individualized "hands on" approach curriculum with emphasis on sales/merchandising, economics, farm management, agronomy, animal science, and general education. These curriculum areas are designed to prepare students for jobs as territory sales persons and counter sales persons, production assistants, and department managers and marketing, advertising and communications assistants and managers.

The program consists of two full years (four semester and one summer session) of study, terminating with an Associate of Applied Science Degree. This degree requires 79 semester credit hours. A diploma in Agri-Marketing Technologies is awarded upon completion of 39 semester credit hours.

The Agri-Marketing Technologies program features: (1) a computer laboratory where students receive up-to-date instruction on the latest computer technology; (2) a six-week period of on-the-job training in an agribusiness of the students' choice; (3) leadership instruction through the Kirkwood Community College National Agri-Marketing Association Student Chapter Club. Students attend industry events, assigned with a professional in a mentor program, hold social activities and cooperate with industry; and (4) a "student run" store-called the Ag Service Center, where students receive experience in sales, inventory control and public relations.

Course No.	Course Name	Credits
AEI01U	Introduction to Agribusiness	3
AEI02U	Principles of Ag Marketing	3
AEI03U	Agricultural Economics	3
AEI04U	Career Planning - Agri-Marketing	1
AEI05U	Ag Mechanics - Ag Marketing	2
AEI06U	Introduction to Ag Management	3
AEI07U	Agricultural Salesmanship	3
AEI08U	Ag Advertising/Merchandising	3
AEI09U	Computer Application-Ag Marketing	3
AEI10U	Ag Commodities Marketing	3
CC110U	Communication Skills I	3
AE701U	Mathematics I - Agriculture	3
AEI05T	Fundamentals of Soil Science	3
AEI07T	Survey of Animal Industry	3
DGI02T	Intro to Microcomputers and DP	3
AE702U	Ag Leadership *	1
AEI01T	Feeds and Feeding	3
AE801U	Employment Internship *	4
AEI04T	Principles of Crop Production	3
CC120U	Communication Skills II	2
AEI02T	Agricultural Accounting	3
AE950U	Independent Study:Market Plan	3
PCI05U	Human Relations	3
AEI08T	Agricultural Finance	3

#### Elective Courses

AE111U	Agricultural Chemicals	3
AE112U	Grain Grading and Processing	3
AE113U	Crop Monitoring/Scouting Techniques	3
AE401U	Agricultural Genetics	3
AE704U	Grassland and Conservation Management	3
AEI03T	Elements of Farm Management	3
AE402U	Animal Health	3

Or any other approved Agricultural Technologies Program Courses.

\*May be repeated as an elective.

## SMALL ANIMAL SERVICES

Students enrolled in Small Animal Services obtain skills necessary for jobs as veterinary receptionists, pet groomers, animal control officers, kennel workers and managers, small animal supply sales, and other related areas. Upon completion of the required 37 semester hours, the student is awarded a diploma.

Course No.	Course Name	Credit
AE20IU	Small Animal Behavior and Management	5
PCI05U	Human Relations	3
AE206U	Ag Career Orientation	1
AE305U	Principles of Animal Pharmacology	3
AE302U	Law, Ethics and Client Relations	3
AE301U	Small Animal Health	5
AE702U	Ag Leadership*	1
AE80IU	Employment Internship	3
AE303U	Agri-business Procedures	3
DGI02T	Intro to Microcomputers and DP	3
CCI0U	Communication Skills I	3

### Elective Courses

AE304U	Pet Grooming*	3
AE95IU	Special Projects: Animal Health	2
AE208U	Canine and Feline Nutrition	1.5
AE207U	Fundamentals of Animal Nutrition	1.5
AE70IU	Mathematics I - Agriculture	3

\* May be repeated as an elective.

## ANIMAL TECHNICIAN

The Animal Technician program consists of two years of specialized training in animal health, nursing and husbandry. Graduates secure jobs in a variety of areas in the animal health and agriculture industries. Career opportunities include private veterinary practice technician, research technician, technical support staff at veterinary teaching hospitals, zoos and in private industry.

Upon completion of the required 87 semester hours of course work the student is awarded an Associate of Applied Science Degree.

Course No.	Course Name	Credits
AE20IU	Small Animal Behavior and Management	5
PCI05U	Human Relations	3
AE202U	Animal Anatomy and Physiology I	5
BII0T	College Biology I	4
AE204U	Veterinary Pharmacology and Terminology	3
AE205U	Introduction to Technical Chemistry	4
AE206U	Ag Career Orientation	1
AE702U	Ag Leadership*	1

BII30T	Microbiology	4
AE212U	Veterinary Clinic Pathology I	3
AE209U	Animal Nursing I	3
AE203U	Animal Anatomy and Physiology II	5
CCI0U	Communication Skills I	3
AE80IU	Employment Internship	4
AE216U	Small Animal Cage Bird Medicine	5
AE210U	Animal Nursing II	3
AE213U	Veterinary Clinic Pathology II	3
AE207U	Fundamentals of Animal Nutrition	1.5
AE208U	Canine and Feline Nutrition	1.5
CCI20U	Communication Skills II	2
AE217U	Career Planning - Animal Technician	1
AE215U	Large Animal and Poultry Medicine	5
AE21IU	Animal Nursing III	3
AE214U	Veterinary Clinic Pathology III	3
DGI02T	Intro to Microcomputers and DP	3

And an approved Humanities course.

## PET GROOMING CERTIFICATE

The Pet Grooming Certificate program is a condensed program providing up-to-date information in the occupational area. After completing the required 18 credits of course work, the student may request a Training Certificate from the Enrollment Services Office.

## 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, Sheep, Swine and Crops, as well as Diversified Farm Management, an option with a special emphasis on agricultural economics.

Upon completion of the required 81 semester 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 43 semester 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 43 semester credit hours.

All students are aided in developing individual education plans, 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 Agricultural Experience (Introductory), or by passing a pretest (either an interview or competency verification) at or near the beginning of the program.

Courses are primarily designed for the student with little or no quantifiable background or experience in agriculture. These courses are offered on a regular basis throughout the academic year. It may be suggested that individual students take a selection of, or all of, the courses. Included are courses in agricultural careers, agricultural machinery, animal health husbandry, agricultural crops and soils, agricultural experience, agricultural buildings and equipment, agricultural economics, agricultural business, agricultural mathematics, and agricultural 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.

Course No.	Course Name	Credits
CC110U	Communications Skills I	3
DG102T	Intro to Microcomputers and DP	3
AE101T	Feeds and Feeding	3
AE702U	Ag Leadership*	1
AE401U	Agricultural Genetics	3
AE402U	Animal Health	3
AE701U	Mathematics I - Agriculture	3
AE403U	Agricultural Facilities and Equipment	3
AE404U	Agricultural Construction and Repair-F&R	3
AE801U	Employment Internship*	4
CC120U	Communication Skills II	2
AE102T	Agricultural Accounting	3
AE110U	Ag Commodities Marketing	3
PC105U	Human Relations	3
AE405U	Career Planning - Farm and Ranch	1
AE406U	Farm and Ranch Mechanics	2
AE103T	Elements of Farm Management	3

#### Elective Courses

AE407U	Swine Reproduction and Management	5
AE408U	Beef Industry and Feedlot Management	5
AE409U	Sheep Production	2.5
AE410U	Sheep Breeding and Reproduction	2.5
AE411U	Beef Cow/Calf	3
AE412U	Swine Farrowing and Nursery Management	3
AE413U	Sheep Feeding and Nutrition	3
AE414U	Swine Enterprise Management	5
AE415U	Beef Breeding/Reproduction/Nutrition	5
AE416U	Advanced Flock Management	3
AE417U	Ovine Health	3
AE418U	Swine Health and Nutrition	3
AE419U	Beef Science Management	3
AE420U	Ewe and Lamb Management	3
AE952U	Independent Study: Animal Science	2
AE421U	Beef and Dairy Artificial Insemination	1
AE422U	Livestock Evaluation and Selection	3
AE423U	Advance Livestock Judging	2

AE424U	Livestock Clinic and Events	2
AE425U	Row Crop Production	3
AE704U	Grassland and Conservation Management	3
AE705U	Agricultural Fertilizers	3
AE111U	Agricultural Chemicals	3
AE953U	Independent Study: Agronomy	2
AE104T	Principles of Crop Production	3
AE105T	Fundamentals of Soil Science	3
AE426U	Swine Facilities Management	2
AE706U	Alternate Ag Energy Systems	2
AE707U	Rural Metals Application	2
AE708U	Ag Energy Audits	2
AE709U	Ag Energy Management	2
AE427U	Farm Machinery Maintenance	2
AE710U	Field Crop Harvesting and Drying	3
AE711U	Planning and Tillage Operation & Adjustment	3
AE703U	Farmstead Planning and Mechanization	3
AE713U	Modern Farm Update	2
AE714U	Introductory Meat Science	2
AE715U	Meat Evaluation and Marketing	2
AE716U	Livestock Anatomy and Physiology	3
AE712U	Rural Facilities Support Systems	3
AE112U	Grain Grading and Processing	3
AE717U	Rural Electricity	2
AE4280	Swine, Artificial Insemination	1
AE7180	Dairy Production	3

Or any other approved Agricultural Technologies program courses.

\*May be repeated as an elective.

## 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 50 semester hours, the graduate is awarded a diploma.

Course No.	Course Name	Credits
AE101V	Floral Design I	3
AE108V	Retail Flowershop Operation I	3
AE106V	Plant Identification and Care I	2
AE114V	Basic Mathematics-Floriculture	2
PC105U	Human Relations	3
AE702U	Ag Leadership *	1
AE112V	Career Planning - Floriculture	1
AE801U	Employment Internship *	4
AE102V	Floral Design II	2
AE109V	Retail Flowershop Operation II	4
AE107V	Plant Identification and Care II	4
CC110U	Communication Skills I	3
AE113V	Floriculture Bookkeeping	3
AE103V	Floral Design III A	2
AE104V	Floral Design III B	1
AE110V	Retail Flowershop Operation III	2
AE111V	Retail Advertising and Display	3
AE105V	Design Show Seminar	2

\*To be repeated.

## HORSE SCIENCE TECHNOLOGY

The horse industry is becoming more sophisticated and complicated. Well-trained people are needed to manage today's equine enterprises. The students enrolled in the Horse Science Technology program are prepared to find employment in all aspects of the industry such as assistant stable managers, and a variety of jobs involving race tracks and breeding farms. The following curriculum indicates the courses which may be taken by a Horse Science Technology major.

Upon completion of the required 72.5 semester credit hours, the graduate is awarded an Associate of Applied Science Degree. A Horse Production diploma is awarded for completion of 37 semester credit hours. A Horse Showing certificate is awarded upon completion of a specified 20 semester credit hours.

The Associate of Applied Science Degree program prepares a student for a position in the horse industry, with the emphasis on mid-management. A degree program is highly encouraged.

Course No.	Course Name	Credits
AE508U	Horse Breeds Selection	3
AE509U	Horse Production Proficiency	3
AE510U	Health and Performance Management	3
CC110U	Communication Skills I	3
AE702U	Ag Leadership*	1
AE501U	Genetics and Horse Breeding	4
AE701U	Mathematics I - Agriculture	3
AE801U	Employment Internship	4
AE102T	Agricultural Accounting	3
AE207U	Fundamentals of Animal Nutrition	1.5
AE502U	Horse Nutrition	1.5
AE503U	Basic Training	3
AE504U	Legs, Hoof and Farrier Science	2
AE108U	Ag Advertising and Merchandising	3
AE954U	Horse Projects*	3
AE106U	Introduction to Ag Management	3
AE505U	Intercollegiate Horse Judging	1
AE506U	Advanced Training	3
PC105U	Human Relations	3
CC120U	Communication Skills II	2
HS100U	First Aid and CPR	.5
AE507U	Professional Horse Judging	1

### Elective Courses

AE514U	Horsemanship Balanced Seat	3
AE511U	Beginning Western Balanced Seat	2
AE515U	Ag Mechanics - Horse Science	2
AE406U	Farm and Ranch Mechanics	2
AE512U	Horsemanship Techniques	2
AE513U	Advanced Western Horsemanship	2
AE516U	Facilities Maintenance	2
AE517U	Ag Construction and Repair - Horse Science	3
DG102T	Intro to Microcomputers and DP	3
AE109U	Computer Application - Agri Marketing	3
AE518U	Horse Shows	3
AE519U	Equine Truck and Trailer Operation	1

AE520U	Management of the Racing Thoroughbred	3
AE521U	Training Horse to Drive	1

\*To be repeated.

## 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 75 semester 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 advisory and program coordinator. Substitution of courses for those listed in the recommended curriculum may be approved to meet the needs of specific career areas of college transfer programs.

Course No.	Course Name	Credits
AE601U	Turfgrass Management	3
AE602U	Plant Materials I	3
AE603U	Horticulture Equipment	3
AE702U	Ag Leadership*	1
AE604U	Plant Material Maintenance	3
AE606U	Diseases and Insects	3
AE605U	Plant Materials II	3
AE607U	Landscape Construction	3
AE608U	Career Planning - Horticulture	1
AE609U	Basic Landscape Drawing	3
AE611U	Soil and Water Conservation	3
CC110U	Communication Skills I	3
AE613U	Mathematics I - Horticulture	3
AE610U	Residential Landscape Design	3
AE612U	Plant Propagation	3
AE629U	Grounds Maintenance	3
AE801U	Employment Internship	4
AE627U	Facility Construction	4
DG102T	Intro to Microcomputers and DP	3
CC120U	Communication Skills II	2
PC105U	Human Relations	3
AE628U	Grounds Management Problems	3

### Elective Courses

AE633U	Golf Course Maintenance	3
AE634U	Advanced Turfgrass Management	3
HS100U	First Aid and CPR	.5
AE955U	Special Projects: Horticulture	2

Any approved Small Engines Maintenance course. Or any other approved Horticulture courses under Landscape, Nursery and Garden Center and Parks and Natural Resources.

\*To be repeated.

## 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 77 semester credit hours, the graduate is awarded an Associated of Applied Science Degree.

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

Course No.	Course Name	Credits
AE60IU	Turfgrass Management	3
AE602U	Plant Materials I	3
AE603U	Horticulture Equipment	3
AE604U	Plant Material Maintenance	3
AE702U	Ag Leadership*	1
AE606U	Diseases and Insects	3
AE605U	Plant Materials II	3
AE607U	Landscape Construction	3
AE608U	Career Planning - Horticulture*	1
AE609U	Basic Landscape Drawing	3
AE6IU	Soil and Water Conservation	3
CC110U	Communication Skills I	3
AE613U	Mathematics I - Horticulture	3
AE610U	Residential Landscape Design	3
AE612U	Plant Propagation	3
AE613U	Horticulture Merchandising	3
AE615U	Herbaceous Plant Material	3
AE80IU	Employment Internship	4
DGI02T	Intro to Microcomputers and DP	3
PCI05U	Human Relations	3
CC120U	Communications Skills II	2
AE616U	Garden Center Operation	3

### Elective Courses

AE630U	Fruit and Vegetable Production	3
AE632U	Commercial Landscape Design	3
AE627U	Facility Construction	4
AE626U	Interior Plantscape	3
AE624U	Greenhouse Practices	3
AE625U	Commercial Plant Production	3
AE106T	Principles of Horticulture	3
AE63IU	Horticulture Pesticide Application	3

Or any other approved Horticulture course under Parks and Natural Resources and Grounds and Turfgrass Management.

\*To be repeated.

## 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 77 semester credit hours, the graduate is awarded an Associated of Applied Science Degree.

All students are aided in developing an individual education plan approved by the academic advisor and program coordinator. 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.

Course No.	Course Name	Credits
AE60IU	Turfgrass Management	3
AE602U	Plant Material I	3
AE603U	Horticulture Equipment	3
AE604U	Plant Material Maintenance	3
AE702U	Ag Leadership*	1
AE606U	Diseases and Insects	3
AE617U	Plants of the Wild	3
AE607U	Landscape Construction	3
AE608U	Career Planning - Horticulture*	1
AE618U	Mammalian Wildlife	3
AE61IU	Soil and Water Conservation	3
CC110U	Communication Skills I	3
AE613U	Mathematics I - Horticulture	3
AE619U	Park Planting Design	3
AE612U	Plant Propagation	3
AE620U	Park Maintenance	3
AE621U	Avian Wildlife	3
AE80IU	Employment Internship	4
AE622U	Aquatic Wildlife	2
PCI05U	Human Relations	3
AE627U	Facility Construction	4
CC120U	Communication Skills II	2
AE623U	Parks and Recreation Administration	3

### Elective Courses

AE636U	Wildlife Reserves	3
AE637U	Natural Resources Appreciation	3
DGI02T	Intro to Microcomputers and DP	3
AE635U	Natural Resources Interpretation	3

Or any other approved Horticulture courses under Landscape, Nursery and Garden Center and Grounds and Turfgrass Management.

\*To be repeated.



## **BUSINESS DEPARTMENT**

### **ACCOUNTING**

#### **Accounting Associate**

This program is designed to prepare individuals for 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, general and occupational information. Upon completion of 64 semester hours, the graduate is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
AO101T	Principles of Accounting I	4
AO102T	Principles of Accounting II	4
AO104T	Intermediate Accounting I	4
AO105T	Intermediate Accounting II	4
AO103T	Cost Accounting	4
AO107T	Income Tax	4
AD144U	Employment Seminar	1
AO108T	Computer Applications of Accounting	4
AO108U	Professionalism	1
	Electives	6
OF103T	Business Math & Machines	1
LA160T	Business Law I	3
MT120T	Finite Math	3
MT125T	Fundamentals of Statistics	4
DG102T	Introduction to Micros and DP	3
EO120T	Principles of Macroeconomics	3
EO130T	Principles of Microeconomics	3
CC112T	College Writing	5
CC130T	Speech Communication	3

#### **Junior Accounting**

This program is designed to provide fundamental knowledge of accounting, and 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 49 credit hours, the graduate is awarded a diploma.

Course No.	Course Name	Credits
AO104U	Accounting Fundamentals I	5
AO106U	Accounting Problems I	2
CC110U	Communication Skills I	2
CC120U	Communication Skills II	2
OF103T	Business Math & Machines	2
DG102T	Introduction to Micros and DP	3
OF106T	Typing I	2
AO105U	Accounting Fundamentals II	5

AO107U	Accounting Problems II	2
AO107T	Income Tax	4
AO108T	Computer Applications of Accounting	4
LA160T	Business Law I	3
AD144U	Employment Seminar	1
PC105U	Human Relations	3
OF102U	Office Procedures II	3
	Electives	6

### **COMPUTER EDUCATION**

#### **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, record auditors, documentation specialists, operations assistants or mainframe and microcomputer operators.

Upon completion of the required 41 semester credit hours, the graduate is awarded a diploma in Computer Operations. Students may enroll at the beginning of the fall or spring semesters and also on a space available part-time basis.

Course No.	Course Name	Credits
DG102T	Introduction to Micros and DP	3
DG102U	Self Service Aids	1
DG104U	Operating Systems Concepts	4
DG124U	Introduction to Report Program Generator (RPG) II	4
DG103U	Operating Techniques	3
DG106U	Assigned Operations Projects	3
DG118U	Business Applications for Programmers	3
DG125U	Basic Programming	4
PC105U	Human Relations	3
DG114U	Micro Utilities	2
	2 Microcomputer Electives	4
CC113T	Composition I	3
AO101T	Principles of Accounting I	4

#### **Computer Programming**

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 70 semester credit hours, the graduate is awarded an Associate of Applied Science degree. New students may begin fall or spring semester and also enroll on a space available part-time basis.

Course No.	Course Name	Credits
DG120U	Cobol I	4
DG116U	Program Design & Documentation	4
DG102U	Self Service Aids	1
DG102T	Introduction to Micros and DP	3
AO101T	Principles of Accounting I	4
DG121U	Cobol II	4
DG104U	Operating Systems Concepts	4
DG119U	Structured Systems Analysis	3

DG 133U	Data Communications I	4
DG130U	Program Testing	3
DG134U	Data Communications II	4
DG131U	Data Management I	4
DG118U	Business Applications for Programmers	3
CC112T	College Writing	5
	Elective Language	4
PC105U	Human Relations	3
AD144U	Employment Seminar	1
DG132U	Data Management II	4
DG135U	Application Programming Projects (APP)	4
MT105T	Intermediate Algebra	4

## FOOD SERVICE

The core approach to the Food Service programs allows the student certain flexibility in selecting a major interest in the food service industry. Programs feature classroom and laboratory instruction in technical related and general education courses. This includes quantity meal preparation and service in the kitchen-dining area, bakery and cafeteria operated by the students. Professional uniforms and culinary tools are required for all laboratory courses.

### Food Service Core Courses

Course No.	Course Name	Credits
HO128U	Introduction to the Hotel, Restaurant, Institution Industry	1
HO118U	Food Production I	5
HO120U	Food Production Seminar I	1
HO135U	Sanitation/Safety/Equipment	2
HO122U	Food Fundamentals I	3
HO123U	Food Fundamentals II	3
MT102U	Business Math	2
CC110U	Communication Skills I	2
PC105U	Human Relations	3
AD144U	Employment Seminar	1

### Apprentice Cook

The Apprentice Cook program 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 graduate is prepared for employment in restaurants, hotels, motels, institutions, industrial cafeterias, delicatessens and other facilities. Upon completion of the required 29 semester credit hours, the graduate is awarded a diploma.

Course No.	Course Name	Credits
	Food Service Core Courses	23
HO119U	Food Production II	5
HO121U	Food Production Seminar II	1

## Culinary Arts

The Culinary Arts program is designed to prepare students for entry level positions as chefs, bakers, production personnel and caterers. Through specialized training, the students develop the skills and knowledge necessary to meet the requirements of the growing and competitive industry.

Upon completion of the 64 semester credit hours, the student is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
	Food Service Core Courses	23
HO119U	Food Production II	5
HO121U	Food Production Seminar II	1
HO124U	Culinary Arts I	5
HO125U	Culinary Arts II	5
HO126U	Culinary Arts Seminar I	1
HO127U	Culinary Arts Seminar II	1
HO138U	Purchasing and Cost Control	3
DG102T	Introduction to Micros and DP	3
AD104U	Principles of Supervision	3
HO137U	Garde Manger/Catering	3
HO134U	Menu Planning and Nutrition	3
	Electives	8

## Hotel, Restaurant, Institution Management

The Hotel, Restaurant, Institution Management program is designed to prepare students for entry level management positions in the food service industry. Emphasis is placed on the business and human relation aspects of operating a food service establishment.

Upon completion of the required 70 semester credit hours, the student is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
	Food Service Core Courses	23
HO138U	Purchasing and Cost Control	3
HO131U	Hotel, Restaurant, Institution Management Lab I	4
HO129U	Hotel, Restaurant, Institution Management Seminar I	1
AD104U	Principles of Supervision	3
DG102T	Introduction to Micros and DP	3
CC130T	Speech Communication	3
AO101T	Principles of Accounting I	4
	Lab Electives	8
	Electives	17

## MARKETING AND MANAGEMENT

### Fashion Merchandising

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

Upon completion of the required 35 semester hours and math competency, the graduate is awarded a diploma. ASSET numerical score of 25 or Business Math will meet the math requirement.

Course No.	Course Name	Credits
HO101T	Textiles	3
AD144U	Employment Seminar	1
MR104U	Principles of Fashion Merchandising	3
MR103U	Visual Merchandising	2
MR105U	Fashion Show Procedures	3
AD801T	Business Internship	3
AD143U	Business Internship Seminar	1
HO102U	Fashion History	3
MR103T	Principles of Selling	3
	Business Elective	3
PC105U	Human Relations	3
CC110U	Communication Skills I	2
CC130T	Speech Communications	3
OF105U	Elective or Professionalism	2

### Food Store Management

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 65 semester credit hours, the graduate is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
MR107U	Intro. to Food Store Marketing	3
AD801T	Business Internship	7
AD143U	Business Internship Seminar	2
MR108U	Food Store Merchandising	4
AD114U	Food Store Operation Management	4
MR109U	Food Store Cases & Concepts	3
MR103T	Principles of Selling	3
AD104U	Principles of Supervision	3
MR101T	Principles of Marketing	3
MR102U	Retail Advertising & Display	3
AD144U	Employment Seminar	1
MT102U	Business Math	2
CC110U	Communication Skills I	2
CC120U	Communication Skills II	2
PC105U	Human Relations	3
AO101T	Principles of Accounting I	4
DG102T	Introduction to Micros and DP	3
EO100T	Introduction to Economics	3
CC130T	Speech Communication	3
AO103U	Management Accounting	3
	Electives	4

### Interior Design

The Interior Design program provides education and training leading to an Associate of Applied Science degree for persons interested in a career in the residential or contract field. Positions are available in designer sales, merchandising and mid-management. This program is four semesters in length and features a combination of classroom study and on-the-job training in business establishments. All facets of this challenging field including general education, business administration and design courses related to interior products and architectural graphics are studied.

Upon completion of the 65 semester credit hours, the graduate is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
HO103U	Historical Interiors I	3
HO104U	Historical Interiors II	3
HO101T	Textiles	3
HO109U	Design Fundamentals and Art History	3
HO106U	Architectural Graphics	3
HO105U	Color Theory	3
HO110U	Interior Design I	4
HO107U	Kitchen, Bath, & Lighting Design	3
HO108U	Perspective and Color Drawing	3
HO111U	Interior Design II	4
HO112U	Contract Design	4
AD801T	Business Internship	6
AD143U	Business Internship Seminar	1
CC110U	Communication Skills I	2
CC120U	Communication Skills II	2
PC105U	Human Relations	3
MT102U	Business Math	2
MR103T	Principles of Selling	3
AD144U	Employment Seminar	1
	Business Electives	6
CC130T	Speech Communications	3

### Management Development

The changing nature of the modern work force requires professional management skills. The Management Development program offers four career options. Students may choose from an extensive selection of both introductory and advanced management courses. Courses are offered daytime and evenings, on and off campus, and by arrangement, at business locations. The program easily accommodates full-time employees enrolled on a part-time basis, as well as those students enrolled on a full-time basis.

#### Career Options

- 1) Certificates:
  - Management
  - Traffic and Transportation
  - Small Business
  - Human Resources
- 2) Diploma
- 3) Associate of Arts (AA)
- 4) Associate of Applied Science (AAS)

### Certificates

Training Certificates are condensed packages of courses that will provide up-to-date information in an occupational area. They are designed for individuals who are already employed but need new knowledge and skills to function more effectively in their jobs. After completing all necessary courses, the student may request a Training Certificate from the Enrollment Services office. The certificate is evidence of special training or continuing education in a specific job field. Most classes will be held late afternoons, evenings or weekends. Since Training Certificates have been selected from the regular curriculum, they may also be used to meet the requirements for a diploma or degree. Students are encouraged to complete all courses in the certificate program; however, credit will be awarded upon completion of each individual class.

Course No.	Course Name	Credits
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#### Management Certificate

AD104U	Principles of Supervision	3
AD102T	Introduction to Management Management Electives	3 19

#### Traffic and Transportation Certificate

AD137U	Traffic and Transportation I	3
AD138U	Traffic and Transportation II	3
AD139U	Traffic and Transportation III	3
AD140U	Traffic and Transportation IV	3
AD134U	Interstate Commerce Law & Practice I	2
AD135U	Interstate Commerce Law & Practice II	2
AD136U	Interstate Commerce Law & Practice III Management Electives	2 6

#### Small Business Certificate

AD141U	Small Business Entrepreneurship	2
AO101U	Small Business Recordkeeping	2
AD101T	Introduction to Business	3
AD102T	Introduction to Management	3
MR101T	Principles of Marketing	3
LA160T	Business Law I Management Electives	3 9

#### Human Resources Certificate

PC105U	Human Relations	3
AD102T	Introduction to Management	3
AD104U	Principles of Supervision or	3
AD112U	Principles of Personnel Management	3
AD116U	Introduction to Labor Relations or	3
AD118U	Collective Bargaining	3
AD117U	Wage and Salary Administration Management Electives	3 9

#### Diploma

Course No.	Course Name	Credits
CC112T	College Writing or	5
CC110U	Communication Skills I	2
AD104U	Principles of Supervision	3
PC105U	Human Relations	3
AD102T	Introduction to Management	3

LA160T	Business Law I	3
AD101T	Introduction to Business	3
DG102T	Introduction to Micros and DP Management Electives	3 9

#### Associate of Arts

Students must fulfill the general requirements for the Associate of Arts degree, in addition to completing the required program courses and electives listed below, for a minimum of 62 semester credit hours.

Course No.	Course Name	Credits
AD104U	Principles of Supervision	3
DG102T	Introduction to Micros and DP	3
PC105U	Human Relations	3
AD102T	Introduction to Management Management Electives	3 5

#### Associate of Applied Science

Course No.	Course Name	Credits
CC112T	College Writing or	5
CC110U	Communication Skills I and	2
CC120U	Communication Skills II	2
AD104U	Principles of Supervision	3
DG102T	Introduction to Micros and DP	3
PC105U	Human Relations	3
EO130T	Principles of Microeconomics or	3
EO120T	Principles of Macroeconomics	3
AD102T	Introduction to Management Electives Management Electives	3 19 21
Plus <b>one</b> of the following:		
PO120T	Iowa Government	3
SY100T	Introduction to Sociology	3
SY120T	Social Problems	3

### Retail Marketing

Retail Marketing offers rapidly growing employment opportunities. A recent government study reported that one-fourth of all job openings are in the retail marketing and merchandising industries.

Graduates of this program work in positions related to sales and sales management, display and advertising, supervision and in-store merchandising. Some graduates are now operating their own businesses.

Additional program highlights include: (1) opportunity to gain job related experience through Business Internship, shadowing the areas of retail marketing careers; (2) up-to-date curriculum and instruction based on advise from the business community through an active Retail Marketing Advisory Committee; (3) small classroom size allowing for greater student/instructor interaction; (4) outstanding placement at competitive starting salaries.

Upon completion of the 31 semester credit hours, the graduate is awarded a Retail Marketing diploma.

Course No.	Course Name	Credits
MR103T	Principles of Selling	3
AD801T	Business Internship	3
AD143U	Business Internship Seminar	1
MR102T	Principles of Retailing	3
MR106T	Principles of Advertising	3
AD144U	Employment Seminar	1
CC130T	Speech Communication	3
DG102T	Introduction to Micros and DP	3
PC105U	Human Relations	3
MT102U	Business Math	2
CC110U	Communication Skills I	2
	Electives	4

### Retail Management

Retail Management is a rapidly expanding field offering numerous career opportunities for individuals who enjoy working with people and seek the challenge of a retail management position. Graduates from the Retail Management program are now found in positions such as shop owner, department store management, buyer, speciality shop manager as well as sales people in almost all kinds of marketing businesses.

Graduates of the Fashion Merchandising or Retail Marketing programs who also complete the additional 35 credit hours of the Retail Management program are awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
AD102T	Introduction to Management	3
MR101T	Principles of Marketing	3
AD801T	Business Internship	7
AD143U	Business Internship Seminar	2
AD145U	Management Seminar	1
AD113U	Merchandising Management	3
AD104U	Principles of Supervision	3
AO101T	Principles of Accounting I	4
EO100T	Introduction to Economics	3
	Electives	4
CC120U	Communication Skills II	2

### Telemarketing

Telemarketing is the art and science of marketing goods and services through telephone contact. Kirkwood's Telemarketing program will prepare individuals to enter this field with large companies who have their own telemarketing departments or telemarketing service companies. Graduates of this program are trained in a competency-based curriculum which includes Speech Communication, Human Relations, Telephone Salesmanship, Career Development and Data Base Management.

Students may enter this program any semester on either a part-time or full-time basis. Graduates should find excellent employment opportunities in Kirkwood's service area as small and large businesses expand their use of this cost-effective marketing strategy.

Upon completion of the required 15 semester credit hours, the graduate is awarded a certificate.

Course No.	Course Name	Credits
PC105U	Human Relations	3
CC132T	Public Communication	3
	or	
CC130T	Speech Communication	3
MK022U	Employment Seminar	1
MR110U	Telemarketing Techniques	4
MR111U	Telemarketing Data Base Management	4

### 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 11 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

Course No.	Course Name	Credits
*OF106T	Typing I	3
OF107T	Typing II	3
OF106U	Office Careers	1
OF104U	Business Communications	5
OF101U	Office Procedures I	3
OF103U	Machine Transcription	4
OF103T	Business Math and Machines	2
OF109U	Word Processing I	3
PC105U	Human Relations	3
	or	
PC100T	General Psychology	3
OF104T	Records Management	3
AD144U	Employment Seminar	1

\* Core for General and Clerical programs; prerequisite for all other Office Education programs.

### Administrative Secretarial

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 67 semester hours, the graduate is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
	Office Education Core Courses	28
OF105T	Administrative Office Procedures	3
OF108T	Production Typing	3
AD104T	Office Administration	3
OF102T	Shorthand II	3
AD801T	Business Internship	4
AD143U	Business Internship Seminar	1
AO101T	Principles of Accounting I	4
AD101T	Introduction to Business	3
LA160T	Business Law I	3
EO120T	Principles of Macroeconomics	3
DG102T	Introduction to Micros and DP	3
CC130T	Speech Communication	3
	or	
CC132T	Public Communication	3
	Elective	3

### **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, computer and office machine skills, filing procedures and telephone techniques.

Upon completion of the required 37 semester credit hours, the graduate is awarded a diploma.

Course No.	Course Name	Credits
	Office Education Core Courses	31
OF102U	Office Procedures II	3
AO102U	Accounting Concepts	3

### **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 47 semester credit hours, the graduate is awarded a diploma.

Course No.	Course Name	Credits
	Office Education Core Courses	31
OF101T	Shorthand I	4
OF102T	Shorthand II	3
OF108T	Production Typing	3
OF102U	Office Procedures II	3
AO102U	Accounting Concepts	3

### **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 Typing II (40 wpm) level is a prerequisite for admission to the Information Processing program.

Upon completion of the required 39 semester credit hours, the graduate is awarded a diploma.

Course No.	Course Name	Credits
	Office Education Core Courses	28
OF110U	Word Processing II	2
OF108U	Office Systems Management	3
DG102T	Introduction to Micros and DP	3
OF102U	Office Procedures II	3

### **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 nine related courses. Proficiency at the Typing I (35 wpm) level is required if you wish to complete the program in one year.

Upon completion of the required 53 semester credit hours, the graduate is awarded a diploma.

Course No.	Course Name	Credits
	Office Education Core Courses	28
OF123U	Legal Terminology	2
OF101T	Shorthand I	4
OF124U	Legal Typing	3
OF122U	Legal Machine Transcription	3
OF121U	Law Office Procedures	3
AD801T	Business Internship	3
AD143U	Business Internship Seminar	1
AO102U	Accounting Concepts	3
LA155T	Personal Law	3

### **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 Typing I (35 wpm) level is recommended for admission to the program.

Upon completion of the 53 required semester credit hours, the graduate is awarded a diploma.

Course No.	Course Name	Credits
	Office Education Core Courses	28
HS120U	Medical Terminology	4
HS150U	Basic Anatomy and Physiology	3
OF126U	Medical Secretarial Machine Transcription	4
OF125U	Medical Secretarial Procedures	4
HS160U	Clinical Pharmacology	2
AD801T	Business Internship	4
AD143U	Business Internship Seminar	1
AO102U	Accounting Concepts	3

### **Advanced Placement - Certified Professional Secretary**

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 33 hours to be applied toward an Associate of Applied Science degree. Eight 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:

<i>Course No.</i>	<i>Course Name</i>	<i>Credits</i>
<i>Section I: Behavioral Science in Business</i>		
PC105U	Human Relations	3
<i>Section II: Business Law</i>		
LA160T	Business Law I	3
<i>Section III: Economics and Management</i>		
EO120T	Principles of Macroeconomics	3
AD104T	Office Administration	3
<i>Section IV: Accounting</i>		
AO101T	Principles of Accounting I	4
<i>Section V: Office Administration and Communication</i>		
OF105T	Administrative Office Procedures	3
OF104T	Records Management	3
OF104U	Business Communications	5
<i>Section VI: Office Technology</i>		
DG102T	Introduction to Micros and DP	3
OF109U	Word Processing I	3

### **HEALTH SCIENCES**

#### **Dental Assisting**

The Dental Assisting curriculum is designed to prepare students to assist dentists 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, 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 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 successful completion of the first year requirements, the graduate is awarded a diploma. Upon completion of the additional course requirements, the graduate is awarded an Associate of Applied Science degree.

<i>Course No.</i>	<i>Course Name</i>	<i>Credits</i>
HS110U	Introduction to Health	2
HS111U	Health Care I	1.5
DL100U	Oral Anatomy	3.5
DL101U	Dental Materials	6
DL102U	Chairside Assisting	5
DL821U	DA Clinic I	4.5
DL205U	Dental Radiography	3
DL206U	Dental Office Procedures I	2
DL207U	Dental Therapeutics	3.5
DL208U	Speciality Dentistry	3.5
HS100U	CPR/First Aid	.5
DL305U	Intra-Oral Skills	2
DL306U	Dental Office Procedures II	1.5
DL832U	DA Clinic II	4
	English (Elective)	3

#### **Dental Assisting Degree Diploma Plus:**

HS400U	Teaching Methods	2
HS410U	Management Skills	2
HS999U	Studies in Health Sciences	2
CC130T	Speech Communications	3
	Math Elective	3
	Humanities Elective	3
PC100T	General Psychology	3

### 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 examination.

Upon successful completion of the required course work, the graduate is awarded a diploma. 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 Kirkwood Dental Laboratory Technology Program prepares students with the highly skilled craft of dental prosthetic construction. The dental technical fabricates dental prosthetic appliances as prescribed by a dentist. The dentist will use the appliances to replace, move and/or alter natural teeth in an aesthetic, phonetic and functional fashion.

In the two-year program, students receive training in four basic areas: complete and partial denture construction, crown and fixed bridgework fabrication, porcelain and acrylic restorations and orthodontic appliance construction. Students completing the dental laboratory technology program receive an Associate of Applied Science degree.

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 successful completion of the program requirements, the graduate is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
DL150U	Technical Chemistry and Physics	5
DL151U	Dental Lab Materials	4
DL152U	DLT Oral Anatomy	1
DL153U	Dental Orientation	1
DL154U	Dental Anatomy	4
HS110U	Introduction to Health	2
DL255U	Crown and Bridge	6
DL256U	Dentures I	3
DL257U	Partial Dentures I	3
PC100T	General Psychology	3
	Math (Elective)	3
DL831U	DLT Clinic	8
DL455U	Orthodontics	3
DL456U	Porcelain Techniques	5
DL457U	Dentures II	4
DL458U	Partial Dentures II	5
DL565U	Occlusion	1
DL550U	Laboratory Management (DLT)	3
DL555U	*Special Study: Orthodontics	5
DL556U	*Special Study: Fixed Bridge	5
DL557U	*Special Study: Ceramics	5

DL558U	*Special Study: Removable Bridge	5
DL559U	*Special Study: Full Dentures	5
	English Requirement	5
	Humanities Requirement	3

\*Note two special studies required

### 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 successful completion of the program requirements, the graduate is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
HS110U	Introduction to Health	2
HS111U	Health Care I	1.5
HS112U	Health Care II	1
HS100U	CPR/First Aid	.5
HS150U	Basic Anatomy & Physiology	3
HS120U	Medical Terminology	4
ND100U	Introduction to EEG	3
	Algebra Elective	3
ND205U	Electroneurodiagnostic Technical Science	8.5
ND206U	Electroneurodiagnostic Clinical Science I	3
HS156U	Homeostatic Physiology	3
PC100T	General Psychology	3
ND831U	Clinical EEG I	6
	English Elective	3
ND405U	Electroneurodiagnostic Clinical Science II	3
ND406U	Evoked Potentials	2
ND842U	Clinical EEG II	6
	English Elective	3
ND853U	Clinical Neurophysiology	8
HS410U	Health Manager	2
	Humanities Elective	3



## Medical Assisting

The Medical Assisting program concentrates on three areas: medical office procedures, secretarial skills and outline laboratory procedures, with a clinical internship experience in physicians' offices, medical clinics and hospitals. During the clinical internship, students increase their skills and proficiency.

The assistant's duties may vary from assisting with physical examinations and treatments, setting up instrument trays and sterilizing instruments, to assisting with patient histories and appointments and other clerical duties. The assistant may also perform routine laboratory tests, such as urinalysis, blood work and electrocardiograms.

The program is 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 successful program requirements, 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 courses, the graduate is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
HS150U	Basic Anatomy & Physiology	3
HS110U	Introduction to Health	2
HS111U	Health Care I	1.5
HS112U	Health Care II	1
ME100U	MA Procedures	4
HS120U	Medical Terminology	4
DG102T	Introduction to Microcomputers	3
ME205U	Medical Insurance and Legalities	3
ME206U	Medical Bookkeeping	2
ME207U	Medical Typing	2
ME208U	Medical Lab	4
ME200U	MA Pharmacology	3
HS425U	EKG	1
	English Elective	3
ME831U	MA Clinic	6.5
HS100U	CPR/First Aid	.5
ME300U	MA Psychiatry	2

### Medical Assisting Degree Diploma Plus:

HS415U	Limited Practice Radiographer	5
HS400U	Teaching Methods	2
HS410U	Management Skills	2
CC130T	Speech Communications	3
	Humanities Elective	3
	Math Elective	3

## Medical Records Technology

The medical record technician prepares, organizes and evaluates medical records. A medical record is a permanent file of one person's medical health and/or treatment. Each record consists of all medical reports

which describe the patient's condition and progress. It is maintained and used for patient care management, quality review, financial reimbursement, legal affairs, education, research and public health.

The Medical Record program prepares students for careers in the medical record field, including hospital record departments, medical clinics, long-term care facilities, state and federal health agencies and health research societies.

Graduates are eligible to write the National Accreditation examination offered by the American Medical Record Association to become accredited record 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 Record Association.

Upon successful completion of the program requirements, the graduate is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
HS110U	Introduction to Health	2
HS120U	Medical Terminology	4
	College Typing I	3
BI150T	Human Anatomy & Physiology I	4
MI100U	Medical Record Science I	5
BI151T	Human Anatomy & Physiology II	4
	English Elective	5
DG102T	Introduction to Microcomputers	3
MI205U	Medical Transcription	2
MI206U	Legal Aspects of Health Information	1.5
MI821U	MRT Practicum I	3
MI405U	Medical Record Science II	3
MI406U	Coding Classifications	3
MI407U	Abstracting & Health Statistics	3
HS157U	Introduction to Pathology	3
MI842U	MRT Practicum II	3
MI505U	Advanced Coding	2.5
HS400U	Teaching Methods	2
PC100T	General Psychology	3
MI500U	Management of Health Information	2.5
MI853U	MRT Practicum III	2
	Math Elective	3
	Humanities Elective	3

## Nursing

The Nursing program offers Practical Nursing (PN) and Associate Degree Nursing (ADN) options in a cored curriculum. Students must be 17 years of age and have a high school diploma or equivalent before applying.

Successful completion of the assessment process is required for admission. The first year of the PN 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.

PN students learn specific procedures and patient care skills pertinent to the performance expected by employers. Upon successful completion of the program requirements, 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 successful completion of the program requirements, the graduate is awarded an Associate of Applied Science degree and is eligible for the state examination for RN licensure.

Course No.	Course Name	Credits
HS110U	Introduction to Health	2
HS111U	Health Care I	1.5
HS112U	Health Care II	1
HS100U	CPR/First Aid	.5
NG105U	Nursing Fundamentals	4.5
BI150T	Human Anatomy & Physiology I	4
	Math	3
NG205U	Health Throughout the Lifespan	4
NG821U	Nursing Clinic I	4
BI151T	Human Anatomy & Physiology II	4
HS140U	Normal Nutrition	1
HS160U	Clinical Pharmacology	2
PC100T	General Psychology	3
NG305U	Nursing the Chronically III	4.5
NG832U	Nursing Clinic II	5
	Elements/Composition I	3
NG306V	*Graduate PN Seminar	1
HS156U	*Homeostatic Physiology	3
NG406U	*Advanced Placement Seminar	1
HS117U	Health Assessment	2
NG405U	Mental Health Nursing	5
NG843U	Nursing Clinic III	2
BI130T	Microbiology	4
SY100T	Introduction to Sociology	3
NG505U	Nursing the Acutely III	4
NG854U	Nursing Clinic IV	5
	Composition I or Composition II	3
	Humanities	3
	Electives	3
NG605U	Advanced Maternal/Child Nursing	3
NG865U	Nursing Clinic V	3
NG606U	Nursing Management	3
NG607U	Perspectives in Nursing	2

\*Only For LPN's Entering RN Program

\*\*Only for existing PN's

### ADN Advanced Placement

An Advanced Placement option is available for LPNs. Questions regarding admissions procedures may be directed to the Office of Admissions or the Nursing Department.

### Occupational Therapy Assistant

This program combines academic and clinical experiences to prepare graduates to work under the supervision of registered occupational therapists. The occupational therapy assistant provides services to individuals whose abilities to perform daily living tasks are impaired by developmental deficits, the aging process or physical and psycho-social disabilities. Functional activities are used to help individuals learn the tasks needed to live as independently as possible.

Occupational therapy assistants work under the guidance of registered occupational therapists to evaluate, program plan and implement treatment activities. Additional responsibilities include documentation of services and maintenance of clinical supplies and equipment.

The Occupational Therapy Assistant Program includes Off Campus Level II Field Work in health care facilities in Iowa. During field work, the students will have an opportunity to apply the theory and practice the responsibilities expected of an entry level occupational therapy assistant. 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 for occupational therapy assistants is accredited by the American Occupational Therapy Association. The student who successfully completes the program is eligible to take a certification examination. Upon passing the certification examination, the graduate is qualified to: 1) become a certified occupational therapy assistant (COTA) and 2) apply for a license to practice as an occupational therapy assistant in Iowa. NOTE: A COTA may practice in any state as an assistant, however, if a state has licensed assistants, the COTA must also become licensed. Upon successful completion of the program requirements, the graduate is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
HS110U	Introduction to Health	2
HS111U	Health Care I	1.5
HS112U	Health Care II	1
OT100U	Foundations of Occupational Therapy	3
OT101U	Medical Communications	1.5
HS150U	Basic Anatomy & Physiology	3
PC100T	General Psychology	3
CC130T	Speech	3
HS155U	Functional Anatomy & Physiology	3
	English Elective	3
OT205U	Developmental Processes	4
OT206U	Psycho-Physical Dysfunction	5
OT207U	Treatment Modalities	3
OT305U	OT Rehabilitation I	4
OT306U	OT Methods I	3
OT307U	General Medical Conditions	1
	Basic Math	3
HS100U	CPR/First Aid	.5
OT405U	OT Rehabilitation II	3.5
OT406U	OT Methods II	3

OT407U	OT Management	2
OT408U	OT Pediatrics/Gerontology	2
OT851U	OTA Clinic A	6
OT852U	OTA Clinic B	6
OT853U	OTA Clinic C	6

### Respiratory Therapy

This curriculum is designed to prepare students to work as allied health specialists in the field of respiratory therapy. Respiratory therapists are trained in oxygen administration, aerosol therapy, ventilator support, blood gas sampling and analysis, chest physio-therapy and pulmonary diagnostic testing. Classroom and laboratory experiences are provided at Kirkwood, with clinical experience at major hospitals in the Iowa City and Cedar Rapids area.

Upon successful completion of the program requirements, the graduate is awarded an Associate of Applied Science degree and a certificate of completion that makes the graduate 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.

### Orthopaedic Physician's Assistant

The Orthopaedic Physician's Assistant 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. No accrediting agency exists for this program. Students with prior experience and/or education must see the program coordinator for advanced placement.

Upon successful completion of the program requirements, the graduate is awarded an Associate of Applied Science degree.

Course No.	Course Name	Credits
HS150U	Basic Anatomy & Physiology	3
BI130T	Microbiology	4
HS110U	Introduction to Health	2
HS111U	Health Care I	1.5
HS112U	Health Care II	1
OA101U	Immobilization I	3.5
OA100U	Surgical Techniques	3
HS155U	Functional Anatomy	3
OA205U	Immobilization II	3
OA206U	Orthopaedic Conditions I	3.5
OA821U	OPA Clinic I	2.5
CC112T	College Writing	5
OA305U	Orthopaedic Conditions II	3.5
OA831U	OPA Clinic II	2.5
	Humanities Elective	3
	Math Elective	3
HS117U	Health Assessment	2
HS156U	Homeostatic Physiology	3
HS157U	Pathology	3
HS160U	Clinical Pharmacology	2
OA405U	Orthopaedic Rehabilitation	2
HS100U	CPR/First Aid	.5
OA842U	OPA Clinic III	5
OA505U	OPA Seminar	1
OA854U	OPA Clinic IV	11

Course No.	Course Name	Credits
HS110U	Introduction to Health	2
HS111U	Health Care I	1.5
HS112U	Health Care II	1
BI150T	Human Anatomy & Physiology I	4
	Algebra (required)	3
RC205U	Respiratory Care I	5.5
CN100T	Introduction to Chemistry	3
	English (required)	3
HS100U	CPR/First Aid	.5
BI151T	Human Anatomy & Physiology II	4
HS117U	Health Assessment	2
RC305U	Respiratory Care II	6
RC831U	Respiratory Care Clinic I	5
RC306U	Pathology I	3
HS425U	EKG	1
HS160U	Clinical Pharmacology	2
RC307U	Pulmonary Function Testing	1.5
RC405U	Respiratory Care III	4
RC842U	Respiratory Care Clinic II	5
PA115T	Medical Physics	3
RC853U	Respiratory Care Clinic III	5
BI130T	Microbiology	4
RC505U	Pathology II/Perinatology	4
HS400U	Teaching Methods	2
DG102T	Introduction to Microcomputers	3
RC864U	Respiratory Care Clinic IV	5
PC100T	General Psychology	3
HS435U	Advanced Cardiac Life Support	2
HS130U	Medical Ethics	2
	Humanities (elective)	3

## **INDUSTRIAL TECHNOLOGIES**

The Department of Industrial Technologies encompasses instructional programs in the trades and occupations related in some fashion to industry. The scope of programs covers topics ranging from architecture and construction to the mechanical trades to manufacturing programs to electricity and electronics to the study of environmental sciences and pollution control.

The department is organized into four clusters of similar career programs; Power Mechanics, Electricity/Electronics, Manufacturing and Design, and Environmental Science.

All programs are approved for veteran's benefits.

### **CAREERS IN POWER MECHANICS**

The Power Mechanics cluster is a group of programs covering several areas of the mechanical occupations. Persons interested in working on, around or with equipment powered by internal combustion engines will find that one or more of these programs will meet their needs. The programs in this cluster are:

- Auto Collision Repair
- Automotive Technology
- Farm Equipment Mechanics Technology
- Marine and Small Engine Repair (MASER)

Most of the courses in the first two semesters are identical in the three mechanical repair oriented programs (not including Auto Collision Repair). This structure is designed to facilitate easy transition from one program to another within the cluster, either due to a desire to change majors in the middle of a program or because of a wish to complete more than one program. Students will often find students majoring in other Power Mechanics programs in the same first year classes that they are taking.

Individualized Training Certificates may be designed by consulting with instructors and the program coordinator. Final approval rests with the Assistant Dean.

### **AUTO COLLISION REPAIR**

Graduates of the Auto Collision Repair program have developed skills in the hands-on facets of the field as well as skills in cost estimating and customer relations. Primary emphasis in this program is given to the theory and practices of metal forming and shaping, body fillers, frame straightening and repair, uni-body straightening and repair, refinishing procedures, paints and paint chemistry, glass installation, upholstery removal and replacement and safe equipment use and care.

This is a one year diploma program, encompassing two semesters and one summer session. Most class time is devoted to practical experiences in Kirkwood's new state-of-the-art repair facility, but students will also be exposed to appropriate theory and related instruction.

Auto Collision Repair instructors have many years of experience in the field as well as in teaching at Kirkwood Community College. Their practical experience and instruction will be supplemented with videotapes, seminars, and demonstrations by expert outside speakers. A Trade Advisory Council assists the program by providing input as to the latest technology and information regarding the status of the field in Cedar Rapids and Area 10.

Students are accepted into the program in the fall and spring semesters. Advanced placement is determined by the instructor and program coordinator, with final approval by the Assistant Dean.

<i>Course No.</i>	<i>Course Name</i>	<i>Credits</i>
PM150U	Metalworking I	6
PM155U	Metalworking II	4
PM156U	Metalworking III	4
PM160U	Refinishing I	6
PM165U	Refinishing II	3
PM166U	Refinishing III	3
PM157U	Body Straightening Option	7
	or	
PM167U	Painting Option	7
MN100U	Fundamentals of Welding	3
IT100U	Industrial Math I	3
CC110U	Communications Skills I	2
PC105U	Human Relations	3
PM121U	Business Practices	2

## **AUTOMOTIVE TECHNOLOGY**

The Automotive Technology program is designed to provide entry-level skills and knowledge for persons who seek employment in the many varied mechanical repair occupations related to the automobile.

Guided by skilled instructors, with extensive backgrounds as automotive technicians, and a Trade Advisory Council made up of private auto repair facility owners, franchised auto dealers, and working automotive technicians, students will study the theory of each automotive subsystem and apply that theory in an extensive hands-on laboratory program. To meet the challenge of rapidly increasing sophistication in today's automobiles, emphasis will be placed on automotive electronics. Courses in body electrical systems, engine electrical and computerized fuel delivery systems are an integral part of the program. During the two years and one summer duration of this Associate of Applied Science Degree program, students will spend about half of the time in the classroom and the other half in the laboratory. Work on models, mockups, and school owned equipment/vehicles will give way to "live" customer owned vehicles as instruction progresses.

Kirkwood Community College has been designated as one of 50 Toyota Technical Training Centers throughout the nation and is the only such center in Iowa. The program is in the process of becoming certified by the National Institute of Automotive Service Excellence. Both instructors are certified Master Technicians by ASE.

Students are accepted into this program in the fall semester each year. Advanced placement is rare and is dependent upon approval of the instructors, program coordinator and Assistant Dean.

Course No.	Course Name	Credits
PM100U	Career Orientation	1
PM101U	Fundamentals of Auto Servicing	6
PM102U	Technical Procedures for Power Mechanics Technicians	3
PM103U	Fundamentals of Internal Combustion Engines	6
PM104U	Fundamentals of Electricity	6
PM110U	Fundamentals of Power Transfer I	3
PM111U	Fundamentals of Power Transfer II	3
PM112U	Fundamentals of Vehicular Air Conditioning	3
MN100U	Fundamentals of Welding	3
IT100U	Industrial Math I	3
PM265U	Body Electrical Circuits	3
PM266U	Engine Electrical Circuits	3
PM267U	Automotive Fuel Systems	2
PM268U	Engine Design and Servicing	4
PM269U	Engine Performance	2
PM275U	Automotive Suspension Systems	4
PM276U	Automotive Braking Systems	6
PM277U	Alignment	2
PM278U	Automatic Transmissions	6
PM279U	Cooling Systems	2
IT100U	Industrial Math I	3
IT101U	Industrial Math II	3
DG102U	Introduction to Microcomputers and Data Processing Concepts	3
CC110U	Communications Skills I	2
CC120U	Communications Skills II	2
PC105U	Human Relations	3

### FARM EQUIPMENT MECHANICS TECHNOLOGY

The Farm Equipment Mechanics Technology program prepares graduates for entry-level employment or job advancement in fields related to the repair and maintenance of farm equipment and other diesel powered equipment.

Assisted by a Trade Advisory Council, the experienced faculty has designed a comprehensive, challenging program stressing hands-on skill development, theoretical knowledge and leadership skills. Basic skill and knowledge development with a variety of applications gives graduates many options for employment. Major topics include engines, hydraulics, electrical systems, air conditioning, power transfer and welding. Each subsystem is covered in detail, with culminating activities including live work on customer owned equipment in the latter stages of the program.

This Associate of Applied Science Degree program requires two years and one summer to complete. About half of that time is spent in the classroom and the other half in the spacious, well equipped college laboratory.

This practical mix of theory and practice is supplemented with videotapes, seminars, demonstrations and field trips.

Students are accepted into this program in the fall semester each year. Advanced placement is dependent upon approval of the instructors, program coordinator, and Assistant Dean.

Course No.	Course Name	Credits
PM100U	Career Orientation	1
PM102U	Technical Procedures for Power Mechanics Technicians	3
PM103U	Fundamentals of Internal Combustion Engines	6
PM104U	Fundamentals of Electricity	6
PM110U	Fundamentals of Power Transfer I	3
PM111U	Fundamentals of Power Transfer II	3
PM112U	Fundamentals of Vehicular Air Conditioning	3
PM113U	Fundamentals of Hydraulics I	3
PM114U	Fundamentals of Hydraulics II	3
MN100U	Fundamentals of Welding	3
IT100U	Industrial Math I	3
CC110U	Communications Skills I	2
PC105U	Human Relations	3
PM120U	Tool Reconditioning & Repair	2
PM121U	Business Practices	2
PM225U	Machinery Servicing	4
PM226U	Combine & Harvesting Equipment Repair	4
PM227U	Combine Operation & Adjustment	2
PM228U	Power Shift Transmissions	3
PM229U	Diesel Fuel Systems	6
PM235U	Unit Diagnosis and Overhaul	16
PM805U	Internship	1-5
CC120U	Communications Skills II	2

### MARINE AND SMALL ENGINE REPAIR (MASER)

Graduates of the Marine and Small Engine Repair program are trained to maintain and repair grounds and turf equipment, boat motors, snowmobiles, motorcycles, chain saws and similar equipment. Common and unique systems and subsystems in each of the above areas are covered in detail, including engines, electrical systems, power transfer, hydraulics and final drives.

This is a one year diploma program, requiring two semesters and one summer session to complete. Most class time is spent in a spacious, well equipped laboratory; however, students will also be given a theoretical background as well as related general education courses. Up-to-date, practical instruction is assured by faculty with many years of experience in the field as well as a Trade Advisory Council that recommends additions and deletions to the curriculum. Videotapes, seminars and field trips round out the instruction in this program.

Students are accepted into the program in the fall semester each year. Advanced placement is available and requires the approval of the instructor, program coordinator and Assistant Dean.

Course No.	Course Name	Credits
PM100U	Career Orientation	1
PM102U	Technical Procedures for Power Mechanics Technicians	3
PM103U	Fundamentals of Internal Combustion Engines	6
PM104U	Fundamentals of Electricity	6
PM110U	Fundamentals of Power Transfer I	3
PM113U	Fundamentals of Hydraulics I	3
PM120U	Tool Reconditioning & Repair	2
PM121U	Business Practices	2
PM205U	Fuel Systems	2
PM206U	Special Power Transfer Systems	3
PM207U	Unit Diagnosis and Repair	11
MN100U	Fundamentals of Welding	3
CC110U	Communications Skills I	2
PC105U	Human Relations	3

## CAREERS IN ELECTRICITY/ ELECTRONICS

The Electricity/Electronics cluster comprises three Associate of Applied Science Degree programs:

- Electronics Engineering Technology
- Communications Electronics
- Industrial Maintenance Technology

Occupations within this cluster of programs offer a wide range of job titles including Industrial Electrician, Air Conditioning and Refrigeration Technician, HVAC Technician, Industrial Electronics Technician, Communications Electronics Specialist, Electronics Service Technician, Broadcast Engineer, Test Technician, Prototype Lab Technician, Electronics Engineering Technician and Design Technician.

Each program is a stand alone set of courses placing different emphasis and applications on the basic theories and concepts of electricity and electronics. The Electronic Engineering Technology program studies these concepts from a design point of view, heavily emphasizing theory and its application to new circuits or products. The Communications Electronics program studies many of the same concepts, but from a troubleshooting and repair approach, emphasizing the ability to determine what is wrong with an existing circuit, judging the practicality of repairing it and carrying out those repairs. The Industrial Maintenance Technology program places more emphasis on the applications of motors, transformers and control circuits. In addition, environmental control and programmable controllers are studied in this program.

Specialized, short term Training Certificates are available under some circumstances. Students interested in

this training should consult the program instructors. Final approval is made by the Assistant Dean upon recommendation of the program coordinator.

## ELECTRONICS ENGINEERING TECHNOLOGY

Students graduating with the Associate of Applied Science Degree in Electronics Engineering Technology may find employment as Electronics Systems Field Service Technicians, Engineering Research Assistants, Technical Writers, Electronics Salespersons/Representatives or Lab or Test Technicians.

Kirkwood's Electronics Engineering Technology program requires two years of study, consisting of four semesters and one summer. Classrooms and laboratories provide innovative, state-of-the-art equipment so that students gain proficiency in testing, analyzing, operating and troubleshooting electronic circuits. The curriculum is kept up-to-date through the input of an Advisory Council made up of technicians, supervisors and management of electronics firms in Cedar Rapids and Area 10. A significant strength of this program is the microprocessor sequence and the communications circuits sequence of courses in the second year. Students are accepted into this program in the fall semester of each year. Since seats are limited and tend to fill early, it is recommended that the application process be completed by February for entry into the fall class. Advanced placement may be available to persons who have previous training or life experience in electronics.

Course No.	Course Name	Credits
EE161U	Computer Programming for Technicians	3
EE165U	Electric Circuits I	5
EE166U	Electric Circuits II	5
EE167U	Electric Circuits III	2
EE175U	Active Devices I	6
EE176U	Active Devices II	6
EE177U	Active Devices III	2
EE275U	Microprocessors I	4
EE276U	Microprocessors II	4
EE277U	Digital Diagnostic Techniques	3
EE285U	Communication Electronics I	5
EE286U	Communication Electronics II	5
EE287U	Communication Projects	2
EE288U	Transform Circuit Analysis	4
EE295U	Design Projects	3
MT100U	Technical Mathematics I	4
MT101U	Technical Mathematics II	4
IT135U	Unified Technical Concepts Physics I	2
IT136U	UTC Physics II	3
IT137U	UTC Physics III	3
IT165U	Economics for Technicians	2
CC113T	Composition I	3
CC115T	Composition II: Technical Writing	3
PC105U	Human Relations	3

## COMMUNICATIONS ELECTRONICS

The Communications Electronics program offers theory and practical application of electronics fundamentals in radio and television broadcast systems, consumer electronics repair (stereo, two way radio, video recorder/players, etc. ), microprocessor controlled equipment (VCR's and microcomputers), antenna and satellite systems and fiber optics.

This program is two years in length, requiring four semesters and one summer session to complete the Associate of Applied Science Degree. Well equipped classrooms and laboratories provide students with the opportunity to achieve competency in operating sophisticated test equipment and troubleshooting and repairing mechanical, electrical, and electronic components and circuits. An Advisory Council made up of working technicians, managers and owners provides input that assists the highly qualified faculty in keeping the curriculum up-to-date in a fast changing area of technology.

Students begin this program of study each fall semester. As the program tends to fill limited seats early in the year, it is recommended that interested persons complete the application process by March or April in order to guarantee themselves a place in the program. Advanced placement may be available to persons having previous military, secondary, postsecondary electronics training or appropriate life experience.

Course No.	Course Name	Credits
EE130U	Shop Methods	2
EE131U	Electrical Circuits	10
EE161U	Computer Programming for Technicians	3
EE245U	Electronic Solid State Devices	11
EE246U	Digital Circuits	4
EE247U	Microprocessor Principles I	5
EE248U	Microprocessor Principles II	5
EE256U	Communication Circuits I	7
EE257U	Communication Circuits II	6
EE258U	Television and VCR Principles	7
EE265U	Mechanical Devices	10
MT103U	Electrical/Electronic Math	3
IT165U	Economics for Technicians	2
PC105U	Human Relations	3
CC110U	Communications Skills I	2
CC120U	Communications Skills II	2

## INDUSTRIAL MAINTENANCE TECHNOLOGY

The Industrial Maintenance Technology program prepares students with a substantial background in electrical and electromechanical theory and practice.

Included are residential wiring, electromechanical devices such as motors and generators, basic electronics, and air conditioning and refrigeration.

The second year expands on the first year program with continued training as a service technician. Areas covered include pneumatic and electronic environmental controls, industrial hydraulics, heating, ventilation and air conditioning systems. Other related subjects include computer operation and programming.

Two full years (four semesters and two summer sessions) are required to complete the Associate of Applied Science Degree. Well equipped laboratories provide students opportunities to progress through the individually paced modules with sophisticated, up-to-date test equipment. The curriculum is kept current through regular meetings with a Trade Advisory Council made up of working technicians, equipment manufacturers, dealers and owners of independent repair firms. The highly skilled faculty works with students individually and in small groups to assist them in achieving the competencies of each module.

Students are accepted into the program at the fall semester each year. Advanced placement may be available for persons who have previous training or life experience in electricity/electronics.

Course No.	Course Name	Credits
EE101U	Introduction to Electrical Circuits	3
EE102U	National Electrical Code and Electrical Wiring	5
EE105U	Advanced Electrical Circuits	5
EE115U	Motors, Transformers, and Control Circuits I	6
EE116U	Motors, Transformers, and Control Circuits II	5
EE125U	Solid State Devices I	2
EE126U	Solid State Devices II	3
EE161U	Computer Programming for Technicians	3
EE205U	Air Conditioning and Refrigeration I	5
EE206U	Air Conditioning and Refrigeration II	9
EE215U	Heating, Ventilation, and Air Conditioning Systems & Controls	7
EE225U	Applied Industrial Electronics	8
EE235U	Fundamentals of Fluid Power	5
IT102U	Electrical/Electronic Math	3
IT125U	Applied Physics I	2
IT126U	Applied Physics II	3
IT145U	Microcomputer Applications	3
PC105U	Human Relations	3
CC110U	Communications Skills I	2
CC120U	Communications Skills II	2

## **CAREERS IN MANUFACTURING AND DESIGN**

Persons interested in the design, development, manufacture of goods or the design and construction of buildings should investigate career training programs in the Manufacturing and Design cluster. These programs reflect manufacturing occupations, design oriented occupations in both manufacturing and construction, construction management and graphic arts. There are six programs in this cluster.

- Architectural Drafting
- Construction Technology
- CNC Manufacturing Technology
  - CNC Technician Option
  - Machinist Diploma Option
- Mechanical Design Technology
- Welding
- Graphic Arts

As the titles imply, each program has a specific, unique goal. Architectural Drafting is oriented toward light commercial and commercial buildings. Projects and assignments are designed to promote understanding of concepts and procedures for development of drawings in that area. Construction Technology is a construction management program. The first year introduces students to the many trades related to construction and the second year teaches skills for management of construction projects such as estimating, scheduling and other management skills.

CNC Manufacturing Technology provides students a solid background with which to obtain employment in the machining and computerized machining field. The first year teaches the basic skills of machining parts using manually operated machines and the second year teaches students how to program computer numerically controlled machinery for the production of parts on automatic machines. Students are also introduced to the newest quality control techniques and concepts. Mechanical Design Technology teaches students how to take an engineer's concepts and initial calculations and turn them into production drawings. The program is heavily oriented to drafting, computer drafting and design concepts. Welding is a certificate program that is open entry/open exit; that is, it can be started on any day and finished in as fast or slow a time as the student wants to spend. It is nominally six months in length.

The Graphic Arts program prepares students to work in the field of printing production, allowing them to specialize in one facet of the business after being introduced to each of the primary areas.

Specialized short term Training Certificates are available in several of these programs. Persons interested in this type of training should consult with program instructors and program coordinators for details. Final approval is given by the Assistant Dean.

## **ARCHITECTURAL DRAFTING**

Persons completing the Architectural Drafting program are prepared for occupations in architectural offices, architectural engineering firms, construction companies, and a host of related jobs in construction related firms (e.g., lumber yards, concrete companies, building materials suppliers, plumbing suppliers, electrical supply houses, etc.). Primary emphasis is given to the preparation of drawings for presentations, working drawings for contractors and specifications. Manual drafting practices as well as Computer Assisted Drafting (CAD) are taught.

Regular input by the Trade Advisory Council helps keep the curriculum current. Members also provide field trips and act as guest lecturers on selected topics. The experienced faculty continuously revises the curriculum and rounds out textual material with lectures, videotapes and demonstrations.

Students may begin the program in the fall semester each year. The diploma is completed in a one year period consisting of two semesters and one summer session. Advanced placement is available upon recommendation of the instructor and approval of the Assistant Dean. It is usually granted for previous course work at the high school or postsecondary level, although military training may also be evaluated.

<i>Course No.</i>	<i>Course Name</i>	<i>Credits</i>
DD100U	Architectural Drafting I	13
DD105U	Architectural Drafting II	11
DD106U	Presentations	1
DD107U	Architectural Drafting Project	9
DD108U	Architectural Profession	1
DD110U	Introduction to Computer Graphics	2
DD111U	Drafting With AutoCAD	3
CT105U	Construction Materials & Processes	3
IT100U	Industrial Math I	3
CC110U	Communications Skills I	2

## **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 materials 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 introduces students to 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, scheduling, materials science, construction management and contracts.



The high quality, experienced faculty provides practical-instruction based on a curriculum kept current by a Trade Advisory Council made up of persons in the construction field. Most projects are real construction on the Kirkwood Campus, with simulations and mock-ups used where this is not practical.

Students are accepted into the program in the fall semester. Advanced placement is dependent upon the instructors' analysis of the student's background education and experience. Although no formal agreement exists, several graduates each year are accepted into the Bachelor's Degree program in Construction Technology at the University of Northern Iowa.

Specialized short term Training Certificates may be arranged through consultation with the program instructors. Final approval is obtained from the Assistant Dean.

Course No.	Course Name	Credits
CT100U	Construction Structural Systems	9
CT106U	Construction Finishing Systems	7
CT110U	Surveying /Site Layout	3
CT120U	Electrical Systems in Construction	3
CT125U	Heating, Ventilation, and Air Conditioning (HVAC)	2
CT130U	Plumbing Systems in Construction	2
CT205U	Construction Project	6
	or	
CT805U	Construction Internship	6
CT216U	Construction Management	6
CT217U	Construction Planning & Scheduling	3
CT225U	Construction Estimating I	4
CT226U	Construction Estimating II	3
CT235U	Architectural Plans	5
CT245U	Construction Materials Science	3
IT100U	Industrial Math I	3
IT106U	Unified Physics	3
HS100U	CPR/First Aid	.5
AD102T	Introduction to Management	3
DG102T	Introduction to Microcomputers and Data Processing Concepts	3
PC105T	Human Relations	3
CC110U	Communications Skills I	2
	Social Science Elective	3

## CNC MANUFACTURING TECHNOLOGY

The occupations that this program addresses are in the manufacturing realm, specifically machine tool and related operations in the manufacture of parts and products. Employment in this area is moving away from the traditional production machinist to a type of production machining that requires many setups for short runs to meet just-in-time delivery demands of customers. It has become apparent that persons entering this field must be flexible in the operations they can perform and must have a basic knowledge of Computer Numerical Control of machine tools. Graduates of the CNC Manufacturing Technology program will be able to program, edit, set-

up and operate CNC lathes and mills and will have knowledge of the Demming quality control methods known as Statistical Process Control. Special QC equipment, such as coordinate measuring machines and data collectors, will be taught in the program. An introduction to factory automation will also be provided.

This is an Associate of Applied Science Degree program requiring two years (four semesters and one summer session) to complete. A diploma is also available after one year (two semesters and one summer). Short term Training Certificates are also available. Students interested in this type of training should consult the instructor for details.

The program is kept up-to-date through regular meetings of the faculty with a Trade Advisory Council made up of machinists, supervisors, small shop owners and major manufacturing managers. The faculty is continuously revising instructional materials and projects to give students the best opportunities to learn those skills necessary for success in the field. These materials are supplemented with videotapes, demonstrations and field trips.

Students may enter the program in the fall semester each year. Advanced placement is sometimes possible depending on the background of the student. The instructors evaluate the past training, experience or high school work to determine if the student is capable of beginning at a higher level than the beginning course. The Assistant Dean has final approval of advanced placement.

Course No.	Course Name	Credits
MN150U	Introduction to Shop Processes	15
MN151U	Machinist Blueprint Reading I	1
MN152U	Machinist Blueprint Reading II	1
MN155U	Application of Shop Processes	13
MN205U	Introduction to Computer Numerical Control	3
MN206U	Intermediate Computer Numerical Control	6
MN207U	Advanced Computer Numerical Control	6
MN208	Automated Production Methods	5
MN215U	Geometric Tolerancing	1
IT103U	Machinist Mathematics I	2
IT104U	Machinist Mathematics II	1
IT105U	Applications of Geometry	1
DG102T	Introduction to Microcomputers and Data Processing Concepts	3
AD104U	Principles of Supervision	3
AD108T	Statistical Quality Control	2
AD109T	Statistical Process Control	2
DD110U	Introduction to Computer Graphics	2
DD111U	Drafting With AutoCAD	3
CC110U	Communications Skills I	2
CC120U	Communications Skills II	2
PC105U	Human Relations	3
HM105T	Working in America	3

Completion of the following courses earns the graduate a Machinist Diploma.

Course No.	Course Name	Credits
MN150U	Introduction to Shop Processes	15
MN151U	Machinist Blueprint Reading I	1
MN152U	Machinist Blueprint Reading II	1
MN155U	Application of Shop Processes	13
MN205U	Introduction to Computer Numerical Control	3
DG102T	Introduction to Microcomputers and Data Processing Concepts	3
CC110U	Communications Skills I	2
PC105U	Human Relations	3

MT100U	Technical Mathematics I	4
MT101U	Technical Mathematics II	4
DG102T	Introduction to Microcomputers and Data Processing Concepts	3
IT127U	Physics I	2
IT128U	Physics II	5
EN100U	Applied Statics	4
EN105U	Applied Dynamics	4
EN110U	Strengths of Materials	4
EN115U	Applied Kinematics	4
CC113T	Composition I	3
CC115T	Composition II: Technical Writing	3
PC105U	Human Relations	3

## MECHANICAL DESIGN TECHNOLOGY

The primary objective of this program is to prepare graduates for entry-level jobs in engineering settings in industries involved in the production of mechanical products and to provide students with skills for advancement to a designer status. The primary topics in the curriculum include drafting concepts from lettering and linework to orthographic projection to complete working drawings and graphical solutions (using both the traditional drafting board and the microcomputer based CAD system), mathematics from intermediate algebra to differential and integral calculus, and design concepts utilizing equation manipulation, dimensional analysis, technical vocabulary, systematic problem solving procedures and legible records of work done. The curriculum is rounded out with support courses in physics, statics, dynamics, materials, manufacturing processes, composition and computer applications.

The faculty has many years of engineering related work experience. Combined with regular input from the Advisory Council, made up of engineers and engineering technicians from Cedar Rapids, Iowa City, and Area 10, their experience provides for an up-to-date, challenging curriculum. Field trips, videotapes, demonstrations and seminars supplement the routine lecture/lab format of the program.

Students are accepted into the program in the fall semester of each year. Many students spend one or more semesters before that bringing their math and writing skills up to entry level. Advanced placement is also available depending upon the recommendation of the faculty and approval of the Assistant Dean.

Course No.	Course Name	Credits
DD110U	Introduction to Computer Graphics	2
DD111U	Drafting With AutoCAD	3
DD120U	Mechanical Drafting I	5
DD125U	Mechanical Drafting II	6
DD130U	Technical Problems	2
DD131U	Hydraulics	3
DD225U	Design Problems	4
DD226U	Machine Design	5
DD230U	Manufacturing Processes	3
DD235U	Computer Problems	3

## WELDING

The Welding program prepares students for a variety of occupations involving the need for welding skills, some requiring welding on a full-time basis, while in others, welding is only one part of the job. Courses are built around small, very specific competencies that students can learn in a relatively short period of time. The open-entry, open-exit design of the program allows students to take only those portions of the program they need at any given time, dropping in and out at will until the certificate they desire is completed.

The program consist of two phases. In phase one, emphasis is on mastering the art of metallic arc welding, commonly referred to as stick welding. Skill is developed to the level required for the American Welding Society's Bend Test in the flat, vertical and overhead positions. The second phase covers semi-automatic, oxyacetylene, heliarc and special arc welding techniques. Additional courses are available in pipe welding and weld testing procedures. Kirkwood certification in various welding procedures is also available.

This program is nominally six months long; however, because of the modular design, it can be completed in as short or long a time as the student's capabilities allow. Four different certificates are available. The Phase I Certificate signifies completion of the stick welding part of the program. The Phase II Certificate shows that the student has completed both phases of the program. The Pipe Welding Certificate indicates that the student has completed Phase One and the Pipe Welding course. The All-Around Welder Certificate shows completion of Phase I, Phase II, and the Pipe Welding course.

Students are accepted into the Welding program any day of any week. It is usually recommended that they begin courses on a Monday, but this is not required.

Course No.	Course Name	Credits
<i>Phase I</i>		
MN104U	Welding Blueprint Reading	2
MN110U	Introduction to Arc Welding and Weaving	1

MN111U	Flame Cutting	1
MN112U	Introduction to Joint Welding	1
MN113U	Powdered Iron Weld Methods	1
MN115U	Butt Joints - Flat	1
MN116U	Horizontal Weld Techniques	1
MN117U	Vertical Weld Techniques	1
MN118U	Overhead Weld Techniques	1
MN119U	AWS Bend Test	4
IT100U	Industrial Math I	3

*Phase II*

MN125U	Semi-Automatic Welding	2
MN126U	Oxyacetylene Welding	2
MN127U	Oxyacetylene Braze Welding	2
MN128U	Heliarc Welding	4
MN129U	Special Arc Welding Techniques	2
IT101U	Industrial Math II	3

*Additional Courses*

MN135U	Pipe Welding Techniques	7
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**GRAPHIC ARTS**

The Graphic Arts program provides instruction in the three basic areas of the graphic arts industry; copy preparation, pre-press operations and press operations. Major topics include lithography, typography, layout and design, paste up, camera and darkroom processes, photocomposition, image assembly, stripping and platemaking, theory of color and offset press setup and operation. Desktop Publishing is also covered in some detail. Students are required to learn about each of these areas, but are allowed to specialize toward the end of the program. Additional instruction is given in estimating, production control, plant organization, printing management problems and human relations. In some cases, job experience is allowed to replace lab work near the end of the program.

This is a one year program requiring two semesters and one summer session to complete. The majority of class time is spent in hands-on exercises and assignments, but students are also exposed to appropriate theory and related general education.

Students are accepted into the program at the beginning of the fall and spring semesters.

<i>Course No.</i>	<i>Course Name</i>	<i>Credits</i>
DD150U	Copy Preparation I	8
DD155U	Copy Preparation II	3
DD156U	Copy Preparation III	2
DD157U	Copy Preparation IV	2
DD158U	Copy Preparation V	2
DD160U	Pre-Press I	3
DD165U	Pre-Press II	2
DD166U	Pre-Press III	2
DD167U	Pre-Press IV	2
DD170U	Press Operations I	2
DD175U	Press Operations II	4
DD176U	Press Operations III	4

DD177U	Press Operations IV	4
DD185U	Desktop Publishing	2
DD186U	Estimating	1
CC110U	Communications Skills I	2
PC105U	Human Relations	3

**CAREERS IN ENVIRONMENTAL SCIENCE**

Programs in Environmental Science and Pollution Control are located in the Environmental Training Center on Kirkwood's campus. The Environmental Training Center has been designated the state-wide wastewater training center by both the State of Iowa and the United States Environmental Protection Agency. The center's staff provides environmental laboratory training, one and two year vocational water and wastewater training programs for entry level operators, state-wide workshop and self-study programs for treatment plant operator upgrade and recertification, state-wide technical assistance programs for municipalities and industries having wastewater compliance problems and custom-contract training services.

The center houses the first and only wastewater treatment plant in the world designed solely for operator training.

In addition, staff provides hazardous materials, hazardous waste and industrial fire brigade training to the region's industries and fire science programs for local fire departments.

The center is also noted for its live fire hazardous material training ground and its well-equipped environmental labs.

**WATER AND WASTEWATER TREATMENT/TECHNOLOGY**

The Water and Wastewater Technology program is a two year, six semesters program featuring technical study in the water and wastewater areas, complemented with related instruction in science and the humanities.

The Water and Wastewater Treatment program is a one year, four semesters program featuring technical study in the water and wastewater treatment areas.

Students in both programs receive classroom and laboratory instruction. Both programs offer hands-on training in water and wastewater plant operations using the pilot scale, 10,000-gallon-per-day treatment plant on campus. This facility includes typical treatment plant components to provide students with practical training. Both programs also include an on-the-job work experience at a local treatment plant or in the on-campus treatment plant.

Graduates of the Water and Wastewater Technology program receive an Associate of Applied Science Degree. Graduates of the Water and Wastewater Treat-

ment program receive a diploma. Graduates of both programs are eligible to take both of the Iowa Grade I Water and Wastewater certification exams.

The following courses are required to complete the Water and Wastewater Technology program.

Course No.	Course Name	Credits
EP100U	Introduction to Water/Wastewater	1
EP101U	Water Problem Solving	2
EP110U	Basic Water Analysis	2
EP111U	Chemistry of Water	1
EP112U	Water Analysis	1
EP113U	Water Treatment	4
EP114U	Biology of Water	1
EP120U	Water Distribution	3
EP121U	Water Resources	1
EP130U	Pumps and Electricity	1
EP131U	Basic Mechanical Maintenance	1
EP140U	NPDES Wastewater Analysis	1
EP141U	Basic Wastewater Treatment	5
EP142U	Biology of Wastewater	1
EP143U	Intermediate Wastewater Treatment	4
EP144U	Wastewater Analysis	2
EP150U	Wastewater Collection	1
EP160U	Supervised Treatment Plant Operation	
	or	
EP800U	Internship	7
EP201U	Municipal Treatment Plant Management	2
EP202U	Municipal Treatment Plant Safety	2
EP210U	Industrial Wastewater Treatment	2
CC110U	Communications Skills I	2
PC105U	Human Relations	3
PO120T	Iowa Government	3
DG102T	Introduction to Microcomputers and Data Processing Concepts	3
	Math/Science Elective	6
	Communication Arts Elective	4

The following courses are required to complete the Water and Wastewater Treatment program.

Course No.	Course Name	Credits
EP100U	Introduction to Water/Wastewater	1
EP101U	Water Problem Solving	2
EP110U	Basic Water Analysis	2
EP111U	Chemistry of Water	1
EP112U	Water Analysis	1
EP113U	Water Treatment	4
EP114U	Biology of Water	1
EP120U	Water Distribution	3
EP121U	Water Resources	1
EP130U	Pumps and Electricity	1
EP131U	Basic Mechanical Maintenance	1
EP140U	NPDES Wastewater Analysis	1
EP141U	Basic Wastewater Treatment	5
EP142U	Biology of Wastewater	1
EP143U	Intermediate Wastewater Treatment	4
EP144U	Wastewater Analysis	2
EP150U	Wastewater Collection	1
EP160U	Supervised Treatment Plant Operation	7
	or	
EP800U	Internship	7
CC110U	Communications Skills I	2

## COMMUNITY EDUCATION COURSES

In keeping with its philosophy of lifelong learning, the Community Education Division of Kirkwood Community College offers 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 courses are offered for the recreational opportunities they provide and the personal enjoyment they bring. 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 segment of Kirkwood's educational offerings.

Classes are offered on a quarter 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.

### Kirkwood Centers

Kirkwood has centers at nine 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), general interest/part-time supplemental courses and college credit courses. The nine centers are:

Iowa City Community Education Center  
810 Maiden Lane  
Iowa City, Iowa  
Phone: 338-7956 and 338-3659

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

Marion Community Education Center  
6th Street and 10th Avenue  
Marion, Iowa  
Phone: 377-2216

Monticello Center  
Plastic Lane  
Monticello, Iowa  
Phone: 465-5988 and 465-4276

Washington Center  
111 Westview Drive  
Washington, Iowa  
Phone: 653-4655

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

Ladora Center  
Ladora, Iowa  
Phone: 623-3129

Vinton Center  
1002 G Avenue  
Vinton, Iowa  
Phone: 472-2411 and 472-4239

Stanwood Learning Center  
201 W. Broadway  
Stanwood, Iowa  
Phone: 945-6231

## **Programs to Meet the Varied Needs of People**

### **Secondary Vocational Programs at Kirkwood**

Secondary programs at Kirkwood are 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 each 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, auto collision, health occupations and child care.

For more information, contact your local high school counselor or the nearest Kirkwood 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:

<i>Areas</i>	<i>Examples</i>
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:

<i>Areas</i>	<i>Examples</i>
Health Occupations	Nurse Aide, Anatomy and Physiology, EMT-A
Trade and Industry	Woodworking, Auto Mechanics
Business and Office	Shorthand/Typing, Office Skills
Home and Family	Microwave Cooking, Family Dynamics
Personal Development	Assertiveness Training, Communication
Agriculture	Houseplants, Animal Nutrition, Gardening
Business/Management	Supervision, Delegation, Business Writing

### **In-Service, Seminars, Workshops**

Kirkwood provides in-service training, 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

### **College Credit**

The Community Education Division, in cooperation with the credit programs of the college, offers credit 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 career education areas.

Many of the courses are offered through the college's Telecommunications System at various 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. College credit courses are also offered at Iowa City's West 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 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 are 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 Literacy Program***

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 tests (G.E.D.) or earn credit toward a Kirkwood adult high school diploma. Community Education centers located in Cedar Rapids, Ladora, Iowa City, Marion, Monticello, Vinton, Washington and Williamsburg provide flexible hours and individualized instruction for those who prefer this approach to learning.

The Literacy Program is unique. Adults desiring to read better are assigned tutors, who are volunteers from the community. The participant and tutor are supplied with learning materials and make their own arrangements and plans for achieving selected reading goals. Participants receive approximately three 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 CEU's (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  
Policies and Regulations

## **STUDENT AFFAIRS**

### **Counseling Services**

The college provides professional counselors to assist students in career 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 course of action.

Assistance is available to all students who need help to get through a crisis in their lives. Counselors can also help in acquiring better study habits, developing satisfactory personal and social relationships, solving financial problems, selecting a transfer school, learning about employment possibilities or improving job seeking skills.

Counselors are available in several locations on campus. Students in all programs have access to counseling service, including those students enrolled in evening classes. Counseling is available from 8:00 a.m. to 8:30 p.m., Monday through Thursday, and 8:00 a.m. to 5:00 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. The **Human Potential Lab** consists of small group structured experiences that help students discover and develop their strengths. **The Career Decision Making** course is designed to teach students the process involved in career and life planning. A related course, **Career Exploration/Independent Study**, is broken into modules through which a student proceeds 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. **Stress Management** provides students with means of dealing with stress common to college students. See the course descriptions 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 Division of Vocational Rehabilitation Services (DVRS). 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. Further information can be obtained from the DVRS counselor.

### **Placement Services**

The Placement Office fulfills the following functions:

1. Helps students find part-time employment.
2. Assists graduates secure full-time employment.
3. Helps 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.

## **SKILL CENTER**

The Kirkwood Skill Center provides career assessment, career training and job placement services to disabled and disadvantaged persons. Personal and career goals are established through counseling between the student and the center's staff.

A trained staff of instructor/evaluators, student supervisors, career counselors and job placement personnel design individual programs for each student. Services are available on a referral basis through the Division of Vocational Rehabilitation Services (Vocational Rehabilitation) Job Training Partnership ACT, Department of Human Services, Abbe Center for Community Mental Health, Public Health Nursing and other social service agencies.

The Skill Center provides unique opportunities for career exploration, career assessment, work adjustment training, academic upgrading, job seeking skills, job placement, skill development and on-the-job training, with the objective of making appropriate recommendations for job placement or career training. Additional information and referral procedures can be obtained by calling (319) 398-5455.



## **FINANCIAL AID**

The Financial Aid program at Kirkwood exists to help students obtain a college education who otherwise would be unable to attend because of financial reasons. Each student and his/her family is expected to make a maximum contribution toward his/her education based upon income and assets. The dollar amount of this expected contribution is determined by the Federal Government through the application process. The Financial Aid Department then subtracts the expected contribution from the college expenses for the year and the difference is the amount of aid for which the student is qualified (need). Available Financial Aid dollars are then awarded to the student. The total of these award dollars may not exceed the total need.

### **TYPES OF AID**

#### **FEDERAL -**

**PELL Grant** - Gift aid. Everyone must apply for this grant in order to be considered for any need-based aid.

**Supplemental Educational Opportunity Grant** - Gift aid. For students with the greatest financial need.

**PERKINS Loan** - Loan. Low-interest with long-term payments beginning nine months after termination of at least half-time education. Through Kirkwood.

**Guaranteed Student Loan** - Loan. Low-interest with long-term payments beginning six months after termination of at least half-time education. Through private lenders.

**College Work-Study** - Hourly wages while working at the college. Work hours are arranged with consideration of the student's class schedule.

**The loans below are available for ALL students and/or parents. They are NOT based upon need.**

**Supplemental Loan for Students (SLS)** - Loan. Low-interest (may not exceed 12%) with long-term payments beginning immediately upon termination of at least half-time education. Through private lenders.

**Parent Loan for Undergraduate Students (PLUS)** - Loan. Low-interest (may not exceed 12%) with long-term payments beginning within 30 to 60 days of disbursement. Through private lenders.

#### **IOWA -**

**Vocational-Technical Grant** - Gift aid. For career option and career (vocational-technical) education full-time students.

**Math/Science Grant** - Gift aid. For students in math and/or science educational programs.

### **SCHOLARSHIPS -**

The Financial Aid Office updates and distributes a "Kirkwood Scholarship Resource Book" each year. For information regarding scholarships available and directions for application, contact the Financial Aid Office in Kirkwood Hall, (319) 398-5476. General categories of scholarships listed in the Resource Book are:

**Internal** - Awarded by groups/individuals through Kirkwood. May be college-wide or restricted to students within specific interest or educational areas.

**External** - Awarded by groups/individuals outside Kirkwood. Are generally awarded to individuals irregardless of college attending.

**State of Iowa** - Awarded by the Iowa College Aid Commission. Limited to the upper 15 percent of high school seniors.

Because of the number and variety available, Financial Aid personnel encourage all persons interested in scholarships to contact the Kirkwood office or local high school counselor in order to study all the options with regard to the individual's interests and situation.

### **HOW TO APPLY -**

The necessary forms and instructions may be obtained for all types of aid through high school counselors or by calling, writing, or visiting the Financial Aid Office.

Address: Financial Aid, Kirkwood Hall  
Kirkwood Community College  
6301 Kirkwood Blvd. SW  
Cedar Rapids, IA 52406

Phone: (319) 398-5488

### **WHEN TO APPLY -**

Application forms are available after January 1 each year. (One must apply for Financial Aid **EVERY** year - aid is only awarded from July 1 through June 30 for one year at a time. )

For best considerations of all types of aid, the application must be submitted by April 15. PELL Grants, Guaranteed Student Loans, SLS, and PLUS Loans are available after April 15, but other aid may already be committed.

## **THE PROCESS -**

1. Obtain and submit the ACT Family Financial Statement (FFS) as soon after January 1 as possible.
2. Within two to three weeks, receive a confirmation letter from ACT that the forms have been received.
3. Within six to eight weeks, receive the Student Aid Report (SAR) from the federal processor.
4. Read the instructions on the SAR, sign, and submit to the Kirkwood Financial Aid Office.
5. Within three to four weeks, receive information from the Financial Aid Office regarding award and/or additional documents required.
6. Follow all instructions received from either Kirkwood or the ACT processor.
7. Receive an award/notification letter two to three weeks after the financial aid file is complete.
8. Sign and return the Financial Aid Award/Acceptance letter.

The process, as shown, takes a minimum of three months, and will more likely take four to five months to complete. It is considered the student's responsibility to make sure all necessary documents have been submitted to be considered for financial aid.

## **GENERAL ELIGIBILITY REQUIREMENTS -**

All students seeking Financial Aid must:

1. Be enrolled or accepted for enrollment in a program at least six months in length.
2. Intend to complete the program and receive a degree related to the educational objective.
3. Be a citizen or permanent resident of the United States.
4. Enroll for at least six credit hours each term.
5. Not be in default for any previous loans disbursed.
6. Maintain satisfactory progress:
  - A. Maintain a 2.00 grade-point average
  - B. Complete the number of credit hours required for the level of aid awarded.
  - C. Complete the program within the time-frame allowed.

## **VETERANS AFFAIRS**

Kirkwood Community College is committed to serving those members of the Eastern Iowa Community who have served, or are serving, in the Military Services. Almost all programs are approved by the Department of Education for payment of Veteran's Administration Educational Benefits. A full-time staff member is available to assist in the application process, and to insure that the students' program meets the guidelines of federal regulations.

## **Veterans Benefits**

Veterans and members of the Selected Reserves may be eligible to receive educational benefits while enrolled and pursuing an approved program of education or training. Veterans have ten years from their date of active duty discharge in which to utilize their educational benefits. Spouses and children of disabled/deceased veterans have ten years from their initial date of eligibility. Members of the selected reserves have ten years from the date of basic eligibility as noted on their DD form 2384 which is issued by their unit.

Certain eligible veterans and other eligible persons may qualify for a maximum educational loan of \$2,500 per academic year from the Veteran's Administration depending upon need. Applications for such loans shall be made to the Veteran's Administration on forms prescribed by it.

Questions concerning your eligibility and application procedures may be referred to the Coordinator, Veteran's Education in Kirkwood Hall.

## **Servicemember's Opportunity Colleges**

Kirkwood has been designated as an institutional member of Servicemember's Opportunity Colleges (SOC), a group of over 400 colleges and universities providing postsecondary education to members of the military throughout the world. 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 learning from appropriate military training and experiences. SOC has been developed jointly by educational representatives of each of the Armed Services, the Office of the Secretary of Defense and a consortium of thirteen leading national higher education associations; it is sponsored by the American Association of State Colleges and Universities (AASCU) and the American Association of Community and Junior Colleges (AACJC).

## **VEOP**

In recognition of the possibility that those students receiving Veteran Administration Educational benefits would periodically need the services of a member of Kirkwood student services, the school has established the Veteran's Education Outreach Program. Among the possibilities offered are:

- \* Coordination of veteran's services with other campus services available, such as Admissions, Financial Aid, Counseling, Placement, Personal Achievement, etc.
- \* Maintaining effective liaison with military reserve and national guard units, as well as local members of the active military, in order to identify and serve personnel eligible for benefits and entitlements.

\* Serve as the principal contact person and advocate for eligible persons attending or seeking to attend Kirkwood. This may include facilitating admission evaluation of military credits, developing and monitoring degree programs, serving as information-referral, etc.

## **GENERAL STUDENT INFORMATION**

### **Housing**

Although Kirkwood does not own dormitories or apartments, there are several privately owned facilities within walking distance of the campus which rent exclusively to students. In addition, the Student Activities Office maintains a frequently updated list of private homes, rooms and other apartments throughout the city. The Student Activities Office will aid and assist students in locating appropriate housing. Call (319) 398-5578 for further information.

### **Student Health and Accident Insurance**

A low premium, broad based health and accident insurance plan is available to students taking 6 credit hours or more. Participation is voluntary. Information and enrollment forms are available from Campus Health, Iowa Hall.

### **Health Service**

Campus Health, 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 or illness, and assistance in obtaining the services of local physicians and agencies, if necessary. Over-the-counter drugs are available. Confidential counseling on a variety of health related problems is available. Health promotion programs on substance abuse, nutrition, infectious disease, physical fitness, etc. are provided by this service. Cost of hospitalization, doctor's appointments, prescription medicine, x-rays, and laboratory fees must be covered by the student.

### **Infant/Child Care Centers**

There are several licensed, quality child care centers available at a minimum fee to students at KCC. Two of the most convenient are:

Kirkwood Child Care Center	College Community Day Care Center
Lincoln Community Center	401 76th Ave. SW (319) 848-4121
912 18th Ave. SW (319) 365-5796	

Kirkwood's infant/child center is designed to provide a warm, nurturing environment. Professional staff workers qualified in early childhood education operate the

center. Parents are billed every two weeks for hourly fees. Fees include breakfast, lunch and afternoon snack. The center is open 7-5:30 weekdays and is available to both full and part-time students. It is not limited to use only while attending class.

### **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. Bus schedules may be obtained at the Information Desks in Iowa and Linn Hall. Tickets and passes are available at the Linn Hall Information 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 served. Snack bar service for limited menu items is open Monday through Thursday 4:30 - 6:00 p.m.

Greenhouse Cafe, operated by the Food Store Management program, is located on the second floor, west end of Linn Hall. The hours are from 7 a.m. to 1:30 p.m. Monday through Friday.

Class Act, a full service dining room, is open throughout the week from 11 a.m. to 1 p.m. Hours and days of service are subject to change because of the instructional nature of the program.

Vending machines are in the Iowa and Linn Hall lobbies and the East Campus lounge.

### **Bookstore**

The College Bookstore is located in Iowa Hall. It is owned and operated by Kirkwood Community College.

Besides maintaining a sufficient supply of textbooks needed for all courses at Kirkwood, the bookstore also carries supplies, T-shirts, sweatshirts, 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 previously purchased books. 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 semester during final week for several days. He/

she will buy those books being dropped from course schedules, providing no new edition is pending and the book has a market value.

Bookstore hours are posted on the Bookstore door.

## **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**

**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.

**Cedar Valley Divide** is Kirkwood's student literary art magazine, published annually for spring semester distribution. It is the best works of the year, featuring efforts in the areas of short stories, photography, art and poetry. The design and printing of the book is a project of the Graphic Arts Education students.

### **Clubs and Organizations**

Student clubs and organizations on campus sponsor the majority of activities held during the year. Over one-third of the students enrolled full-time at KCC are club members. Clubs are formed through academic programs and special interest groups, and given formal recognition by the Executive Board of the Student Association. Faculty or staff are designated as advisors to 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**

The intramural program at Kirkwood has been gaining popularity since the completion of Johnson Hall in March of 1982. Over 500 students participate on an annual basis in the various activities offered on campus. Intramural activities are scheduled on Tuesday and Thursdays from 12 noon - 1 p.m. and also on Wednesday afternoons.

Activities offered include racquetball, basketball, flag football, volleyball and softball. Intramurals are an excellent opportunity for students to meet other students with common interests. Awards are presented to members of championship squads in each of our sports. If you are interested in getting involved in Kirkwood intramurals, stop at the athletic office in Johnson Hall.

### **Intercollegiate Athletics**

Kirkwood offers six different intercollegiate athletic sports that include men's basketball, women's basketball and wrestling during the winter with baseball, softball and golf being offered in the spring. Tryouts are held in the fall of the year for each one of the six sports.

Kirkwood athletics are well respected throughout the state of Iowa and also nationally. Several All-Americans have been named in each of our sports and a large majority of KCC student athletes continue on and play at four year colleges.

If you are interested in competing in one of our athletic squads, stop by the athletic office in Johnson Hall.

## **POLICIES AND REGULATIONS**

### **Admission**

It is the policy of Kirkwood Community College to accept for admission into its Arts and Sciences and Career Education 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 admission 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 semester.

### **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.

### **Admission Requirements and Procedures**

Materials and procedures required for admission are listed below. For admission information call the Admissions Office at 398-5517 or 1-800-332-2055. All admission materials are to be submitted to the Enrollment Services Office, Kirkwood 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 Campus Health. Applicants to programs that require a health form will be notified of the requirement.

### **Career Education**

Shortly after all admission 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 Campus Health. 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. 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 (TOESL)

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 adult education and adult part-time vocational programs are advised to contact the Community Education Division at (319) 398-5529 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

At the time of printing this catalog, tuition and fee charges for the 1988-89 school year have not been established. To help you plan for tuition and fee costs, use the following **estimates**:

	<b>Tuition and Fees*</b>
Full-time students (12 or more semester hours)	Iowa Residents: \$500 - not to exceed \$600 per semester Non-residents: \$1000 - not to exceed \$1200 per semester
Part-time students (less than 12 semester hours)	Iowa Residents: \$35 - not to exceed \$40 per hour Non-residents: \$70 - not to exceed \$80 per hour

\*Included in this estimate are all customary fees such as laboratory materials, student activities, registration and graduation. There will be additional charges for students who elect private music lessons.

## 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 as 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 non-resident 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.

## 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 semester hour. A semester hour of credit is normally given for one hour in class each week for a period of sixteen weeks.

### Course Load

#### Arts and Sciences Division:

Individuals pursuing 12 semester hours or more during any semester will be considered full-time students. To earn a degree in four semesters, students should plan to enroll for an average of at least 15-16 hours per semester.

Students may not carry more than 18 hours of credit in any semester without approval of their advisor and the dean of Arts & Sciences.

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

### **Career Education Division:**

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

Part-time course work may be undertaken in many programs. Students with an interest in attending part-time in the Career Education Division are advised to contact the Office of Admissions or the appropriate Career Education 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 16 semester 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, Kirkwood Hall.

### **Grade Reports**

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

### **Repeating Courses**

Students who achieve a personally unsatisfactory grade in a course may repeat the course in an attempt for a better grade. 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 with Enrollment Services of their repeat of a course for a better grade for each course repetition after the repeat is completed.
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. )
4. 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 semester 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" will be automatically changed to an "F" if the student does not make up the incomplete work within one (1) year of receiving the "incomplete".

### **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. The student and instructor must 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 semester, 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 semester.

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 semester 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. four weeks prior to the last day of the semester. 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 to 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**

Career Education and Arts and Sciences students who change their major 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, and Career Education majors, who achieve and maintain a cumulative 2.0 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 semester. Failure to meet these standards for two consecutive semesters 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.

\*All students enrolled in any Career Education program previous to fall 1987 will have through summer 1990 term to graduate with a 1.8 grade point average **provided** they remain in that **same program** during that time frame. Such students' satisfactory academic progress standard is 1.8 cumulative grade point average.



### **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.

### **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 semester 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/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 two years after the student's last enrollment at Kirkwood, the official academic transcript is regarded to be the final accurate record of academic accomplishment.

## **OTHER GRADUATION INFORMATION**

### **Filing a Graduation Application**

Students who plan 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 semester or term in which they plan to complete the necessary course work.

While students may complete their requirements for graduation during any semester or term, commencement exercises will be held at the end of the spring and summer terms. Students completing requirements in the fall term are encouraged to participate in the spring commencement exercises.

### **Earning Multiple Awards**

Kirkwood confers certificates, diplomas and degrees. These awards are earned in progression based on the number of credit hours needed to complete the required program of study.

A student may earn, and the college will confer, one award per term. Up to three awards will be recorded on a student's academic transcript.

After earning the first award, a student may qualify for additional certificates, diplomas or degrees by earning the below-listed minimums in resident course work at Kirkwood, in addition to satisfying all other requirements for the award.

For each additional:

Certificate:	6 semester hours
Diploma:	8 semester hours
Degree:	12 semester hours

### **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, Ladora, Stanwood, 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/her eighteenth birthday and his/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.

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### **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. Norman Nielsen  
President

# ***COURSE DESCRIPTIONS***

## **Guide to Area of Study**

The course descriptions in this section are listed according to the following prefixes assigned for each area of study:

AD Administration and Management  
AE Agriculture  
AO Accounting  
AR Art  
BI Biology  
CC Communication  
CJ Criminal Justice  
CN Chemistry/Nutrition  
CR Computer Science  
CT Construction  
CV Cooperative Education  
DD Drafting and Design  
DE Dance  
DG Data Processing  
DL Dental  
DM Drama  
EE Electricity and Electronics  
EF English as a Second Language  
EN Engineering  
EO Economics  
EP Environmental Studies and Pollution Control  
ES Earth Science  
EU Education  
FI Fire Science  
FN Finance  
FO Foreign Languages  
GS General Studies  
GY Geography  
HA Handicapped Services  
HI History  
HM Humanities  
HO Home Economics  
HS Health  
IN Interdisciplinary Studies  
IT Industrial Technology  
LA Law  
LR Literature  
MC Music  
MD Communication Media  
ME Medical Assisting  
MI Medical Information (Medical Records)  
MN Manufacturing  
MR Marketing  
MT Math  
ND Neurodiagnosis (EEG)  
NG Nursing

OA Orthopaedic Physicians Assistant  
OF Office Education  
OT Occupational Therapy Assistant  
PA Physics/Astronomy  
PC Psychology  
PG Photography  
PM Power Mechanics  
PN Philosophy and Religion  
PO Political Science  
PT Personal Development  
RC Respiratory Care (Respiratory Therapy)  
RN Recreation  
SL Social Welfare  
SY Sociology

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 AD102T. Below is described what the letters and figures mean in each number:

1. The two-letter prefix denotes the area of study in which the course may be found in this section. The various areas of study and their prefixes are listed on this page, organized alphabetically by prefixes.
2. The three numerals signify:
  - 000-099 Developmental courses
  - 100-799 Non-developmental courses
  - 800-899 Internships, clinics
  - 900-949 One-time only classes (transitional)
  - 950-999 Independent Studies
3. The letter at the end represents the following:
  - D - Developmental
  - G - General Studies
  - T - Transfer
  - U - Career Education (Applies to AAS)
  - V - Career Education (Applies to Diploma)

The credit value of each source is indicated in semester 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.

## **AD: ADMINISTRATION AND MANAGEMENT**

### **AD101T Introduction to Business**

**3**

Surveys American business and the environment in which it operates. Studies the economic, social and political influences, and business organization functions and responsibilities. (3/0)

### **AD102T Introduction to Management**

**3**

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. (3/0)

### **AD103T Supervision and Personnel Administration**

**2**

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. (2/0)

### **AD104T Office Administration**

**3**

Develops knowledge and competencies in several functions of office administration including file automations, the organization, structure and planning of office work; controlling office work activities; office forms, procedures and policies; and maintenance of a conducive working environment. (3/0)

### **AD105T Contract Negotiations**

**2**

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. (2/0)

### **AD106T Cost and Price Analysis**

**2**

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. (2/0)

### **AD107T Effective Public Relations and Communications**

**2**

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. (2/0)

### **AD108T Statistical Quality Control**

**2**

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 Paretoanalysis, Ishikawa diagramming, and Crawford slip methods. (2/0)

### **AD109T Statistical Process Control**

**2**

Continues AD108T, focusing on statistical process control. Elements include basic statistical concepts, m & r charts, p & c charts, capability studies and continuing quality control programs. (2/0)

### **AD801T Business Internship**

**1-8**

Provides an opportunity to receive experience through on-the-job training in an approved business establishment. Valuable learning experiences are structured by the program coordinator and the training sponsor. (0/4-32)

### **AD999T 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 semester in which the work is to be done. Prereq: Consent of instructor and department head before registering. (1-4/0)

### **AD101U Materials Management and Warehousing**

**2**

To provide warehouse personnel with knowledge about the uniform commercial codes, title transfers, interstate transfer of goods, purchase order as a contract, parts identification, and warehouse space management. (2/0)

### **AD102U Production and Inventory Control**

**2**

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. (2/0)

### **AD103U Production Quality Control**

**2**

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. (2/0)

### **AD104U Principles of Supervision**

**3**

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. (3/0)

### **AD105U Organizational Behavior**

**2**

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. (2/0)

### **AD106U Advanced Supervision**

**2**

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. (2/0)

### **AD107U Managerial Leadership**

**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)

### **AD108U Decision Making**

**2**

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. (2/0)

### **AD109U Management Information Systems**

**2**

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. (2/0)

- AD110U Principles of Safety** 1  
OSHA safety standards for offices and public buildings are studied. Students will be trained to conduct their own inspections and develop safety plans and programs. A simulation project provides students the opportunity to apply OSHA standards. (1/0)
- AD111U Industrial Safety** 2  
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. (2/0)
- AD112U Principles of Personnel Management** 3  
Includes managerial philosophy of personnel administration, emphasizing study of the personnel functions of recruiting, interviewing, selecting, placement, training and evaluating. (3/0)
- AD113U Merchandising Management** 3  
Studies merchandising principles as they apply to management. Decision-making skills are developed in buying, inventory control and pricing. A simulation project is utilized to develop management merchandising competencies. (3/0)
- AD114U Food Store Operation Management** 4  
Comprehensive study of management in the food industry. Emphasis is on training and training techniques. Also covers the functions of supervision. (4/0)
- AD115U Employee Training and Development** 3  
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. (3/0)
- AD116U Introduction to Labor Relations** 3  
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. (3/0)
- AD117U Wage and Salary Administration** 1  
Designed to provide a rational approach to the various elements of a compensation program: job description, job evaluations, salary surveys and administration policies. (1/0)
- AD118U Collective Bargaining** 3  
Describes the historical aspect of collective bargaining and orients the student to current trends. Cases of actual companies are presented to allow observing and critiquing of the collective bargaining process. (3/0)
- AD119U Labor Negotiations** 1  
This one-day seminar focuses on contract negotiations and day-to-day contract administration, including arbitration. Participants will participate in simulated negotiation and contract administration exercises. (1/0)
- AD120U Grievance and Arbitration Settlements** 1  
Designed to broaden the knowledge of students in negotiations and to develop their own negotiation skills in order to deal with an increasingly competitive and often volatile economic environment. (1/0)
- AD121U 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. (1/0)
- AD122U Conducting a Business Meeting** .5  
Designed as a one day seminar, this course will cover such topics as writing agendas, encouraging group participation, and directing goal oriented discussions. (.5/0)
- AD123U Property Management** 2  
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. (2/0)
- AD124U Public Administration** 2  
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. (2/0)
- AD125U Introduction to Industrial Engineering** 1  
Considers management uses of industrial engineering techniques to plan, control and evaluate manufacturing projects. Also covers appropriation control, scheduling networks and economic lot sizes. (1/0)
- AD126U Employee Benefit Programs** 1  
Participants receive an understanding of the importance of an effective employee benefit program within organizations. Students will analyze various programs' strengths and weaknesses in order to adapt the elements of a successful system to their own organization. (1/0)
- AD127U 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)
- AD128U Job Classification Systems** 2  
Provides a comprehensive treatment of the "why" and "how" of an effective job evaluation system. Students are introduced to various management techniques in evaluation. (2/0)
- AD129U 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. (1/0)
- AD130U 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. (1/0)

**AD131U Professional Profile** 1  
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. (1/0)

**AD132U 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. (1/0)

**AD133U Current Topics in Management** 1  
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. (1/0)

**AD134U Interstate Commerce Law and Practice I** 2  
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. (2/0)

**AD135U Interstate Commerce Law and Practice II** 2  
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: AD134U. (2/0)

**AD136U Interstate Commerce Law and Practice III** 2  
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: AD135U. (2/0)

**AD137U Traffic and Transportation I** 3  
History of Transportation. Classifications of freight, principles of freight rates and tariffs. Shipping documents and application. (3/0)

**AD138U Traffic and Transportation II** 3  
Introduces freight rates and tariffs in practical applications. Reconsignment, transit routing, warehousing and distribution, materials handling and packaging. Prereq: AD137U. (3/0)

**AD139U Traffic and Transportation III** 3  
Rates, import and export rates and procedures, milling-in transit, loss and damage, overcharges and undercharges. Reviews classification and rate committee procedures. Tariff and rate interpretation. Prereq: AD138U. (3/0)

**AD140U Traffic and Transportation IV** 3  
Introduction to industrial traffic management. Emphasis on practical application and transportation law. Emphasis on developing necessary skills for industrial traffic management. Practical application of material, to include interpretation of transportation law. Prereq: AD139U. (3/0)

**AD141U Small Business Entrepreneurship** 2  
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. (2/)

**AD142U Planning Strategies for Small Business** 1  
A workshop format offering methods of planning for both the short and long term. How to determine business needs; how to implement decisions. (1/0)

**AD143U Business Internship Seminar** 1  
Offers arranged seminars for business students concurrently enrolled in Business Internship. Includes goal setting and learning objectives for internship period; discussion and evaluation of internship experiences and work problems encountered. (1/0)

**AD144U Employment Seminar** 1  
Provides students with an understanding of the job seeking process, including resumes and interviews. (1/0)

**AD145U Management Seminar** 1  
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.) (1/0)

## **AE: AGRICULTURE**

**AE101T Feeds and Feeding** 3  
Designed for students not majoring in animal or dairy science. Nutritional principles, digestive systems, composition and nutritional characteristics of common feedstuffs, ration formulation, and recommended feeding programs for farm animals. (3/0)

**AE102T Agricultural Accounting** 3  
Provides knowledge of methods of keeping farm records and accounts for farm and tax management uses. Students will complete a record keeping project and prepare a cash flow budget, income statement and balance sheet. Uses double entry procedures along with a farm accounting computer program. (2/2)

**AE103T Elements of Farm Management** 3  
Applies farm accounting, 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. (2/2)

**AE104T Principles of Crop Production** 3  
Presents instruction in crop plant classification, use and identification. Also covers cropping systems, tillage methods, planting and harvesting methods and crop growth patterns. A balance of theoretical and practical crop science. (2/2)

**AE105T Fundamentals of Soil Science** 3  
Studies physical and chemical properties of soil; soil formation and classification. Also studies the essential plant nutrients and their availability in soil. Balances theoretical and practical aspects of soil fertility and includes soil testing and fertilizer products. (2/2)

**AE106T Principles of Horticulture** 3  
Explores horticulture in daily living; plant growth, environment, propagation, cultivation, pruning, protection, harvesting, quality control and selection. Also covers home grounds development and maintenance. (3/0)

- AE107T Survey of the Animal Industry 3**  
Breeds, basic management, and marketing of farm animals. Composition, evaluation and marketing of animal products. Includes live animal demonstrations with cattle for meat and milk, horses, poultry, sheep and swine. (2/2)
- AE108T Agricultural Finance 3**  
Emphasizes general principles associated with the evaluation of management and the use of capital in agricultural business. Application of effective use of credit and credit instruments and description and analysis of agricultural credit institutions and agencies will be taught. (2/2)
- AE101U Introduction to Agribusiness 3**  
Focuses on entrepreneurship in agribusiness. Includes the study of marketing, budgeting, financial statements, purchasing, business structure, customer relations and inventory control. The Kirkwood Ag Service Center will be utilized by students to apply business skills. (3/0)
- AE102U Principles of Ag Marketing 3**  
Emphasis on markets, marketing institutions, marketing functions and problems in moving goods or services from the agricultural producer to the consumer. (3/0)
- AE103U Agricultural Economics 3**  
Principles of production, supply and demand applied to economic problems of agriculture and agricultural related industries and to decisions in farm management, marketing, foreign trade and agricultural policy. Reviews the principles of diminishing returns, marginal costs, opportunity cost, substitution, and the concept of risks and uncertainty. (3/0)
- AE104U Career Planning - Agri Marketing 1**  
Assists the student in planning and knowing the rules in employment internship. Includes current topics on resume writing, interviewing techniques, and other job hunting skills. (1/0)
- AE105U Ag Mechanics: Agri-Marketing 2**  
Specialized course for agri-marketing students to master mechanical skills for their preparedness in employment internship in agribusiness industry. Such skills the student will learn are chauffeurs license and working on fertilizer, chemical and feed equipment. (0/4)
- AE106U Introduction to Ag Management 3**  
Concentrates on developing decision making and leadership skills. Covers business money management, analyzing cash flow and financial statements, marketing strategies and personnel management. Explains different leadership styles and management techniques. (3/0)
- AE107U Agricultural Salesmanship 3**  
Covers the fundamentals and techniques of successful selling; developing sales personality; and the selling cycle. Practical application through sales presentation of the principles of selling using videotape as a self-evaluation device. (2/2)
- AE108U Agricultural Advertising/Merchandising 3**  
Covers planning, creation and use of advertising related to agricultural economy and marketing of agricultural products. Purposes of advertising and displaying of merchandise, methods of appeal, copy problems, layout, design problems and selection of media. Practical applications will be demonstrated. (2/2)
- AE109U Computer Application - Agri-Marketing 3**  
Studies the use of personal microcomputers for processing agribusiness firm records, farm records, including financial records, crop production records, animal production records. Utilizes microcomputer programs in specialized microcomputer systems. Prereq: DG102T. (2/2)
- AE110U Agricultural Commodities Marketing 3**  
Studies the concepts, institutions, procedures, methods and problems in moving goods or services from the producer to the consumer. Cash marketing, forward contracting, futures marketing and options marketing will be taught. (2/2)
- AE111U Agricultural Chemicals 3**  
Studies herbicides and insecticides used on Midwestern farms. Stresses integrated pest management. Topics include chemical safety, LD50, agricultural chemical characteristics and selective selection, chemical application methods and sprayer calibration. (2/2)
- AE112U Grain Grading and Processing 3**  
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. (2/2)
- AE113U Crop Monitoring/Scouting Techniques 3**  
Develops observation and identifies symptoms of insect damage, weed and herbicide problems. Utilizes the concept integrated pest management and economic threshold in recommending control methods. (2/2)
- AE201U Small Animal Behavior and Management 5**  
Studies natural history, development of behavior, basic concepts of animal behavior modification and basic training techniques as they relate to dogs and cats. Also covers sanitation, breed identification, husbandry, housing, restraint and laws that relate to dogs, cats and laboratory animals. (4/2)
- AE202U Animal Anatomy and Physiology I 5**  
Beginning anatomy and physiology with veterinary clinical emphasis. Provides the basis for study of conformation, production and pathological processes of diseases of dogs, cats, horses, sheep, goats, cattle, swine and laboratory animals. (3/4)
- AE203U Animal Anatomy and Physiology II 5**  
Continuation of Animal Anatomy and Physiology I with emphasis on unique digestive, reproductive and skeletal systems of some species. Necropsy techniques are also covered. Prereq: AE202U (3/4)
- AE204U Veterinarian Pharmacology and Terminology 3**  
Studies medications and products commonly used in veterinary medicine. Also covers medical terminology with a veterinary emphasis. (2/2)
- AE205U Introduction to Technical Chemistry 4**  
Provides a background in general chemistry which will enable the student to succeed in clinical chemistry. Photometry, kit chemistry systems, and quality control are emphasized. (4/0)
- AE206U Ag Career Orientation 1**  
Provides an overview of the animal health career field. Students identify areas of interest within the industry and make an educational plan to attain career goals. Also includes basic CPR instruction. (1/0)



<b>AE207U Fundamentals of Animal Nutrition</b>	<b>1.5</b>	Covers essential nutrients and their role in an animal's metabolism. Nutrient excess and deficiency symptoms are also discussed. (1.5/0)
<b>AE208U Canine and Feline Nutrition</b>	<b>1.5</b>	Defines nutritional management for dogs and cats, nutritional therapy and special feeding situations. Includes an analysis of many commercially prepared pet foods. Studies pet food industry regulations. Prereq: AE207U (1.5/0)
<b>AE209U Animal Nursing I</b>	<b>3</b>	Introduces the fundamentals of animal nursing. Includes animal handling and restraint, patient history and admissions, preparation and administration of vaccines and medication care of hospitalized animals. Surgical nursing, introduction to radiology, practice management and sanitation. Limited to Animal Technology students. Prereq: AE203U or permission of instructor. (0/6)
<b>AE210U Animal Nursing II</b>	<b>3</b>	Continuation of Animal Nursing I with emphasis on radiology and anesthesiology. Limited to Animal Technology students. Prereq: AE209U (0/6)
<b>AE211U Animal Nursing III</b>	<b>3</b>	Continuation of Animal Nursing I and II. Topics stressed include electrocardiography, fluid therapy, first aid and emergency care, splinting and casting and ethics. Limited to Animal Technology students. Prereq: AE210U (0/6)
<b>AE212U Veterinary Clinical Pathology I</b>	<b>3</b>	Introduces basic laboratory procedures including specimen collection and preservation, hematology, urinalysis and fecal exam preparation. Hematology will include preparation and performance of PCV, Hbg, WBC and RBC counts, preparation and staining blood smears and performance of differential white blood cell count. Urinalysis will include physical and chemical tests and an introduction to microscopic evaluation of urine. Limited to Animal Technology students. Prereq: AE202U and 1 semester college biology. (1/4)
<b>AE213U Veterinary Clinical Pathology II</b>	<b>3</b>	Continues Veterinary Clinical Pathology I with emphasis on coagulation studies and clinical chemistry. Selected serological tests will also be covered. Limited to Animal Technology students. Prereq: AE212U (1/4)
<b>AE214U Veterinary Clinical Pathology III</b>	<b>3</b>	Clinical microbiology and mycology, necropsy techniques and continued practice of hematology, urinalysis clinical chemistries and fecal exams. Limited to Animal Technology students. Prereq: AE213U (1/4)
<b>AE215U Large Animal and Poultry Medicine</b>	<b>5</b>	Common and significant disease and health problems of livestock and poultry. Emphasis on herd/flock health, etiology, clinical symptoms, treatment and prevention. Prereq: AE204U (5/0)
<b>AE216U Small Animal and Cage Bird Medicine</b>	<b>5</b>	Common and significant diseases of companion and laboratory animals. Diseases affecting birds and small animals with emphasis on etiology, clinical symptoms, treatment and prevention. Prereq: AE204U (5/0)
<b>AE217U Career Planning - Animal Technician</b>	<b>1</b>	Prepares student for job search. Resume writing, job interview skills and characteristics of good employee are emphasized. Life long career planning and goals are investigated. (1/0)
<b>AE301U Small Animal Health</b>	<b>5</b>	A practical approach to canine and feline topographic anatomy, basic physiology, laboratory techniques, and preventative medicine. Care of hospitalized animals, history taking and admission. Reception duties, client education and first aid are emphasized. (4/2)
<b>AE302U Law/Ethics and Client Relations - Small Animal Services</b>	<b>3</b>	Discusses moral, ethical and legal principles applicable to veterinarians and their employees, breeders, kennel operators, pet groomers and others allied to the small animal industry. Considers state, local and federal regulations relating to the industry. Effective client relations and telephone courtesy skills are also stressed. (3/0)
<b>AE303U Agribusiness Procedures</b>	<b>3</b>	Reviews terminology used in agribusiness, the handling of money from sales, inventory control, customer credit control, business money management and basic double-entry bookkeeping. (2/2)
<b>AE304U Pet Grooming</b>	<b>3</b>	Students acquire basic skills necessary for entry level employment. Various breeds and types of small pets are used with an emphasis on the poodle, schnauzer and small mixed breed dogs. Record keeping, state laws, customer relations and industry related problem solving are covered. (1/4)
<b>AE305U Principles of Animal Pharmacology</b>	<b>3</b>	An introductory course in small animal health products. Special emphasis on safe handling, storage, dispensing and use of common veterinary drugs and products. (Will not meet Animal Technician Pharmacology requirement.) (2/2)
<b>AE401U Agricultural Genetics</b>	<b>3</b>	Deals with biology of heredity as it relates to farm livestock and crops, especially the study of mechanisms of heredity transmission and variation or organismal characteristics. (3/0)
<b>AE402U Animal Health</b>	<b>3</b>	Basic principles of disease prevention and control. Includes process of immunization, environmental influences, associated health problems, identification of health problems, sanitation and veterinary relations. (2/2)
<b>AE403U Agricultural Facilities and Equipment</b>	<b>3</b>	Prepares production students to understand, evaluate and plan for efficient operation of various production and handling facilities. Includes flow management of feed, waste and livestock. Also looks at equipment and materials options. Students will visit several facilities during this course. (1/4)
<b>AE404U Agricultural Construction and Repair - Farm and Ranch</b>	<b>3</b>	Deals with knowledge and skill development in the areas of general repair and construction which would be expected to be dealt with on a general farm or livestock production system. Concrete, carpentry, plumbing and electricity will be explored. Whenever possible a real laboratory situation will be used in presentation of this information. (1/4)

- AE405U Career Planning - Farm and Ranch** 1  
Deals with pre-employment exercises of resume, employment interview, job application, dealing with employment internship. Also personal skills development will be dealt with. (1/0)
- AE406U Farm and Ranch Mechanics** 2  
Covers the theory and maintenance of 2 and 4 cycle, single and twin cylinder air cooled gas engines. Includes light overhaul, tuneup and diagnosis of commonly incurred problems. (0/4)
- AE407U Swine Reproduction and Management** 5  
Recognizes swine reproductive characteristics and reproductive functions of swine breeding stock and identifies type and confirmation necessary for economic production. Also deals with breeds, breeding programs, breeding systems, including A. I., and appropriate management techniques. (3/4)
- AE408U Beef Industry and Feedlot Management** 5  
Presents an overview and introduction to the entire beef industry. Relates and applies methods of starting cattle on feed and fall management of weaned calves. Deals with feedlot budgeting, determination of 205 day weights, ratios and fall management of the beef cow herd. (3/4)
- AE409U Sheep Production** 2.5  
Teaches student fundamentals of sheep production. Explores acquisition of flock, building facilities, genetics, reproduction, health, nutrition and basic management. Kirkwood sheep flock and farm laboratory will provide students with hands-on experience. (1.5/2)
- AE410U Sheep Breeding and Reproduction** 2.5  
Discusses reproductive systems and factors affecting reproduction in sheep. Includes topics on reproduction with hormones; out-of-season and accelerated lambing, estrus synchronization, fertility and pregnancy testing and artificial insemination. (1.5/2)
- AE411U Beef/Cow Calf Production** 3  
Includes participation in calving of Kirkwood Community College herd. Deals with proper nutrition, health, solving O. B. problems, and preparation cow's return to estrus. Also includes records, identification and pasture management. (1.5/3)
- AE412U Swine Farrowing and Nursery Management** 3  
Develops skills in farrowing-nursery record keeping and analysis. Also involves students in scheduling, management and operation of farrowing and weaning facilities. Discusses health, nutrition, environmental control and ability to identify superior producing animals for breeding under various conditions. (1.5/3)
- AE413U Sheep Feeding and Nutrition** 3  
Includes sheep nutritional requirements and ration formulation. Details different feeding systems including forages, pasture rotation and alternative grazing crops. Identifies feed rations to meet needs of specific stages of growth and production. (1.5/3)
- AE414U Swine Enterprise Management** 5  
Identifies records needed in swine production and record keeping techniques. Students will prepare budgets and cash flows as they relate to swine production. Also various marketing opportunities and practices will be examined and analyzed. (3/4)
- AE415U Beef Breeding/Reproduction/Nutrition** 5  
Studies the anatomy and physiology of the female and male reproductive systems. Develops an understanding of proper use of heat synchronization, AI, super ovulation, embryo transplants and new developments in bio-technology. Also deals with health, heritability and nutritional problems. (3/4)
- AE416U Advanced Flock Management** 3  
Develops students' decision making abilities in financial planning and analysis within the total farming operation. Includes NSIP flock analysis and applying new technologies to sheep production. Prereq: 3-6 hours of sheep instruction. (2/2)
- AE417U Ovine Health** 3  
Provides instruction in development of a planned preventative health program for the Midwest sheep flock. Discusses general health problems, sheep diseases, internal/external parasites and current control methods, administration of preventives and treatments. (1.5/3)
- AE418U Swine Health and Nutrition** 3  
Deals with preventive health management through the relationship of health, nutrition, environment and genetic influences. Develops skill in feed ration selection, preparation and feeding techniques for specific weights and ages. (1.5/3)
- AE419U Beef Science Management** 3  
Works with evaluation management by identifying, measuring and selecting commercially important traits of beef cattle. Provides the basic information needed to understand terminology and predict performance through the use of sire summaries. Allows students to improve average performance of offspring by matching genetic potential to feed resources through multiple trait selection. (1.5/3)
- AE420U Ewe and Lamb Management** 3  
Provides concentrated instruction on the care of the ewe flock from breeding to weaning. Course is designed to provide student experience in gestation management with hands on application of approved practices during lambing up to weaning. (1.5/3)
- AE421U Beef and Dairy Artificial Insemination** 1  
Develops skills of artificial insemination, heat detection and supportive background knowledge of beef and dairy herds, and discusses recommended nutrition, management and genetics. (.5/1)
- AE422U Livestock Evaluation and Selection** 3  
Examines the selection of breeding and meat animals based upon performance and/or visual appraisal. Students will use Kirkwood farm laboratory livestock and may include off campus assignments. (2/2)
- AE423U Advance Livestock Judging/Selection** 2  
Develops student's potential in evaluation of beef, swine, sheep and oral reasons. Farm laboratory animals, livestock operations and various field trips to livestock judging events will provide experience for students. The course may be repeated for credit with instructor's consent. (0/4)
- AE424U Livestock Clinics and Events** 2  
Addresses the role of modern livestock exhibitions, incorporating information on confirmation, quality and trends. Depending on availability, course includes planning and conducting public events. (0/4)

- AE425U Row Crop Production** 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 row crop production. (2/2)
- AE426U Swine Facility Management** 2  
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. (1/2)
- AE427U Farm Machinery Maintenance** 2  
Course centers on practical maintenance work with Kirkwood farm lab mechanic. Involves work with power units and other farm implements. (0/4)
- AE428U Swine Artificial Insemination** 1  
Develops skills of artificial insemination, heat detection, knowledge of anatomy of the reproductive system and discusses recommended nutrition, management, health and genetics of reproducing swine. (.5/1)
- AE501U Genetics and Horse Breeding** 4  
Covers the physiology of breeding, brood mare selection and care, and stallion management. Also breeding techniques, including artificial insemination. The course deals with hereditary facets with emphasis on economic production. (2/4)
- AE502U Horse Nutrition** 1.5  
A review of basic equine nutrition including common feeds, supplements, trace minerals, and ration balancing for different classes of horses. Covers unique digestive physiology and anatomy, nutritional diseases and lab exercises. Prereq: AE207U. (1.5/0)
- AE503U Basic Training** 3  
Students will learn the principles, theory, and practical experience of basic training techniques. Covers handling, haltering, leading, lunging, driving, saddling, bridling, grooming, fitting and showing skills. Equine psychology is stressed. Proper methodology for various types of bits and equipment is also presented. Prereq: 3 cr. of Horsemanship. (2/2)
- AE504U Legs, Hoof and Farrier Science** 2  
Provides instruction on the care and condition of horses' legs and feet and 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. (1/2)
- AE505U Intercollegiate Horse Judging** 1  
Provides instruction in judging at intercollegiate horse judging contests. Students can apply knowledge and develop their potential in judging horses by competing in available intercollegiate horse judging contests. Students are required to give oral reasons to justify their live placing decisions. (.5/1)
- AE506U Advanced Training** 3  
Provides instruction in management of specialized training of various types of horses. Emphasis is on the theory and practice of training principles and methods and how they are managed. Lab is stressed. Prereq: AE503U and instructor approval. (1/4)
- AE507U Professional Horse Judging** 1  
Provides instruction to students on how to judge professionally in local and approved horse shows. Provides further instruction on how to judge all horse show classes proficiently. Students may actually judge horse shows as professional and amateur judges. (0/2)
- AE508U Horse Breeds Selection** 3  
Recognizes the major and minor horse breeds and their uses. Students identify the different breeds as to their breed characteristics, origin, capabilities, type, conformation and history of the breed from the beginning to the present. (2/2)
- AE509U Horse Production Proficiency** 3  
Applies actual feeding and care of college's horses under a practical management situation. Certain competency tests must be performed related to an efficient stable master schedule and the implementation of a schedule and the tasks related to such. (1/4)
- AE510U Health and Performance Management of the Horse** 3  
Discusses and identifies the conformation of the horse, the respiratory, digestive, nervous and circulatory systems, plus skeletal and muscle structure. Relates causes and prevention of economically important horse diseases. Current state and federal regulations are also described. This course is generally taught by a veterinarian. (3/0)
- AE511U Beginning Western Balanced Seat** 2  
Provides applied instruction in developing the western rider and horse. Balanced-seat approach stressed; covers horse handling, grooming, haltering, leading, saddling, bridling and fundamentals of walk, jog and lope. (0/4)
- AE512U Horsemanship Techniques** 2  
Improves on basic techniques of horsemanship. Emphasis on refinement of natural and artificial aids, as well as techniques of body position and horse control. Instruction in long line training and ground driving. (1/2)
- AE513U Advanced Western Horsemanship** 2  
Instruction in developing western rider and horse. Balanced seat approach is stressed with rider's role in controlling action and movement in stock horse application. Prereq: AE511U and instructor approval. (0/4)
- AE514U Horsemanship Balanced Seat** 3  
Introduction to the principles of horsemanship stressing horse care before and after riding, the initial seat position, elements of the seat, posting trot, coordination of the aids, turns, and leads of the canter. As well as anatomical, physiological, psychological implications involved in riding. (1/4)
- AE515U Agricultural Mechanics - Horse Science** 2  
Designed to familiarize students with horse farm lab equipment. Requires the student to demonstrate a working proficiency with tractor and spreader, skid steer loader, and horse truck and trailer as well as other equipment. (0/4)
- AE516U Facilities Maintenance** 2  
Establish basic understanding and manipulative skills related to facility maintenance. Deals with the fundamentals of farm carpentry, fences, concrete, buildings, stalls, plumbing, electricity and general upkeep. Competency base is stressed. (1/2)

<b>AE517U Agricultural Construction and Repair - Horse Science</b>	<b>3</b>	<b>1</b>
Course deals with development of knowledge and skill in the areas of general repair and construction which would be expected to be dealt with in a general stable, farm, or ranch production system. Deals with practical aspects of carpentry, plumbing and electricity. (1/4)		
<b>AE518U Horse Shows</b>	<b>3</b>	
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. Students may actually show in available horse shows. (1/4)		
<b>AE519U Equine Truck and Trailer Operation</b>	<b>1</b>	
Students learn to hook up and operate a truck and horse trailer competently and proficiently. Deals with all aspects of truck/trailer operation. Student must have a valid automobile operator's license. (0/2)		
<b>AE520U Management of the Racing Thoroughbred</b>	<b>3</b>	
Identifies the techniques of managing the thoroughbred race horse. Describes the basic care of the thoroughbred including feeding, veterinary, farrier and conditioning practices. Identifies special techniques which include taking temperature, pulse, respiration, X-rays, blood counts and pre-race preparation. Interpretation and analysis of thoroughbred pedigrees and racetrack operations are taught. Some course time may be actually spent at a racetrack. (2/2)		
<b>AE521U Training Horse to Drive</b>	<b>1</b>	
Related principles and techniques in the care and training of the driving horse. Includes long-lining and actually driving a horse pulling a cart. (0/2)		
<b>AE601U Turfgrass Management</b>	<b>3</b>	
Examines the culture of turf with emphasis placed on establishments, turf varieties and pest identification and control. (2/2)		
<b>AE602U Plant Materials I</b>	<b>3</b>	
Develops skills in the identification, landscape use, and cultural requirements of 80 varieties of deciduous trees and shrubs native to Iowa, as well as conifers used in windbreak and wildlife plantings. (2/2)		
<b>AE603U Horticulture Equipment</b>	<b>3</b>	
Introduces the student to basic engine maintenance, operation, and troubleshooting. Provides a working knowledge of equipment used in the horticulture industry. (1.5/3)		
<b>AE604U Plant Material Maintenance</b>	<b>3</b>	
Studies pruning, fertilizing, staking and other maintenance practices utilized in tree and shrub care. Emphasis is placed on proper planting and transplanting procedures. (1.5/3)		
<b>AE605U Plant Materials II</b>	<b>3</b>	
Studies the identification landscape use, and cultural requirements of 80 ornamental trees, shrubs and vines. (2/1)		
<b>AE606U Plant Insects and Diseases</b>	<b>3</b>	
Identifies insects and diseases that infest horticulture crops and plant materials. Chemical and organic control measures are presented. (2/2)		
<b>AE607U Landscape Construction</b>	<b>3</b>	
Involves the design and construction of retaining walls, patios and walkways. Students learn area, volume and other calculations essential to construction. (1.5/3)		
<b>AE608U Career Planning - Horticulture</b>	<b>1</b>	
Discusses career opportunities in the horticulture field along with job search and interview techniques. (1/0)		
<b>AE609U Basic Landscape Drawing</b>	<b>3</b>	
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, as well as freehand drawing and presentation techniques. (1.5/3)		
<b>AE610U Residential Landscape Design</b>	<b>3</b>	
Studies the landscape design process and functional and aesthetic organization of space and plant materials as involved in residential landscaping. Prereq: AE609U. (1.5/3)		
<b>AE611U Soil and Water Conservation</b>	<b>3</b>	
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. (2/2)		
<b>AE612U Plant Propagation</b>	<b>3</b>	
Introduces student to techniques used in reproducing plants through sexual and asexual methods. Seedlings, vegetative cuttings, grafts and buddings are practiced in the laboratory. (1.5/3)		
<b>AE613U Math I - Horticulture</b>	<b>3</b>	
Stresses problems relating to Parks, Landscaping and Grounds Management. This course is designed to aid the student in reviewing mathematics practical to Horticulture. (3/0)		
<b>AE614U Horticulture Merchandising</b>	<b>3</b>	
Introduces the student to basic sales procedures and stresses product knowledge of horticulture products and services. Students concentrate on relating product information to customers. (3/0)		
<b>AE615U Herbaceous Plant Material</b>	<b>3</b>	
Studies the identification and cultural requirements of 25 annuals, 30 perennials and 20 bulbous plants. Includes production and marketing practices and principles of design. (2/2)		
<b>AE616U Garden Center Operations</b>	<b>3</b>	
Introduces marketing, merchandising, advertising and business analysis as they pertain to the garden center industry. A systematic approach to garden center management is developed. Prereq: Second year students only. (3/0)		
<b>AE617U Plants of the Wilds</b>	<b>3</b>	
Identifies plant materials existing in natural woodlands, roadsides and prairies. A special emphasis is placed on prairie forbs. (2/2)		
<b>AE618U Mammalian Wildlife</b>	<b>3</b>	
Provides training in identification and management of upper Midwest mammals. Environmental requirements and relationships are stressed. (3/0)		
<b>AE619U Park Planting Design</b>	<b>3</b>	
Studies the landscape design process as it pertains to parks and recreational areas. Functional and aesthetic organization of space and plant materials is explained. (1.5/3)		
<b>AE620U Park Maintenance Program</b>	<b>3</b>	
Includes development and analysis of maintenance programs for buildings, campgrounds, lake areas and related recreational facilities. (2/2)		

- AE621U Avian Wildlife** 3  
Includes training in identification and management of nesting and game birds of the upper Midwest. Environmental requirements and relationships are included. (3/0)
- AE622U 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)
- AE623U Park and Recreation Administration** 3  
Examines the organization and administration of park employees and related programs. Budgeting and record keeping are discussed. Prereq: Second year students only. (3/0)
- AE624U Greenhouse Practices** 3  
Studies growing techniques used in commercial greenhouse plant production. Involves the design of greenhouses, their environmental control systems, and cultural practices. (2/2)
- AE625U Commercial Plant Production** 3  
Teaches production of plants for profit. Includes growing techniques, scheduling, record keeping and cost analysis for nursery and greenhouse businesses. (2/2)
- AE626U Interior Landscape** 3  
This course surveys the 60-70 tropical green plants used in the interior plant industry. Interior design, installation, and maintenance are also taught. (2/2)
- AE627U Facility Construction - Horticulture** 4  
Facility construction develops competencies in carpentry, plumbing, electrical, and concrete. Laboratory exercises include woodworking skills, forming for concrete, ordering and pouring concrete. Also included are plumbing with copper, plastic, steel, and making electrical splices, circuits, etc. (2/4)
- AE628U Grounds Management Problems** 3  
Analyzes grounds maintenance needs and management problems for recreational and commercial grounds. The campus laboratory is utilized as a study project. Prereq: Second year students only. (2/2)
- AE629U Grounds Maintenance** 3  
Introduces maintenance practices used in sports complexes, parks and recreation areas, commercial and industrial grounds. Pesticide certification requirements are also covered. (2/2)
- AE630U Fruit and Vegetable Production** 3  
Introduces the student to the production of Midwestern fruit and vegetables with emphasis on cultural practices, variety selections and storage. (2/2)
- AE631U Horticulture Pesticide Application** 3  
Involves herbicides, insecticides and fungicides used to prevent and/or correct problems associated with plant growth. (2/2)
- AE632U Commercial Landscape Design** 3  
Involves preparation of landscape designs for commercial and institutional buildings. Includes specifications, bidding, review of design processes, and presentation techniques as used in commercial design. Prereq: AE609U. (1.5/3)
- AE633U Golf Course Maintenance** 3  
Involves actual supervised experience on local golf course with related technical information presented weekly. Emphasis is placed on maintenance programs, fall maintenance practices, and renovation practices. Prereq: Second year standing. (1/0/6)
- AE634U Advanced Turfgrass Management** 3  
Presents management techniques used in high maintenance turf areas. Students receive advanced instruction in fertilization, pesticides, etc. Prereq: AE601U. (3/0)
- AE635U Natural Resources Interpretation** 3  
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. Prereq: AE637U. (2/2)
- AE636U Wildlife Reserves** 3  
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. (2/2)
- AE637U Natural Resources Appreciation** 3  
Surveys the nonliving natural resources of Iowa. Examines how park and recreation agencies integrate these resources into their overall programs. (2/2)
- AE701U Mathematics I - Agriculture** 3  
Provides the student with math skills relating to agricultural economics, agribusiness, animal science, agronomy and agricultural mechanics. Applies the basic math functions and basic algebra to practical agricultural situations. (3/0)
- AE702U Ag Leadership** 1  
Develops skills in using parliamentary procedure, business meeting agendas, techniques of delegation, applied communication skills, organization structure and job seeking skills. Includes determining cooperative activities, organization funding, committee functions and leading discussion groups. (1/0)
- AE703U 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. (1/4)
- AE704U Grassland and Conservation Management** 3  
Involves study in the technical areas of grassland production and soil conservation practices. Included are topics on forage and pasture varieties as well as cultural management of these crops. Terraces, contours and rotations are also included as major components of this course. (2/2)
- AE705U Agricultural Fertilizers** 3  
Reviews fertility concepts and relates them to fertilizers and fertilizer application methods. Includes soil sampling methods, analyzing a soil test report, choosing application methods and calculating fertilizer costs. (2/2)
- AE706U Alternate Agricultural Energy Systems** 2  
Explores heating, ventilation, waste handling and other farm production support functions with the idea of increased economic and environmental protective efficiency. (2/0)

<b>AE707U Rural Metal Application</b>	<b>2</b>	<b>AE718U Dairy Production</b>	<b>3</b>
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. (1/2)		Examines dairy selection, breeding, housing and equipment, nutrition, herd health and husbandry practices. (3/0)	
<b>AE708U Agricultural Energy Audit</b>	<b>2</b>	<b>AE801U Employment Internship</b>	<b>6</b>
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. (1/2)		Provides on the job training in an approved business establishment. Valuable learning experiences are structured by the program coordinator and the training sponsor. (0/0/0/24)	
<b>AE709U Agricultural Energy Management</b>	<b>2</b>	<b>AE950U Independent Study: Market Plan</b>	<b>3</b>
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. (1/2)		Application of the use of marketing techniques in analysis of business decisions dealing with pricing, advertising, personal selling, product development, and channels of distribution into the development of market plans for company models. Prereq: AE102U. (2/2)	
<b>AE710U Field Crop Harvesting and Drying</b>	<b>3</b>	<b>AE951U Special Projects: Animal Health</b>	<b>1-3</b>
Introduces the basics, theory and operation of combines and choppers with actual in-the-field adjustment and operation of machines. (1/4)		An independent study course. Project is agreed upon by instructor and student with development and project completion plans. Student and instructor meet on weekly basis to review progress. (1-3/0)	
<b>AE711U Planting and Tillage Operation and Adjustment</b>	<b>3</b>	<b>AE952U Independent Study: Animal Science</b>	<b>2</b>
Covers latest types of planters, tillage equipment and sprayers. Equipment field adjustments and calibration are stressed. Operation of actual units is covered. (1/4)		Includes an agreed-to development plan for an applied problem solution. Allows student to pursue exploration and fact gathering of special interest projects. Students and instructor meet weekly for discussion, observation and evaluation of the project development. (2/0)	
<b>AE712U Rural Facility Support System</b>	<b>3</b>	<b>AE953U Independent Study: Agronomy</b>	<b>2</b>
Deals with skill achievement in planning for, selecting and operating: heating systems, cooling systems, ventilation, feed handling and processing and waste removal and handling techniques. Remodeling and renovation will be addressed as well as new construction considerations. (1/4)		Includes an agreed-to development plan for an applied problem solution. Students and instructor meet regularly for discussion, observation and evaluation of the project development. (2/0)	
<b>AE713U Modern Farm Update</b>	<b>2</b>	<b>AE954U Horse Projects</b>	<b>6</b>
Deals with contemporary problems, facility usage and management styles as viewed in the Midwest. Involves travel to appropriate sites. (0/4)		A preplanned schedule for discussion, observation, and evaluation of the horse project is developed. Covers athletic performance of the horse, training and environmental effects, use of records. Management of facilities and other horse projects are stressed. Includes an agreed-to development plan for an applied problem solution. Prereq: AE503U and instructor approval. (0/12)	
<b>AE714U Introductory Meat Science</b>	<b>2</b>	<b>AE955U Special Projects: Horticulture</b>	<b>2</b>
Introductory meat course designed to provide student background and understanding of meat industry processing, grading, pricing and inspection. (2/0)		Involves individualized study programs or projects supervised by instructional staff. Students resolve special interests/needs through research, experimentation or other related methods. (0/4) AG101V	
<b>AE715U Meat Evaluation and Marketing</b>	<b>2</b>	<b>AE101V Floral Design I</b>	<b>3</b>
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.		Introduces basic geometric design of fresh arrangements, corsages, Christmas arrangements, funeral flowers, potted plants and green planters. Includes use of tools and supplies. (1/4)	
<b>AE716U Livestock Anatomy and Physiology</b>	<b>3</b>	<b>AE102V Floral Design II</b>	<b>2</b>
Deals with anatomy and physiology of farm livestock. Includes the study of animal hormonal control and nervous, skeletal, muscular and cardiovascular systems. (3/0)		Studies advanced floral design of fresh flowers, funeral, memorial and wedding arrangements. Prereq: AE101V (0/4)	
<b>AE717U Rural Electricity</b>	<b>2</b>	<b>AE103V Floral Design III A</b>	<b>2</b>
Two-way, three-way, four-way switch circuitry is taught. Class includes work with EMT and discussion of AC electrical power including motors. (1/2)		Involves advanced all-occasion and wedding designing including table setting and copy work. Prereq: AE102V (0/4)	
		<b>AE104V Floral Design III B</b>	<b>1</b>
		Promotes student's individual style through introduction of current design trends and floral industry influences. Prereq: AE103V (0/2)	

**AE105V Design Show Seminar** 2  
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. (2/0)

**AE106V Plant Identification and Care I** 2  
Introduces plant parts and explains their function. Studies identification and cultural requirements of cut flowers and blooming plants commonly sold in retail flower shops. (1/2)

**AE107V Plant Identification and Care II** 4  
Studies environmental factors needed to produce optimum growth requirements of green and bedding plants. Introduces plant disorders caused by environmental, soil, nutrient, disease and insect problems. Use of chemicals are presented as well as relevant safety factors involved. Prereq: AE106V (2/4)

**AE108V Retail Flower Shop Operation I** 3  
Introduces the florist business, floral product sales, general selling, and efficient shop layout. Studies the processing of floral orders, terminology and telephone procedures. (3/0)

**AE109V Retail Flower Shop Operation II** 4  
Studies the aspects of the floral business involving funeral and wedding arrangements. Sales and etiquette of these floral products is included. Prereq: AE108V (4/0)

**AE110V Retail Flower Shop Operation III** 2  
Analyzes the floral business as a center of employment, personnel policies, shop management and operations. Prereq: AE108V and AE109V. (2/0)

**AE111V Retail Advertising and Display** 3  
Emphasizes instruction and practical experience in the area of ad layout, design and construction for use with advertising media. (3/0)

**AE112V Career Planning - Floriculture** 1  
Emphasizes career goals in the floral industry. Industry problem solving activities are explored by student in large and small group settings. (1/0)

**AE113V Floriculture Bookkeeping** 3  
Studies the basic theories of accounting concepts and procedures as they apply to the retail flower shop. Special attention is given to recording basic transactions, credit, payroll and banking. (3/0)

**AE114V Basic Mathematics - Floriculture** 2  
Designed to aid the student in reviewing mathematics practical to retail flower shop. Includes study of decimals, percentages and fractions. (2/0)

## **AO: ACCOUNTING**

**AO101T Principles of Accounting I** 4  
Introduces the basic concepts and procedures of accounting including the accounting cycle, merchandise accounting, internal control, corporation accounting, and the collection of data for external reporting. (4/0)

**AO102T Principles of Accounting II** 4  
Surveys the basic concepts and procedures of accounting to include bonds, financial statement analysis, the funds statement, financial statement analysis, manufacturing accounting, and other managerial accounting topics for decision making. Prereq: AO101T or test. (4/0)

**AO103T Cost Accounting** 4  
Relates the principles and methods of analyzing accounting data for planning and control, product costing and decision making. Emphasis on job orders, process and standard cost accounting systems, budgeting, and cost-volume-profit analysis. Prereq: AO102T(4/0)

**AO104T Intermediate Accounting I** 4  
Includes a review of accounting procedures and the reporting process. Provides an in-depth analysis of the asset and liability sections of the balance sheet. Prereq: AO102T(4/0)

**AO105T Intermediate Accounting II** 4  
Emphasizes corporate accounting, incomplete records, price level accounting, funds statement, pension accounting, leases, and financial statement analysis. Prereq: AO104T (4/0)

**AO106T Analyzing Financial Statements** 3  
Provides basic techniques for analyzing the flow of a business's funds and methods for selecting and interpreting financial ratios. Prereq: AO101T (3/0)

**AO107T Income Tax** 4  
Introduces the federal income tax law, its purpose and development, and its significance for tax planning. Emphasis is placed on individual and business with an introduction to corporations. Prereq: AO101T or test. (4/0)

**AO108T Computer Applications of 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: AO101T (1/4)

**AO109T Managerial Cost Accounting** 4  
Surveys the basic concepts and procedures of managerial accounting including financial statement analysis, the funds statements, manufacturing accounting and other concepts of control pricing and planning. Prereq: AO101T (4/0)

**AO101U 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)

**AO102U Accounting Concepts** 3  
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. (3/0)

**AO103U Management Accounting** 3  
Presents management's viewpoint on cost analysis, budgeting, fund flow and statement analysis. Prereq: AO102U (3/0)

**AO104U Accounting Fundamentals I** 5  
Introduces the complete accounting cycle for personal service and merchandising enterprises. Double entry accounting is presented with study of purchases, sales, inventory, and related information. Application of principles will be covered in Accounting Problems. (5/0)

**AO105U Accounting Fundamentals II** 5  
Continues Accounting Fundamentals I with further study of accounting for proprietors, annual reports, corporate organizations and an introduction to cost accounting. Prereq: AO104U (5/0)

**AO106U Accounting Problems I** 2  
Provides the student with the opportunity to secure assistance in accounting course work, with additional emphasis on problems that supplement course work. (1/2)

**AO107U Accounting Problems II** 2  
Additional work for the advanced accounting student. Problems will complement Accounting Fundamentals II. (1/2)

**AO108U Professionalism** 1  
This course is designed to give the two-year accounting student insights into various areas of accounting. It is a one-semester course (offered fall only) which will bring members of the accounting profession on campus to talk to students. (0/2)

## **AR: ART**

**AR100T Art Appreciation** 3  
Provides an overview of art from a historical, contemporary and aesthetic frame of reference. Recommended for non-art majors. (3/0)

**AR105T Art History: Ancient to 1400** 3  
Studies architecture, sculpture and painting from prehistoric through renaissance. (3/0)

**AR106T Art History: 1400 to Modern** 3  
Studies painting, sculpture and architecture from renaissance through present. (3/0)

**AR110T Pottery I** 2  
Introduces wheel-thrown forms and hand-building forms. Students examine methods of working with clay. (0/4)

**AR111T Pottery II** 2  
Continues the development of wheel-throwing and hand-building skills. Assignments are geared for progressive development of the individual's ability. Prereq: AR110T(0/4)

**AR120T Fundamentals of Design I** 2  
Introduces problems in two-dimensional design, color theory and application. Includes surface, pattern, composition, line, stylization. (0/4)

**AR121T Fundamentals of Design II** 2  
Continues problems in color theory and application. Introduces problems in three dimensional design; visualizing, structural problems, problems in relating form to form, form to space. Prereq: AR120T (0/4)

**AR130T Fundamentals of Drawing I** 2  
Introduces analysis of visual form and principles of responsive drawing. Includes perspective, chiaroscuro, figure drawing. (0/4)

**AR131T Fundamentals of Drawing II** 2  
Continues skills begun in Drawing I. Emphasis on figure drawing from model, various media. Emphasizes development of personal expression, portfolio. Prereq: AR130T or permission of instructor. (0/4)

**AR140T Fundamentals of Painting I** 2  
Introduces oil or acrylic painting. Emphasizes canvas preparation, composition, and craftsmanship. (0/4)

**AR141T Fundamentals of Painting II** 2  
Continues Painting I. Includes oil and various water color methods. Prereq: AR140T or permission of instructor. (0/4)

**AR150T Fundamentals of Printmaking I** 2  
Introduces intaglio, relief and stencil printmaking processes, composition. (0/4)

**AR151T Fundamentals of Printmaking II** 2  
Continues technical development in relief and intaglio techniques, aesthetics stressed. Prereq: AR150T (0/4)

**AR160T Fundamentals of Sculpture I** 2  
Introduces carving, modeling and casting. (0/4)

**AR161T Fundamentals of Sculpture II** 2  
Continues the exploration of the methods and techniques of modern sculpture. Includes an introduction to light metals. Prereq: AR160T (0/4)

**AR170T Fundamentals of Lettering** 2  
Studies basic letter forms, introduces problems in display lettering, calligraphy, constructed lettering and page design. (0/4)

**AR997T Independent Study in Sculpture** 2  
Continues to develop sculpturing skill and techniques. Prereq: AR161T or permission of instructor. (0/4)

**AR998T Independent Study: Pottery** 1-4  
Teaches advanced methods and techniques of the process of working with clay. Prereq: AR111T or permission of instructor. (0/2-8)

**AR999T Independent Study: Studio Art** 1-4  
Allows students to work under instructor's supervision to develop advanced skills in studio area. Prereq: Permission of instructor. (0/2-8)

## **BI: BIOLOGICAL SCIENCE**

**BI100T Biology for Non-Majors** 3  
Intended as a beginning level biology course for liberal arts students who are not planning to major in the sciences. The course will survey animal and plant life and offer students a variety of opportunities in laboratory investigations, discussion, written expression, and readings. (2/2)

**BI105T Basic Biological Concepts** 2  
Introduces basic concepts of cell structure and function in a nonlaboratory course. Includes topics in chemistry and biochemistry as related to biology. Designed for students with no previous background who want to continue in biology or health related fields. (2/0)

**BI110T College Biology I** 4  
Designed as an introductory course for biology, science, and health sciences transfer students. Principles of cellular biology, elementary biochemistry and energy functions are covered; cell division, DNA/RNA, and genetics will follow. Biological diversity, evolution and ecology will then be considered in completion of this offering. (3/2)

**BI111T College Biology II** 4  
Continues the study of College Biology I concentrating on the areas of plant and animal morphology and physiology. Additional topics will include animal behavior, immunology, development and human reproduction. Prereq: BI110T(3/2)



- BI120T General Botany** 4  
Surveys the plant kingdom from bacteria to seed bearing plants and studies general anatomy and physiological processes of plants. Initial studies are of plant cells followed by that of vegetative and reproductive organs. Physiological processes of photosynthesis, transpiration, absorption, conduction, respiration, pollination, and fertilization are included. (3/2)
- BI130T Microbiology** 4  
Surveys bacteria, viruses, and fungi: their growth characteristics, morphology, and pathogenicity. The epidemiology and diagnosis of pathogenic bacteria and an introduction to immunology are also included. Laboratory emphasis is on culturing, identification, aseptic technique and basic immunological assays. Prereq: Background in biology/chemistry recommended. (3/2)
- BI140T 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: BI110T(3/2)
- BI150T Human Anatomy and Physiology I** 4  
Introduces the structure and function of the human body. Organization at the cellular and tissue level and selected organ systems are emphasized. Laboratory activities reinforce current concepts. (3/2)
- BI151T Human Anatomy and Physiology II** 4  
Continues the study of human organ systems. Laboratory activities and dissection correspond to structures and functions investigated. Prereq: BI150T(3/2)
- BI200T Vertebrate Zoology** 4  
Provides students with an introduction to vertebrate zoology, emphasizing taxonomy and systematics, morphology, vertebrate history and evolution, and ecological diversity. Laboratory work and field trips emphasize the identification and observation of Iowa species. Prereq: BI110T(3/2)
- BI210T Invertebrate Zoology** 4  
Surveys the classification, diversity, morphology, physiology, development, behavior, ecology and evolutionary relationships of the major invertebrate phyla. Emphasis will be on living forms - terrestrial, freshwater, and marine. Laboratory work will stress morphology and adaptation, as well as ecological relationships and distribution. Prereq: BI110T(3/2)
- BI999T Independent Study in Biology** 5  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: College course work in biology. (.5/0)

## **CC: COMMUNICATION**

- CC100T Introduction to Uses of the Library** 1  
Provides self instruction in basic skills of library usage. Students proceed at their own rate with guidance from the LRC librarians. Research skills in using indexes, reference sources, and the card catalog are introduced. Need to be self motivated and proficient in the English language. (1/0)
- CC102T Effective Reading and Study** 2  
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. (2/0)
- CC103T Reading Laboratory** 1  
Offers individualized work in improving vocabulary, comprehension and speed reading skills. Under the guidance of the instructor, students work independently in self corrected workbooks with reading accelerators. (0/2)
- CC110T Elements of Writing** 3  
Develops students' fluency in communication and clarity in thinking through writers' notebooks, expository writing, analytical reading and listening. Students use structured assignments to explore personal goals and values, exercising skills needed for reasoning and writing across the curriculum. Prereq: Qualifying placement score. (3/0)
- CC112T College Writing** 5  
Develops expository writing with emphasis on substance, organization, supporting details, style and vocabulary. Teaches precise and responsible use of research tools. Requires critical analysis of reading materials in curriculum content areas, current issues, and literature. Develops students' ability to use ethical and logical argument. Prereq: Qualifying placement score or CC110T. (5/0)
- CC113T Composition I** 3  
Develops expository writing with emphasis on organization, supporting details, style, vocabulary, and library research skills. Prereq: Qualifying placement score or CC110T. (3/0)
- CC114T Composition II** 3  
Teaches precise and responsible use of research tools. Requires critical analysis of reading materials, audience, and self when communicating content material. Develops students' ability to use effective and ethical argument. Prereq: CC113T (3/0)
- CC115T Composition II: Technical Writing** 3  
Provides concepts, principles, and practice of writing and analyzing documents in business, science (including health occupations) and industry. Research emphasized. Prereq: CC112T or CC113T. (3/0)
- CC130T Speech Communication** 3  
Studies basic communication theory and practice including communication process, interpersonal relationships, small group interaction, and public speaking. (3/0)
- CC132T Public Communication** 3  
Studies the fundamentals of public speaking, emphasizing the process of speech preparation and delivery. (3/0)
- CC215T Creative Writing** 3  
Offers students an opportunity to do advanced work in writing, including literary art forms of fiction, poetry and drama. Emphasizes development of skill in the writer's craft and requires attention to structure, form and style. Prereq: CC112T, CC113T, or permission of instructor. (3/0)
- CC230T Group Communication** 3  
Examines the theory and techniques used in discussion and group processes. Develops leadership and group skills through frequent practical application in varying group sizes and opportunities. (3/0)

**CC232T Oral Interpretation of Literature 3**  
Introduces the principles and practice of reading prose, poetry and drama to audiences. (3/0)

**CC998T Independent Study: Writing 1-3**  
Provides opportunity for independent writing projects under the guidance of a faculty member. Prereq: CC215T, CC113T, or permission of instructor. (0/2-6)

**CC999T Independent Study: Speech 1**  
Provides readings and research opportunities under the guidance of a staff member. Prereq: Permission of instructor. (1/0)

**CC100U Basic Communication 2**  
Emphasizes reading and writing skills. Emphasis will be placed on reading for information, reading for understanding, writing statements of fact and opinion, writing structure and proofreading for common errors. (2/0)

**CC110U Communication Skills I 2**  
Students apply communication skills through oral and written assignments. Emphasizes basic skills related to the work place. Offered for students enrolled in career education programs. (2/0)

**CC120U Communication Skills II 2**  
Provides a continuation of Communication Skills I with additional emphasis on oral communication. Prereq: CC110U (2/0)

**CC130U Communication Skills III 2**  
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: CC120U (2/0)

## **CJ: CRIMINAL JUSTICE**

**CJ100T Introduction to Criminal Justice 3**  
Provides an overview of the American Criminal Justice System and will examine the process of justice administration through the agencies of law enforcement, courts, and corrections. (3/0)

**CJ110T Criminal Law 3**  
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. (3/0)

**CJ120T Patrol Procedures 3**  
Studies the basic methods used by a police officer. Subjects covered will include 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. (3/0)

**CJ130T Criminal Investigation 3**  
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 methods related to specific crimes such as arson, burglary and homicide are treated. Specialized detection methods and services of the crime laboratory are included. (3/0)

**CJ140T Traffic Safety and Accident Investigation 3**  
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. (3/0)

**CJ150T History of Police in America 3**  
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. (3/0)

**CJ160T Applications of Criminal Law 3**  
Examines the Iowa Code as it relates to both the criminal code and the vehicle code. (3/0)

**CJ210T Community Corrections 2**  
Studies the correctional process as applied in the community by means of juvenile and adult probation and parole. Prereq: CJ100T (2/0)

**CJ220T Penology 3**  
Examines the history, theories and practices of penal institutions, both adult and juvenile. Additionally, it will explore penal reform in relation to various objectives of modern penology. Prereq: CJ100T or permission of instructor. (3/0)

**CJ230T Constitutional Law 3**  
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. Prereq: CJ110T or permission of instructor. (3/0)

**CJ240T Juvenile Delinquency 3**  
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. Recommend CJ100T be taken first. (3/0)

**CJ250T Criminology 3**  
Surveys the nature, causes and extent of crime and delinquency; major consideration is given to various "explanations" from numerous disciplines. Recommend CJ100T be taken first. (3/0)

**CJ260T Criminal Evidence 3**  
Studies the kinds and degrees of evidence and the rules governing the admissibility of evidence in court. Prereq: CJ110T or permission of instructor. (3/0)

**CJ270T Race Relations and the Criminal Justice System 3**  
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. Prereq: CJ100T or permission of instructor. (3/0)

**CJ800T Criminal Justice Internship - Seminar 1-3**  
Provides an opportunity to discuss internship projects and share the knowledge gained from the experience with others. This is done through written and oral communications and includes journals, diaries and project reports. Prereq: CJ100T and permission of coordinator. (0/3-9)

**CJ801T Criminal Justice Internship - Lab** 1-6  
Provides placement in a criminal justice agency in a student capacity. Work experience in an agency under supervision of professionals in the field which permits the student to learn what the career offers in the way of opportunity. Prereq: CJ100T and permission of coordinator. (0/3-18)

**CJ999T 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: Permission of instructor. (Hours arranged)

## **CN: CHEMISTRY/NUTRITION**

**CN100T Introduction to Chemistry** 3  
Introduces chemistry to those with little or no previous background in chemistry and is preparatory for further coursework in chemistry, including Bio-Organic Chemistry for nursing students. The course includes a study of chemical structure and bonding, measurements, periodic table, nuclear chemistry weight/volume relationships in chemical reactions, and solution chemistry. (3/0) Lab is optional.

**CN101T Introduction to Chemistry Laboratory** 1  
Laboratory to accompany CN100T. (0/2)

**CN102T Bio-Organic Chemistry** 4  
Introduces structure, nomenclature and reactions in organic chemistry as well as the study of life processes including carbohydrate, protein, lipid, nucleic acid metabolism, and the interrelationships involved. Prereq: CN100T or one year of high school chemistry. (3/2)

**CN110T General Chemistry I** 4  
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: CN100T or equivalent and MT105T or MT150T or equivalent. (3/2)

**CN111T General Chemistry II** 4  
Studies colligative properties along with thermodynamics and kinetics, chemical equilibrium, electrochemistry, acids, bases and complex ions, and an introduction to organic chemistry. Prereq: CN110T and MT105T or MT150T or equivalent. (3/2)

**CN120T Nutrition** 3  
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. (3/0)

**CN200T Quantitative Analysis** 4  
Introduces methods of chemical analysis stressing gravimetric, volumetric, spectrophotometric and selected electroanalytical methods. Emphasis is placed on fundamentals of measurement, treatment of data, and error analysis. Prereq: CN111T (2/4)

**CN210T Organic Chemistry I** 4.5  
Introduces the theory and practice of organic chemistry with emphasis on the chemistry of functional groups. Areas stressed are nomenclature, stereoisomerism, chemical bonding, reaction mechanisms, the characterization of hydrocarbons, alkyl halides and alcohols. The laboratory stresses development of appropriate organic chemistry separation, isolation, and synthetic techniques. Prereq: CN111T or equivalent. (3/3)

**CN211T Organic Chemistry II** 4.5  
Continues the study of ethers, aldehydes, ketones, carboxylic acids and their derivatives, amines, and biologically important fats, proteins and carbohydrates. Stresses qualitative organic analysis and spectroscopic methods. Prereq: CN210T (3/3)

**CN999T 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)

## **CR: COMPUTER SCIENCE**

**CR110T Problem Solving Using PASCAL** 4  
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, arrays, record and sets. The course emphasizes program refinement involving documentation and programming style. Prereq: MT105T or permission of instructor. (4/0)

**CR111T Introduction to Data Structures** 3  
Continues Problem Solving Using PASCAL, with topics including: records, searching and sorting of arrays, files, pointers, stacks, queues, and trees. Prereq: CR110T or permission of instructor. (3/0)

**CR220T Computer Organization and Assembly Language Programming** 4  
Introduces 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: CR110T or permission of instructor. (4/0)

## **CT: CONSTRUCTION**

**CT100U Construction Structural Systems** 9  
Class, laboratory and field work activities to gain knowledge in the areas of excavation, foundation systems, floor framing systems, wall framing systems, and roof framing systems; with the study of concrete, steel, and wood technology as they relate to the framing systems. (2/14)

**CT105U Construction Materials and Processes** 3  
Covers study of building codes, construction standards, wood, concrete, metals, unit masonry, gypsum and associated products, glass, finishes, thermal and moisture protection, doors, windows, mechanical and electrical systems, and plumbing systems. Prereq: DD100U. (3/0)

**CT106U Construction Finishing Systems 7**  
Class, laboratory and field work activities to gain knowledge in the areas of exterior wall finish (wood, metal, masonry, and glass); insulation, air and vapor barriers, and energy efficiency; windows and doors; and interior finish (partition framing, wall covering systems, accoustical ceilings, cabinetry, and interior doors and trim). (2/10)

**CT110U Surveying/Site Layout 3**  
Class and laboratory activities to gain knowledge in the use of conventional and laser instruments, building site layout, site investigation, leveling, topographic maps, and route surveying. (2/2)

**CT120U Electrical Systems in Construction 3**  
Class and laboratory activities to gain a knowledge of basic electrical theory; codes and standards; electrical printreading; designing an electrical system; and the materials, tools, and methods for electrical system installation. (2/2)

**CT125U Heating, Ventilation, and Air Conditioning (HVAC) 2**  
Class and laboratory activities to gain a knowledge of the principles of thermodynamics and comfort; calculating heat loss and gain; HVAC printreading; designing HVAC systems; operation and installation of forced air, hydronic, electric, and solar HVAC systems. Prereq: CT120U. (1/2)

**CT130U Plumbing Systems in Construction 2**  
Class and laboratory activities to gain a knowledge of plumbing codes; plumbing printreading; designing water and DWV systems; fixture selection and installation; materials, tools, and methods for plumbing system installation. (1/2)

**CT205U Construction Project 6**  
Construction field work activities in structural and finishing systems, surveying/site layout, and mechanical systems. A major project(s) would be completed and class time would closely simulate construction field work. Prereq: All first year courses or permission of instructor. (2/8)

**CT216U Construction Management 6**  
The study of safety, contracts, specifications, labor relations, business methods, company organization, decision making, and risk analysis as they apply to the construction industry. Prereq: All first year courses or permission of instructor. (5/2)

**CT217U Construction Planning and Scheduling 3**  
Class and laboratory activities to gain a knowledge of controlling the flow of materials, manpower, and equipment on a construction project with a major emphasis on CPM schedule preparation and monitoring. Prereq: All first year courses or permission of instructor. (2/2)

**CT225U Construction Estimating I 4**  
Class and laboratory activities to develop the skills necessary to estimate the materials and labor for a residential project, including the sitework, concrete, masonry, and carpentry divisions. Also includes soliciting subcontractor bids; calculating overhead, profit, and equipment costs; developing a summary sheet; and organizing templates for computer spreadsheets. Prereq: All first year courses or permission of instructor. (2/4)

**CT226U Construction Estimating II 3**  
Class and laboratory activities to develop the skills necessary to estimate the materials and labor for a commercial project; including the sitework, concrete, masonry, structural steel, carpentry, and glazing divisions. Also includes exploring various computer applications for estimating and job costing. Prereq: CT225U. (1/4)

**CT235U Architectural Plans 5**  
Class and laboratory activities to develop basic architectural drafting skills and the skills necessary to understand construction plans and specifications. Prereq: All first year courses or permission of instructor. (2/6)

**CT245U Construction Materials Science 3**  
Class and laboratory activities to gain an understanding of the forces and stresses acting on materials and methods for determining the proper sizing for wood, steel, and concrete components in a structure. Prereq: All first year courses or permission of instructor. (2/2)

**CT805U Construction Internship 6**  
Fulltime work in an approved, construction-related position which includes instructor visitations/evaluations and employer evaluations of performance. Prereq: All first year courses or permission of instructor. (0/0/0/24)

## **CV: COOPERATIVE EDUCATION**

**CV800T Cooperative Education Experience 1-6**  
Offers a structured work experience providing career education on the job for Arts and Sciences students in a field related to their major academic interest. Prereq: Instructor approval. May be repeated for credit. (0/3-18)

**CV801T Cooperative Education Preparation 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)

**CV802T Coop Education Special Topics 1-3**  
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 CV800T. (0/4-12)

## **DD: DRAFTING AND DESIGN**

**DD100U Architectural Drafting I 13**  
Covers freehand lettering, line quality, orthographic projection, isometric drawing, one and two point perspectives. Also covers basic architectural dimension, and basic house plan development. (6/14)

**DD105U Architectural Drafting II 11**  
Teaches procedures in developing site plans, foundation plans, floor plans, wall sections, building sections, framing plans, and exterior elevations. Utilizes multi-story buildings for projects. Prereq: DD100U. (2/18)

**DD106U Presentations 1**  
Includes instruction in color, proportion delineation for architectural draftspeople. Prereq: DD105U. (.5/1)

**DD107U Architectural Drafting Project 9**  
Enables student to develop a set of working drawings for a commercial project located on the Kirkwood campus. Prereq: DD106U, IT100U. (1/16)

**DD108U Architectural Profession 1**  
An overview of professional ethics and contract procedures for architectural drafting students. Personal appearance and human relations are stressed. Prereq: PC105U. (1/0)

- DD110U Introduction to Computer Graphics** **2**  
 Introduces the student to the 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 will be created using the command structure similar to that of Computervision's CADD3. Students will be expected to be familiar with a typewriter keyboard; however, prior computer knowledge is not required. Prereq: one course in drafting, mathematics, or practical experience with blueprints. (1/2)
- DD111U Drafting with AutoCAD** **3**  
 Instruction to develop entry level microcomputer-based CAD skills. Students will be familiarized with two dimensional AutoCAD structure, its applications and associated hardware. Prereq: DD110U. (1/4)
- DD120U Mechanical Drafting I** **5**  
 A general drafting course designed for students to gain an understanding of drawing mechanical parts used in design. A logical problem solving approach is used to work out problems on the drafting board. The eventual product is recorded in a drawing form. The following topics are selected: instrument instruction, lettering, geometric construction, sketching, multiview projection, sectional views, calculating weight of a mechanical part, auxiliary views, isometrics, obliques, weld symbols, threads and fasteners, dimensioning and tolerancing. (1/8)
- DD125U Mechanical Drafting II** **6**  
 Introduces the student to special topics in drafting: gears, structural drawing, pipe drawing. A major portion of the semester will involve doing an engineering project. The project requires assembly drawings, weld complete, details, bill of materials, and weight calculations. This project requires a comprehensive review of the drafting course. Students are also required to do work on the computer. Prereq: DD120U. (2/8)
- DD130U Technical Problems** **2**  
 Approximately one half 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 dimensional analysis and with applied geometry and trigonometry problems. Coreq: MT100U. (1/2)
- DD131U Hydraulics** **3**  
 Hydraulics is a basic course in the use of hydraulic pumps and systems. Special emphasis is given to pumping, controlling, and measuring flows and to design and analysis. Special emphasis is also placed on distinguishing the difference between types of valves, pumps, hose and connection arrangements and flow patterns. Students will learn basic graphical symbols for making schematic drawings as well as the terminology for all hydraulics. (3/0)
- DD150U Copy Preparation I** **8**  
 Introduces basic fundamentals and techniques in preparing camera ready art for production. Studies basic theory and skill techniques of visual communications. Students learn two-dimensional design and its relationship to graphic reproduction in terms of balance, contrast, color, form, and texture for specified communications. (3/10)
- DD155U Copy Preparation II** **3**  
 Covers advanced preparation for artwork. Studies typefaces, their legibility as related to typographic design and layout, typographic measurement, points and picas. Also an introduction to computerized typesetting technology. Emphasis is on operation changes and visual effects of set type. Concentration on text includes recording data on counting and noncounting keyboards. Students solve a variety of problems commonly encountered in typesetting operations. Prereq: OF111T, DD150U. (1/4)
- DD156U Copy Preparation III** **2**  
 Covers advanced preparation of artwork with intent for color, photo-mechanical, and line and halftone consideration. Using these techniques, the student will prepare written reports covering new technologies in the printing industry. Prereq: DD156U. (.5/3)
- DD157U Copy Preparation IV** **2**  
 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: DD156U (1/2)
- DD158U Copy Preparation V** **2**  
 Develops advanced skills in the use of the phototypesetter including code translation. Technological skills are also introduced in the area of Desktop Publishing using MicroSoftWord and PageMaker software on the Macintosh and IBM computer. Students do production work in both areas to develop and maintain marketable skills. Prereq: DD157U. (1/2)
- DD160U Pre-Press I** **3**  
 Fundamentals of single color layout and stripping as used in offset lithography. Includes actual practice and instruction in the tools used in stripping, performing the various operations of layout and stripping-up flats for single color plates. (1/4)
- DD165U Pre-Press II** **2**  
 Continues Pre-Press I. Emphasis is placed on tone control and the press as it relates to line and halftone production. Prereq: DD160U. (.5/3)
- DD166U Pre-Press III** **2**  
 Continues Pre-Press II. Offers advanced theory and practical application of photographic sensitized materials applicable to the lithographic printing processes. Prereq: DD165U. (1/2)
- DD167U Pre-Press IV** **2**  
 Offers a systematic application of advanced stripping techniques for single color and multiple color runs on duplicator and larger lithographic presses. Prereq: DD166U. (1/2)
- DD170U Press Operations I** **2**  
 Introduction to offset presswork and pressroom procedures, including feeding and delivery systems, press adjustment, chemistry, papers and inking. Emphasizes the technical aspects of offset printing including all machine parts and operation in the make-ready cycle related to the duplicator. (1/2)
- DD175U Press Operations II** **4**  
 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: DD170U. (2/4)

**DD176U Press Operations III** 4  
Advanced study of theory and practical aspects relating to color reproduction and plating, including operation of presses larger than duplicator. Prereq: DD175U. (1/6)

**DD177U Press Operations IV** 4  
A continuation course for general presswork, pressroom procedures, chemistry, paper and ink. Advanced skills and information will cover the use of more complicated offset equipment. Prereq: DD176U. (1/6)

**DD185U Desktop Publishing** 2  
Develops a broad understanding of the vocabulary and techniques of desktop publishing. The student will be able to determine what software is needed for a particular job and be able to use that software to manipulate text and graphics for professional quality publications. (1/2)

**DD186U Estimating** 1  
Covers estimating production costs, specification of equipment, materials inventory and control, and the study of systems that expedite graphic reproductions. (.5/1)

**DD225U Design Problems** 4  
Offers students the opportunity to use their initiative and creativity in making practical application of the skills they have acquired during the previous three semesters of the program. This effort is directed toward designing a specific product from "scratch". The process will start with a basic concept as a solution to a problem and progress through an analytical stage involving both calculations and layout drawings. The project will take form as a set of working drawings which will include assembly and detail drawings and a bill of materials. Prereq or Coreq: DD226U. (1/6)

**DD226U Machine Design** 5  
An application course where the skills during the first three semesters are focused on problems involving the size, shape, and material requirements of machine parts. Various loading conditions are applied to the machine components. Students will analyze plates, shafts, weldments, fasteners, springs, wire rope, and bearings. No two problems are similar, so students must reason through for the solution. Prereq: EN105U, EN110U, EN115U. (3/4)

**DD230U Manufacturing Processes** 3  
This course is designed to provide the student with information and experiences in modern manufacturing processes in manufacturing industries. (1/4)

**DD235U Computer Problems** 3  
The course will give students an opportunity to re-familiarize themselves with previous work done with computer aided drafting and spreadsheet applications. The principal emphasis will be on the use of AUTO-CAD, but students will be encouraged to explore the use of other CAD programs. Problems for spreadsheet application will be drawn from problems courses taken earlier in the program. Prereq: DD111U, DG102U. (1/4)

## **DE: DANCE**

**DE110T Fundamentals of Modern Dance** 1.5  
Introduces basic modern dance technique and choreography. Students practice standard movements and locomotor patterns and are introduced to creative concepts. May be repeated for credit. (0/3)

**DE120T Fundamentals of Jazz Dance** 1.5  
Develops modern jazz dance technique and choreography. Students are introduced to the history and concepts of the jazz idiom and practice standard and creative jazz movements and locomotor patterns. May be repeated for credit. (0/3)

## **DG: DATA PROCESSING**

**DG101T Intro to Computer Concepts** 4  
Introduces computers and data processing concepts with hands-on training with microcomputers. (3/2)

**DG102T Introduction to Microcomputers and Data Processing Concepts** 3  
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 presentation are presented also. The fundamentals of computer problem solving and programming are discussed. (2/2)

**DG103T Intro/Computers and New Literacy** 2  
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) (2/0)

**DG101U Beginning Computer** 1  
Introduces students to the elementary steps of using a computer. Students will become familiar with basic terminology used in discussing microcomputers, various parts of at least two separate computer systems, and the types of software such as education, business and recreational. (.5/1)

**DG102U 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)

**DG103U 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)

**DG104U 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)

**DG105U Business Applications of Data Processing** 2  
Presents a general exposure to financial, manufacturing and insurance systems. Prereq: DG101T. (2/0)

**DG106U 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)

**DG107U 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: DG101T or DG102T. (1/2)

<b>DG108U Microcomputer Communication Systems</b>	<b>2</b>	<b>DG118U Business Applications for Programmers</b>	<b>3</b>
Introduces the concepts of data communications and how to use a microcomputer to set up electronic mail, networks and communicate with mainframes. Prereq: DG101T or DG102T. (1/2)		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. Includes computer applications of dealing with nonfinancial systems. Students are exposed to applications such as personnel and inventory. (3/0)	
<b>DG109U Microcomputer Accounting Systems</b>	<b>2</b>	<b>DG119U Structured Systems Analysis</b>	<b>3</b>
Introduces the student to micro general ledger, accounts receivable, accounts payable, payroll, inventory and other accounting systems. Prereq: DG101T or DG102T. (1/2)		Includes systems, procedures, systems analysis and design, purposes, responsibilities, applications and techniques of the systems activity as found in a business organization. Prereq: DG101T. (3/0)	
<b>DG110U Microcomputer Integrated Systems</b>	<b>2</b>	<b>DG120U COBOL I</b>	<b>4</b>
Introduces students to the use of micro integrated systems to construct menu driven applications using graphics, text and database techniques. Prereq: DG101T or DG102T. (1/2)		Presents ANSI COBOL programming language fundamentals and coding techniques. This course includes the writing of COBOL programs using structured techniques. (3/2)	
<b>DG111U Microcomputer Data Bases</b>	<b>2</b>	<b>DG121U COBOL II</b>	<b>4</b>
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: DG101T or DG102T. (1/2)		Presents ANSI Cobol programming language fundamentals and coding techniques. Includes writing structured COBOL, file editing, control breaks and sorting. (3/2)	
<b>DG112U Microcomputer Spreadsheets</b>	<b>2</b>	<b>DG122U Assembler Language</b>	<b>4</b>
Course examines different accounting electronic spreadsheets. Students learn to use software to do labeling, use formulas, replicate, save and retrieve data. Prereq: DG101T or DG102T. (1/2)		Studies IBM Basic Assembler Language programming concepts and techniques. Includes the writing and testing of Assembler Language programs and routine. Prereq: one language. (3/2)	
<b>DG113U Microcomputer Wordprocessing</b>	<b>2</b>	<b>DG123U FORTRAN Programming</b>	<b>4</b>
Provides instruction in different micro-wordprocessing systems. The concepts of editing, formatting, printing, file and disk management are covered. Prereq: DG101T or DG102T. (1/2)		Introduces FORTRAN programming concepts and techniques, with numerical mathematical/scientific/business problems. Prereq: one language. (3/2)	
<b>DG114U Microcomputer Utilities</b>	<b>2</b>	<b>DG124U Introduction to RPG II</b>	<b>4</b>
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: DG101T or DG102T. (1/2)		Presents the language facilities of RPG II. Students write and test several programs. (3/2)	
<b>DG115U Microcomputer BASIC</b>	<b>4</b>	<b>DG125U BASIC Programming</b>	<b>4</b>
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)		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. (3/2)	
<b>DG116U Program Design and Documentation</b>	<b>4</b>	<b>DG126U PASCAL Programming</b>	<b>4</b>
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. (3/2)		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. (3/2)	
<b>DG117U Operating Systems Concepts and Coding</b>	<b>4</b>	<b>DG127U PL/1 Programming</b>	<b>4</b>
Provides an introduction to the concepts and facilities of the disk operating system/virtual storage. Covers all facilities of the disk operating system, including the job control language, supervisor services, systems maintenance, the linkage editor functions and multiprogramming facilities. Designed for programmers who plan to use the disk operating system of the S/370. (3/2)		Introduces PL/1 concepts and techniques emphasizing applications of the business world. Students write and test several programs. Prereq: one language. (3/2)	
		<b>DG128U IBM PC Assembler Language</b>	<b>4</b>
		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 language. (3/2)	

**DG129U Intro to "C" Language Programming** 4  
Functions and program structure; lifetime and scope of variables; expressions, operators and L-values; arrays and pointers; complex data structure and file processing; use of library functions in the C-MSDOW software development environment. (3/2) Prereq: another language. (3/2)

**DG130U 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: DG120U. (2/2)

**DG131U Data Management I** 4  
Presents the concepts and techniques of data access methods. Storage methods presented include sequential, direct and virtual storage access methods. Prereq: DG120U. (3/2)

**DG132U Data Management II** 4  
Continues Data Management. Includes concepts of data base organization and management. Provides coding experience for data base. Prereq: DG131U. (3/2)

**DG133U Data Communications I** 4  
Presents the concepts and considerations for programming in an on-line environment. Presents facilities of communications software, including CICS. Prereq: DG120U. (3/2)

**DG134U Data Communications II** 4  
Covers data communication facilities under CICS. Students write and test online programs. Prereq: DG133U. (3/2)

**DG135U Application Programming Projects** 4  
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: DG134U. (1/6)

## **DL: DENTAL**

**DL100U Oral Anatomy** 3.5  
A systems approach to head and neck structures and functions vital to the performance of dental assisting skills. Includes the structure, function and form of individual teeth and supportive tissues. (3.5/0)

**DL101U Dental Materials** 6  
Combines the science of the basic dental materials with individualized manipulative practice. Includes exposure to laboratory procedures common to a dental office. (3.5/5)

**DL102U Chairside Assisting** 5  
Provides the student with the basic principles of chairside assisting. It includes the identification, use and maintenance of equipment and instruments; sterilization and disinfection principles and techniques, instrument transfer, oral evacuation, and oral diagnosis procedures. Background material and chairside techniques concerning operative, crown and bridge and prosthetics will be included. (3.5/3)

**DL150U Technical Chemistry and Physics** 5  
Interprets physical and working properties of dental materials, and their alterations to fit the dental technician's needs. Includes study of matter, energy, changes, and measurements involved, and ability to analyze physical property charts for selection of dental materials. (2/6)

**DL151U Dental Lab Materials** 4  
Provides student with basic understanding of various types of dental materials, their uses and manipulating techniques. Also includes care and maintenance, safety procedures and operation of appropriate dental lab equipment. (1/6)

**DL152U DLT Oral Anatomy** 1  
Study of the anatomical and physiological features, structures, and function of the human head that must be considered in the fabrication of dental prostheses. (1/0)

**DL153U Dental Orientation** 1  
Includes dissection of words used in dental terminology as to roots, prefixes, and suffixes. Also includes introduction to dental history, ethics, and jurisprudence, work authorization, infection control, and professional organizations. (1/0)

**DL154U Dental Anatomy** 4  
Study of terminology, identification, description and individual characteristics of teeth and surrounding structure. Includes waxing of required surfaces on stone casts, and introduction to the basics of occlusion. (2/4)

**DL205U Dental Radiography** 3  
Provides the student with the basic principles and techniques of dental radiography. Includes history, equipment, techniques in exposing radiographs, characteristics of radiation, radiation exposure and protection, identification of anatomical landmarks for mounting, and identification and correction of faulty radiographs. Includes supplemental techniques in exposing intra-oral and extra-oral radiographs and film processing. Preparatory course to qualify for Iowa x-ray credential. Prereq: DL100U, DL102U. (2/2. 5)

**DL206U Dental Office Procedures I** 2  
Provides instruction related to dental business office management including: handling mail, written communication, records, filing, telephone, appointment control, recall systems, financial arrangements, and ethical conduct. Emphasizes projects and in-class exercises for application of presented concepts. Prereq: DL100U. (2/0)

**DL207U Dental Therapeutics** 3.5  
Presents concepts for patient psychology, related pharmacology, and the management and prevention of: dental office emergencies, oral diseases, disturbances and trauma. Control of bacterial plaque formation and oral hygiene programs for patients and the community are examined. Prereq: DL100U and concurrent with DL208U. (3/1)

**DL208U Specialty Dentistry** 3.5  
Presents the specialty areas of dentistry, including: endodontics, periodontics, orthodontics, oral surgery, pediatric and geriatric dentistry. Includes procedures, instruments, and current concepts for assisting in these areas, as well as psychological consideration in each. Prereq: DL100U, DL101U, DL102U. (3/1)

**DL255U Crown and Bridge** 6  
Applies techniques of pouring casts, mounting techniques, recognition of gingival margin preparations, and preparation and trimming of individual dies. Studies types, designs and procedures used in constructing fixed partial dentures including construction of various types. Prereq: all first semester freshman courses. (1/10)



- DL256U Dentures I** **3**  
An introduction to the fabrication of complete dentures, including studies of the steps, procedures, and materials utilized. Study involves use of face bows, transfer of bite registrations, terminology, and adjustments involving use of semi-adjustable articulators. Also involves study and construction of complete denture relines and rebases. Prereq: all first semester freshman courses. (1/4)
- DL257U Partial Dentures I** **3**  
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. Prereq: all first semester freshman courses. (1/4)
- DL305U Intra-oral Skills** **2**  
Designed to develop clinical proficiency in instrumentation, rubber dam, alginate impressions, pumice polish, amalgam polish and topical fluoride. Prereq: DL101U, DL102U, DL207U. (1/2)
- DL306U Dental Office Procedures II** **1.5**  
Provides instruction related to dental business office management, including patient accounts (computer and pegboard), credit and collections banking, salaries, tax forms and supplies. Emphasizes projects and in-class exercises for application of presented concepts. Prereq: DL206U. (1.5/0)
- DL455U Orthodontics** **3**  
Studies irregularities of teeth and the fabrication of appliances as prescribed by the dentist to correct those irregularities. Prereq: DL152U, DL154U. (1.5/3)
- DL456U Porcelain Techniques** **5**  
Studies basic principles of design, fabrication and characterization of restorations of porcelain fused to metal and a porcelain jacket crown, including operation and maintenance of related equipment and use of materials. Prereq: DL255U. (1/8)
- DL457U Dentures II** **4**  
Advanced study of the fabrication of complete dentures involving the use of tracing devices, arrangement of teeth, staining techniques, placement of names in the denture bases, and related techniques. Includes the advantages, disadvantages, and fabrication of immediate complete dentures. Prereq: DL256U. (1/6)
- DL458U Partial Dentures II** **5**  
An advanced study in the design and fabrication of special types of removable partial dentures. Prereq: DL257U. (2/6)
- DL550U Laboratory Management (DLT)** **3**  
Study of the establishment and operation of a dental laboratory; including market surveying, bookkeeping, cost analysis, design, and understanding human behavior from a supervisor's point of view. (3/0)
- DL555U Specialized Study: Orthodontics** **5**  
Allows student and instructor to prepare a contract for individualized study in orthodontics which will include the phases of orthodontics the student and instructor feel are necessary to make the student knowledgeable and competent in this field of laboratory work. Prereq: DL455U. (1/8)
- DL556U Specialized Study: Fixed Bridges** **5**  
Allows student and instructor to prepare a contract for individualized study in fixed bridges which will include the phases of fixed bridges the student and instructor feel are necessary to make the student knowledgeable and competent in this field of laboratory work. Prereq: DL255U. (1/8)
- DL557U Specialized Study: Ceramics** **5**  
Allows student and instructor to prepare a contract for individualized study in ceramics which will include the phases of porcelain the student and instructor feel are necessary to make the student knowledgeable and competent in this field of laboratory work. Prereq: DL456U. (1/8)
- DL558U Specialized Study: Removable Bridges** **5**  
Allows student and instructor to prepare a contract for individualized study in removable bridges which will include the phases of removable bridges the student and instructor feel are necessary to make the student knowledgeable and competent in this field of laboratory work. Prereq: DL458U. (1/8)
- DL559U Specialized Study: Full Dentures** **5**  
Involves individualized advance studies of complete denture techniques and procedures not previously covered within the program. Allows student to select advanced procedures, thus making the student more knowledgeable and proficient in the field of complete denture prosthesis. Prereq: DL457U. (1/8)
- DL565U Occlusion** **1**  
In-depth study of the principles of occlusion and their application to fabrication of dental prostheses. Prereq: DL154U. (1/0)
- DL821U Dental Assisting Clinic I** **4.5**  
Assigns each student to clinical areas at the College of Dentistry and Veterans Hospital in Iowa City to provide practical experience in the various departments of dentistry, including: operative, crown and bridge, pediatric and geriatric dentistry, periodontics, endodontics, oral surgery, radiology, and orthodontics. Prereq: DL100U, DL101U, DL102U and concurrent with DL205U, DL207U, DL208U. (.5/0/12)
- DL831U Dental Laboratory Clinic** **8**  
Utilizes dental laboratories or dental offices to gain practical experiences relating to instructional and manipulative skills previously provided in the classroom. Prereq: all first year DLT technical courses. (0/0/24)
- DL832U Dental Assisting Clinic II** **4**  
Comprehensive application of dental assisting skills in the private dental office setting. Students will participate in chairside dental treatment, business office procedures as well as clinical supportive functions in radiography, instrument and operator management for infection control, dental laboratory procedures and patient education. Related seminar will cover public relations, marketing, human relations and employment. Prereq: all required program courses. (1/0/10)
- DM: DRAMA**
- DM110T Introduction to Theatre** **3**  
This course requires no previous theatre experience. Introduces the student to the roles of actor, director, designer, playwright and critic, and provides a brief history of the art. Requires 15 hours of practical production experience in addition to classwork. (3/0)

**DM120T Acting I** **3**  
Introduces basic acting techniques with emphasis on improvisation, concentration, and self-analysis. (3/0)

**DM130T 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. (3/2)

**DM180T Theatre Practicum I (Acting)** **1**  
Provides students work as actors in one Kirkwood production. A minimum of twenty-four hours of practical work is required for a passing grade. (0/2)

**DM190T Theatre Practicum I (Technical)** **1**  
Provides students work as technicians in one Kirkwood production. A minimum of twenty-four hours of practical work is required for a passing grade. (0/2)

**DM220T Acting II** **3**  
Continues training in basic acting techniques with emphasis on creating characters in scripted scenes. Students present individual and group scenes. Prereq: DM120T or permission of instructor (3/0)

**DM280T Theatre Practicum II (Acting)** **1**  
Provides students work as actors in one Kirkwood production. A minimum of twenty-four hours of practical work is required for a passing grade. (0/2)

**DM290T Theatre Practicum II (Technical)** **1**  
Provides students work as technicians in one Kirkwood production. A minimum of twenty-four hours of practical work is required for a passing grade. (0/2)

## **EE: ELECTRICITY AND ELECTRONICS**

**EE101U Introduction to Electrical Circuits** **3**  
Studies the theory and application of the physics of electricity. Included are definitions, symbols, resistors and the basic laws that apply to DC circuits. Laboratory experiments are designed to enhance the VOM test instruments and soldering techniques. (2/2)

**EE102U National Electrical Code and Electrical Wiring** **5**  
This course covers the proper techniques for wiring electrical devices for residential applications. Topics include use and care of hand tools, placement of parts, residential wiring diagrams, working drawings, National Electrical Code, and actual wiring of components. Prereq: EE101U. (3/4)

**EE105U Advanced Electrical Circuits** **5**  
The subjects covered in Introduction to Electrical Circuits are expanded upon to include AC theory, inductors, capacitors, transformers, three phase, networks and magnetism. Laboratory exercises reinforce concepts learned by providing hands on experience and troubleshooting opportunities. Prereq: EE101U, IT105U. (3/4)

**EE115U Motors, Transformers, and Control Circuits I** **6**  
DC and AC motors and the associated starting and overload devices are covered in depth. Motor laboratory exercises are designed to reinforce operational theory and provide troubleshooting experience. The various types of transformers, their application and operation, are covered. Motor control theory is discussed in detail, covering control devices, schematic symbols, and the use of the schematic and wiring diagram. Wiring labs provide practical applications for student prepared schematics and wiring diagrams. Prereq: EE105U. (3/6)

**EE116U Motors, Transformers, and Control Circuits II** **5**  
Subjects covered in Motors, Transformers and Controls I are expanded upon. Three phase is covered in detail. Common single and three phase transformer connections are duplicated in laboratory exercises. (2.5/5)

**EE125U Solid State Devices I** **2**  
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. (1/2)

**EE126U Solid State Devices II** **3**  
Continued study of transistor amplifier covering advanced small signal, large signal and operational amplifiers. Course theory is supplemented by laboratory exercises on the various amplifier circuits. Prereq: EE125U. (2/2)

**EE130U Shop Methods** **2**  
A laboratory course that covers the construction skills needed by technicians in the electrical/electronic field. Topics include soldering and desoldering techniques, circuit construction, parts placement and identification and the care and use of hand tools. (0/4)

**EE131U Electrical Circuits** **10**  
Studies the theory and application of the physics of electricity. Included are definitions, symbols, resistors, inductance, capacitance and the laws that apply to these components in AC and DC circuits. Laboratory experiments are designed to provide practical application of the theories studied. Prereq: Algebra. (6/8)

**EE161U Computer Programming for Technicians** **3**  
Covers programming in the BASIC language with application to electric circuit problems. (2/2)

**EE165U Electric Circuits I** **5**  
This course presents the methods of analysis of DC electric circuits. The course begins with a study of the fundamental physical aspects of electricity, then explains how these fundamental ideas are dealt with in a laboratory setting, and finally examines advanced techniques for solving and simplifying electric circuits. Corequisite: MT100U. (4/2)

**EE166U Electric Circuits II** **5**  
This course takes the circuit analysis techniques from Electrical Circuits I and applies them to AC circuits. The course begins with a study of the creation of AC and the relationship between electric and magnetic fields. Then circuit-simplifying techniques are examined as they apply to AC analysis, and finally the frequency response of AC circuits is examined. Corequisite: MT101U. Prereq: EE165U, MT100U. (4/2)

- EE167U Electric Circuits III** **2**  
 This course concentrates on the analysis and design of a special type of electric circuit: digital circuits. The fundamental principles of digital circuit design are examined, then the basic building blocks of digital circuits are explained and examined. Prereq: EE166U, MT101U. (1/2)
- EE175U Active Devices I** **6**  
 This course develops the student's ability to use electronic test equipment, function effectively in a laboratory and a shop environment, and learn the basic skills necessary for a technician. It also provides the student with an understanding of how active devices work, how amplifiers amplify, and how a circuit is analyzed and designed. The course provides the background needed to progress into more complex circuits and systems. Coreq: MT100U. (4/4)
- EE176U Active Devices II** **6**  
 An analytical approach with laboratory applications to solid-state circuitry and basic transistor amplifier analysis and design. Topics include biasing techniques, 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 are also covered. Prereq: EE165U, MT100U, EE175U. (4/4)
- EE177U Active Devices III** **2**  
 A study of operational amplifiers including characteristics, feedback, inverting circuits, comparators, integrators, differentiations, waveform generation and filter networks. Prereq: EE166U, MT101U, EE176U. (1/2)
- EE205U Air Conditioning & Refrigeration I** **5**  
 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. Prereq: EE116U. (3/4)
- EE206U Air Conditioning and Refrigeration II** **9**  
 Domestic and light commercial refrigeration, air conditioning and heat pumps are covered in theory and labs. The course also provides students with system troubleshooting, load calculations and air duct sizing. Prereq: EE205U. (7/4)
- EE215U Heating, Ventilation, and Air Conditioning Systems and Controls** **7**  
 Provides the student with a working knowledge of commercial air handling units, heating-cooling systems and hydronic piping layouts. Pneumatic environmental controls application, calibration and troubleshooting are also covered in theory and laboratory exercises. Prereq: EE206U. (5/4)
- EE225U Applied Industrial Electronics** **8**  
 Covers basic digital logic circuits, solid state motor controllers, programmable controllers, and solid state temperature controls. All subjects are covered both in theory and laboratory exercises. All laboratory exercises are conducted on equipment typical of that found in industry. Prereq: EE126U. (6/4)
- EE235U Fundamentals of Fluid Power** **5**  
 Familiarizes the student with basic industrial hydraulics and pneumatics involving systems components, theory of operation, application and common troubleshooting techniques. Course theory is supplemented with laboratory experiments. Prereq: EE225U. (4/2)
- EE245U Electronic Solid State Devices** **11**  
 Studies the circuit theory and theory of operation and applied circuitry of diodes, bipolar transistor, FETs, MOSFETs, SCRs, thyristors, op amps, and other linear devices. Laboratory experiments give the student a hands-on approach to the theory and troubleshooting of actual circuits. Prereq: EE131U. (7/8)
- EE246U Digital Circuits** **4**  
 Introduces basic digital concepts for the electronic technician. Studies include various number systems, logic gates, flipflops, counters, register, memories, Digital to Analog and Analog to Digital convertor, and other computer circuitry. Laboratory experiments are designed to give the student practical hands-on experience with computer circuitry. Prereq: EE131U. (3/2)
- EE247U Microprocessor Principles I** **5**  
 A study of an educational computer called SAP (simple-as-possible). This computer has three generations: SAP-1, SAP-2, and SAP-3. SAP-1 is a barebones computer built with TTS chips. Every circuit in this elementary computer will be discussed to reinforce knowledge of basic digital electronics in preparation for advanced computer concepts in SAP-2 and SAP-3. Many of the operational details of the Intel 8085 microprocessor are covered in SAP-2 and Sap-3. Laboratory experiments allow use of assembly language and utilization of digital analyzing techniques. Prereq: EE246U. (2/6)
- EE248U Microprocessor Principles II** **5**  
 A continuation of Micro Principles I, study I/O port operation, analog to digital and digital to analog conversion, and trouble-shooting using microcomputer systems. Laboratory experiments will allow the student to operate, analyze and program these systems. Prereq: EE247U. (3/4)
- EE256U Communication Circuits I** **7**  
 Studies the theory and troubleshooting of modern day electronic equipment techniques such as AM transmitters and receivers, single side band communication, FM transmitters and receivers and special communication technique. Hands on troubleshooting of communication equipment gives the student practical applications of the theory studied. In addition, a study of resonance and filters is done. Prereq: EE245U, EE131U. (4/6)
- EE257U Communication Circuits II** **6**  
 This is the second course in a series of two dealing with communication devices. This course studies digital communications, transmission lines, wave propagations, antennas, TV satellite systems and fiber optics communication principles (optoelectronics). Hands-on experiments on a wide variety of communication circuits gives the students practical applications of the theories studied. Prereq: EE256U. (4/4)
- EE258U Television and VCR Principles** **7**  
 Covers the theory and servicing techniques of B/W and color television receivers, video cassette recorders, and video disc players. Applications of television principles other than consumer products are explored. Laboratory experiments are used to measure the various signals found in video systems. Set up adjustments, alignment, and trouble-shooting are also performed. Prereq: EE257U. (4/6)

**EE265U Mechanical Devices 10**  
Emphasizes industrial applications of electronics. Covers basic control devices, motor control circuits, digital electronics, and applies the microprocessor to a basic control system. Introduces robotics as a small but growing part of automated manufacturing. The intent of this course is to prepare the electronic technician to deal with the broad concepts of automation technology and to show how electronics makes it work. Prereq: EE245U, EE246U. (5/10)

**EE275U Microprocessors I 4**  
Introduction to various microprocessors. The study includes architecture, instruction sets and simple machine level programming. Prereq: EE167U, EE177U. (3/2)

**EE276U Microprocessors II 4**  
Applications of microprocessors to industrial processes including interfacing and assembly language programming. Prereq: EE275U. (3/2)

**EE277U Digital Diagnostic Techniques 3**  
Includes digital tests and measurements using logic probes, logic pulsers, current tracers, static stimulus testers, signature analyzers and digital analyzers. Prereq: EE276U. (2/2)

**EE285U Communication Electronics I 5**  
This course is intended to give the students a good basic background necessary for working with systems and circuits that are used in today's communications industry. Major topics that are included in the course work are signal representations, block diagrams, amplitude modulation, single sideband, frequency and phase modulation, time division multiplexing, and frequency division multiplexing. Prereq: EE167U, EE177U. (5/0)

**EE286U Communication Electronics II 5**  
This course is a continuation of Communication Electronics I. Major topics that are included in the course work are antennas, transmission lines, propagation of electromagnetic waves, waveguides, FM stereo multiplex, and color television. Prereq: EE285U. (5/0)

**EE287U Communication Projects 2**  
This is a lab course which is designed to be taken at the same time as Communication Electronics I. Projects are related to that course and include building an oscillator, an AM generator, a balanced modulator, and an FM generator. Other related projects may be assigned as time permits. Prereq: EE167U, EE177U, Coreq: EE285U. (0/4)

**EE295U Design Projects 3**  
This course is designed to give students experience in individually designing subsystems and in working as part of a design group where each student has specific responsibilities toward achieving the overall goal of designing, building, troubleshooting, and testing a complex electronic system. Prereq: EE288U, EE275U. Coreq: EE276U. (2/2)

## **EF: ENGLISH AS A SECOND LANGUAGE**

**EF001D E. S.L. Survival English 3**  
A beginning level course designed to develop minimal English language writing, oral, listening and reading skills so students can communicate with Americans. (3/0)

**EFO11D Agricultural E. S.L. 3**  
A course for agriculture majors that teach American English in a specific content area. (3/0)

**EFO20D E. S.L. Composition II 3**  
The student learns words and phrases; applies meaning to words; learns spelling; becomes familiar with pronouns and articles and understands the use of present and past tense. (3/0)

**EFO22D E. S.L. Composition III 3**  
Emphasizes the development of basic points of writing an American English sentence. The students learn to express their ideas in writing in an organized way. Prereq: EFO20D (3/0)

**EFO24D E. S.L. Composition IV 3**  
Develops basic composition skills such as pre-writing activities, paragraph organization and revision. An introduction to expressing a variety of rhetorical modes such as description, narration, comparison and contrast and cause and effect. Prereq: EFO22D (3/0)

**EFO26D E. S.L. Composition V 3**  
Continued development of a topic into a three-five paragraph composition with the ability to write in the conventions and styles of thinking and ordering that dominate American academic discourse. Prereq: EFO24D (3/0)

**EFO30D E. S.L. Reading II 3**  
A beginning reading course that is based on a psycholinguistic approach to reading. The students begin to learn skills of predicting, guessing meaning in context and general comprehension. (3/0)

**EFO32D E. S.L. Reading III 3**  
Low-intermediate reading course that aims to develop reading for meaning, personal reading confidence, and the increase of speed and fluency in reading. Prereq: EFO30D (3/0)

**EFO34D E. S.L. reading IV 3**  
An intermediate level course to increase reading comprehension, speed, inference development and skimming techniques. Prereq: EFO32D (3/0)

**EFO36D E. S.L. Reading V 3**  
A high intermediate level reading course that continues development of judging critically, reading for knowledge and learning notetaking techniques. Prereq: EFO34D (3/0)

**EFO40D E. S.L. Grammar II 3**  
A beginning level that introduces basic English grammatical structures and acceptable sentence patterns through a variety of oral and written drills. (3/0)

**EFO42D E. S.L. Grammar III 3**  
A low intermediate level of English grammar structures and sentence patterns with emphasis on drill work. Prereq: EFO40D (3/0)

**EFO44D E. S. L. Grammar IV 3**  
An intermediate level of continued development of understanding and using English grammar and acceptable sentence patterns. Prereq: EFO42D (3/0)

**EFO46D E. S. L. Grammar V 3**  
Provides the student with an intensive review of American English grammar. In addition, the students will further develop their use of idioms. Prereq: EFO44D (3/0)

**EFO50D E. S. L. Communications II 3**  
A listening and conversation course that helps students hear and understand the spoken English language; and therefore, be able to orally communicate with native English speakers. (3/0)

**EFO52D E. S. L. Communications III 3**  
A listening and conversation class that builds on basic aural/oral skills. Prereq: EFO5OD (3/0)

**EF054D E. S. L. Communication IV 3**  
A listening and conversation class that further develops conversational listening and speaking skills in order to function as English speakers in the college classroom. Prereq: EF052D (3/0)

**EF060D E. S. L. : U.S. Culture 3**  
Designed for ESL students to present and discuss U. S. attitudes, values, relationships and daily life patterns. Thereby assisting the adjustment to living in the U. S. and encouraging appreciation of U. S. customs. (3/0)

**EF099D E. S. L. Reentry Preparation 3**  
Designed to prepare international students for departure from the U. S. and return to their own culture. Students will review and enhance their command of English composition, grammar, reading, and communication. Course work will be based on the experience of people who have returned to their homelands. Students will also participate in group experiential exercises. Prereq: Permission of instructor. (3/0)

## **EN: ENGINEERING**

**EN160T Engineering Graphics and Design 3**  
Includes study of sketching, instrument drawing, and computer graphics. Covers orthographic projection, pictorials, sectional views, dimensioning, and auxiliary views. Prereq: MT151T (2/2)

**EN165T Engineering Problems with FORTRAN 77 3**  
Provides techniques for solving engineering problems. Use of the SI system. Use of the FORTRAN 77 language for computer solutions. Prereq: MT151T (3/0)

**EN170T Materials Science 3**  
Covers the different structures of materials and the resulting mechanical, electrical and magnetic properties; phase diagrams, kinetics, and materials in engineering design. Prereq: CN110T and MT151T (3/0)

**EN180T Statics 3**  
Covers such topics as vector algebra, forces, couples, equivalent force-couple systems, Newton's laws, friction, equilibrium, centroids, area moments of inertia and applications. Prereq: MT160T (3/0)

**EN280T Dynamics 3**  
Emphasizes vector calculus, Newton's laws, kinetics and kinematics of particle motion, multiparticle systems, and rigid bodies and applications. Prereq: MT161T and EN180T (3/0)

**EN285T Introduction to Electrical Science 3**  
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. Prereq: MT161T (3/0)

**EN290T Thermodynamics 3**  
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. Prereq: CN110T, MT161T (3/0)

**EN100U Applied Statics 4**  
This course analyzes force systems to determine the forces necessary to produce an equilibrium condition for rigid bodies at rest or in uniform motion. Friction forces are also covered. Both analytical and graphical solutions are used to solve problems involving concurrent force systems. Prereq: MT100U. (3/2)

**EN105U Applied Dynamics 4**  
This course analyzes force systems to determine the forces necessary to produce an equilibrium condition for rigid bodies that are in motion. Three solution methods are used to relate force and mass with acceleration, velocity and displacement: force method, work-energy methods, and impulse-momentum method. Prereq: EN100U. (3/2)

**EN110U Strengths of Materials 4**  
Machined and structural members are subjected to various kinds of loads - shear, compression, tension, bending or torsion. Strength of materials establishes the procedures to be followed to size the members so that they can withstand the applied loads and meet the expected strength and deflection criteria. Prereq: EN100U. (3/2)

**EN115U Applied Kinematics 4**  
Kinematics, a division of mechanics, is the study of motion without regard to forces that cause it. This course studies the analysis of a kinematic system for displacement, velocity and acceleration. The majority of solutions to problems are by a biographical method. Some are solved analytically. Students will study linkages, cams and gears. Students will solve problems by use of vectors in a logical order. Prereq: EN100U. (2/4)

## **EO: ECONOMICS**

**EO100T Introduction to Economics 3**  
Acquaints students with questions addressed by economists, economic thinking, and the language and concepts used to address them. Recommended for associate of science degree programs only. Transfer status uncertain. (3/0)

**EO120T Principles of Macro Economics 3**  
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. (3/0)

**EO130T Principles of Micro Economics 3**  
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. (3/0)

**EO140T 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: EO120T (3/0)

**EO300T Contemporary Economic Problems and Policy 3**  
Provides an interpretation and analysis of latest economic events, problems and policy issues. Topics will vary by the discretion of the instructor. Prereq: EO120T and EO130T (3/0)

**EO999T Independent Study: Economics** 1-3  
 Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Permission of instructor and department chair. (1-3/0)

## **EP: ENVIRONMENTAL STUDIES AND POLLUTION CONTROL**

**EP120T The Environment: A Systems Approach** 3  
 Studies the ecosystem earth, including atmosphere, hydrosphere, lithosphere and biosphere through a systems approach. Examines weather, air and water quality, air quality controls, water/wastewater management, and noise. Political, economic and social aspects will also be considered; as well as the legislative process and regulation. An interdisciplinary course taught by a social scientist, a biologist, and a physical scientist. Two hours science credit and one hour social science credit will be awarded upon completion of the course. (3/0)

**EP125T The Environment: Human Impact** 3  
 Studies our expanding human population and ever increasing dependency on resources. Consideration will be given to urbanization, the urban environment, transportation, land use, public parks and preserves. Resources, e. g. food, energy, minerals, etc. , will also be examined in some detail as to availability, limits, and use. An interdisciplinary course taught by a social scientist, a biologist, and a physical scientist. Two hours science credit and one hour social science credit will be awarded upon completion of the course. (3/0)

**EP100U Introduction to Water/Wastewater** 1  
 Introduces the basic concepts and principles of water and wastewater treatment. Reviews basic math concepts needed for water and wastewater calculation. Also covers use and care of basic laboratory glassware and equipment including laboratory safety procedures. Visits are made to area water and wastewater treatment plants. (0/2)

**EP101U Water Problem Solving** 2  
 This course is designed for students proficient in the basic mathematical skills of addition, subtraction, multiplication and division of whole numbers, fractions and decimals as well as basic knowledge of a calculator use. The course emphasizes math associated with water distribution such as friction loss, flow measurement, total head, and basic solid geometry. (2/0)

**EP110U Basic Water Analysis** 2  
 Covers basic principles of chemical analysis of potable water. Laboratory techniques include pH, chlorine, hardness, iron, alkalinity, turbidity, sulfates, fluoride and total solids. (.5/3)

**EP111U Chemistry of Water** 1  
 Covers basis of inorganic chemistry to include atomic structure, chemical bonding, chemical reactions, acids, bases and salts. Organic pollutants of drinking water are reviewed. Emphasis is placed on the chemistry of water treatment. (1/0)

**EP112U Water Analysis** 1  
 Covers practical principles of process control analysis for potable water treatment. Laboratory techniques include pH, turbidity sulfates, fluoride aluminum, sodium and total solids. (0/2)

**EP113U 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. Methods and calculations for iron removal, fluoridation, chlorination, iron exchange softening and stabilization are emphasized. (2/4)

**EP114U Biology of Water** 1  
 Describes the natural cycles in nature, identifies natural relationships and the effects of man, to include effects of pollution. Emphasis placed on biology as it relates to water treatment and distribution. Methods for microbiological analysis of potable water are included. (0/2)

**EP120U Water Distribution** 3  
 Focuses on design principles of water distribution systems. Emphasis is placed on installation, repair and operation of water distribution and storage components, such as hydrants, meters and cross connection devices. (1.5/3)

**EP121U Water Resources** 1  
 Describes the relationship between water as a resource for human consumption, agricultural and industrial usage. Includes discussion on water pollution, water law, and management of water utilities. (1/0)

**EP130U Pumps and Electricity** 1  
 Hands-on course covering basic instruction on maintenance and repair procedures for pumps typically found in water and wastewater treatment facilities. Also addresses the basic concepts of electricity including motor control and energy consumption as it relates to water and wastewater treatment. (0/2)

**EP131U Basic Mechanical Maintenance** 1  
 Covers basic instruction in operating principles, maintenance and repair procedures for pumps typically found in water and wastewater treatment facilities. Also addresses the basic concepts of electricity including definitions, voltage and current measurement, and motors. (1/0)

**EP140U NPDES Wastewater Analysis** 1  
 Provides instruction in the basic parameters of wastewater analysis with emphasis on BOD,DO, pH, ammonia and solids procedures as required by state and federal wastewater discharge permits. (0/2)

**EP141U Basic Wastewater Treatment** 5  
 This course focuses on the operation and maintenance of wastewater treatment processes. Lagoons, pretreatment, sedimentation, trickling filters, disinfection, and basic solids handling are covered. Hands-on operation of the pilot wastewater treatment plant is included. (3/4)

**EP142U Biology of Wastewater** 1  
 Describes the classification and relationship of organisms, identifies biological concerns in respect to wastewater treatment and describes the biological activity involved with wastewater stabilization. Laboratory procedures for microbiological evaluation of wastewater are included. (0/2)

**EP143U Intermediate Wastewater Treatment** 4  
 Emphasizes principles and concepts of operation and maintenance of activated sludge units and sludge treatment and disposal units. Process control strategies for activated sludge, anaerobic digestion, aerobic digestion and dewatering/drying units are covered. (2.5/3)

**EP144U Wastewater Analysis** 2  
 Provides instruction in wastewater analysis with emphasis on process control and industrial monitoring required for the proper operation of wastewater treatment plant. (0/4)

**EP150U Wastewater Collection** 1  
 Covers collection of wastewater by gravity and pumping. Discusses design, installation, maintenance and repair of wastewater collection systems. Manhole safety is emphasized. (.5/1)

**EP160U Supervised Plant Operation** 7  
Offers a training period in the Kirkwood wastewater treatment plant. The student participates in the routine daily operation of the College's wastewater treatment facility under the direct supervision of a faculty member. (0/14)

**EP201U Municipal Treatment Plant Management** 2  
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. (2/0)

**EP202U 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)

**EP210U Industrial Wastewater Treatment** 2  
An overview of common industrial treatment methods and their effluent expectations. Course includes a review of industrial pretreatment agreement and other applicable standards. (2/0)

**EP800U Internship** 7  
Offers a supervised training period in a water or wastewater treatment plant. The student participates in the routine daily operation and maintenance of a water or wastewater treatment facility. (0/0/0/28)

## **ES: EARTH SCIENCE**

**ES110T Introductory Geology** 3  
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. (3/0)

**ES111T Introductory Geology Lab** 1  
Designed to be taken with ES110T. Prereq: ES110T concurrently (0/2)

**ES120T Evolution of the Earth** 3  
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. (3/0)

**ES121T Evolution of the Earth Lab** 1  
Designed to be taken with ES120T. Prereq: ES120T concurrently (0/2)

## **EU: EDUCATION**

**EU100T Education Careers Orientation** 1  
Provides readings, observation of classroom teaching and evaluation of personal strengths and weaknesses. All assignments under the individual guidance of coordinator. Prereq: Consent of coordinator. (0/2)

**EU110T Introduction to Teaching** 3  
Introduces 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. (3/0)

**EU120T Activities for the Young Child** 3  
Provides knowledge and skill development which will enable students to work in early childhood environments. This is taken concurrently with EU820T. (3/0)

**EU130T American Public Education** 3  
Examines the impact of schooling on the person in terms of individuality, creativity, self-concept and socialization. Introduces the history and philosophy of education. Students examine current beliefs about education and its effectiveness. (3/0)

**EU140T Audio Visual Communications** 3  
Studies the role of educational media in the teaching-learning process. Selection, preparation, utilization and evaluation of instructional materials for specific communications. Students use production hardware such as 35mm cameras, tape recorders, slide projectors, overhead projectors, computers, etc. to produce their own materials. (3/0)

**EU300T Educational Psychology** 3  
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, and interpretation; and evaluation of standardized and teacher-constructed tests. Prereq: PC100T and PC200T. (3/0)

**EU800T Field Experience/Education I** 3  
Offers experience in classroom or education settings in which students serve as teacher aides. Student spends 6-9 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: Permission of coordinator. (1/8)

**EU810T Field Experience/Education II** 3  
Offers additional experience in a classroom or educational setting, from preschool to adult education. The student spends 6-9 hours per week at the practicum site working under the supervision of a teacher. Prereq: Permission of coordinator. (1/8)

**EU820T Field Experience in Child Development** 3  
Provides on-site experiences for students in the Early Childhood Education Program. (1/8)

**EU999T Independent Study: Education** 1-3  
Provides readings, papers and/or basic research or other projects under the individual guidance of the staff members. Prereq: Consent of coordinator and department. (1-3/0)

## **FI: FIRE SCIENCE**

**FI100U Building Design and Fire Protection Systems** 3  
Studies building construction as it relates to its reaction under fire conditions. Reviews building codes as related to the structural strength of design. Also examines in-house devices and systems utilized to provide fire protection and suppression. (3/0)

**FI110U Principles of Fire Service Physics and Chemistry** 3  
Designed for the fire service student with no chemistry or physics background. Covers basic physics and chemistry as they relate to the fire service. Basic chemical reactions, conservation laws and structure and properties of matter are covered. (3/0)

**FI120U Hazardous Material Incident Management 3**  
Discusses the properties of chemically active and hazardous materials. Reviews ICS as it is applied to haz-mat incidents. Covers laws as they relate to management of hazardous materials. Emphasizes transportation accidents. (3/0)

**FI130U Fire Behavior and Incident Investigation 3**  
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 extinguishing of a fire. Also covers principals used to determine cause of fires, and spread of fire after the fact. (3/0)

**FI140U Tactics and Planning for Fire Service 3**  
Includes organization for major fires, including pre-planning, command post operations, utilization of manpower and equipment for large scale operations. (3/0)

**FI150U Hydraulics and Fluid Flows for the Fire Service 3**  
Application of the laws of hydraulics, flow characteristics and tests needed to ensure adequate water supplies on the fire ground. (3/0)

## **FN: FINANCE**

**FN101T 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)

**FN102T 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. (3/0)

**FN103T Personal Financial Management 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)

**FN104T 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)

**FN105T Consumer Lending 2**  
This course examines the role of consumer credit in overall banking operations. Not a "how to" training program, it offers an improved understanding of the consumer credit function within a bank. (2/0)

**FN106T 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. (3/0)

**FN107T Bank Management 3**  
Presents new trends which have emerged in philosophy and practice of management. The study and application of the principles outlined provide new and experienced bankers with a working knowledge of bank management. (3/0)

**FN108T 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)

**FN109T Bank Investments 3**  
Analyzes the nature of primary reserve and loanable funds and how their uses are determined. (3/0)

**FN110T 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)

**FN111T 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)

**FN112T Intro 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)

**FN113T Branch Management 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)

**FN114T 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)

**FN115T 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 practices. Emphasis is practical and technical rather than theoretical. (3/0)

**FN102U Financial Planning Basics 2**  
Studies factors you need to consider when devising a financial plan. You'll examine taxation, risk and return, safety, insurance, investments, retirement planning and more. (2/0)

**FN103U Credit Union Operations 2**  
The course focuses on the important functions of teller transactions, loan granting, financial counseling, and collections. Aspects of credit granting skills, loan policies and current regulations including ECOA and Truth-in-Lending. (3/0)



**FN104U Residential Appraising 3**

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. (3/0)

**FN105U 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)

**FN106U Tech for Customer Counseling 3**

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. (3/0)

**FN107U 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)

**FN108U Intro to Savings & Loan Association 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)

**FN109U 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)

**FN110U 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)

**FN111U Savings Association Operations 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)

**FN112U Teller Operations 2**

Examines specific operations of the teller function, including check negotiability, savings account ownership, insurance of accounts, basic computations, and accounting and emergency procedures. (2/0)

**FN113U Introduction to Credit Unions 3**

The course is a systematic introduction to the credit union movement, the nature of credit unions, their history and the legal bans for their operation. (3/0)

**FN114U Retail Banking Series 3**

The Retail Banking Series deals with leadership skills for individuals preparing to manage human and financial resources in today's fast-paced banking world. (3/0)

**FN115U Securities Processing 3**

Emphasizes the operational aspects of screening various securities, administering consumer and corporate trust accounts, and bank's own investment portfolio. (3/0)

**FN116U Credit Union Financial Management 3**

includes financial statement analysis, budgeting, implications of risk management, insurance, and investing procedures. (3/0)

**FO: FOREIGN LANGUAGES**

**FO100T 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)

**FO110T 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)

**FO120T Elementary German I 4**

Develops fundamental skills in German language. The emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. (4/0)

**FO130T Elementary Russian I 4**

Develops fundamental skills in Russian language. Emphasis on Russian phonology, structure, and vocabulary. (4/0)

**FO200T Elementary French II 4**

Continues Elementary French I. Prereq: FO100T or permission of instructor. (4/0)

**FO210T Elementary Spanish II 4**

Continues Elementary Spanish I. Prereq: FO110T or test or permission of instructor. (4/0)

**FO220T Elementary German II 4**

Continues Elementary German I. Prereq: FO120T or permission of instructor. (4/0)

**FO230T Elementary Russian II 4**

Continues the study of Russian phonology, structure, and vocabulary. Prereq: FO130T or permission of instructor. (4/0)

**FO300T Intermediate French - Written Communication 3**

Develops the writing and speaking skills in French through exercises aimed at expressing original ideas and conveying messages in formal and informal French. Class activities include examining good model of writing, some grammar review and discussion in French. Prereq: FO200T or permission of instructor. (3/0)

**FO310T Intermediate French - Oral Communication 3**  
Develops the reading skill, using primarily materials from literature, newspapers and magazines. It aims at providing a better understanding of the French cultures and pertinent current issues. Class activities include pronunciation exercises, some grammar review and class discussion. Prereq: FO200T or permission of instructor. (3/0)

**FO320T Intermediate Spanish-Oral and Written Communication 3**  
Develops the writing and speaking skills through exercises aimed at expressing original ideas and conveying simple messages in correct Spanish. Class activities include examining good models of writing, some grammar review, and class discussion in Spanish. Prereq: FO210T or permission of instructor. (3/0)

**FO330T Intermediate Spanish - Reading and Conversation 3**  
Develops reading skill, using primarily materials from literature, contemporary newspapers and magazines: aimed at providing a better understanding of the Spanish cultures and pertinent current issues. Class activities include pronunciation exercises, some grammar review and class discussion which promotes spontaneous conversation. Prereq: FO210T or test or permission of instructor. (3/0)

**FO340T Intermediate German - Written Communication 3**  
Develops the writing and speaking skills in German through exercises aimed at expressing original ideas and conveying messages in formal and informal German. Prereq: FO220T or permission of instructor. (3/0)

**FO350T Intermediate German - Oral Communication 3**  
Develops the reading skill, using primarily materials from literature, newspapers, and magazines. Prereq: FO220T or permission of instructor. (3/0)

**FO999T Independent Study: Foreign Language 1-3**  
Provides for individualized learning experiences. Students work directly with a faculty member on exercises aimed at improving proficiency in a language. Prereq: Permission of instructor and Assistant Dean. (1-3/0)

## **GY: GEOGRAPHY**

**GY100T Human Geography 3**  
Studies the geography of population and the principal ways of life with consideration of the capacity of the earth for future population growth. (3/0)

## **HA: HANDICAPPED SERVICES**

**HA100T Introduction to Handicapped Services 3**  
Examines the roles of paraprofessionals within various delivery settings. Units include: basic terminology, orientation to serving, psychological aspects of disabilities, working in educational, living and vocational settings. Following visits to local agencies and schools, students will shadow paraprofessionals and select field placements for the following semester. (3/0)

**HA110T Health Aspects of Disabilities 2**  
Develops skills needed to work as a paraprofessional in education and community settings. Topics include physical health, self-management and multiple disabilities. (2/0)

**HA120T Observation and Management of Behavior 3**  
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. (3/0)

**HA130T Mainstreaming and Mild Disabilities 3**  
Develops skills needed to work as a 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. (3/0)

**HA200T Exceptional Persons 3**  
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: PC100T(3/0)

**HA800T Handicapped Services Field Experience and Seminar 2-6**  
Places the student in two settings (educational or agency) 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: HA100T and PC100T and one of the following: HA110T, HA120T or HA130T. (1/4-20)

**HA999T Independent Study: Handicapped Services 1-3**  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Permission of instructor. (1-3/0)

## **HI: HISTORY**

**HI100T The Ancient Mediterranean World 3**  
Surveys the cultural, religious, political, and social heritage of the ancient Near Eastern people as the foundation of Western Civilization. (3/0)

**HI110T Europe in the Age of Monarchy 3**  
Explores the social, cultural, intellectual, economic and political foundations of Western civilization in Europe from the Middle Ages to Absolutism and Constitutionalism. (3/0)

**HI120T Europe in the Age of Revolution 3**  
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. (3/0)

**HI130T Europe in the Age of Nationalism 3**  
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. (3/0)

**HI140T U. S. History: Agrarian America 3**  
Studies the European Background, the Colonial Experience, the Revolutionary period and 19th Century History to the Civil War. Includes political, economic and social history of this period as well as the development of American thought. (3/0)

**HI150T U. S. History: Industrial America 3**  
Studies the period from reconstruction to the present. Emphasis is upon industrialization and its impact; the development of a strong federal government; an aggressive foreign policy and a growing involvement in an international economy. (3/0)

**HI999T Independent Study: History 1-3**  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Permission of instructor. (1-3/0)

## **HM: HUMANITIES**

**HM100T Encounters in Humanities 3**  
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. (3/0)

**HM105T Working in America: Past, Present and Future 3**  
Helps students think about the changing world of work. The course considers the history, sociology and economics of the world of work and encourages students to explore why work has been organized as it is and how it might be reorganized to meet future human and productive needs. (3/0)

## **HO: HOME ECONOMICS**

**HO101T Textiles 3**  
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. (3/0)

**HO102T Hotel/Restaurant/Institution Management Seminar I 1**  
Studies and reviews principles, procedures and methods applied in Hospitality Management Lab I. Concurrent enrollment in Hotel/Restaurant Management Lab I is required. Coreq: HO131U. (1/0)

**HO103T Hotel/Restaurant Management Lab I 4**  
Students enrolled perform as supervisors in the kitchen and dining room labs applying management techniques. Planning, cost analysis, supervision, training, evaluating and other management related activities are emphasized. Concurrent enrollment in Hotel/Restaurant Management Seminar I is required. Prereq: HO118U (0/8)

**HO101U Fashion Design 3**  
Provides information to implement methods for making fashion sketches to communicate various styles. Historical review, studying of contemporary designs and trends, are also presented. Students will have opportunity to develop beginning sketches. (3/0)

**HO102U Fashion History 3**  
Covers the development of costume and accessories as a part of a socioeconomic and cultural force from ancient times to the present and its relationship to fashion design trends of today. (3/0)

**HO103U Historical Interiors I 3**  
Surveys the progression of architecture, the decorative arts and furniture styles from classical antiquity through the renaissance of Europe. Projects and study stress the identification and coordination of the periods. (3/0)

**HO104U Historical Interiors II 3**  
Surveys the progression of architecture, the decorative arts, and furniture styles of eighteenth century Europe and America through the twentieth century. Identification of modern design in architecture and furniture is stressed. (3/0)

**HO105U Color Theory 3**  
Studies the principles and psychology of colors and their application to designing interiors. Includes lab projects in color harmony coordination and execution. (3/0)

**HO106U Architectural Graphics 3**  
Architectural drafting is introduced. Basic skills are mastered in graphic layout, floorplan executing elevations, schedules, and techniques of color board presentations. (2/2)

**HO107U Kitchen, Bath, and Lighting Design 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, counter tops, storage, appliances, lighting, and ventilation needs of clients. Assignments include studio designwork and kitchen design experiences to increase skills and use lecture information. Prereq: HO106U (3/0)

**HO108U Perspective and Color Drawing 3**  
Studies graphics and visual presentation as it interprets design for the consumer. Emphasizes perspective drawing technique and color rendition skills as a selling aid and communication tool between designer and client. Prereq: HO106U (2/2)

**HO109U Design Fundamentals and Art History 3**  
Studies the elements and principles of art and design for visual awareness and evaluation and includes an art history unit. American housing alternatives are identified and compared. (3/0)

**HO110U Interior Design I 4**  
Studies background materials for floors, walls, ceilings, and windows. Emphasis is on study of products emphasizing measuring, estimating, and cost analysis. Fabric coordination and window treatments are examined. Prereq: HO109U. (4/0)

**HO111U Interior Design II 4**  
Residential project work allowing the student to apply drafting skills, color coordination, space planning and product knowledge to solving client needs and wants. Prereq: HO110U. (4/0)

**HO112U Contract Design 4**  
Studies include layout planning of conventional furnishings for the closed plan office and modular system configuration for the open plan office. Units in handicap accessibility to public facilities, electrical distribution, economics, and fire safety are included. Prereq: HO106U (4/0)

**HO113U Dining Room Techniques Lab 4**  
Utilizing skills and techniques taught in Dining Room Techniques Seminar, the students gain exposure in service techniques - suggestive selling, human relations, marketing, controlling cash, record keeping - in the program's dining facilities. The course is designed for individuals employed in the field or for those who are seeking employment as wait staff personnel. Coreq: HO114U. (0/8)

**HO114U Dining Room Techniques Seminar 2**  
A study of the techniques and procedures of dining room service and supervision. Includes staffing, organization, kitchen coordination, customer relations, equipment, sales control and analysis. (2/0)

- HO115U Bakery I** **2**  
 Course provides lab experience in preparing bakery products. Yeast products, quick bread, pies, cakes and cookies are emphasized. Bakery procedures, scaling techniques, weights, measures, use and care of equipment, sanitation and safety, work simplification, costing, and the production of the highest quality bakery products is stressed. (0/4)
- HO116U Bakery II** **2**  
 Provides continued lab experience in preparing advanced bakery products. Advanced yeast products, pastries, specialty desserts, finishing and decorative work are emphasized. Bakery procedures, use and care of equipment, sanitation and safety, work simplification, costing and the production of the highest quality bakery items is stressed. Prereq: HO115U (0/4)
- HO117U Hotel/Restaurant Law** **3**  
 Reviews legal subjects relevant to the food service industry. Emphasis on government regulations, food and liquor liability, patron rights and safety, employer/employee rights and responsibilities, the court system and business management. Each student, upon successful performance on a national test, is certified by the Educational Foundation of the National Restaurant Association. (3/0)
- HO118U Food Production I** **5**  
 Fundamental skills and techniques of basic cookery and service are practiced. Food items prepared include fruits, vegetables, sandwiches, salads, potatoes and other starches, breads, cakes, cookies, other desserts, and beverages. Students rotate through the various stations of the kitchen, cafeteria and dining room areas. Kitchen procedures, use and care of equipment, sanitation and safety, work simplification and the production of the highest quality menu items are stressed. Coreq: HO120U. (0/10)
- HO119U Food Production II** **5**  
 Continued experience in the preparation and service of menu items is provided. Food items prepared include stocks, soups, basic sauces, meats, poultry, fish, seafoods, and sandwiches. Students rotate through the various stations of the kitchen, cafeteria and dining room areas. Kitchen procedures, use and care of equipment, sanitation and safety, work simplification and the production of the highest quality menu items is stressed. Coreq: HO121U. Prereq: HO118U. (0/10)
- HO120U Food Production Seminar I** **1**  
 Studies and reviews principles, procedures and methods applied in Food Production Lab I. Coreq: HO118U. (1/0)
- HO121U Food Production Seminar II** **1**  
 Studies and reviews principles, procedures and methods applied in Food Production Lab II. Coreq: HO119U. Prereq: HO120U. (1/0)
- HO122U Food Fundamentals I** **3**  
 Studies the scientific principles involved in the preparation of food. Identification and composition of foods, terminology, and basic cooking methods and techniques are emphasized. The functional role of ingredients to the final product is studied. (3/0)
- HO123U Food Fundamentals II** **3**  
 Continues the study of the scientific principles and techniques in the preparation of food applying the functional role of ingredients to the development of recipes and food products. Prereq: HO122U.
- HO124U Culinary Arts I** **5**  
 Emphasis is given on the advanced skills and techniques in the preparation of Haute Cuisine. Students rotate through the various stations of the kitchen gaining production and managing skills as chef, sous chef, patissier, saucier, potager, garde manger, and tournant. Kitchen procedures, used and care of equipment, sanitation and safety, work simplification, managing skills, human relations and the production of quality menu items are stressed. Coreq: HO126U. Prereq: HO119U. (0/10)
- HO125U Culinary Arts II** **10**  
 Continued experience in the preparation of Haute Cuisine is provided as students continue to rotate through the stations of a classical kitchen. Previously learned skills are perfected. Students, when possible, compete in salons of culinary art. Coreq: HO122U. Prereq: HO124U. (0/10)
- HO126U Culinary Arts Seminar I** **1**  
 Studies and review principles, procedures and methods applied in Culinary Arts I. Concurrent enrollment in Culinary Arts I is required. Coreq: HO124U. (1/0)
- HO127U Culinary Arts Seminar II** **1**  
 Continues study and review of principles, procedures and methods applied in Culinary Arts Lab II. Coreq: HO125U. (1/0)
- HO128U Introduction to Hotel/Restaurant/Institution Industry** **1**  
 A broad view and analysis of the history, growth and career opportunities in the food service industry. Includes guest speakers and field trips. (1/0)
- HO130U Hotel/Restaurant/Institution Management Seminar II** **1**  
 Studies and reviews principles, procedures and methods applied in Hotel/Restaurant/Institution Management Lab II. Coreq: HO131U. Prereq: HO129U. (1/0)
- HO132U Hotel/Restaurant Management Lab II** **4**  
 Students continue to gain proficiency in front and back house supervisory skills. Concurrent enrollment in Hotel/Restaurant Management Seminar II is required. Prereq: HO131U (0/8)
- HO133U Introduction to Wines and Spirits** **2**  
 A study of alcoholic beverage classifications, laws, wine regions, purchasing and control, promotion and service, mixology and tasting. (2/0)
- HO134U Menu Planning and Nutrition** **3**  
 Basic principles of menu planning are studied in relation to the eating habits and tastes of various age and social groups and types of food service establishments. Pricing and costing of menu items is emphasized and using the menu as a management and merchandising tool is defined. Basic nutritional concepts in relation to current health concerns are reviewed. (3/0)
- HO135U Sanitation/Safety/Equipment** **2**  
 A study of the principles of bacteriology, food borne illness, sanitation, safety, personal hygiene, housekeeping and health regulations and inspections. The use, cleaning and maintenance of equipment is also stressed. Each student, upon successful performance on a national test, is certified by the Educational Foundation of the National Restaurant Association. (2/0)

**HO136U Equipment and Design** 3  
Studies the types and capabilities of commercial/institutional food service equipment. Studies floor plans of commercial/institutional kitchens in relation to menu needs, work flow, equipment, space and personnel. Students design a commercial or institutional kitchen, including equipment, specifications and approximate cost. Includes field trip studies of large quantity kitchens and equipment companies. (3/0)

**HO137U Garde Manger/Catering** 3  
Cold food preparation and presentation techniques are taught emphasizing chaud-froid, aspics, pates, golanines, tallow, ice and chocolate carving, hor d'oeuvres, appetizers, vegetable carvings and food decoration. Students plan, prepare, present and serve a cold buffet. Prereq: HO119U.

**HO138U Purchasing and Cost Control** 3  
A study of the selection, purchase, receiving and storage of food, supplies, and chemical products. Specification writing is practiced. Cost control methods, storeroom procedures and math are emphasized. (3/0)

## **HS: HEALTH**

**HS100U CPR/First Aid** .5  
Provides basic rescuer training and certification for FIRST RESPONDERS MODULE C according to guidelines of the American Heart Association. Also provides instruction and laboratory practices in basic first aid procedures. (0/1)

**HS110U Introduction to Health** 2  
Provides an orientation to the people and institutions that make up the health care system. Discusses ways to meet the communication and interpersonal needs of patients and how to provide and maintain a safe patient environment. Explores the concept of personal health and wellness throughout the life cycle. (2/0)

**HS111U Health Care I** 1.5  
Provides basic patient care skills. Demonstrates how to maintain medical aspects, clean and sterilize patient care equipment and instruments and care for the patient in isolation. Demonstrates how to collect and record subjective and objective data such as vital signs and patient's general condition. (.5/2)

**HS112U Health Care II** 1  
Demonstrates procedures to maintain patient safety such as preventing falls and other hazards in the health care environment. Demonstrates correct methods for lifting, moving, and positioning patients and maintaining patient mobility. (.5/1)

**HS117U Health Assessment** 2  
Designed for students in health careers. Provides the student with the necessary competencies to obtain a health history and to conduct a clinical assessment of a patient using a systematic approach, enabling the student to identify abnormalities and documentation of these abnormalities. Prereq: HS150U (1/2)

**HS120U Medical Terminology** 4  
A study of medical terminology as the language of medicine. The course includes the study of prefixes, suffixes, word roots, combining forms, abbreviations, with emphasis on spelling, pronunciation, and usage. (4/0)

**HS130U Medical Ethics** 2  
Prepares the health science student to integrate the principles of medical ethics into individual clinical applications in the real world of the modern hospital. Lecture and discussion provides the student with a thorough study of the interpersonal components of and current issues in medical ethics. Examination of these issues will enable the student to appropriately employ the rules and standards governing the ethical choices the health professional makes in relating to others in the clinical setting. (2/0)

**HS140U Normal Nutrition** 1  
Provides basic knowledge of nutrition. Topics studied include: digestion, metabolism, essential dietary components and nutritional concerns. Emphasis is on nutrition as it relates to maintenance of health. (1/0)

**HS150U Basic Anatomy and Physiology** 3  
Designed for students in the specific health sciences. An overview of human form and function presented in a lecture/laboratory format. (2/2)

**HS155U Functional Anatomy** 4  
Presents the application of functional neurology, skeletal and muscular structure and function, and regional functional anatomy of the limbs and back. Prereq: HS150U (4/0)

**HS156U Homeostatic Physiology** 3  
Designed for advanced health sciences students. This course emphasizes body systems important to maintaining homeostasis in the human. Nerve and muscle tissue, cardiac, respiratory, fluid-electrolyte, and endocrine physiology are addressed. Prereq: HS150U (3/0)

**HS157U Introduction to Pathology** 3  
Covers basic concepts and terminology associated with disorders and diseases of the human body. The course is specifically designed for students enrolled in the Medical Records Technology and Orthopedic Physician Assistant programs. Prereq: HS150U and HS156U. (3/0)

**HS160U Clinical Pharmacology** 2  
Provides an understanding of indications, therapeutic action, reactions, and interactions of a broad range of drugs. Designed to prepare students in health careers for clinical experience. (2/0)

**HS400U Teaching Methods/Health** 2  
Introduces principles of learning and teaching and how they apply to patient instruction and continuing professional education activities. Involves development and implementation of a learning exercise. (2/0)

**HS405U Emergency Medical Technician - Ambulance** 7  
The overall objective of the course is to improve the quality of emergency care rendered to victims of accidents and illness. As such, the course develops skills in patient assessment, symptom recognition and in all procedures and techniques currently within the realm and responsibilities of an EMT-A providing emergency medical care. Students will be charged an additional testing fee for the National Exam. At the conclusion of the course the student will take the National Practical and written exams. Prereq: CPR-C (6. 5/5)

**HS410U Health Manager** 2  
Integrates insights from several disciplines in providing introductory management and leadership skills specifically for allied health, dental, and nursing practitioners interested in or occupying supervisory positions in health care. Emphasis in development of interpersonal skills, following a problem solving model. (2/0)

**HS415U Limited Practice Radiographer 5**

Emphasis is placed on providing the knowledge and skills necessary to provide maximum protection from ionizing radiation for the patient and personnel. Includes basic physics as applied to x-ray machines and technology, film processing, patient position, preparation for radiographs of the chest, extremities and spine, film evaluation, and radiation protection. The course meets the Rules and Regulations of the State of Iowa for radiation emitting equipment. Prereq: Health Career Experience or Education. (4/2)

**HS425U Electrocardiography 1**

Provides instruction in electrocardiography including psychological and physical preparations of a patient for an EKG: proper set-up and operation of equipment, mounting of tracings, and trouble shooting to obtain accepted tracings. The student will learn to recognize the characteristics of normal rhythm and certain dysrhythmias. Prereq: HS150U (.5/1)

**HS435U Advanced Cardiac Life Support 2**

Provides theory and laboratory practice in managing specific life threatening cardiac dysrhythmias resulting from myocardial infarction. Includes review of basic life support; use of mechanical aids to establish an airway and maintain ventilation; ECG monitoring and recognition of life threatening dysrhythmias; cardiac defibrillation; establishing an intravenous drug access and initiating appropriate cardiac drug therapy. Prereq: HS150U (1/2)

**HS999U Studies in Health Science 1-3**

Provides readings, papers, seminars, and/or basic research. Prereq: Consent of instructor and coordinator. (16-48/0)

**IN: INTERDISCIPLINARY STUDIES****IN100T Introduction to the Social Sciences 3**

Provides a detailed interdisciplinary study of social science methods. An introduction to the nature of content in Economics, Geography, Political Science, Psychology, and Sociology will be provided. Emphasis shall be placed on development of written and oral communication skills. (3/0)

**IN110T Rural Development and Agricultural Extension 3**

Designed to familiarize students with theoretical and practical aspects of rural development and agricultural extension in developing nations. (3/0)

**IN120T Understanding Cultures 3**

Examines cultural factors relating to human behavior. Specific emphasis is placed on the third world and on contemporary political, economic, religious and social institutions. (3/0)

**IN130T Human Sexuality 3**

Studies 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. (3/0)

**IN140T Death and Dying 3**

Examines selected topics dealing with death and dying, including health care, religious, social, legal and funeral practices. (3/0)

**IN150T Methods of Social Research 3**

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.

**IN160T Science and Society 3**

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." (3/0)

**IN170T Human Evolution 3**

Considers biological evaluations and applications to the history of the human species. Hypotheses and theories concerning origins of the earth, life, levels of life, the human species, and races are examined. Topics include primate classification and relationships, human evolution, anthropological and archeological techniques, the evolution of prehistoric culture and man's migration into North America. Concept building subject areas include genetic, evolution, and paleontology principles. (3/0)

**IT: INDUSTRIAL TECHNOLOGY****IT100U Industrial Math I 3**

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. (3/0)

**IT101U Industrial Math II 3**

Covers basic algebra as it relates to fundamental equations, ratios and 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. (3/0)

**IT102U Electrical/Electronic Math 3**

Provides the student with the essential mathematical skills for the study of DC electrical circuits. Topics covered are the real number line, fractions, decimals, basic algebra for equation manipulation, ratio and proportion, square roots, calculator techniques, SI measurement system, dimensional analysis, precision and rounding, etc. (3/0)

**IT103U Machinist Mathematics I 2**

Begins with a review of fractions and decimals as they are used to solve shop problems. Students are introduced to the problems involving powers and roots, tapers and angles. Use of the calculator is introduced along with handbook tables and formulas. Introduces student to metric conversion and more advanced applied math involving calculations of area and volume and weight of material. (2/0)

**IT104U Machinist Mathematics II 1**

Continues Machinist Mathematics I. Introduces students to more advanced practical mathematics. 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. Prereq: IT103U (1/0)

**IT105U Applications of Geometry 1**

This course begins with a review of right angle trigonometry as it applies to the machinist and continues with additional trig (both right angle and oblique angle) and geometry concepts. Emphasis will be on practical application of the mathematical concepts to the planning and programming skills required for preparing CNC programs. Prereq: IT104U or equivalent industrial math experience. (1/0)

**IT106U Unified Physics** 3  
Studies principles of force, work, rate, momentum, resistance, power potential and kinetic energy as related to mechanical, fluid, electrical and thermal devices. (2/2)

**IT125U Applied Physics I** 2  
Studies Mollier diagrams involving refrigerant characteristics, thermal dynamics and processes as they relate to a compression refrigeration cycle. Course material also covers the study of psychrometrics which define air properties and processes such as heating, cooling, humidification and dehumidification. Coreq: EE205U. Prereq: IT100U. (2/0)

**IT126U Applied Physics II** 3  
Studies mechanical power transmission, energy convertors, fluid power, and precision measuring instruments. Prereq: IT125U (2/2)

**IT127U Physics I** 2  
Physics I introduces the student to general physics concepts and a systematic approach to problem solving techniques for physics based problems. The mechanics division of physics will receive principal emphasis. The course is designed to provide some introductory skills in dealing with later courses in statics and dynamics. Laboratory work is an integral part of the course. (1/2)

**IT128U Physics II** 5  
Continues Physics I. Covers fluid mechanics, heat theory and electricity. Designed to be an introductory course in these topic areas with principal emphasis on conventional terminology and general application. Prereq: IT127U (4/2)

**IT135U UTC Physics I** 2  
Studies the concepts of force, parameter, rate, resistance, and energy loss, and introduction to magnetism. This course uses UTC format. All topics are presented with cross-disciplinary applications: mechanical, fluid, electrical and thermal. (1/2)

**IT136U UTC Physics II** 3  
Continues UTC Physics I. Studies the concepts of capacitance, inductance and energy storage, energy transfer and storage in resistive-capacitive-inertive systems. Prereq: IT135U. (2/2)

**IT137U UTC Physics III** 3  
Continues UTC Physics II. Studies the concepts of forced oscillation in resistive-capacitive-inertive systems, waves and radiated energy. Prereq: IT136U. (2/2)

**IT145U Microcomputer Applications** 3  
Covers several applications for microcomputers in business and industry. Included are operating systems, data management, communications, word processing and peripheral devices. Prereq: EE115U (2/2)

**IT165U Economics for Technicians** 2  
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. (2/0)

## **LA: LAW**

**LA100T Paralegal Studies Orientation** 4  
Provides an overview of the legal process and of the federal, state and municipal court systems. Introduces the student to the various sources of law, to the different fields of law, and to the nature, ethics and regulation of legal professionals. Teaches the interpersonal and office skills expected of a paralegal professional. (4/0)

**LA102T 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. Prereq: LA100T (1/0)

**LA105T Legal Research/Writing** 4  
Introduces the student to the resources of the new library while teaching how to define a legal problem, develop a research strategy, do legal research and apply the research results in legal writing of case briefs, memoranda and various brief forms. (4/0)

**LA110T Civil Litigation** 3  
Teaches the rules for conducting civil trials, incorporates the preparation of complaints, discovery and motions, and teaches various trial preparation skills and practices. Prereq: LA100T (3/0)

**LA115T Contracts/Torts** 4  
Studies the principles of tort law and contract law and the preparation of related pleadings and contracts. (4/0)

**LA117T Criminal Procedural Law** 2  
Studies the rules of criminal procedure and the rights of the defendant. Prereq: LA100T (2/0)

**LA120T Estate Planning/Administration** 2  
Provides a working knowledge of lifetime and testamentary estate planning enabling the student to draft trusts, wills, and compute tax consequences of gifts and federal estate taxes. Provides understanding of the process of settling estates both within and outside probate court. Prereq: LA100T (2/0)

**LA125T Real Estate** 2  
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. Prereq: LA100T (2/0)

**LA130T Bankruptcy** 2  
Teaches the Bankruptcy Act, applicable rules and selected case law, and their application to the preparation of a proper bankruptcy filing. Prereq: LA100T (2/0)

**LA135T Family Law** 2  
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. Prereq: LA100T (2/0)

**LA140T Administrative Law** 2  
Provides a working knowledge of administrative law and procedure and the practical skills necessary for advocacy before an administrative agency. Prereq: LA100T (2/0)

**LA145T Business Organization** 2  
Explores and explains the legal characteristics of proprietorships, corporations, partnerships and other business vehicles, and provides an opportunity to draft Articles of Incorporation, By-Laws, Partnership Agreements and related business documents. Prereq: LA100T(2/0)

**LA150T Introduction to Law** 3  
Introduces the student to the broad spectrum of the involvement of business in customary business law topics. (3/0)

**LA155T Personal Law 3**  
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. (3/0)

**LA160T Business Law I 3**  
Surveys principles of law as applied to business relationships and transactions. (3/0)

**LA165T Business Law II 3**  
Studies negotiable instruments, sales, insurance, trusts and estates, government and business, agency, and business structures. Prereq: LA160T. (3/0)

**LA170T 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)

**LA800T Legal Assistant Internship 3**  
Provides an opportunity to use and refine paralegal skills in a work setting with the guidance of legal professionals. Bi-weekly seminars allow interns to share and gain perspective on their experiences. Prereq: Permission of coordinator. (0/12)

**LA999T Independent Study: Law 1-3**  
Provides independent project opportunities under the supervision of the Legal Assistant Coordinator. Prereq: Permission of coordinator. (1-3/0)

## **LR: LITERATURE**

**LR210T Masterpieces of Literature: The Ancient World 3**  
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: CC112T or CC113T. (3/0)

**LR211T Masterpieces of Literature: Medieval, Renaissance and Neo-classical Periods 3**  
Studies selected works (epic poetry, drama, and fiction) of the Medieval, Renaissance, and Neo-Classical periods in Western culture: i. e., Dante, Chaucer, Shakespeare, Cervantes, Moliere, Swift, and Voltaire. Emphasis is placed on appreciation of literature and on the continuity and change in literary masterpieces as they reflect different periods in Western cultural history. Prereq: CC112T or CC113T. (3/0)

**LR212T Masterpieces of Literature: 19th and 20th Centuries 3**  
Studies selected fiction, poetry, and dramas of 19th and 20th century Europe and America. Emphasis is placed on appreciation of great literature using a combination of critical approaches. Prereq: CC112T or CC113T. (3/0)

**LR220T American Literature to 1865 3**  
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: CC112T or CC113T (3/0)

**LR221T American Literature since 1865 3**  
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: CC112T or CC113T (3/0)

**LR230T Introduction to Fiction 3**  
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: CC112T or CC113T. (3/0)

**LR231T Introduction to Dramatic Literature 3**  
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: CC112T or CC113T. (3/0)

**LR232T Introduction to Poetry 3**  
Develops a perceptive acquaintance with a large number and variety of the world's poetry. Students are offered opportunities to understand and appreciate and interpret poems from several ages, to hear poems, discuss poems, and write about poems through individual projects as well as class activities and assignments. Prereq: CC112T or CC113T (3/0)

**LR234T Introduction to Film 3**  
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: CC112T or CC113T. (3/0)

**LR240T Children's Literature 3**  
Provides a broad overview of children's literature, with emphasis upon work done by American writers and illustrators. Students use standard techniques of literary analysis to critique the works explored in the course. Prereq: CC112T or CC113T. (3/0)

**LR241T Black Literature 3**  
Analyzes American Black literature as art forms and for sociological impact, and provides a historical overview of significant Black writers. Prereq: CC112T or CC113T. (3/0)

**LR242T Literature of Terror 3**  
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: CC112T or CC113T. (3/0)

**LR250T Selected Topics 1-2**  
Offers specialized study in interest areas. Areas may include special courses in mythology, American culture, adolescent literature or other concentrations. Prereq: CC112T or CC113T. (2-3/0)

**LR999T Independent Study: Literature 1-3**  
Provides readings, papers and/or research projects in literature under the guidance of a staff member. Prereq: Permission of instructor. (1-3/0)

## **MC: MUSIC**

**MC100T Music Appreciation 3**  
Includes elements and types of music with attention to major periods and composers. (3/0)



**MC101T Introduction to Music Theory** 3  
 Introduces music majors and nonmajors to the principal elements of music theory, including notation, melody, choral harmony, and musical form. Intended for students with strong interest but limited background in music theory. (3/0)

**MC103T Jazz History** 3  
 A historical approach to the development of jazz in America. Jazz styles are studied through the analysis of recorded examples played in class. (3/0)

**MC104T Beginning Piano** 1  
 Designed to teach beginning piano in a group situation. 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. (0/2)

**MC105T Music Theory and Aural Skills I** 4  
 Studies the fundamentals of harmony, ear training and sight singing. Includes notation, scales, modes, intervals, key, tonality, the anatomy of melody, harmony and melodic organization. (3/2)

**MC106T Music Theory and Aural Skills II** 4  
 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: MC105T or permission of instructor. (3/2)

**MC110T Jazz Improvisation I** 2  
 Studies 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. (1/2)

**MC111T Jazz Improvisation II** 2  
 Continues the study as outlined in Jazz Improvisation I. Prereq: Permission of instructor. (0/4)

**Applied Music** 1-2  
 Coursework in Applied Music requires fourteen lessons during the semester. Students may enroll in one or two credit hours on the same instrument. May be repeated for credit. No prerequisite. One half hour lesson per week for one credit; one hour per week for two credits. (0/ 5-1)

- |                           |                               |
|---------------------------|-------------------------------|
| <b>MC150T Voice</b>       | <b>MC160T Clarinet</b>        |
| <b>MC151T Piano</b>       | <b>MC161T Bassoon</b>         |
| <b>MC152T Organ</b>       | <b>MC162T Saxophone</b>       |
| <b>MC153T Synthesizer</b> | <b>MC163T Coronet-Trumpet</b> |
| <b>MC154T Violin</b>      | <b>MC164T French Horn</b>     |
| <b>MC155T Viola</b>       | <b>MC165T Trombone</b>        |
| <b>MC156T Cello</b>       | <b>MC166T Baritone</b>        |
| <b>MC157T Bass</b>        | <b>MC167T Tuba</b>            |
| <b>MC158T Flute</b>       | <b>MC168T Percussion</b>      |
| <b>MC159T Oboe</b>        | <b>MC169T Guitar</b>          |

**MC204T Intermediate Piano/Keyboard Harmony** 1  
 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: MC104T or permission of instructor. (0/2)

**MC205T Advanced Music Theory and Aural Skills I** 4  
 Continues the first-year music theory. Prereq: MC106T (3/2)

**MC206T Advanced Music Theory and Aural Skills II** 4  
 Continues Advanced Music Theory and Aural Skills I. Prereq: MC205T or permission of instructor. (3/2)

**MC210T Advanced Jazz Improvisation I** 2  
 Studies diverse styles of jazz improvisation, both contemporary and historical. The improvisational techniques of jazz masters will be learned through emulation, as a basis for developing the student's own unique style. Prereq: Permission of instructor. (0/4)

**MC211T Advanced Jazz Improvisation II** 2  
 Continues studies outlined in Advanced Jazz Improvisation I. Prereq: Permission of instructor. (0/4)

**MC220T Chorale (Concert Choir)** 1  
 Serves students with ability and desire to sing in a mixed voice group. May be repeated for credit. Prereq: Permission of instructor. (0/3)

**MC221T Community Chorus** .5  
 Performs a variety of vocal music ranging from repertoire from the Renaissance to several 20th century styles. May be repeated for credit. Rehearses evening only. Prereq: Permission of instructor (0/2)

**MC225T Vocal Jazz Ensemble** 1  
 Provides the fundamental concepts of vocal jazz by singing a variety of jazz styles. Students are auditioned. May be repeated for credit. Prereq: Permission of instructor. (0/4)

**MC226T Jazz Transit (Vocal Jazz Group)** 1  
 Provides auditioned members an opportunity to sing a variety of jazz styles from traditional to contemporary arrangements. May be repeated for credit. Prereq: Permission of instructor. (0/5)

**MC230T Concert Band** 1  
 Serves students with ability to play in a band. May be repeated for credit. Prereq: Permission of instructor. (0/3)

**MC231T Chamber Ensemble** 1  
 Students practice and perform traditional literature for trios, quartets and other small groups. Prereq: Permission of instructor. (0/2)

**MC235T Jazz Ensemble (Instrumental)** 1  
 Explores various styles of jazz from traditional to contemporary through a performance-oriented class. May be repeated for credit. Prereq: Permission of instructor. (0/3)

**MC236T Community Jazz Ensemble (Instrumental)** 1  
 Performance-oriented class designed to explore various styles of jazz from traditional to contemporary. May be repeated for credit. Rehearses evening only. (0/3)

**MC237T Jazz Combo** 2  
 Studies advanced theoretical principles and improvisational techniques in the jazz idiom. Prereq: Permission of instructor. (0/4)

## **MD: COMMUNICATION MEDIA**

**MD100T Mass Media** 3  
 Surveys the field of mass communication. It takes the theoretical position that mass communication is a social system. It considers the functions, structure, and performance of the individual media, as well as the auxiliaries. (3/0)

- MD105T Practical Reporting** 1  
Provides a laboratory setting for basic reporting, newswriting, editing and layout. (0/2)
- MD110T Media Lab** 2  
Provides hands on introduction to graphics, photography, word processing, audio and video. (0/4)
- MD120T Newswriting and Reporting** 3  
Involves an in-depth study of objective news reporting and advocacy journalism as well as training in writing the news story, writing headlines, copyright and editing. (3/0)
- MD130T Promotion and Public Relations** 3  
Teaches 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. Includes principles of design and layout. (3/0)
- MD200T Photojournalism** 2  
Introduces communication with photographs, editing and combining words and photographs for newspapers, magazines and brochures. Color slide processing is also covered. Prereq: MD110T, PG100T or permission of instructor. (1/2)
- MD205T Introduction to Electronic Production** 2  
Presents basic principles and techniques used in audio and video production. Course emphasis is in studio operation. Students will learn how to operate cameras, studio switches, serve as floor manager. Audio techniques will include operation of audio console and use of prerecorded music. Prereq: MD110T or permission of instructor. (0/2)
- MD210T Advanced Audio** 2  
Teaches editing, splicing and audio production techniques. Students will conduct interviews and learn sound effects. Prereq: MD205T (1/2)
- MD215T Advanced TV** 2  
Designed to teach students the proper operation of remote video and audio equipment. Course emphasizes script writing and video tape editing. Final projects will be televised on local cable channel. Prereq: MD205T (1/2)
- MD220T Broadcast Writing and Performance** 3  
Emphasizes scripts and commercial writing skills. Students will announce and perform before microphones and cameras. Prereq: MD120T (3/0)
- MD800T Internship** 3-6  
Provides on-the-job training in the media field. Prereq: Permission of instructor. (0/9-18)
- MD999T Special Projects** 1  
Provides opportunity to carry out a media project under professional direction. Prereq: Permission of instructor. (0/2)

## **ME: MEDICAL ASSISTING**

- ME100U Medical Assisting Procedures** 4  
This course provides an introduction to medical office assisting both front and back office procedures. The course teaches front office skills in telephone technique, scheduling appointments, history taking and similar experiences including decision making and patient relationships. The back office skills include aseptic and sterile techniques, vital signs, microbiology, setting up for minor surgeries, along with physiotherapy, basic x-ray techniques and similar skills. (3/2)
- ME200U Medical Assistant Pharmacology** 3  
Provides a basic background in the classifications and understanding of drugs, including their sources and uses. The classifications discuss characteristics of typical drugs, side effects, cautions, interactions and patient education of each category. Provides a mathematics background to determine dosages and to give medications by parenteral methods. (3/0)
- ME205U Medical Insurance and Legalities** 3  
Provides a working knowledge of basic medical insurance programs, forms utilized and the record keeping of insurance claims. Also includes medical ethics and legalities related to medicine. Prereq: HS120U and DG102T. (3/0)
- ME206U Medical Bookkeeping** 2  
Includes basic principles of bookkeeping from the viewpoint of the Medical Assistant. Emphasis is on patient accounts and billing, preparing for audits and tax forms. Prereq: HS120U (2/0)
- ME207U Medical Typing** 2  
Concentrates on typing and word processing of forms, letters, and other papers common to medical offices. Introduces transcription. Prereq: OF110T or test out typing. (1/2)
- ME208U Medical Lab** 4  
Provides basic principles and skills in hematology and urinalysis necessary for medical personnel in a medical setting. Prereq: HS120U and HS150U. (1/6)
- ME300U Medical Assisting Psychiatry** 2  
Emphasis on fundamental aspects of mental health, human emotions and motivations. Includes basic psychological principles of social adaptability, meeting the needs of patients, and techniques for interviewing patients. (2/0)
- ME831U Medical Assisting Clinic** 6.5  
Offers supervised practical experience in medical office, clinics, and other medical care settings. Prereq: All Medical Assisting Technical Courses. (.5/18)

## **MI: MEDICAL INFORMATION (MEDICAL RECORDS)**

- MI100U Medical Record Science I** 5  
Includes development and content of the medical record in acute care settings as well as alternate care settings. Includes quantitative analysis accreditation and certification standards, record retrieval and retention, microfilming systems, indexes and registers, organization of the medical staff and trends in health care. An introduction to prospective pricing and to the medical record profession. (4/2)

**MI205U Medical Transcription** 2  
Develops skill of transcribing with emphasis on the use of medical terminology and medical reports completed in hospitals and physicians offices. Confidentiality in the completion of medical reports is stressed. Prereq: HS120U and typing. (0/4)

**MI206U Legal Aspects of Health Information** 1.5  
Introduces the American legal system and a study of the medical record as a legal document; use of the medical record in legal proceedings; release of information. An overview of current health legislation. Prereq: MI100U. (1/1)

**MI405U Medical Record Science II** 3  
Includes quality assurance requirements in health care settings and the role of the medical record practitioner in quality assurance, utilization management and risk management. Simulations of quality assessment functions, the function of Professional Review Organization and their impact on medical record practice. Prereq: MI100U. (2/2)

**MI406U Coding and Classification** 3  
Focuses on disease and procedural coding and classification systems with major emphasis on International Classification of Diseases, Ninth Revision, Clinical Management (ICD-9-CM). Includes coding practices in Prospective Payment. Prereq: MI100U, HS150U, HS120U. (2/2)

**MI407U Abstracting/Health Statistics** 3  
Emphasizes abstracting and computer input of data from the medical records. Includes basic arithmetical and statistical principles, hospital statistics, sources and definitions, a review of vital and public health statistics, and a review of health data sources and uses in the United States. Prereq: MI405U, MI406U. (2/2)

**MI500U Management of Health Information** 2.5  
Provides basic principles of personnel supervision including developments and considerations vital to the performances of supervisors in today's health care environment. (2/1)

**MI505U Advanced Coding** 2.5  
Focuses on advanced concepts of coding and classification of diseases and procedures according to ICD-9-CM. Prereq: MI406U. (1/3)

**MI821U Medical Record Practicum I** 3  
Supervised practice in theory of medical record science in selected health care settings. Introduces the student to a medical record department and health information systems. Coordinated by the college. Prereq: As determined by program coordinator. (1/0/6)

**MI842U Medical Record Practicum II** 3  
Supervised practice in theory of medical record science in selected health care settings. Includes health information systems, quality assurance, coding of diseases and procedures, and medical record management. Coordinated by the college. Prereq: As determined by the program coordinator. (0/0/9)

**MI853U Medical Record Practicum III** 2  
Supervised practice in theory of medical record science in selected health care settings. Includes long term care, State Health Registry, and ambulatory care. Coordinated by the College. Prereq: As determined by the program coordinator. (1/0/3)

## **MN: MANUFACTURING**

**MN100U Fundamentals of Welding** 3  
Covers basic welding techniques with oxyacetylene and electric welders. Designed for the general trades person 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 and basic fabrication. (1/4)

**MN104U Welding Blueprint Reading** 2  
This covers lines and views, size description, and welding layout, with emphasis on welding terms and symbols. It also includes interpreting welding prints. (2/0)

**MN110U Introduction to Arc Welding and Weaving** 1  
Includes operation of AC and DC welding equipment. Striking an arc, beads of weld in all direction in the flat position, and building beads of weld. Welding safety is stressed. Also covers welding techniques used to make beads of weld any width. Three basic weave patterns are taught. (.5/1)

**MN111U Flame Cutting** 1  
Develops the skills needed in oxyacetylene flame cutting, including set-up, operation and maintenance of equipment. Oxyacetylene safety is stressed. (.5/1)

**MN112U 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. (0.5/1)

**MN113U Powdered Iron Weld Methods** 1  
Covers the methods used to make fillet welds using large diameter powdered iron "drag rods"; also the selection and the A. W.S. numbering system of covered electrodes. (0.25/1.5)

**MN115U Butt Joints - Flat** 1  
Introduces the basic methods of preparing and welding butt joints in the flat position. Also includes the use of the A.W.S. welding symbols. (0.25/1. 5)

**MN116U Horizontal Weld Techniques** 1  
Introduces horizontal welding techniques and methods used to make various types of joints in the horizontal position. (.5/1)

**MN117U Vertical Weld Techniques** 1  
Introduces vertical welding techniques and methods used to make various types of joints in the vertical position. (0.25/1. 5)

**MN118U Overhead Welding Techniques** 1  
Introduces overhead welding techniques and methods used to make various type of joints in the overhead position. (0.25/1. 5)

**MN119U A. W.S. Bend Test** 4  
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. (1.5/5)

**MN125U Semi-Automatic Welding** 2  
Studies the setup and operation of the semiautomatic welding process, using both hard wire and flux core wire. (1/2)

- MN126U Oxy-acetylene Welding** 2  
Provides instruction in oxyacetylene welding including the setup and operation of equipment and accessories. Welding procedures for light gauge steel and heavy steel plate in all positions and various joint types are taught. (1/2)
- MN127U Oxy-acetylene Braze Welding** 2  
Introduces the techniques and procedures used to braze, braze weld, and silver solder. Studies the various methods and procedures of oxyacetylene repair welding of cast iron and nonferrous materials. Aluminum welding techniques are stressed. (1/2)
- MN128U Heliarc Welding** 4  
Covers all position welding techniques on ferrous and nonferrous materials using the heliarc welding process. (1.5/5)
- MN129U Special Arc Welding Techniques** 3  
Studies the welding methods used on cast iron, stainless, and all position weld techniques used on light gauge metal. (1/4)
- MN135U Pipe Welding Techniques** 7  
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: MN119U. (2/10)
- MN150U Introduction to Shop Processes** 15  
Introduces basic measuring tools, elementary layout and inspection tools and methods, hand tools and bench work. Students are instructed in the setup and operation of machining tools, metallurgy as it applies to manufacturing, identification and elementary heat treatment of steel. Safety is taught as it applies to each machine and process. Students work together as a unit using proper terminology of the machinist trade. (5/20)
- MN151U Machinist Blueprint Reading I** 1  
Introduces students 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 systems. (1/0)
- MN152U Machinist Blueprint Reading II** 1  
Continuation of Machinist Print Reading I. Covers geometric dimensioning and tolerancing and the interpretation of advanced prints including numerical control programming and documents. (1/0)
- MN155U Application of Shop Processes** 13  
Continuation of Introduction to Shop Processes. Covers more advanced principles in setup and operation of lathes, mills and grinders. Introduces carbide lathe tools, milling cutters, and emphasis on productivity and accuracy. Covers basic shaper setup and operation and introduction to basic turret lathe setups. Job shop work is introduced. Shop safety, cooperation and communication continues to be stressed. Prereq: MN150U (3/20)
- MN205U Intro to Computer Numerical Control** 3  
Introduces computer numerical control as it relates to CNC lathes and milling machines. The use of microcomputers and related software is covered. Emphasizes input language, codes, machine setup and operation, inspection of parts and communication with peripherals. Prereq: MN150U or appropriate industrial experience. (1/4)
- MN206U Intermediate Computer Numerical Control** 6  
This course continues the introductory course, adding canned cycles, looping, sub-routines, and interpretation of programs written by others. Internal machining on the lathes will be covered. More complex parts and production of multiple parts will be undertaken in this course. Prereq: MN205U or appropriate industrial experience. (1/10)
- MN207U Advanced Computer Numerical Control** 6  
This course allows students to progress from the trainers to the full size, industrial CNC machines. Conversational programming will be introduced and advanced projects involving mating parts and short production runs will be undertaken. Students will be introduced to computer assisted programming as it applies to CAD/CAM. Routine and preventive maintenance procedures will be learned. Prereq: MN206U or appropriate industrial CNC programming experience. (0/12)
- MN208U Automated Production Methods** 5  
Computer assisted programming will be utilized throughout the course. This course is intended to introduce students to automation as it applies to machining operations. Automatic machine feeding, automatic cycle repetition, robots, and other equipment oriented concepts will be studied. System concepts such as mass production, batch processing, and just-in-time processing will be covered from a theoretical view. Prereq: MN207U. (1/8)
- MN215U Geometric Tolerancing** 1  
This course presents information concerning the special symbols used in geometric dimensioning and tolerancing. These symbols are a language used to communicate the ideas and intent of the designer to the persons who manufacture the parts or the person who inspects the finished part. Prereq: MN151U and MN152U or appropriate work experience. (1/0)
- MR: MARKETING**
- MR101T Principles of Marketing** 3  
Studies the concepts, institutions, procedures, methods and problems in moving goods or services from the producer to the consumer. (3/0)
- MR102T Principles of Retailing** 3  
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. (3/0)
- MR103T Principles of Selling** 3  
Provides the basic skills needed to sell goods and services in a free enterprise economy. Theory is followed by practical application by each student. (3/0)
- MR104T 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)
- MR105T Counselor Selling** 3  
Presents the technical aspects of customer assistance. The student should have previous sales experience before enrolling in this course. Prereq: Permission of instructor. (3/0)

- MR106T Principles of Advertising** 3  
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. (3/0)
- MR107T World View: Introduction to International Business** 3  
Provides students with an overview of the concepts of International Business. Students acquire an awareness of the effects of monetary exchange, geography, Foreign Credit Insurance Corporation, trade duties and restrictions, sociological and political problems and other areas of involvement as they effect international business. (3/0)
- MR108T International Marketing** 2  
Covers the theoretical and practical concepts of international marketing. A clear delineation of marketing functions in domestic and international business will be stressed. Other topics covered include the cultural dynamics of the global markets, political and legal environment, and multinational markets. (2/0)
- MR109T International Transportation** 2  
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, rules and regulations, claims, rates, and freight forwarder functions. (2/0)
- MR110T 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 import/export shipping, documents, packaging, traffic procedures and insurance. The course is structured for the person who has had no previous foreign trade experience. (3/0)
- MR111T Advanced Foreign Trade Documentation** 3  
A detailed look at government regulations on Import/Export as they pertain to control documents such as:licensing, standby letters of credit, performance and bid bonds, FCC regulations on import, computerized documentation, the harmonized system and export declaration information. Prereq: Permission of instructor. (3/0)
- MR112T Marketing for Bankers** 3  
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)
- MR101U Merchandising Analysis and Control** 2  
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. (2/0)
- MR102U Retail Advertising and Display** 3  
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 and a study of elements of display, construction materials, merchandise selection and the actual display construction. (2-4/0-4)
- MR103U 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. In addition, the students will build creative displays on campus and in retail firms. (1/2)
- MR104U Principles of Fashion Merchandising** 3  
Provides a historical and evolutionary introduction to the field of fashion merchandising:sociological, psychological and economic aspects of fashion; fashion terminology; fashion cycles; and current practices in fashion retailing. (3/0)
- MR105U Fashion Show Procedures** 3  
Includes the principles of fashion show production:planning, coordinating and directing the fashion show. Prereq: Permission of instructor. (1/4)
- MR106U Food Store Seminar** 1  
Provides various instructional approaches to practical problems in food marketing with special emphasis on problem solving and thinking skills. The development of individual projects is undertaken. Coreq: AD801T. (0/2)
- MR107U Introduction to Food Store Marketing** 3  
Offers an introduction to the specialized field of food merchandising. Study is based on the principles, practices and procedures relating to supermarkets and convenience stores. (3/0)
- MR108U Food Store Merchandising** 4  
Practical food merchandising strategy for supermarkets and convenience stores. Emphasis is on the mathematics of the food business using case studies. (4/0)
- MR109U Food Store Cases and Concepts** 3  
An accumulation of concepts put into case form. The case material will come from experiences and courses over the past three semesters. (3/0)
- MR110U Telemarketing Techniques** 4  
Introduces students to the field of marketing products and services by telephone communication. Discusses product knowledge, overcoming objections, closing sale simulations, telephone courtesy and listening skills. (4/0)
- MR111U Telemarketing Data Base Management** 4  
Provides training in basic computer concepts, keyboarding and data base management. The student will simulate telephone, selling, and data base maangement skills in a simulation environment. (3/2)
- MR112U Purchasing I** 3  
Introduces the purchasing function as an element of an industrial business operation:organization techniques and coordination of other functions, concepts of materials management and economy effected by prudent buying. (3/0)
- MR113U Purchasing II** 3  
A continuation of Purchasing I. Prereq: MR112U. (3/0)
- MT: MATHEMATICS**
- MT010D Beginning Algebra** 3  
Includes the properties of the real numbers, linear equations and linear inequalities in one variable, factoring, fractions, systems of linear equations, exponents, radicles, second degree equations and inequalities in one variable. This course presumes no background in algebra. (3/0)

- MT105T Intermediate Algebra** 4  
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: MT010D or math placement test. (4/0)
- MT110T Mathematics for Decision Making** 3  
Introduces selected areas of mathematics in familiar settings and develops students' conceptual and problem solving skills. The course includes a study of mathematical concepts selected from statistics, probability, game theory, growth patterns and computer science. Other topics may be included. Prereq: MT105T or equivalent. (3/0)
- MT115T Statistical Ideas** 3  
Designed for students who are not majoring in mathematics or the sciences. The course will provide an overview of the basic ideas needed by "consumers" of statistics and can also provide a helpful framework for a more detailed study of the subject. Prereq: MT105T (3/0)
- MT120T Finite Mathematics** 3  
Extends the study of algebra started in Intermediate Algebra. Includes methods of solving linear quadratic equations and inequalities, linear programming, matrices and determinants, functions, graphs, combinatorial techniques, probability, statistics and applications. Prereq: MT105T or math placement test. (3/0)
- MT125T Fundamentals of Statistics** 4  
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: MT120T (4/0)
- MT130T Business Calculus** 3  
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: MT120T (3/0)
- MT150T Pre-Calculus I** 5  
Begins a two semester sequence to prepare students for the three semester calculus sequence. The central theme is the concept of a function and its graph. Functions studied include polynomial and rational functions, exponential, logarithmic and circular. Prereq: MT105T or math placement test. (5/0)
- MT151T Pre-Calculus II** 5  
Continues Pre-Calculus I. Prereq: MT150T or math placement test. (5/0)
- MT160T Calculus I** 4  
Includes limits, derivative, differentiation, the differential elementary applications of calculus, and introduction to integration. Prereq: MT151T or math placement test. (4/0)
- MT161T Calculus II** 4  
Continues Calculus I and includes study of the integral, integration, application of integration, techniques of integration, and infinite series. Prereq: MT160T (4/0)
- MT250T Linear Algebra** 4  
Includes a study of vector spaces, determinants, linear transformations and matrices, bilinear and multilinear forms, and polynomial rings. Prereq: MT160T (4/0)
- MT262T Calculus III** 4  
Continues Calculus II and includes study of vector functions, function of several variables, multiple integrals, and vector fields. Prereq: MT161T (4/0)
- MT270T Differential Equations** 4  
Studies exact equations, separable equations, and linear equations, 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: MT262T (4/0)
- MT100U Technical Mathematics I** 2  
An applied math course with no attention devoted to proofs and theorems, but with full emphasis on a high skill level in calculations. Topics include concepts of basic algebra, functions and graphs, trig functions, determinants, vectors, quadratic equations, exponents and radicals, J-operator, systems of nonlinear equations. (4/0)
- MT101U Technical Mathematics II** 4  
An introduction to calculus. The skills that were acquired in Technical Mathematics I are used for problem solving. Special topics will be covered: introduction to statistics, introduction to the derivative, application of derivative, integration, and application of integration. Prereq: MT100U. (4/0)
- MT102U Business Math** 2  
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. (2/0)
- ND: NEURODIAGNOSIS (EEG)**
- ND100U Introduction to EEG** 3  
Provides an introduction to basic electroencephalographic concepts and techniques. Instrumentation is demonstrated in the classroom and hands on experience is provided in the laboratory. (2/2)
- ND205U Electroneurodiagnostic Technical Science** 8.5  
Provides theory and application of electrical concepts, recording techniques, data analysis and description. Prereq: HS150U, ND100U. (4/7/3)
- ND206U Electroneurodiagnostic Clinical Science I** 3  
Introduces the student to electroneurodiagnosis, neurophysiology, functional neuroanatomy, normal and abnormal conditions and correlates. Includes electroencephalographic signs of cerebral disorders. Prereq: HS150U, ND100U. (2.5/1)
- ND405U Electroneurodiagnostic Clinical Science II** 3  
Studies specific neurological disease entities; integrates EEG patterns for cerebral disorders and diagnosis. Prereq: ND206U. (3/0)
- ND406U Evoked Potentials** 2  
Provides introduction in somatosensory, visual, and brainstem auditory evoked responses. Laboratory sessions provide practical application and evaluation of E. P. data. Prereq: ND831U. (1/2)

**ND831U Clinical EEG I** 6  
Focuses on clinical application to basic EEG techniques according to lab protocol under direct supervision of staff. Record review with physicians and correlative seminars are included. Prereq: ND205U, ND206U. (1/0/15)

**ND842U Clinical EEG II** 6  
Provides continued clinical recording techniques including a broad patient population and procedure range. Record review with physicians and correlative seminars are included. Prereq: ND831U. (1/0/15)

**ND853U Clinical Neurophysiology** 8  
Provides clinical practice in performing electroencephalograms, evoked potentials, operating room and epilepsy monitoring using appropriate techniques according to protocol. Record review with physicians and correlative seminars are included. Prereq: ND406U, ND842U. (1/0/21)

## **NG: NURSING**

**NG105U Nursing Fundamentals** 4. 5  
Focuses on fundamental nursing care concepts and skills needed to care for clients. Nursing process and principles of communication related to clients' physical, emotional and cultural needs are introduced. Historical, ethical and legal principles influencing current nursing practice are studied. Prereq: HS110U. (4/1)

**NG205U Health Throughout the Lifespan** 4  
Focuses on normal physiological growth and development occurring throughout the lifespan. Specific content related to meeting client needs from the stages of birth to death is included. Nursing interventions focus on measures which maintain health as well as caring for common health problems. Prereq: NG105U. (4/0)

**NG305U Nursing the Chronically III** 4. 5  
Expands on the fundamental nursing knowledge and techniques gained in previous semesters. Emphasis is on the chronic medical-surgical problems encountered in the adult client. Prereq: NG205U. (4/1)

**NG306V PN Seminar** 1  
Discusses the role of the Licensed Practical Nurse in provision of health care. Includes discussion of legal and ethical implications to nursing practice and Home Health Care. (For existing graduate practical nurses.) (1/0)

**NG405U Mental Health Nursing** 5  
Focuses on the psychosocial development and needs of the adult client. Includes discussion on communication process and mental disorders most commonly encountered with the adult. Legal implications of care and major theories of personality are also explored. Prereq: NG305U. (5/0)

**NG406U Advanced Placement Nursing Seminar** 1  
Allows the advance placed nursing student to explore the role expectations of the associate degree nurse. Discussions center on problem solving and self-directed learning. Includes review of nursing process. (Open only to LPN's.) (1/0)

**NG505U The Acutely III** 4  
Focuses on the utilization of the nursing process to care for the acute and critically ill adult. Emphasis is on the cardiovascular respiratory and renal systems. Prereq: NG405U. (4/0)

**NG605U Advanced Maternal/ Child Nursing** 3  
Focuses on the care of the child with potential life threatening and chronic disorders. Includes neonatology through adolescence. Also discussed are infertility and high risk maternity. Prereq: NG505U. (3/0)

**NG606U Nursing Management** 3  
Focuses on leadership and managerial skills related to professional nursing practice. Concepts learned include: group process, change, teaching/learning, and research. Contains a clinical component where students function as team leaders. Prereq: NG505U, NG854U. (1/0/6)

**NG607U Perspectives in Nursing** 2  
Provides the student with a brief overview of nursing history along with present day trends and issues relevant to professional practice. Includes discussion of the basic principles of law and ethics. Prereq: First year nursing courses. (2/0)

**NG821U Nursing Clinic I**  
Introduces clinical experience in maternal/child and geriatric care settings. Beginning nursing skills utilizing nursing process are emphasized. Prereq: Concurrent with NG205U. (0/0/12)

**NG832U Nursing Clinic II** 5  
Focuses on nursing care concepts related to caring for hospitalized clients with chronic conditions. (Prereq: NG821U, and concurrent with NG305U. (0/0/15)

**NG843U Nursing Clinic III** 2  
Emphasizes the use of nursing process and interpersonal/group communication to care for clients with psychosocial health concerns. Prereq: NG832U, and concurrent with NG405U. (0/0/6)

**NG854U Nursing Clinic IV** 5  
Provides the student with experiences in caring for the acutely ill client. May include critical care rotation. Prereq: NG843U and concurrent with NG505U. (0/0/15)

**NG865U Nursing Clinic V** 3  
Focus is on maternal/child nursing. Provides the student with the opportunity to care for high risk children and parents. Includes care of neonates and infants through adolescence. Prereq: NG854U and concurrent with NG605U. (0/0/9)

## **OA: ORTHOPAEDIC PHYSICIANS ASSISTANT**

**OA100U Surgical Techniques** 3  
Introduces the basic principles and skills necessary to assist the orthopaedic surgeon in the operating room. Lab skills include draping, positioning, and assisting skills. Instrumentation and specific surgical assisting techniques are taught for commonly performed orthopaedic surgeries. (2/2)

**OA101U Immobilization I** 3. 5  
Introduces the basic principles and terminology utilized in orthopaedics. Studies traumatic conditions, mechanisms and treatment modalities. Laboratory skills in basic splinting, plaster casting, soft goods application and radiographic assessment are acquired in the laboratory environment. (2/3)

**OA205U Immobilization II** **3**  
Investigates advanced techniques of fracture bracing, plaster and synthetic casting and the use of skin and skeletal traction in the treatment of spinal and extremity trauma. Provides an opportunity to increase radiographic assessment skills. Thermoplastic splinting is introduced. Prereq: OA101U. (2/2)

**OA206U Orthopaedic Conditions I** **3.5**  
Introduces orthopaedic history and assessment techniques. Investigates specific orthopaedic disorders of the upper extremity, lower extremity and spine, their etiology, course, radiographic findings, laboratory studies and various treatment options. Prereq: HS150U. (3/1)

**OA305U Orthopaedic Conditions II** **3.5**  
Focuses on pediatric, genetic, congenital, neuromuscular, endocrine, metabolic, neoplastic, infectious and arthritic conditions in orthopaedics. The laboratory portion includes pediatric assessment skills. Prereq: OA206U. (3/1)

**OA405U Introduction to Orthopaedic Rehabilitation** **2**  
Studies the basic concepts of biomechanics and physical therapy in relation to the care and rehabilitation of orthopaedic patients and includes principles of orthotics and prosthetics with emphasis on terminology, gait training, and problem solving techniques. Prereq: HS155U. (2/0)

**OA505U Orthopaedic Physician's Assistant Seminar** **1**  
Focuses on clinical experiences and variations in procedures. Provides a review of competencies required for last clinical experience. Prereq: OA843U. (1/0)

**OA821U OPA Clinic I** **2.5**  
Provides practical experience in the orthopaedic operating room and orthopaedic outpatient clinics. In both settings, the student observes and assists staff with patient care. Emphasis is placed on patient/personnel relations and the development of technical skills. Prereq: OA100U, OA101U. (0/0/8)

**OA832U OPA Clinic II** **2.5**  
Provides opportunities to apply classroom and laboratory concepts in a clinical setting. Prereq: OA821U. (0/0/8)

**OA843U OPA Clinic III** **5**  
Focuses on developing skills in surgical assisting. The student is assigned to a private orthopaedist to assist with patient care in office and hospital settings. Activities involve positioning, prepping, and draping for surgery, as well as assisting during the surgery. Prereq: HS117U, OA832U. (0/0/15)

**OA854U OPA Clinic IV** **11**  
Offers an intensified, comprehensive clinical practicum assignment in an orthopaedics office under the direction of the orthopaedist(s). Guided by predetermined learning objectives, the student participates fully as an OPA. Prereq: OA843U, OA505U.

## **OF: OFFICE EDUCATION**

**OF101T Shorthand I** **4**  
Presents shorthand theory, develops the student's ability to take dictation on gradually increasing vocabulary levels and introduces transcription skills. (3/2)

**OF102T Shorthand II** **3**  
Emphasizes increased rate of dictation, develops the student's ability to transcribe difficult materials and polishes related transcription skills. Prereq: OF101T or permission of instructor. (2/2)

**OF103T Business Math and Machines** **1-2**  
Provides for the integration of basic mathematical concepts and electronic calculator operation. Additional mathematics is offered in the second credit option. (0-1/2-2)

**OF104T Records Management** **3**  
Designed to teach the basic alphabetic, numeric, geographic and subject filing rules, while introducing the principles that govern record retention, storage and retrieval. The selection of record equipment and supplies is discussed, as well as storage methods using electronic media and micrographics. (3/0)

**OF105T Administrative Office Procedures** **3**  
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: OF101T and OF106T or permission of instructor. (3/0)

**OF106T Typing I** **1-3**  
Studies beginning typing skills through three modules. Covers the alphabetic keyboard, number keys and beginning tables, business letters and manuscripts, intermediate letters, manuscripts and tables. Speed goal is 40 wpm. (0/2-6)

**OF107T Typing II** **1-3**  
Continues Typing I. Begins with a thorough review and reinforcement of Typing I. Includes advanced letters, manuscripts, tables and office style projects. Speed goal is 55 wpm. Prereq: OF106T or permission of instructor. (0/2-6)

**OF108T Production Typing** **3**  
Provides practice in developing advanced typewriting production skills in a structured class. Speed goal is 65 wpm. Prereq: OF107T or permission of instructor. (0/6)

**OF109T Individually Prescribed Instruction** **.5**  
Provides typing instruction designed for the individual needs of a student or program. (0/1)

**OF110T Typing for Medical Assistants** **1**  
Specialized typing presents instruction covering formatting concepts for typing correspondence and reports and is designed to meet the needs of students enrolled in the Medical Assistant program. Speed and accuracy goals are established. Students will use IBM personal computers. Prereq: OF113T. (0/2)

**OF111T Graphic Arts Typing** **1**  
Specialized typing covers keyboard skills and formatting concepts for typing correspondence and reports and is designed to meet the needs of students enrolled in the Graphic Arts program. Speed and accuracy goals are established. Students will use IBM personal computers. Prereq: OF113T. (0/2)

**OF112T Typing for Junior Accounting** **1**  
Specialized typing presents instruction covering formatting concepts for typing correspondence, tables, and reports and is designed to meet the needs of students enrolled in the Junior Accounting program. Speed and accuracy goals are established. Students will use IBM personal computers. Prereq: OF113T. (0/2)



<b>OF113T Module 1</b>	<b>1</b>	<b>OF107U Certified Professional Secretarial Review</b>	<b>1-6</b>
Module 1 covers the alphabetic keyboard, number keys and beginning tables. Speed goals is 21 wpm. (0/2)		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. (1-6/0)	
<b>OF114T Module 2</b>	<b>1</b>	<b>OF108U Office Systems Management</b>	<b>3</b>
Module 2 covers business letters and manuscripts. Speed goal is 30 wpm. (0/2)		Includes units on organizing, implementing, and managing a word processing center; evaluating word processing equipment; and analyzing work measurement methods. (3/0)	
<b>OF115T Module 3</b>	<b>1</b>	<b>OF109U Word Processing I</b>	<b>3</b>
Module 3 covers intermediate letters, manuscripts and tables. Speed goal is 40 wpm. (0/2)		Presents word/information processing concepts and provides hands-on training on current word processing equipment. An emphasis will be placed on production skills. Prereq: OF106T. (1/4)	
<b>OF116T Module 4</b>	<b>1</b>	<b>OF110U Word Processing II</b>	<b>2</b>
Module 4 covers manuscripts and correspondence, which includes tables. Speed goal is 45 wpm.		Provides further development of word processing techniques. Advanced applications on text-editors include the following: stat math, forms and variable entry, stored keystrokes and records processing. Prereq: OF109U. (1/2)	
<b>OF117T Module 5</b>	<b>1</b>	<b>OF111U WordStar Word Processing</b>	<b>2</b>
Module 5 covers letter styles, advanced tables and business forms. Speed goal is 50 wpm. (0/2)		Using an IBM Personal Computer, the student will learn the functions of Wordstar Word Processing software. Following the completion of this course, the student should be able to apply the learning to business and personal use. Prereq: Ability to type 30 wpm. (0/4)	
<b>OF118T Module 6</b>	<b>1</b>	<b>OF112U MultiMate Word Processing</b>	<b>2</b>
Module 6 covers formal manuscripts, wide tables, financial reports and correspondence variations. Speed goal is 55 wpm. (0/2)		Using an IBM Personal Computer, the student will learn the functions of MultiMate Word Processing software. Following the completion of this course, the student should be able to apply the learning to business and personal use. Prereq: Ability to type 30 wpm. (0/4)	
<b>OF101U Office Procedures I</b>	<b>3</b>	<b>OF113U Display Write 4 Word Processing</b>	<b>2</b>
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. (3/0)		Using an IBM Personal Computer, the student will learn the functions of DisplayWrite 4 Word Processing software. Following the completion of this course, the student should be able to apply the learning to business and personal use. Prereq: Ability to type 30 wpm. (0/4)	
<b>OF102U Office Procedures II</b>	<b>3</b>	<b>OF114U WordPerfect Word Processing</b>	<b>2</b>
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: OF106T. (2/4)		Using an IBM Personal Computer, the student will learn the functions of WordPerfect word processing software. Following the completion of this course, the student should be able to apply the learning to business and personal use. Prereq: Ability to type 30 wpm. (0/4)	
<b>OF103U Machine Transcription and Business Spelling/Proofreading</b>	<b>4</b>	<b>OF115U PFS File/Write/Report</b>	<b>2</b>
Teaches the efficient use of transcribing machines with emphasis on grammar, spelling and proofreading/editing skills. Applications of English skills and formatting decisions are performed by transcribing realistic office-style dictation into mailable documents. Prereq: OF106T. (3/2)		Using an IBM Personal Computer, the student will learn the functions of PFS File/Write/Report software. Following the completion of this course, the student should be able to apply the learning to business and personal use. Prereq: Ability to type 30 wpm. (0/4)	
<b>OF104U Business Communications and Business English</b>	<b>5</b>	<b>OF116U Display Write Assistant Word Processing</b>	<b>1</b>
Develops skills and knowledge needed for effective oral and written communication in business. Reviews and reinforces principles of grammar, punctuation, capitalization, abbreviations, writing of numbers and sentence structure. Student demonstrates correct use of these principles by giving oral representations and writing letters, memos and reports. (5/0)		Using an IBM Personal Computer, the student will learn the functions of DisplayWrite Assistant Word Processing software. Following the completion of this course, the student should be able to apply the learning to business and personal use. Prereq: Ability to type 30 wpm. (0/2)	
<b>OF105U Professionalism</b>	<b>1</b>	<b>OF117U Wang Word Processing for the IBM Personal Computer</b>	<b>2</b>
Develops and recognizes leadership in business professional organizations. Special emphasis is placed on leadership development activities. (1/0)		Using and IBM Personal Computer, the student will learn the functions of Wang Word processing software on the IBM PC. Following the completion of this course the student should be able to apply the learning to business and personal use. Prereq: Ability to type 30 wpm. (0/4)	
<b>OF106U Office Careers</b>	<b>1</b>		
Provides an atmosphere to analyze secretarial career opportunities. Special emphasis is placed on professional organizations, tours and personal development. (1-2/1-2)			

**OF118U Word Processing Using Microsoft Word 2**

Using an IBM Personal Computer, the student will learn the functions of Microsoft Word word processing software on the IBM PC. Following the completion of this course, the student should be able to apply the learning to business and personal use. Prereq: Ability to type 30 wpm. (0/4)

**OF119U Gregg Computer Shorthand for Gregg Shorthand Writers 1**

A software program used in conjunction with a word processing package to transcribe Gregg shorthand notes. Teaches the use of keyboarding short forms of words, abbreviations, phrases, names of selected cities, salutations, and closings based on the Gregg phonetic shorthand system. Prereq: OF101T and OF106T. (0/2)

**OF120U Gregg Computer Shorthand for Nonshorthand Writers 1**

A software program used in conjunction with a word processing package to transcribe machine transcription tapes. Teaches the use of keyboarding short forms of words, abbreviations, phrases, names of selected cities, salutations, and closings based on common abbreviations and phonetic spellings of words, phrases, etc. Prereq: OF106T. (0/2)

**OF121U Law Office Procedures and Legal Dictation 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: OF106U. (3/0)

**OF122U Legal Machine Transcription 3**

Develops student's ability to transcribe legal materials in document form from machine dictation. Prereq: OF106U or instructor's approval. (2/2)

**OF123U Legal Terminology I 2**

Provides instruction in the correct definitions, spelling and application of approximately 400 terms commonly used in legal secretarial work. (2/2)

**OF124U 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 as well as legal terminology. Prereq: OF106U. (2/2)

**OF125U Medical Secretarial Procedures 4**

Provides an introduction to filing medical insurance and peg-board bookkeeping with computerized applications of each. Basic secretarial skills are combined with skills needed to perform secretarial duties in a physician's office, hospital record room or specialized hospital department. Prereq: OF106T or instructor's permission.

**OF126U Medical Secretarial Machine Transcription 4**

Develops speed and accuracy in transcribing medical specialty reports and introduces students to dictation by local physicians. Prereq: OF103U or instructor's approval. (2/4)

## **OT: OCCUPATIONAL THERAPY ASSISTANT**

**OT100U Foundations of Occupational Therapy 3**

Introduces the philosophical, ethical, and theoretical concepts of current practice of O.T. Defines the role of the OTR and COTA. Emphasizes the effects of social, cultural, biological and environmental factors on human occupation. Laboratory experiences and simulations will provide students with opportunities to develop observational skills. (3/0)

**OT101U Medical Communications 1.5**

Provides oral and written reporting. Includes an orientation to the vocabulary of medicine. (1.5/0)

**OT205U Developmental Processes 4**

Presents normal physical and psychosocial developmental processes which affect an individual throughout the life span. Emphasis on integration of physical, psychosocial, cognitive, social, and cultural aspects of development. Level I field work experience included. Prereq: PC100T. (3.5/0/1.5)

**OT206U Psycho-Physical Dysfunctions 5**

Presents psychosocial and physical dysfunctions. Includes etiology, diagnosis, and symptomatology of psychosocial and physical dysfunctions. Level I field work experience included. Prereq: PC100T, OT101U. (4/0/3)

**OT207U Treatment Modalities 3**

Introduces methods and techniques used in O. T. Provides knowledge and skill in the use of activity analysis to adapt modalities for evaluation and treatment planning. Prereq: OT100U. (1/4)

**OT305U Occupational Therapy Rehabilitation I 4**

Presents theory and evaluation techniques for physical dysfunctions. Students will be exposed to techniques for standardized evaluation instruments of range of motion, muscle strength, sensation, and coordination as they effect functional daily living tasks. Students will learn to discuss and document the treatment process. Level I fieldwork experience included. Prereq: OT205U, OT206U. (3/0/3)

**OT306U Occupational Therapy Methods I 3**

Presents methods and techniques used in Occupational Therapy for physical dysfunctions. Emphasis on the adaptation and instruction of self care, work, cognition, social, sensori-motor, and leisure activities. Prereq: OT206U, OT207U. (1/4)

**OT307U General Medical Conditions 1**

Presents general medical conditions that interfere with an individual's ability to perform the daily life tasks of human occupation. Prereq: OT205U, OT206U. (1/0)

**OT405U Occupational Therapy Rehabilitation II 3.5**

Presents theory and evaluation techniques for psychosocial dysfunctions. Students will be exposed to formal and informal assessment instruments and the documentation procedures of the treatment process. Level I fieldwork experience included. Prereq: OT205U, OT206U. (3/0/1.5)

**OT406U Occupational Therapy Methods II 3**

Presents methods and techniques used in Occupational Therapy for psychosocial dysfunctions. Emphasis on the adaptation and instruction of self care, work, cognitive, social, sensorimotor, and leisure activities. Prereq: OT206U, OT207U. (1/4)

**OT407U Occupational Therapy Management 2**  
Presents basic management techniques to maintain a professional level of service in an O. T. setting. The process of quality assurance, treatment, and chart audits are discussed. Through discussion and role-playing, students gain experience in writing resumes and performing job interviews. Prereq: All previous OTA technical courses. (2/0)

**OT408U Occupational Therapy Pediatrics and Gerontology 2**  
Presents theoretical concepts related to the unique needs of Pediatrics and Gerontology. Provides knowledge and skills in assessment, treatment planning, and activities related to pediatric and geriatric populations. Prereq: OT205U, OT206U. (2/0)

**OT851U Occupational Therapy Assistant Clinic A 6**  
A supervised Level II fieldwork experience emphasizing pediatric or geriatric occupational therapy. Provides experience developing the responsibilities expected of an entry-level occupational therapy assistant. Includes related project. Prereq: All previous OTA technical courses. (.5/0/16.5)

**OT852U Occupational Therapy Assistant Clinic B 6**  
A supervised Level II fieldwork experience emphasizing physical dysfunction practices in Occupational Therapy. Provides experience developing the responsibilities expected of an entry level occupational therapy assistant. Includes related project. Prereq: All previous OTA technical courses. (.5/0/16.5)

**OT853U Occupational Therapy Assistant Clinic C 6**  
A supervised Level II fieldwork experience emphasizing psychosocial practices in occupational therapy. Provides experience developing the responsibilities expected of an entry-level occupational therapy assistant. Includes related project. Prereq: All previous OTA technical courses. (.5/0/16.5)

## **PA: PHYSICS/ASTRONOMY**

**PA101T Introductory Physics 2**  
Provides basic work with scientific reasoning and with fundamental concepts in classical and modern physics. Recommended for students who plan to take College or Classical Physics, as well as all liberal arts students desiring an introductory course. (2/0)

**PA102T Introductory Physics Laboratory 1**  
Laboratory to accompany PA101T. Prereq: PA101T concurrently. (0/2)

**PA105T Astronomy 3**  
Centers 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. (2/2)

**PA115T Medical Physics 3**  
Studies Newton's Laws, fluid statics, fluid dynamics, gas laws, thermodynamics electricity and wave phenomena related to the health sciences. Designed primarily for students enrolled in respiratory therapy and nursing programs along with others with an interest in an applied physics course. (2/2)

**PA150T College Physics I 4**  
Emphasizes introductory physics concepts and methods of scientific reasoning. The first semester of this sequence treats the structure and properties of matter, descriptions of motion, Newton's Laws, conservation laws, rotation and vibration, and liquids. Designed primarily for students interested in pre-medical, pre-dental, pre-pharmacy, pre-forestry or pre-teacher education programs, and those who seek to meet science requirements in their professional programs. Prereq: MA105T or equivalent. (3/2)

**PA151T College Physics II 4**  
Continues College Physics I and includes static and current electricity, electromagnetism, wave motion, optics, atomic and nuclear physics. Applications to the life sciences are integrated with material throughout the semester. Prereq: PA150T (3/2)

**PA210T Classical Physics I 5**  
Introduces physics using calculus level mathematics. Designed for students in engineering, mathematics and physics. The first semester of this sequence covers the topics of vectors, linear and rotational kinematics, statics, dynamics, oscillatory motion, heat and temperature. Prereq: MT160T or permission of instructor. (4/2)

**PA211T Classical Physics II 5**  
Continues Classical Physics I. Includes the topics of thermodynamics, static and current electricity, electromagnetism, geometric and wave optics, and a brief introduction to modern physics. Prereq: PA210T (4/2)

## **PC: PSYCHOLOGY**

**PC100T General Psychology 3**  
Provides an introduction to the study of behavior with emphasis in the areas of learning, cognition, motivation, personality, behavioral disorder, therapy, and social influence. An understanding of the impact of both theoretical perspectives and experimental evidence on the formulation of the science of human behavior is also stressed. Psychological theories and principles are utilized to explain and predict behavior. (3/0)

**PC200T Developmental Psychology 3**  
Examines the process of human development through an understanding of the impact of both theoretical and experimental perspectives. The course is a genetic and psycho-social life-span approach to recognizing the ways in which experience shapes development. Topic areas include: genetics, prenatal development, infancy, childhood, adolescence, adulthood and death. Prereq: PC100T(3/0)

**PC210T Social Psychology 3**  
Explores individual behavior as affected by other people. Covers research methods, ethics and classic as well as current research on topics, including self and person perception, attitude formation and change, aggression, prosocial behavior, interpersonal attraction, gender-related behavior, conformity and deviation, persuasion, and individual behavior in groups. Prereq: PC100T (3/0)

**PC220T Psychology of Personality and Adjustment 3**  
Familiarizes students with the major theories of personality and examines the concept of adjustment from theoretical and clinical viewpoints. Allows students to explore and test research-based techniques for modifying and maintaining behaviors, thoughts, feelings, and relationships. Prereq: PC100T (3/0)

**PC999T Independent Study: Psychology** 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. (Hours arranged). (1-3/0)

**PC105U Human Relations** 3  
Emphasizes the importance of proper attitudes towards self, others and organization values. Stresses the development of a good self-concept and the relationship this has to energy levels, emotions, verbal and nonverbal communication. Prepares students to understand how individuals work in work groups. (3/0)

## **PG: PHOTOGRAPHY**

**PG100T Beginning Photography** 3  
Introduces students to the 35 mm camera and to techniques of shooting, processing and printing black and white photographs. (2/2)

**PG200T Intermediate Photography** 2  
Continues exploration of photographic materials with the emphasis placed on the development of a personal vision. Experimentation with the twin lens reflex camera. Prereq: PG100T (1/2)

**PG210T Advanced Black and White Photography** 2  
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: PG200T or permission of instructor. (1/2)

**PG220T Color Photography** 2  
Introduces the most commonly used color photographic processes including transparency and negative films, negative and reversal printing processes. Prereq: PG100T or permission of instructor. (1/2)

**PG230T Photojournalism** 2  
Introduction to communicating with photographs, editing and combining words and photographs for newspapers, magazines and brochures. Color slide processing is also covered. Prereq: PG100T, MD110T or permission of instructor. (1/2)

**PG240T Projects in Photography** 1-2  
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. Prereq: PG200T (0/2-4)

## **PM: POWER MECHANICS**

**PM100U Career Orientation** 1  
Presents information relating to careers that may result from completion of programs in the Power Mechanics cluster. Topics include the career tape series, job specific information provided by employers, goal setting, skills inventory, student club information, budgeting, and personal planning. (1/0)

**PM101U Fundamentals of Auto Servicing** 6  
This course provides the beginning apprentice technician with an introductory overview of the automobile. Classroom and hands-on laboratory activities emphasize under hood and under car preventive and routine maintenance procedures. Care of tires and wheels, batteries, belts, hoses, filters, cooling systems, minor brake work, exhaust systems, and interior/exterior body components will be covered. Coreq: PM102U. (3/6)

**PM102U Technical Procedures for Power Mechanics Technicians** 3

Covers a variety of subjects relating to general knowledge and procedures expected of power technicians. Tool suppliers will show their tools and explain their uses, offering them for sale to students at very advantageous prices. This will be followed by general shop safety, fire safety, hazardous materials safety, first aid, CPR, tool crib operation, etc. Students carry out hands-on activities related to their major program of study. (1.5/3)

**PM103U Fundamentals of Internal Combustion Engines** 6  
Covers fundamentals of two and four-stroke engine operation, servicing and adjustment. Emphasis is placed on proper disassembly, measuring and reassembly of actual engines. (1.5/3)

**PM104U Fundamentals of Electricity** 6  
Covers fundamentals of electricity and magnetism, series and parallel circuits, electrical diagnosis, and repair of electrical problems as they relate to the automobile, light truck, tractor, and small engine. Proper test methods, repair methods and correct use of equipment are stressed. (3/6)

**PM110U Fundamentals of Power Transfer I** 3  
This course includes an introduction to basic drive trains including clutches, manual transmissions, propeller shafts, rear axle assemblies, and planetary gears. Emphasizes operation, diagnosis, repair and maintenance procedures. (1.5/3)

**PM111U Fundamentals of Power Transfer II** 3  
This course covers theory of operation, maintenance, and diagnosis and overhaul of manual transmission, manual transaxles, differentials and four wheel drives. Prereq: PM110U. (1.5/3)

**PM112U Fundamentals of Vehicular Air Conditioning** 3  
A comprehensive introduction to vehicular air conditioning. The student will develop a basic understanding of theory, diagnostic practices, and procedures essential to air conditioning servicing. Development of sound practice and good judgement in performance of all air conditioning procedures is emphasized. (1/4)

**PM113U Fundamentals of Hydraulics I** 3  
Covers the characteristics of liquids and how these qualities are utilized in vehicles and equipment. Topics include principles and laws of fluid power (liquids), applications, advantages and disadvantages. (1.5/3)

**PM114U Fundamentals of Hydraulics II** 3  
Continues Hydraulics I. Topics include types of systems, components, nomenclature, assembly, troubleshooting and repair procedures. Lectures, demonstrations, and hands-on activities will be used to assist students to develop the knowledge and skills necessary to complete this course. Prereq: PM113U. (1.5/3)

**PM120U Tool Reconditioning and Repair** 2  
Students learn to properly recondition hand tools such as drill bits, chisels and punches as well as fibreglassing, chainsaw sharpening and soldering. (1/2)

**PM121U Business Practices** 2  
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. (2/0)

<b>PM150U Metalworking I</b>	<b>6</b>	<b>PM225U Machinery Servicing</b>	<b>4</b>
Covers general body construction along with body alignment and general metal techniques with emphasis on use of body fill material. Covers glass and trim replacement and also relationship between body and frame components. (2/8)		Students recondition used farm equipment such as planters, sprayers, disks and other tillage equipment. Does not include the engine powered part of the machine. Includes testing and diagnosis of electronic monitoring systems. Prereq: PM104U, PM114U, PM111U. (1/6)	
<b>PM155U Metalworking II</b>	<b>4</b>	<b>PM226U Combine &amp; Harvesting Equipment Repair</b>	<b>4</b>
A continuation of Metalworking I with students working in the lab area on live autos. Covers most work situations found in auto body repair shops. Prereq: PM150U. (.5/7)		Includes repair and reconditioning of combine and chopper units covering basic hydraulics, electrical, power train, monitor, chassis and air conditioning adjustments. Prereq: PM227U. (1/6)	
<b>PM156U Metalworking III</b>	<b>4</b>	<b>PM227U Combine Operation &amp; Adjustment</b>	<b>2</b>
A continuation of Metalworking II with students working in the lab area on live autos. Covers most work situations found in auto body repair shops. Prereq: PM155U. (1/6)		Introduces the basic theory and operation of combines and choppers with actual in-the-field adjustment and operation of machines. Prereq: PM225U. (1/2)	
<b>PM157U Body Straightening Option</b>	<b>7</b>	<b>PM228U Power Shift Transmissions</b>	<b>3</b>
Emphasis placed on quality of work and speed of repair. Students also learn estimating and total auto rebuilding using frame straghtening equipment. Prereq: PM156U. (1/12)		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: PM111U. (1.5/3)	
<b>PM160U Refinishing I</b>	<b>6</b>	<b>PM229U Diesel Fuel Systems</b>	<b>6</b>
Students learn spot painting and matching techniques in addition to spraying of complete autos. (2/8)		Covers diesel fuel systems in relation to the engine itself. Diagnosis and testing or troubleshooting take place using special testing tools. Particular fundamentals are covered in compression testing, pump timing, engine component testing, and injector removal testing and repair is also covered. Prereq: PM103U. (3/6)	
<b>PM165U Refinishing II</b>	<b>3</b>	<b>PM235U Unit Diagnosis &amp; Overhaul</b>	<b>16</b>
A continuation of Refinishing I with emphasis on working with live autos. Students will practice additional spot painting and matching techniques as well as spraying of complete autos. Prereq: PM160U. (.5/5)		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. Also covers advanced diagnosis and overhaul of gasoline and diesel power units, with special emphasis on student work with a minimum of instructor supervision. Prereq: All core courses, PM228U, PM229U, PM120U. (4/24)	
<b>PM166U Refinishing III</b>	<b>3</b>	<b>PM245U Parts Systems</b>	<b>3</b>
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: PM165U. (1/4)		Involves the study of major parts systems and their principles used throughout the parts industry and a study of inventory management and control. Prereq: First year power mechanics core. (3/0)	
<b>PM167U Painting Option</b>	<b>7</b>	<b>PM246U Parts Counter Operations</b>	<b>6</b>
A practical application with emphasis placed on appearance, completion or work in time schedules, material cost, striping, molding installation, and proper proceudres without instructor help. Prereq: PM166U. (1/12)		Student will perform all counter and record procedures practiced in a parts service center such as ordering parts, calculating prices, work orders, inventory control procedures, manual and computer posting, customer servicing and counter management. Prereq: PM145U. (1/10)	
<b>PM205U Fuel Systems</b>	<b>2</b>	<b>PM247U Computerized Parts Distribution Systems</b>	<b>3</b>
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, all types of carburetors, circuits and adjustments. Prereq: PM103U. (1/2)		The introduction to the operations and functions of the computer as it relates to the parts sales and distribution. Student will learn procedures of accounts receivable, point of sale, order point, inventory control and accounts payable. Prereq: PM245U. (1.5/3)	
<b>PM206U Special Power Transfer Systems</b>	<b>3</b>	<b>PM265U Body Electrical Circuits</b>	<b>3</b>
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, outboard gear cases and hydrostatic transmission. Prereq: PM110U. (1.5/3)		This course will cover automotive electrical systems with emphasis on the following circuits: exterior lighting, interior lighting, steering column electrical, dash electrical, wiper motors, automatic temperature controls, power windows, power door locks, power seats, body computers, and other electrically powered accessories. Prereq: PM104U. (1.5/3)	
<b>PM207U Unit Diagnosis and Repair</b>	<b>11</b>		
Covers diagnosis and overhaul of gasoline and diesel power units with special emphasis on student work with a minimum of instructor supervision. Includes snowmobiles, ATV's, motorcycles, tractors, tillers, lawn mowers, outboards, inboards, boats, string trimmers, chain-saws, mopeds and stationary power plants. Prereq: All previous courses or permission of instructor. (2/18)			

**PM266U Engine Electrical Circuits** 3  
This course will cover automotive electrical circuitry with emphasis on alternator theory, starter theory, computerized engine control theory, electromagnetism and Hall-effect switch operation. PM124U. (1.5/3)

**PM267U Automotive Fuel Systems** 2  
This course covers fundamental design and circuit operation of late model carburetors, including computer controlled carburetion. Fuel system maintenance and service are stressed. Overhaul of both pre-electrical and computerized carburetors will be covered. Electronic fuel injection theory, test procedures, and repair procedures will also be taught. Prereq: PM102U, PM103U. (1/2)

**PM268U Engine Design and Servicing** 4  
This course is a study of engine component and subassembly design with emphasis on the reasons certain design elements are used and correct procedures for servicing various design elements. Primary work will be done on cylinder heads and other bolt on components. Block assemblies are not covered in this course. Prereq: PM102U, PM103U, PM266U, PM267U. (2/4)

**PM269U Engine Performance** 2  
Will deal with computerized scopes, meters, and ECM diagnostics. Oscilloscope pattern analysis will be covered with emphasis on: primary and secondary patterns plus square wave and sine wave patterns. ECM data analysis, i. e. sensor functions and voltage values as related to driveability and customer satisfaction, will be covered. Prereq: PM104U. (1/2)

**PM275U Automotive Suspension Systems** 4  
This course gives the student an understanding of front and rear suspension systems components and principles of operation. Covered are fundamentals of suspension and steering geometry, plus diagnosis of steering and suspension troubles. The fundamentals of front end alignment and the alignment rack are taught. Prereq: PM101U, PM102U. (2/4)

**PM276U Automotive Braking Systems** 6  
This course focuses on brake system theory, diagnosis, and repair of various brake systems, both disc and drum. Prereq: PM101U, PM102U. (3/6)

**PM277U Alignment** 2  
This course will teach front and rear wheel alignment, front end component replacement, McPherson strut service and diagnosis of steering problems including power steering. Prereq: PM101U, PM102U. (1/2)

**PM278U Automatic Transmissions** 6  
This course will begin with a comprehensive introduction to automatic transmission theory. This will include hydraulic circuits, torque converters, clutches, planetary gear systems and valves. The student will practice hands-on component disassembly and reassembly with a variety of automatic transmissions. Prereq: PM111U. (3/6)

**PM279U Cooling Systems** 2  
Covers principles of cooling systems and components, including electrical cooling fans. Testing and servicing of the systems is taught. Prereq: PM103U. (1/2)

**PM805U Internship** 1-5  
Involves employment allowing 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. Prereq: Permission of instructor. (0/4-20)

## **PN: PHILOSOPHY AND RELIGION**

**PN101T Introduction to Philosophy** 3  
Introduces the fundamental problems and methods of philosophy, through examination of issues such as human nature, the good life, the nature of truth, freedom and rights. (3/0)

**PN105T Basic Reasoning** 3  
Studies the forms and processes of argument, logical fallacies, rules for sound reasoning and logical translation through examples of reasoning found in everyday life. (3/0)

**PN109T Introduction to Ethics** 3  
Investigates the major issues and theories of Western moral thought. The adequacies of modern ethical theories such as egoism, utilitarianism and rights theory will be examined by discussing such issues as abortion, nuclear war, world hunger, professional ethics, punishment, sexual equality, the farm crisis and environmental problems. (3/0)

**PN115T Introduction to World Religions** 3  
Introduces the study of religions and religious phenomena through an examination of several historical and contemporary religions from around the world. Will include a study of some of the following: American Indian traditions, Hinduism, Buddhism, Judaism, Christianity, Islam, Shintoism, ancient and contemporary feminist spirituality, gnosticism, shamanism, Confucianism and Taoism. (3/0)

**PN999T Independent Study in Philosophy** 1-3  
Provides readings, papers, study and/or research under the guidance of a faculty member. Prereq: Approval of instructor and Assistant Dean. (1-3/0)

## **PO: POLITICAL SCIENCE**

**PO100T American Government** 3  
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. (3/0)

**PO120T Iowa Government** 3  
Provides close examination of state and local governmental processes and institutions with special emphasis on decision making. (3/0)

**PO130T International Relations** 3  
Analyzes governments in the 1st, 2nd, 3rd World interacting in political, security, and economic dimensions. Emphasis is on the sources of policy. Problems are examined through current world concerns. (3/0)

**PO140T Comparative Governments** 3  
Examines political institutions, problems, processes and ideologies in selected countries. "First," "Second" and "Third World" states will be studied and their interrelationships examined. (3/0)

**PO999T Independent Study: Political Science** 1-3  
Provides readings, papers, and/or basic research or other projects under the individual guidance of a staff member. Prereq: Permission of instructor and department chair. (1-3/0)

## **PT: PERSONAL DEVELOPMENT**

### **PT001D P. A. College Prep 6**

Provides students with basic skills instruction in a traditional group setting. The curriculum includes two hours of reading and math plus one hour of writing and study skills per week. (6/0)

### **PT011D Introduction to Spanish 2**

Develops introductory skills and awareness in the Spanish language. Prepares students for Elementary Spanish I. (2/0)

### **PT012D Spanish Lab 1-2**

Provides individual support instruction for students currently enrolled in Elementary Spanish I, II, or III. (0/2-4)

### **PT020D P. A. Reading - Writing (Lec/Lab) 2**

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. (1/2)

### **PT030D P. A. 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)

### **PT035D P. A. Reading - Review 1-2**

Reviews any or all parts of the three main areas of reading, pronunciation, vocabulary and/or comprehension. (1-2/0)

### **PT040D P. A. Writing 1-2**

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 helps prepare the student to take Elements of Writing and may also be supplemental support for those students enrolled in Composition I, Composition II, Communications Skills and/or other writing courses. (0/2-4)

### **PT045D P. A. Writing - Review 1-2**

Reviews knowledge about language and the experience of using the language. (1-2/0)

### **PT050D P. A. Study Skills 1**

Includes 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 eight weeks in length. (1/0)

### **PT060D P. A. Spelling 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. (0/2)

### **PT070D P. A. Math 1-2**

Individualized course of instruction in basic math. Topics include: whole numbers, fractions, decimals, ratio and proportion and percent. Additional topics may include:pre-algebra, metric system, and technical math. (0/2-4)

### **PT075D P. A. Math - Review 1-2**

Topics may include:whole numbers, decimals, fractions, ratio and proportion and percent. (1-2/0)

### **PT079D P. A. Metrology Support 1**

Parallels the nursing department's metrology course. Includes extensive math review as well as the metric and apothecaries' systems and administration of oral, liquid, insulin and intravenous medications. (1/0)

### **PT080D P. A. Pre-Algebra 2**

Introduces basic algebra concepts and reviews basic math. Includes fractions, decimals, proportions, and percents. Introduces integers, exponents, simple equations and graphing. (1/2)

### **PT085D P. A. Pre-Algebra - Review 1-2**

Topics may include integers, solving simple equations, exponents, and graphing. (1-2/0)

### **PT089D P. A. Algebra Support 1-2**

Individualized course to provide support for students taking Pre-Algebra, Beginning Algebra, Intermediate Algebra, College Algebra, or Pre-Calculus courses. (0/2-4)

### **PT099D Academic Resources Lab 1-2**

Provides students with individual instruction in such areas as: notetaking, study skills, test taking techniques, basic reading, comprehension, and math skills. The course will show students how to effectively use available college resources. (0/2-4)

### **PT100T Human Potential Lab 1**

Provides students an opportunity 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 the development of attributes important in establishing harmonious interpersonal relationships. (.5/1.5)

### **PT104T Assertive Behavior Training 1**

Introduces 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. (.5/1.5)

### **PT108T Career Decision Making 2**

Provides an understanding of the process of career development and making an occupational 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. (2/0)

### **PT112T Stress Management 1**

Studies causes and symptoms of stress, positive and negative stress, stress management, stress reduction, self-talk, and self-esteem. (.5/1.5)

### **PT999T Career Exploration:Independent Study 1-2**

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 one or two of the five modules offered, with the assistance and approval of the instructor. (0/2-4)

## **RC: RESPIRATORY CARE (RESPIRATORY THERAPY)**

### **RC205U Respiratory Care I 5. 5**

Provides the theory, equipment operation and application with laboratory exercises in oxygen and other gas therapy, humidity and aerosol therapy, airway care, chest physical therapy, incentive breathing techniques and IPPB. Prereq: HS110U and Algebra. (3.5/4.0)

### **RC305U Respiratory Care II 6**

Explores the theory, equipment operation and application with laboratory exercises in adult mechanical ventilation and arterial blood gas analysis. Examines the effect of mechanical ventilation on acid-base balance. Laboratory emphasis on the operation and application of adult ventilators. Prereq: RC205U. (4/4)

### **RC306U Pathology I 3**

Provides an introduction to the study of disease with emphasis on terminology and basic disease processes. Examines common infectious diseases, acute and chronic respiratory diseases and cardiovascular disorders; concentrates on etiology, pathophysiology, signs, and symptoms. Provides an overview of respiratory care of the surgical patient as well as specific management of traumatic chest injury and head trauma. Prereq: BI151T. (3/0)

### **RC307U Pulmonary Function Testing 1. 5**

Provides theory and operation of equipment in pulmonary function testing with interpretation of test results. Laboratory exercises include gathering data from bedside spirometry, measuring weaning parameters as well as standard pulmonary function laboratory testing. Prereq: RC205U, BI151T. (1/1)

### **RC405U Respiratory Care III 4**

Surveys the theory and application of specialized diagnostic procedures, equipment and monitoring techniques in cardiopulmonary medicine; includes bronchoscopy, Swan-Ganz catheter, oximetry, capnography and transcutaneous monitoring. Explores the elements of pulmonary rehabilitation with laboratory exercises and a patient interview. Provides theory and laboratory practice in the operation and application to pediatric/neonatal ventilators. Examines specialized modes of ventilation and ventilatory support. Prereq: RC305U. (3/2)

### **RC505U Pathology II/Perinatology 4**

Offers an in-depth study of cardiopulmonary disorders, relating the respiratory therapist's role in diagnosis, treatment and support; provides practice in gathering appropriate information and making prompt and correct patient care decisions. Explores fetal growth and development, assessment of the high risk newborn and respiratory care of the perinatal/pediatric patient. Reviews specific medical/surgical pathology in the newborn and pediatric patient. Prereq: RC306U. (3.5/1)

### **RC831U Respiratory Care Clinic I 5**

Provides the student with clinical practice in order to demonstrate proficiency in physical assessment, O<sub>2</sub> therapy, airway care, and IPPB skills. Students will observe and practice mechanical ventilation and arterial blood gas analysis skills. Prereq: RC205U. (0/0/15)

### **RC842U Respiratory Care Clinic II 5**

Provides student opportunity to maintain proficiency in RC Clinic I skills and demonstrate proficiency in ventilation and arterial blood gas analysis skills. Observe diagnostic techniques in EKG, pulmonary function, cardiac catheterization lab, and bronchoscopy lab. Do first observation rotation in neonatal and pediatric units. Prereq: RC831U. (0/0/15)

### **RC835U Respiratory Care Clinic III 5**

Provides student with opportunity to maintain proficiency in RC I and II clinical skills, practice pediatric respiratory care, hemodynamic monitoring and demonstrate proficiency in pulmonary function testing. Prereq: RC842U. (0/0/15)

### **RC864U Respiratory Care Clinic IV 5**

Provides opportunity for students to maintain proficiency in skills developed in RT Clinic I, II, and III, demonstrate proficiency in pediatric/perinatal respiratory care, practice clinical education techniques, observe management skills. Prereq: RC853U. (0/0/15)

## **RN: RECREATION**

### **RN100T Foundations of Recreation 2**

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. (1/2)

### **RN102T Recreation Leadership 2**

Designed to enhance leadership skills in the student by examining various techniques used in the recreation and educational fields. (1/2)

### **RN104T Orientation to Community Recreation Agencies 2**

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. (1/2)

### **RN105T Recreation Programming 2**

Provides the student with knowledge in setting up and administering recreation classes. (2/0)

### **RN106T Recreation for Special Populations 2**

Designed to examine the recent trend in recreation toward serving the physically and mentally handicapped as well as the elderly. (2/0)

### **RN150T Introduction to Physical Education 2**

An overview of the foundations, philosophies, history and principles of physical education. (2/0)

### **RN155T Prevention and Care of Athletic Injuries 2**

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. (1/2)

### **RN158T Theory of Coaching Basketball 2**

Introduces the coaching profession, with specific emphasis on basketball fundamentals, strategy, organization, public relations and coaching psychology. (2/0)

### **RN159T Sports Participation I 1**

Designed to give credit for knowledge and skills gained through varsity sports participation. Students may earn one credit per year for each sport that they participate in. (0/2)



**RN160T Sports Participation II** 1  
Designed to give credit for knowledge and skills gained through variety sports participation. Students may earn one credit per year for each sport that they participate in. (0/2)

**RN161T Theory of Coaching Wrestling** 2  
Introduces the coaching profession, with specific emphasis on wrestling fundamentals, strategy, organization, public relations and coaching psychology. (2/0)

**RN165T Techniques of Teaching Individual and Dual Sports** 2  
Covers techniques and methods of teaching archery, golf, bowling and racquetball. (1/2)

**RN167T Techniques of Teaching Team Sports** 2  
Covers techniques and methods of teaching secondary basketball, softball and track skills. (1/2)

**RN170T 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)

**RN172T Beginning Tennis** 1  
Introduces the basic skills (forehand, backhand, service), strategy and rules of tennis. (0/2)

**RN173T Fundamentals of Golf** 1  
Develops the basic skills necessary for a beginning golfer. (0/2)

**RN174T Volleyball Techniques** 1  
Instructs students in the basic rules and fundamentals of volleyball, including on-court participation. (0/2)

**RN176T Bowling** 1  
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)

**RN190T Beginning Tae Kwon-Do** 2  
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. (0/4)

**RN192T 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. (0/4)

**RN195T Beginning Racquetball** 1  
Introduces students to fundamentals and rules of the sport. (0/2)

**RN200T Advanced Racquetball** 1  
Advanced students learn competitive level skills. (0/2)

**Recreation Activities Project** 1  
Provides an opportunity to participate in various recreation experiences. The following are the recreation areas. Each represents one hour of credit.

**RN205T Aerobics I**  
**RN206T Aerobics II**  
**RN207T Jogging I**  
**RN208T Jogging II**  
**RN209T Baseball Techniques I**  
**RN210T Baseball Techniques II**  
**RN211T Softball Techniques I**  
**RN212T Softball Techniques II**  
**RN213T Weight Conditioning I**  
**RN214T Weight Conditioning II**  
**RN215T Tone and Firm I**  
**RN216T Tone and Firm II**  
**RN217T Power Lifting I**  
**RN218T Power Lifting II**

## **SL: SOCIAL WELFARE**

**SL100T Introduction to Human Services** 2  
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. (2/0)

**SL110T Human Service Policy and Programs** 3  
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. (3/0)

**SL120T Observation Skills** 3  
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. (3/0)

**SL130T Intervention Skills** 2  
Includes an overview of various intervention techniques. Students also learn principles of helping interview and practice interviewing in beginning, middle and ending phases. (2/0)

**SL800T Field Experience and Seminar** 7  
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. Prereq: Completion of Human Service classes. (1/24)

## **SY: SOCIOLOGY**

### **SY100T Introduction to Sociology**

**3**

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. (3/0)

### **SY110T Marriage and the Family**

**3**

Explores the contemporary family institutions 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. (3/0)

### **SY120T Social Problems**

**3**

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. (3/0)

### **SY130T Introduction to Cultural Anthropology**

**3**

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. (3/0)

### **SY140T Sociology of Poverty**

**3**

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. (3/0)

### **SY150T Sociology of Aging**

**3**

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. (3/0)

### **SY999T Independent Study: Sociology**

**1-3**

Provides readings, papers, and/or basic research or other projects under the individual guidance of a staff member. Prereq: Permission of instructor. (1-3/0)

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# **ADMINISTRATIVE STAFF AND FACULTY**

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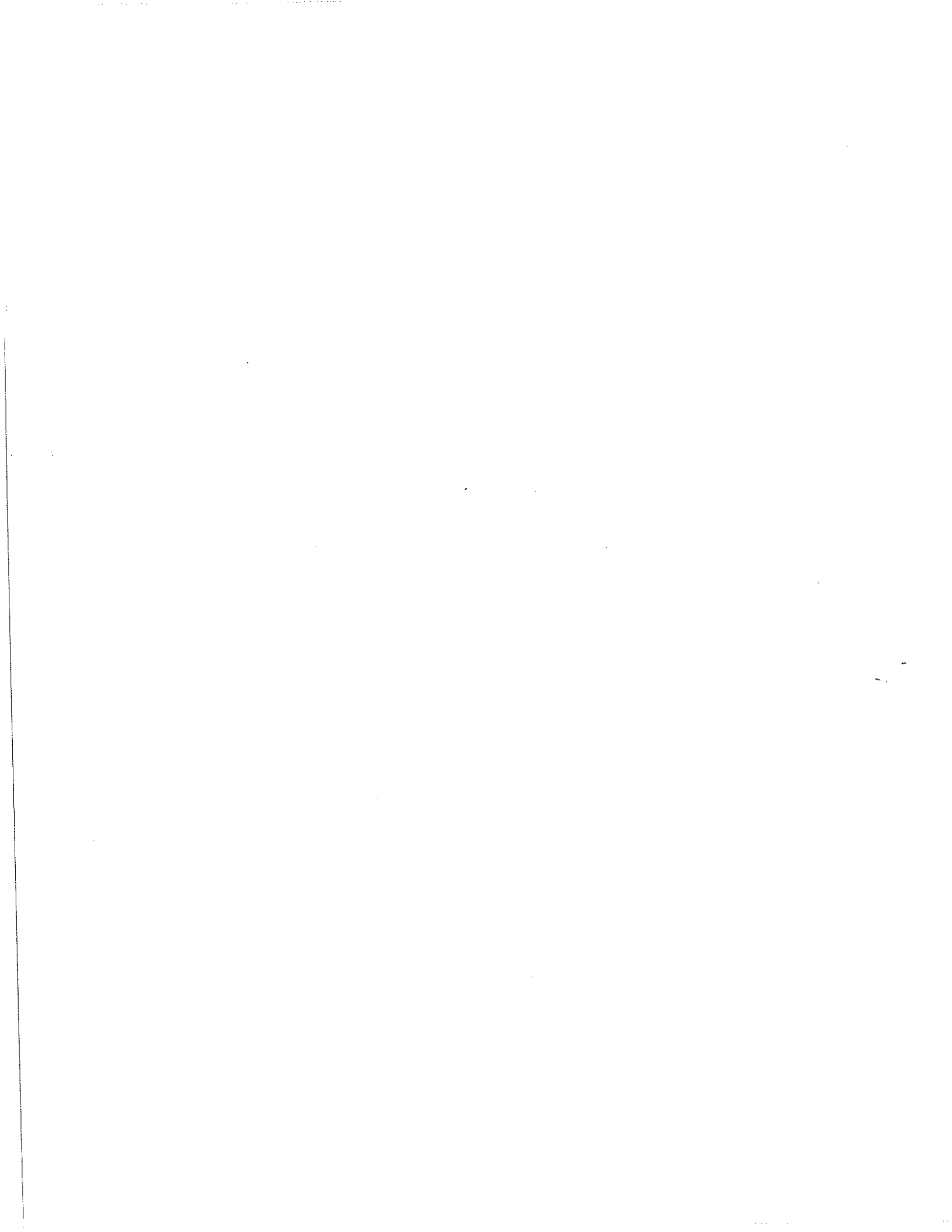
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