Muskegon Community College Course Numbering System

Courses offered at Muskegon Community College shall be numbered according to the following system:

1. Sequential courses (those that must be taken in specific order), shall be numbered so that the first course in the sequence carries the lowest number. If a course is part of a sequence, prerequisite courses shall be clearly stated in the Course Descriptions section of the catalog, and in the Schedule of Classes.
2. Courses numbered from within the range 000 to 099 can generally be considered as pre-college-level skills development or enhancement courses, designed to help prepare students for success in college level work. Students should check with an academic counselor, department chairperson, or program coordinator to determine whether such courses may be counted toward a degree, certification, or transfer requirements.
3 Courses numbered 100 to 199 are introductory courses intended primarily for first-year college students with no significant deficiencies in their academic background.
4. Courses numbered 200 to 299 are courses intended primarily for students who have successfully completed one year of college-level coursework. The number 297 shall be reserved for courses being taught on an experimental or temporary basis, before formal addition to the College catalog. The number 299 shall be reserved for independent study courses.

COURSE DESCRIPTIONS

READY TO SUCCEED

NOTE: In many courses, you must demonstrate, before enrolling, that you are READY TO SUCCEED by:

Scoring at an acceptable level on the reading placement test. (An acceptable level is 10th grade in both vocabulary and comprehension.)

OR

Attaining a grade-point average of 2.0 or better in 15 or more college credits (S.A.M. students are exempt).

OR

Having a composite score of 22 or greater on the ACT. A score of 22 would waive the reading and writing portion of the placement tests. The mathematics placement test must still be taken.

OR

Having a score of I or II on both the reading and writing portions of the MEAP test and scoring at an acceptable level on the reading placement test. (An acceptable level is 10th grade in both vocabulary and comprehension.)

If you have not tested or do not know your scores, call the Testing Center at **231.777.0394**.

ACCOUNTING (See Business)

ALLIED HEALTH COURSES

(See also Health Education)

Several Allied Health courses may be taken that do not require a commitment to a program or a special application. Students take these courses to increase their knowledge and skills in special areas or to prepare themselves to enter a health-related position.

AH 101 Medical Terminology—3 Cr. Hrs. – 3 Contact Hrs. Designed to assist the beginning health student to master new medical terms and modes of communication. With an understanding of basic terms, the student can proceed to build a functional vocabulary while pursuing a career specialty. Basic anatomy and physiology will be an integral part of the course.

AH 102 Basic Patient Care Skills—3 Cr. Hrs. – 4 Contact Hrs. This course is designed as a general introduction to patient care. The student will master skills including: vital signs, medical asepsis, isolation techniques, proper body mechanics, and introduce the student to medical terminology, medical vocabulary, medical abbreviations and charting procedures.

AH 104 Medical Insurance Billing—2 Cr. Hrs. – 2 Contact Hrs. An introductory course designed to assist the student to quickly identify insurance coverage appropriately and accurately, complete insurance forms and become familiar with billing procedures. The content of this course is relevant to dental and other allied health insurance billing.

AH 105 Introduction to Electrocardiography (EKG)—3 Cr. Hrs. – 3 Contact Hrs. This course will provide the student with the necessary knowledge to perform basic cardiac technology skills. This course does not have prerequisites but students are encouraged to enroll in the Medical Terminology course. The course will be helpful to new students interested in a career in the health technologies as electrocardiographic and/or vascular technicians. The course will also provide more in-depth information for RNs, LPNs, EMTs and other health professionals. Offered only upon sufficient demand.

AH 111 Environmental Stressors and Nutrition—1 Cr. Hr. – 1 Contact Hr. Co-requisite: NUR 100. This course is designed to provide the student with the theoretical foundation for the clinical application of nutrition principles, in relation to stress adaptation, throughout the curriculum. The focus of the course is on the identification of the role of nutrients in maintaining man's dynamic equilibrium and the use of therapeutic diets for clients.

AH 251 Health Needs of the Young Child—3 Cr. Hrs. – 3 Contact Hrs. The emphasis in this course is on identification, treatment, and prevention of common childhood illnesses, and the promotion of good health, safety and nutrition for the young child. Physical and dental health will be emphasized, along with signs and symptoms of illness within varying age groups. Treatment options and procedures for non-professionals will be discussed. Prevention will be focused on how to promote optimum health, how to prevent injuries, and nutritional requirements of young children.

AMERICAN SIGN LANGUAGE

ASL 101 American Sign Language I—3 Cr. Hrs. – 3 Contact Hrs. Study the various aspects of American Sign Language including finger spelling, interpreting, sign vocabulary, facial expression, body movement, and grammatical structure. This course is designed for students who are considering pursuing certification in interpreting.

ASL 102 American Sign Language II—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: ASL 101. Study the various aspects of American Sign Language including finger spelling, interpreting, sign vocabulary, facial expression, body movement, and grammatical structure. This course is designed for students who would like to pursue certification in interpreting.

(continued on next page)

ASL 103 Finger Spelling—2 Cr. Hrs. – 2 Contact Hrs. Prerequisite: ASL 101 or instructor permission. This course is designed for students who would like to pursue certification in interpreting using American Sign Language. Students will develop fluency in receptive and expressive finger spelling and numbering. They will also learn the correct usage of finger spelling and numbering.

ANTHROPOLOGY

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

ANTH 103 Cultural Diversity in Contemporary Society—3 Cr. Hrs. – 3 Contact Hrs. Cultural Diversity in Contemporary Society is an ethnographic analysis of various cultural groups and the regions where they originate. Such groups as African-American, Asian-American, Hispanic-American, and Native-American will be the focus. Emphasis will be placed on their cultural similarities and differences. Students will compare such topics as the cultures' socialization process, education, gender roles, marriage and family living, religion, health, death and dying, etc.

ANTH 105 Introduction to Physical Anthropology/Archaeology—3 Cr. Hrs. – 3 Contact Hrs. Introduces the student to the fields of physical anthropology and archaeology through a study of man's biological and cultural adaptation. Emphasis will be placed upon the prime fossil record, dating methods, the emergence of races as adaptations to different environments, molecular, and population genetics, and the prehistorical cultural sequence in both the Old and New Worlds.

ANTH 110 Introduction to Cultural Anthropology*—3 Cr. Hrs. – 3 Contact Hrs. Introduces the student to the field of cultural anthropology through a study of language, kinship, technology, political organization, social organization, religion and healing, among other topics. Emphasis will be placed upon an investigation of selected pre-modern groups representative of the world's major cultural regions.

*Denotes course that contains an International component.

ART

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

ART 101 Beginning Art—3 Cr. Hrs. – 6 Contact Hrs. Development of artistic skills through a broad range of studio experiences: drawing, printmaking, design, ceramics, sculpture and painting.

ART 104 Drawing I—3 Cr. Hrs. – 6 Contact Hrs. Concentrated attention on drawing as a fine arts medium with study in various subject matter.

ART 105 Design I—3 Cr. Hrs. – 6 Contact Hrs. The study of the basic elements of visual design and the principles of their organization.

ART 107 Painting I—3 Cr. Hrs. – 6 Contact Hrs. The study of oils or acrylics through diverse subject matter.

ART 108 Ceramics I—3 Cr. Hrs. – 6 Contact Hrs. A study of the nature of clay through hand building, pottery processes, and glazing, stressing skill development and expressive experimentation.

ART 109 Sculpture I—3 Cr. Hrs. – 6 Contact Hrs. An introduction to the basic materials and techniques of sculpture.

ART 198 Art History I*—3 Cr. Hrs. – 3 Contact Hrs. Ancient art to renaissance. A historical survey of art from Ancient times to 1400 tracing the development of styles and the influences of major social, religious and political events.

ART 199 Art History II*—3 Cr. Hrs.– 3 Contact Hrs. Renaissance to modern. A historical survey tracing the development of art from the Renaissance to the present with an emphasis on painting.

ART 202 Contemporary Art History—3 Cr. Hrs. – 3 Contact Hrs. A comprehensive survey of art and art styles of the 20th & 21st centuries. A study of backgrounds and origins of certain current styles, the course draws from examples in painting, sculpture and architecture of America and the world. Changing ideas and trends are analyzed through lecture and discussion.

ART 204 Drawing II—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: ART 104 or permission of instructor. A continuation of ART 104.

ART 205 Design II—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: ART 105 or permission of instructor. A continuation of ART 105 with emphasis in practical design problems involving color and two-and three- dimensional materials.

ART 207 Painting II—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: ART 107 or permission of instructor. Concentration in a particular medium of the student's choice with a study of the nature of that medium through a creative approach to painting problems.

ART 208 Ceramics II—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: ART 108 or permission of instructor. A study of traditional pottery processes through concentrated work on the potter's wheel, glazing, and firing experiences.

ART 209 Sculpture II—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: ART 109 or permission of instructor. A continuation of ART 109, with concentration in materials of individual interest.

ART 211 Art Education Workshop—3 Cr. Hrs. – 6 Contact Hrs. Experience through studio work with art materials and methods appropriate to grade school use.

*Denotes course that contains an International component.

ASTRONOMY

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

ASTR 101 General Astronomy—4 Cr. Hrs. – 4 Contact Hrs. This course is a broad, generally nonmathematical, survey of the science of astronomy. Topics include: historical astronomy, the mechanics and clockwork of the night sky, astronomical instruments, the solar system, stellar evolution, the Milky Way, galaxies and theories about the origin and evolution of the universe. There will be opportunities for observation of astronomical objects with observatory telescopes.

ASTR 105A Cosmology—4 Cr. Hrs. – 4 Contact Hrs. Prerequisites: MATH 050 or assignment by Math Placement Test. While Astronomy is concerned with the contents of the Universe, Cosmology is the science of the origin, current state and ultimate fate of the universe. In this course, the foundations of Modern Cosmology are presented from a historical perspective, covering the physical fundamentals, the impact of Einstein's Theories of relativity on modern cosmologies and finally from the perspective of the most recent astronomical discoveries.

AUTOMOTIVE TECHNOLOGY

Students in these courses must have approved safety glasses.

AT 114 Automotive Power Plants (Engine Rebuilding)—3 Cr. Hrs. – 6 Contact Hrs. This course includes the proper procedures and machine operations necessary to service completely, overhaul, repair or rebuild the automotive engine. Theory of engine operation and construction are also dealt with.

AT 120 Introduction to Electrical Systems I—3 Cr. Hrs. – 6 Contact Hrs. Co-requisite: AT 121. Astudy of fundamentals of electricity, ignition (Electronic Computer Control including DIS), cranking and charging systems. Basic electrical test equipment is also covered.

AT 121 Electrical Systems II—3 Cr. Hrs. – 6 Contact Hrs. Co-requisite: AT 120. Covers testing and servicing of ignition, cranking and charging systems. Includes the use of modern electronic test equipment and industry diagnostic methods.

AT 122 Fuel Systems and Emission Controls—3 Cr. Hrs. – 6 Contact Hrs. Prerequisites: AT 120 and AT 121 or instructor permission. Co-requisite: AT 123. This course will cover a study of fuel system (including TBI and PFI) and emission controls (including 4 gas analyzer). Diagnosis and service of system components is also covered. The operation of 2-cycle and 4-cycle engine theory is introduced.

AT 123 Engine Tune Up (Driveability)—3 Cr. Hrs. – 6 Contact Hrs. Prerequisites: AT 120 and AT 121 or instructor permission. Co-requisite: AT 122. A study of the engine accessories included under electrical, ignition and fuel systems. Covers the diagnosis, servicing, and repair of these systems and component parts as related to the entire engine operation in the vehicle.

AT 210 Power Trains (Manual Drive Trains)—3 Cr. Hrs. – 6 Contact Hrs. This course gives the student experience in theory, diagnosis and repair of automotive drive trains. It includes study of clutches, drive shafts, universal joints, differentials, axles, and manual FWD & RWD transmissions.

AT 211 Automatic Transmissions—3 Cr. Hrs. – 6 Contact Hrs. A study of the theory of operations, hydraulic circuits, gearing adjustments, and repair of automatic transmissions, both FWD & RWD (including electronic controls).

AT 212 Alignment and Suspension—3 Cr. Hrs. – 6 Contact Hrs. This course covers theory, repair, and adjustment of steering and suspension systems as well as the operation of modern four-wheel alignment and wheel balancing equipment.

AT 213 Brakes and Air Conditioning—3 Cr. Hrs. – 6 Contact Hrs. This course covers theory, repair and adjustment of hydraulic and ABS brake systems and related machining equipment. Air conditioning both R12 and R134A diagnosis testing and service is covered.

AT 214 Service Management—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Must be second year automotive student. A course covering the responsibilities of a service manager in large and small service garages. Lectures, tours, and outside speakers emphasize industrial practice in customer, mechanic, and management relationships.

BIOLOGY

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

Introductory Biology is offered in a modular format (BIOL 100: 10A – 10J) and as a semester course (BIOL 103) equivalent to modules 10A, 10E, 10F & 10G.

A student who plans to complete four (4) hours of introductory biology may enroll in any combination of four modules or BIOL 103.

A student who plans to complete one year (8 hours) of introductory biology should consult with a counselor or the Life Science Department before choosing either of the following options:

- **any** eight modules
- **BIOL 103** and four modules (10B, 10C, 10D, 10H or 10J)

ATTENTION: These modules are being phased out and will be replaced with semester courses by Winter 2007. Contact counselors for more information.

BIOL 100 Introductory Biology – 1 to 8 Cr. Hrs. (NOTE: 1 Credit hour = 3 hours lecture & 4 hours lab for 3 ½ weeks; 7 contact hours per week, per module.) Introductory Biology is offered as a series of 1 Credit Hour modules, each on a different topic. Students must concurrently register for a closed laboratory consisting of two 2-hour session times. Course grade incorporates the laboratory grade. Modules 10A, 10B, 10C, 10D, 10E, 10F, 10G, and 10H are offered fall and winter. Selected modules are offered spring session.
If Biology 100 is elected as the laboratory science course to satisfy the Natural Science laboratory requirement for the A.S.A. Degree, a minimum of four Biology 100 modules must be taken.

Module descriptions follow:

BIOL 10A CELLULAR PERSPECTIVES –1 Cr. Hr. A study of the structure and function of plant and animal cells with emphasis on controls, reproduction, energetics, and membrane phenomena.

BIOL 10B THE PLANT KINGDOM – 1 Cr. Hr. A study of the classification, morphology, reproduction, evolution, and ecology of algae, bacteria, fungi, mosses and liverworts, ferns and seed plants.

BIOL 10C THE LIVING PLANT – 1 Cr. Hr. A study of the complementarity of structure and func-

tion in flowering plants. Basic physiological principles include photosynthesis, development, regulation and movement of materials.

BIOL 10D THE ANIMAL KINGDOM – 1 Cr. Hr. A study of the classification, morphology, reproduction, evolution, and ecology of selected representatives of the animal kingdom.

BIOL 10E THE HUMAN ORGANISM – 1 Cr. Hr. A study of the anatomy and physiology of selected human systems. Topics include human organization, musculoskeletal system, nervous system, circulatory system, respiratory system, digestive system, and excretory system.

BIOL 10F HUMAN REPRODUCTION AND EMBRYOLOGY – 1 Cr. Hr. A study of the anatomy and physiology of reproduction and development. Topics include gamete formation, fertilization, hormonal control, the pattern of pre-natal development, birth, contraception, and sexually transmitted diseases.

BIOL 10G GENETICS – 1 Cr. Hr. A study of human heredity. Topics include structure and function of DNA, RNA, and chromosomes, mitosis, meiosis, dominant and recessive inheritance, blood genetics, metabolic disorders, and chromosomal aberrations.

BIOL 10H ECOLOGY – 1 Cr. Hr. A study of the interrelationships of living things with their environment with special attention to ecosystems of the Muskegon area. The structure and function of ecosystems, population dynamics, and ecological succession are emphasized. The open laboratory includes three required field trips with follow-up laboratory studies.

BIOL 10J ANIMAL BEHAVIOR – 1 Cr. Hr. A study of behavior from a biological perspective. Behavior is presented as the function of effectors, and behavioral components are presented as ecological phenomena. Currently offered as an independent study (BIOL 299).

BIOL 103 Introductory Biology – 4 Cr. Hrs. – 7 Contact Hrs. A one-semester laboratory course in biological science. Biological concepts are studied as they relate to the human organism as part of the living world. Basic principles of organization of living matter, including cell structure and function, metabolism, human systems, reproduction, development, heredity and evolution are examined.

BIOL 105 Anatomy and Physiology I—4 Cr. Hrs. – 6 Contact Hrs. Prerequisite: Previous biology, **especially Module 10A (Cellular Perspectives) and Module 10E (The Human Organism) or BIOL 103 (Introductory Biology), and a course in medical terminology is strongly recommended**. This laboratory course is designed to meet the needs of students in nursing and other health-related fields. The course deals primarily with the normal structure and function of organs and organ systems of the body. Cell biology, histology and introductory anatomy and physiology of the skeletal, muscular, nervous, digestive, cardiovascular, respiratory, urinary, endocrine and reproductive systems are studied.

BIOL 106 Anatomy and Physiology II—4 Cr. Hrs. – 6 Contact Hrs. Prerequisite: BIOL 105. (A course in Chemistry is recommended.) **BIOL 105 and BIOL 106 may not be taken concurrently.** This laboratory course is a continuation of BIOL 105 for students in nursing and other health-related fields that require an intensive study of the anatomy and physiology of the human organism. Emphasis is on the skeletal, muscular, nervous, digestive, cardiovascular, respiratory, urinary, endocrine and reproductive systems.

BIOL 109 Food Technology—4 Cr. Hrs. – 4 Contact Hrs. A study of chemical, biological, and physical principles as they pertain to food preparation, processing and production. Students apply and study the concepts in a food preparation laboratory. This course is offered Spring Session only.

BIOL 120 Flowering Plants of Southwestern Michigan**—1 Cr. Hr. – 7 Contact Hrs., for 3 ½ weeks. A study of the identification, ecology and distribution of the flowering plants of southwestern Michigan. This course includes lectures, laboratory study, and field trips to a variety of habitats.

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BIOL 122B Allied Health Microbiology**—2 Cr. Hrs. – 2 Contact Hrs. This is an introductory laboratory course primarily designed for students in Allied Health programs. It includes a study of pathogenic micro-organisms of respiratory and other systems, the means of disease transmission, immunity to disease, and physical and chemical agents that control micro-organism growth. This course is also recommended for students who plan to take BIOL 207 and want a background in microbiology.

BIOL 200 Introductory Evolution—1 Cr. Hr. – 1 Contact Hr. Prerequisite: Successful completion of BIOL 10G or BIOL 103, or instructor permission. This course is a preparatory study of the historical development, the evidence, and the mechanisms of the biological evolution theory. Scientific hypotheses on the origin of organic molecules will also be investigated along with the examples of biological evolution in today's community. This course provides a learning experience on a central unifying concept of biology for non-majors and majors interested in exploring the diversity and similarities among living organisms.

BIOL 200L Introductory Evolution Laboratory—1 Cr. Hr. – 1 Contact Hr. In this laboratory course which is an optional co-requisite course for BIOL 200 Introductory Evolution, students will continue to explore biological evolution and its effects on biodiversity. A day field trip, perhaps to the Field Museum in Chicago, is required for this course and may extend contact time beyond the listed two hours per week. Laboratory students must also be registered for BIOL 200 Introductory Evolution, but students taking BIOL 200 are not required to take BIOL 200L. Lab fee includes cost of field trip.

BIOL 204 Field Biology & Ecology—4 Cr. Hrs. – 7 Contact Hrs. Prerequisite: 8 Cr. Hrs. of Biology. (CHEM 101 & 102 are recommended.) An investigation of living things in relation to the environment and to each other. Population dynamics and the structure and function of ecosystems are studied. Field studies include the collection and analysis of data for scientific reports. Field trips are required. Course offering contingent on demand. Contact the Life Science Department if interested.

BIOL 207 Microbiology Lecture—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: BIOL 105 or other biology course with permission of instructor. CHEM 100 and BIOL 106 are recommended. Co-requisite: BIOL 207A. This is a general microbiology course designed primarily for students in allied health programs. Emphasis is on the general characteristics of micro-organisms and the diseases they cause. Included are ways to control micro-organisms with antimicrobials, the immune system, and physical and chemical agents. Emerging diseases and bioterrorism are also covered.

BIOL 207A Microbiology Laboratory—1 Cr. Hr. – 3 Contact Hrs. Co-requisite: BIOL 207 LEC. This course is designed for students in allied health programs. It includes preparing stained smears, culturing micro-organisms, conducting immunology experiments, performing tests to identify bacteria and fungi, and studying microbial growth control methods.

BIOL 210 Fish & Wildlife of North America—5 Cr. Hrs. – 7 Contact Hrs. Introduction to fisheries and wildlife professions and the comparative study of fish and wildlife groups, including life history, morphology, habitats, identification, and population management principles. Course offering contingent on demand. Contact the Life Science Department if interested.

BIOL 299 Independent Study—Variable credit. Open to students who have successfully completed four hours of Biology, or with permission of the instructor. The independent study will include field or laboratory study and library research. The instructor will aid the student in the selection and development of the study in keeping with the philosophy, techniques and methods or research. Open enrollment.

*****Biology 120, 122B, and 200 are not introductory biology modules*** but will apply toward the Muskegon Community College Natural Science laboratory requirement for associate degrees.

Each student should check with his/her counselor to ensure that planned coursework meets the

requirements for graduation from Muskegon Community College as well as specific requirements of other institutions where a student may wish to transfer.

BUSINESS

(Accounting, Management, Marketing, Office Systems Education)

BUS 100 Fundamentals of Accounting—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: A 10th grade reading level on the Nelson-Denny Test is recommended. This course is an introductory basic bookkeeping and accounting class that emphasizes the accounting cycle. Day-to-day accounting activities are covered, through the preparation of the financial statements and the process of closing the financial records. Upon successful completion of this class, the student will be well prepared to take BUS 101 Principles of Accounting I. (Students having difficulty with BUS 101 may transfer to this class up to the sixth week of the semester with no loss of tuition.)

BUS 101 Principles of Accounting I—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. This course introduces principles of accounting including the accounting cycle with emphasis upon theory and financial statements. Other topics covered include cash, receivables, temporary investments, inventories, plant assets, intangible assets, and payroll.

BUS 102 Principles of Accounting II—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: A grade of "C-" or better in BUS 101 is recommended. A continuation of BUS 101 covering partnerships, corporations, and manufacturing accounting with emphasis on financial and cost accounting concepts.

BUS 103 Payroll Accounting & Business Taxes—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: BUS 101 or instructor permission. This course covers in detail the accounting and filing requirements for federal payroll taxes.

BUS 105 Business Statistics —3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: assignment by Math Placement Test, or two years of beginning and intermediate algebra, or a grade of "C" or better in MATH 050. Probability and statistics for business, social sciences, mathematics, and biological science majors. Topics include descriptive statistics, probability, probability distributions, hypothesis testing, analysis of variance, regression, and non-parametric statistics. Graphing calculator required (TI-83 or higher recommended.)

BUS 114 Personal Finance—-3 Cr. Hrs. – 3 Contact Hrs. This course is oriented to the practical needs of the citizen-wage-earning-consumer. This course will consider the structure of the American economic system, the impact of government on this system, and prudent economic management of the individual's finances, such as insurance, budgeting and the use of credit. This course is designed for the student's personal needs in today's society.

BUS 121 Introduction to Business*—3 Cr. Hrs. – 3 Contact Hrs. This is a general course in business principles, problems, and practices, which provides an understanding of the operation of the American Business System and its place in the economy. Information concerning more effective use of business services in personal affairs is included as well as preparation for future business courses.

BUS 122 Principles of Management—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. A study of the managerial functions of planning, organizing, staffing, directing, and controlling with analysis of the on-going process; knowledge which a manager must have in order to achieve coordination for the attainment of company objectives.

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BUS 123 Business Law I—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. This course is a study of the Uniform Commercial Code Text and of the general laws applicable to business covering law and society contracts, agency and employment, commercial paper, personal property, bailments and sales.

BUS 124 Business Law II—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. Study of the Uniform Commercial Code Text concerning corporations, property sales, negotiable instruments, insurance and bankruptcy.

BUS 125 Supervision—3 Cr. Hrs. – 3 Contact Hrs. A review of basic leadership skills needed to effectively supervise people with emphasis on communications, human relations, and the supervisor's role in employee recruitment, selection, training and evaluations. Role-playing and other participation methods will be used.

BUS 126 Business Math—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Math Placement Test is recommended. This course covers a review of basic computational skills, percentages, inventories, depreciation, and other financial applications. The course is designed to increase competence in fundamental mathematical skills which apply to business.

BUS 127 Human Relations—3 Cr. Hrs. – 3 Contact Hrs. A study of the problems of working with people in a business environment. The focus is on dealing positively with employee morale, motivation, leadership, group behavior, personality, productivity, hiring, and training.

BUS 161A Effective Selling—3 Cr. Hrs. – 3 Contact Hrs. This course includes an analysis of the sales transaction with classroom sales demonstrations. Attention is given to topics such as: consumer characteristics, buying motives, product performance, sales aids, overcoming customer objections, and closing the sale.

BUS 162 Principles of Retailing—3 Cr. Hrs. – 3 Contact Hrs. A survey of past and present retailing practices and procedures. Retail management methods are studied, along with retail store locations and layout, equipment, display advertising, personnel policies, maintenance, inventory and cost control.

BUS 166 Quality Customer Service—3 Cr. Hrs. – 3 Contact Hrs. A course in understanding what customer service is and how to implement it into today's organization.

BUS 179 Keyboarding—1 Cr. Hr. – Variable Contact Hr. This course is designed for the student with no previous formal typing instruction. A student with a typing speed of 20-25 wpm should enroll in BUS 181C. This course develops basic alpha and numeric touch keyboarding skills for persons who will be using computer terminals for processing information. This is an OSE LAB course.

BUS 180C Introduction to Word Processing Part I—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: BUS 179 or BUS 181C or instructor permission. Before enrolling in this course, you must demonstrate that you are ready to succeed. Introductory and intermediate word processing features and concepts are taught, as well as document formatting. Through extensive hands-on training, students will be given the opportunity to become proficient with Microsoft Word XP/2002 and be well prepared for Microsoft Office Word Core Certification.

BUS 181C Office Procedures I – Document Formatting—3 Cr. Hrs. – Variable Contact Hrs. Prerequisite: BUS 180C. Before enrolling in this course, you must demonstrate that you are ready to succeed. This course is designed for the person who has had no formal training in formatting business documents, has minimal word processing skills, and types 25-35 words per minute. The purpose of this course is to develop correct techniques and basic keyboarding skills to increase speed and accuracy. The major portion of the course covers correct formatting procedures for business correspondence, reports, and tables using Microsoft Word. Recommended for all persons regardless of major. This is an OSE LAB course.

BUS 182C Office Procedures II – Document Production—2 Cr. Hrs. – Variable Contact Hrs. Prerequisites: BUS 180C and BUS 181C (minimum grade of C-) or equivalent. Before enrolling in this course, you must demonstrate that you are ready to succeed. A student must achieve a grade of C- or higher to advance to BUS 281C. This course has two major objectives: to provide the student with skill-building opportunities through the use of specially designed software and to allow the student to integrate word processing and document formatting skills while improving production speed and accuracy. This is an OSE LAB course.

BUS 185B Electronic Calculator—2 Cr. Hrs. – 2 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed.This is an introductory course in the operation of the electronic printing calculator. The student will learn the basic functions of the calculator with applications in practical business problems. This is an OSE LAB course.

BUS 187A Electronic Records Management—2 Cr. Hrs. – Variable Contact Hrs. Prerequisite: Typing I or keyboarding proficiency and experience within a Windows environment. Before enrolling in this course, you must demonstrate that you are ready to succeed. This course presents the principles of alphabetic, numeric, geographic, and subject systems of records management, as well as maintenance of records. Database applications, using Access, will be utilized to complete the microcomputer applications simulating records management in a typical office. This is an OSE LAB course.

BUS 188A1 Voice Transcription, Administrative—3 Cr. Hrs. – Variable Contact Hrs. Prerequisites: BUS 180C and BUS 182C or equivalent. Marketable skills are developed in the use of office transcribing machines and transcription techniques using word processing. Language skills (grammar and punctuation usage) are emphasized as necessary prerequisite skills for transcribing proficiency. The practice correspondence in the course provides realistic documents from career sites of some of the fastest-growing employment areas. This is an OSE LAB course.

BUS 188B Voice Transcription, Legal—3 Cr. Hrs. – Variable Contact Hrs. Prerequisites: BUS 180C and BUS 182C. This course helps the student to develop a marketable skill in the use of an office transcribing machine and transcription techniques using word processing, with particular emphasis on legal terminology and transcription of legal documents. This is an OSE LAB course.

BUS 188D Voice Transcription, Medical Part I—2 Cr. Hrs. – Variable Contact Hrs. Prerequisites: BUS 180C, BUS 182C, and AH 101. This course enables the student to develop a marketable skill in the use of a transcribing machine and transcription techniques using word processing, with particular emphasis on medical terminology and radiology, including histories and physicals, consultation reports, and special procedures. This is an OSE LAB course.

BUS 188E Voice Transcription, Medical Part II—2 Cr. Hrs. – Variable Contact Hrs. Prerequisite: BUS 188D (Part I - minimum grade of C-). This course enables the student to develop a marketable skill in the use of a transcribing machine and transcription techniques using word processing, with particular emphasis on medical terminology, including the transcription of operative and pathology reports, discharge summaries, and autopsies. This is an OSE LAB course.

BUS 194 Business English Essentials—1 Cr. Hr. – Variable Contact Hrs. Prerequisites: Basic keyboarding competency and a basic knowledge of a word processing software package. This course is designed for the student with a desire to improve grammar and punctuation skills to aid in composing business correspondence and business reports. This course will also develop general proofreading skills needed for any printed copy. This is an OSE LAB course.

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BUS 200 International Business*—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. This is an introductory course designed to help students become familiar with, understand, and appreciate people from different cultures to promote a more effective basis for working together in the business world. Emphasis and application are placed upon business etiquette and business practice as they differ in various cultures. The course will explore reasons companies choose to enter the international market. Students will learn how companies use various strategic marketing approaches and government resources to expand their operations into the international market.

BUS 220 E-Business—3 Cr. Hrs. – 3 Contact Hrs. This course provides an overview of the aspects and opportunities of doing business on the Internet, by examining how e-business strategies differ from those of a land only based business. Topics include the history of business on the Internet, viability of a business using the Internet, what makes an effective web site, technology, marketing, payment, safety, security, customer service, regulation, ethics, intellectual property, and current issues facing businesses that use the Internet.

BUS 221 Small Business Management—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. This course is designed for those who wish to begin a small business as well as those already engaged in small business management. It deals with the nature of small business, the challenges and procedures of beginning a new business and analysis of the problems faced by ongoing small businesses. Emphasis will be placed on the practical problems and solutions facing small businesses in today's highly competitive society.

BUS 222 Fundamentals of Organizational Behavior—3 Credit Hours – 3 Contact Hours. Prerequisite: BUS 122. Organizational Behavior will revolve around the seven major competencies essential to managing an organization. Managing self, managing communication, managing diversity, managing ethics, managing across cultures, managing teams, and managing change.

BUS 260 Principles of Marketing—3 Cr. Hrs. – 3 Contact Hrs. The study of the task and importance of marketing, the movement of goods from producer to consumer, channels of distribution, marketing functions and institutions, the ultimate consumer, the industrial consumer, and the retailing and wholesaling systems.

BUS 263 Advertising Dynamics—3 Cr. Hrs. – 3 Contact Hrs. This course presents methods and techniques in modern advertising strategy, providing information to prepare an entire advertising campaign including selection of media, copywriting and advertising decision-making.

BUS 266 Quality Customer Service II—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: BUS 166 or instructor permission. Measurement, Plan, and Action. This course will take the basic concepts of Customer Service taught in BUS 166 and allow students to measure the outcome that it has on customers. With the results of these surveys, individuals will then be able to formulate a customer service plan and then put this plan into action.

BUS 273A Human Resource Management—3 Cr. Hrs. – 3 Contact Hrs. Overview of personnel relationships in a business institution covering areas of recruiting, selecting, training, evaluating, motivating, and rewarding of employees and the process involved in the accomplishments of such objectives.

BUS 274 International Studies in Human Resources*—1 Cr. Hr. – 1 Contact Hr. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. This course is taught via the Internet. Approximately one-half of the students will be from MCC and one-half will be from a college located in another country. Through researching and responding to questions related to case problems, students will become familiar with global issues that impact the field of Human Resources, and how various HR practices differ from country to country.

BUS 280C Word Processing Part II—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: BUS 180C (minimum grade of C-) and BUS 182C or instructor per-

mission. This course builds on the skills and concepts learned in the introductory course. All advanced features of Word XP/2002 are covered, including graphics, templates, and merging. BUS 280C is a hands-on course and provides students the opportunity to be well prepared for Microsoft Office Word Expert Certification. This is an OSE LAB course.

BUS 281C Office Procedures III - Desktop Publishing—3 Cr. Hrs. – Variable Contact Hrs. Prerequisites: BUS 182C (minimum grade of C-) and BUS 280C. This course is required by OSE students enrolled in an A.A.S. degree program. This course gives students the opportunity to integrate several Microsoft applications with an emphasis on desktop publishing features using simulated office projects and tasks. The focus is also on increased speed and accuracy. Communication skills, decision-making, and working without supervision are also reinforced in realistic applications. This is an OSE LAB course.

BUS 290CI Cooperative Internship Program—1 – 4 Cr. Hrs. Prerequisite: BCOM 101, and student must have a GPA of 2.5 or better and have completed a minimum of six credits in their major field of study and 30 hours of credit toward a degree. The Cooperative Internship Program is a paid or non-paid field work experience in business and/or industry within the student's major area of study. Variable credit may be earned dependent upon the number of work hours available from the employing organization. A student may sign up for as many internships as desired; however, the number of credit hours which can be applied toward a degree/certificate depends on the student's course of study and departmental requirements. The maximum number of hours of cooperative internship is 12 credit hours depending upon the program. This course is offered on a pass/no pass basis.

*Denotes course that contains an International Component.

BUSINESS AND TECHNICAL COMMUNICATIONS

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

BCOM 101 Business and Technical Communications*—3 Cr. Hrs. – 4 Contact Hrs. Prerequisite: English Placement Test and knowledge of any word processing software. This course is designed for students who choose to specialize in a business or technological field. All phases of the communication process will be covered with major emphasis placed on effective written communication for business and industry, including intercultural communication strategies. Revision and proofreading skills necessary for appropriate business and technical correspondence are emphasized, and students will develop abilities to organize thoughts, which will allow them to write clearly, accurately, and quickly. Business and technical writing styles, formats, and techniques will be covered. Lab hours outside of the scheduled class time will be necessary. A grade of "C" or better required to advance.

BCOM 102 Advanced Business and Technical Communications*—3 Cr. Hrs. – 4 Contact Hrs. Prerequisite: A grade of C- or better in BCOM 101 and knowledge of any word processing software. This course is designed for business and technical students and for people already in the work force who want to become proficient in business and technical communications. Major emphasis is placed on writing effective reports, manuals, instructions, and directions for specific audiences using appropriate style and format. While development of effective writing is the purpose of any English class, no other course concentrates on specific business and technical reporting styles, formats, and techniques. Revision and proofreading skills necessary for appropriate business and technical correspondence are stressed. Lab hours outside of scheduled class time will be necessary.

*Denotes course that contains an International Component.

CHEMISTRY

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

CHEMISTRY NOTE: Students who have not successfully completed Chemistry 100 must take a Chemistry Placement Test before enrolling in Chemistry 101. This test can be taken in the Testing Center. Test results will help place a student correctly into the MCC chemistry sequence.

CHEM 100 LEC Fundamentals of Chemistry—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: MATH 050 or its equivalent as determined by the Math Placement Test. Co-requisite: CHEM 100A. A course emphasizing fundamentals, symbols, formulae, nomenclature, oxidation states, atomic structure, the periodic law, writing and balancing equations, stoichiometry, solutions, and gas law problems.

CHEM 100A Fundamentals of Chemistry Laboratory—1 Cr. Hr. – 3 Contact Hrs. Co-requisite: CHEM 100 LEC. Laboratory theory and practice of topics included in CHEM 100.

CHEM 101 LEC General and Inorganic Chemistry—4 Cr. Hrs. – 4 Contact Hrs. Prerequisites: CHEM 100 or its equivalent as determined by the Chemistry Placement test and MATH 109 or 111 or equivalent. Co-requisite: CHEM 101A. Course topics are: the physical states of matter, structure of matter, bonding, quantitative relationships involving mass and energy, solutions, ideal and real gases, gas mixtures, oxidation-reduction, and elementary thermodynamics.

CHEM 101A General and Inorganic Laboratory—1 Cr. Hr. – 3 Contact Hrs. Co-requisite: CHEM 101 LEC. Laboratory theory and practice of topics included in CHEM 101.

CHEM 102 LEC General and Inorganic Chemistry—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: CHEM 101 and CHEM 101A. Co-requisite: CHEM 102A. Topics of the course are kinetics, chemical equilibrium, acid-base chemistry, nuclear chemistry, electrochemistry, some introductory organic chemistry as well as advanced topics from thermodynamics (including entropy, spontaneity and free energy). Successful completion of CHEM 102A is required for transfer credit in CHEM 102.

CHEM 102A General and Inorganic Laboratory—1 Cr. Hr. – 3 Contact Hrs. Co-requisite: CHEM 102 LEC. Course divided between elementary qualitative analysis and laboratory theory and practice of topics covered in CHEM 102 LEC.

CHEM 120 LEC General, Organic, and Biochemistry I—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: CHEM 100 and 100A or their equivalent and MATH 109 or 111 or their equivalent. Co-requisite: CHEM 120A. This is an introductory level general and organic course designed particularly for allied health science students. The course stresses the basic understanding of general and preparative level organic chemistry which is required in the allied health and biological sciences. The course curriculum includes a discussion on the electronic structure of atoms, chemical bonding, chemical reactions, rates of chemical reactions and the chemical equilibrium. Also discussed is bonding in organic compounds, e.g. covalent and pi bonding in aliphatic hydrocarbons and benzene rings and their derivatives, and the preparation and properties of various organic compounds and studies on their chemical reactivity.

CHEM 120A General, Organic, and Biochemistry I Laboratory—1 Cr. Hr. – 3 Contact Hrs. Co-requisite: CHEM 120 LEC. Laboratory theory and practice of topics included in CHEM 120.

CHEM 130 LEC General, Organic and Biochemistry II—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: CHEM 101 LEC, CHEM 101A. Co-requisite: CHEM 130A. This is an introductory level organic and biochemistry course designed for allied health science students. The course stresses the basic understanding of preparative level organic and biochemistry which is required in the allied health and biological sciences. The course curriculum includes a discussion of chemical bonding as well as study of the preparation of and reactivity of simple organic compounds, such as alcohol ethers, and car-

boxylic acids. The knowledge of basic organic chemistry obtained in this course is then used to develop an understanding of the structure of lipids, polypeptides, proteins and nucleic acids, and their important roles in metabolic processes.

CHEM 130A General, Organic and Biochemistry Laboratory—1 Cr. Hr. – 3 Contact Hrs. Co-requisite: CHEM 130 LEC. Laboratory theory and practice of topics included in CHEM 130.

CHEM 201E Organic Chemistry Lecture—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: CHEM 101 LEC, CHEM 101A, CHEM 102 LEC, CHEM 102A. Co-requisite: CHEM 201F. Course covers the nomenclature, preparation, properties and reactions of saturated and unsaturated hydrocarbons, aldehydes, ketones, acids and their derivatives. Stereochemistry and IR, ultraviolet spectroscopy are also introduced.

CHEM 201F Organic Chemistry Laboratory—1 Cr. Hr. – 4 Contact Hrs. Co-requisite: CHEM 201E. Laboratory work includes the synthesis of compounds representing typical reactions, together with study of the chemical and physical properties and IR spectra of the substances prepared. Both macro and microscale techniques are employed.

CHEM 202F Organic Chemistry Lecture—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: CHEM 201E and CHEM 201F. Co-requisite: CHEM 202G. A continuation of CHEM 201. Course covers nomenclature, preparation, properties and reactions of aromatic hydrocarbons, phenols, organic nitrogen and sulfur-containing compounds, carbohydrates, proteins and synthetic polymers. Nuclear magnetic resonance spectroscopy are also introduced.

CHEM 202G Organic Chemistry Laboratory—1 Cr. Hr. – 4 Contact Hrs. Co-requisite: CHEM 202F. Laboratory work includes Diels Alder and ylid reactions, a multi-step synthesis, qualitative analysis of typical organic compounds using spectral evidence as well as simple tests.

COLLEGE SUCCESS CENTER (SEE ENGLISH AND MATHEMATICS)

COLLEGE SUCCESS SEMINAR

CSS 100 College Success Seminar—2 Cr. Hrs. – 2 Contact Hrs. This course helps develop and reinforce the skills, abilities, and behaviors that promote academic and personal success: effective note taking, productive study skills, reading and remembering, critical thinking, library skills, basic computer skills, free career and job resources, stress management, relationships and winning attitudes.

COMMUNICATIONS

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

COM 100 Principles of Communication—1 Cr. Hr. – 1 Contact Hr. An introduction to the principles of communication. Study of perception, language, listening, and nonverbal interpersonal and intrapersonal communication.

COM 101 Oral Communications—3 Cr. Hrs. – 3 Contact Hrs. An introduction to the fundamentals of oral communications. Study and application of intrapersonal, interpersonal, small group, and public speaking. Class presentations are required.

COM 102 Mass Media—3 Cr. Hrs. – 3 Contact Hrs. To create an awareness and understanding of the history, structure and effect of mass media systems. (Includes newspapers, film, radio and television.)

COM 107 Introduction to Journalism—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: ENG 101 or permission of instructor. A basic course stressing the news-gathering techniques and news-writing style utilized by newspapers, radio and television. Includes an orientation to style, copy-reading, editing, headline writing, and page layout.

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COM 112 Audio Production—2 Cr. Hrs. – 2 Contact Hrs. A basic course in the fundamentals, principles, practices, and techniques of radio production. Laboratory hours by arrangement.

COM 113 Practical Radio—1-2 Cr. Hrs. – Variable Contact Hrs. Prerequisite: COM 112. A continuation of COM 112 designed to give the student the opportunity to develop skill and experience at a local radio station.

COM 201 Public Speaking—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: COM 101. A consideration of the principles of public speaking with emphasis on the theories of argumentation and persuasion. Class performances required.

COM 202 Human Communication—3 Cr. Hrs. – 3 Contact Hrs. A study of everyday communication and how it affects perceptions, self, and environment. Emphasis is on dyadic and small group interaction.

COM 203/ENG 208 Introduction to Cinema—3 Cr. Hrs. – Variable Contact Hrs. An introduction to the art of film; the course will include representative foreign and domestic films, at least one documentary film, and several (2-4) experimental and/or underground films. In addition to thematic study of films, the course explores the various elements of movie-making (i.e., script, light, sound, color, acting, directing, editing).

COM 210 Introduction to Debate—3 Cr. Hrs. – 5 Contact Hrs. An introduction to the theory and practice of modern debate.

COM 212 Television Production—3 Cr. Hrs. – 4 Contact Hrs. A basic course designed to acquaint the student with the principles, practices, and techniques of television production. Laboratory experiences will be provided in production, scripting and performance.

COMPUTER-AIDED DRAFTING AND DESIGN

CAD 100 Introduction to Drafting—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: None. Formerly known as DFT 100. The purpose of this course is to provide an introduction to drafting and CAD for students with no prior CAD/drafting experience. Emphasis will be placed on sketching skills and basic fundamentals of computer-aided drafting.

CAD 110 Introduction to Computer-Aided Drafting (2D)—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: CAD 100, high school drafting, or instructor permission. Formerly known as DFT 206A Computer-Aided Design. This course is an introduction to basic computer-aided drafting using AutoCAD™. Basic 2D CAD drafting skills will be the primary focus of this course.

CAD 120 Descriptive Geometry—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: high school drafting, CAD 100, or instructor permission. Formerly known as DFT 201Geometry of Drafting. Descriptive Geometry is the science of graphical representation and solution of spatial problems. Techniques used to develop solutions to point, line, and surface projections, intersections, and developments will be presented.

CAD 130 Drafting Standards and Conventions I—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: CAD 110. Formerly known as DFT 101 Fundamentals of Industrial Drafting. This course is an introduction to working drawings, orthgraphic projection, multi-view drawings, dimensioning, section views, auxiliary views, screw threads, and fasteners. ASME standards will be stressed throughout this course.

CAD 140 Drafting Standards and Conventions II—3 Cr. Hrs. – 6 Contact Hours. Prerequisites: CAD 130. Formerly known as DFT 102 Elements of Machine Drafting. This course involves advanced topics concerning ASME standards and conventions. Advanced dimensioning, tolerancing, and GD&T will be covered.

CAD 150 Blueprint Reading—3 Cr. Hrs. – 4 Contact Hrs. Prerequisite: MATH 040 or TMAT 101. Formerly known as DFT 103. This course is designed to teach students how to read and interpret engineering drawings.

CAD 151 Geometric Dimensioning & Tolerancing—3 Cr. Hr. – 3 Contact Hrs. Prerequisite: CAD 150 or instructor permission. Formerly known as DFT 207A. This course is designed to teach how to read, interpret, and apply geometric dimensioning and tolerancing per ANSI Y14.5M standards.

CAD 152 Residential Architecture—3 Cr. Hrs. – 6 Contact Hrs. Prerequisites: CAD 110. Formerly known as DFT 106A. This course involves the basic construction details for framed residential buildings.

CAD 153 Commercial Architecture—3 Cr. Hrs. – 6 Contact Hrs. Prerequisites: CAD 110. Formerly known as DFT 107A. This course involves the layout of a small commercial building, the basic structure being concrete and steel.

CAD 210 Parametric Design I; Part Modeling—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: CAD 130. Formerly known as DFT 212 Three Dimensional Computer-Aided Design. This course is an introduction to 3-D modeling and parametric design. Working and presentation drawings will be produced, and rendering fundamentals will be presented.

CAD 220 Parametric Design II; Assemblies—3 Cr. Hrs. – 6 Contact Hrs. Prerequisites: CAD 210. Formerly known as DFT 205 Production Drafting. This course covers advanced part modeling concepts and multiple part assemblies. Rendering and animation fundamentals will be presented.

CAD 230 Tool Design—3 Cr. Hrs. – 6 Contact Hrs. Prerequisites: CAD 220. Formerly known as DFT 204 Jig and Fixture Design. This course covers design of drilling jigs and machining fixtures commonly used in industry.

CAD 240 Team Design Projects—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: CAD 220. Working as a team, students will collaborate to design assigned products. Working and presentation drawings will be created, and manufacturing costs, materials, and tolerancing will be critical requirements. Class presentations will be required.

CAD 250 Introduction to SolidWorks®—3 Cr. Hrs. – 6 Contact Hrs. Prerequisites: CAD 110 or instructor permission. This course is an introduction to 3D modeling and parametric design using SolidWorks®. Working and presentation drawings will be produced, and rendering fundamentals will be presented.

CAD 251 Die Design—3 Cr. Hrs. – 6 Contact Hrs. Prerequisites: CAD 110 and CAD 130. Formerly DFT 203 Introduction to Die Design. An introductory course in the basic fundamentals of sheet metal stamping dies. A simple blanking die, a compound blank and pierce die, and a progressive die will be designed by the student.

COMPUTER INFORMATION SYSTEMS

CIS 100 Introduction to Personal Computers—1 Cr. Hr. – 1 Contact Hr. Prerequisites: none. This course introduces students to the proper use and operation of the Intel-compatible microcomputers using the Windows operating system. Students learn to create documents using word processing programs, create line art using graphic programs, send and receive e-mail with attachments, access the Internet using a browser, and use online course management software. Common system activities that include customizing the desktop, formatting disks, using file management procedures, and creating back-ups are a part of the introduction to personal computer operating procedures. This course was formerly offered as CIS100A: Introduction to Windows 3.1, CIS 100B: Introduction to Windows 95 and CIS100 W98 Introduction to Personal Computers Using Windows 95/98.

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CIS 101 Introduction to Electronic Spreadsheets—1 Cr. Hr. – 1 Contact Hr. Prerequisites: CIS 100 or proficiency with Intel-compatible microcomputer operations. Before enrolling in this course, you must demonstrate that you are ready to succeed. Suffixes: CIS101EW—Excel for Windows and CIS101LW—Lotus 1-2-3 for Windows. A "hands-on" course designed for people with little or no previous experience with electronic spreadsheets. The course begins with a blank worksheet and continues with steps and techniques in building a worksheet. Topics include worksheet, range, file, and print commands along with basic spreadsheet functions and design concepts. Students will apply all competencies needed for the Microsoft Office Excel Proficiency certification. This course was formerly offered as CIS101: Introduction to Lotus 1-2-3.

CIS 102 Intermediate Electronic Spreadsheets—1 Cr. Hr. – 1 Contact Hr. Prerequisites: CIS 101 or permission of instructor. Suffixes: CIS102EW—Excel for Windows and CIS102LW—Lotus 1-2-3 for Windows. In this course students use electronic spreadsheet commands to manipulate data within their worksheets and to create presentation graphics. Students sort data, develop simple macros and create data specific queries based on worksheet information. In addition, participants produce colorful pie charts, bar graphs, and line charts from data contained within their electronic spreadsheet. This course was formerly offered as CIS102: Intermediate Lotus.

CIS 109 Personal Computer Maintenance— 2 Cr. Hrs. – 2 Contact Hrs. Prerequisites: CIS 110 or CIS 120A or permission of instructor. This course provides students with the skills needed in the upgrading and maintenance of personal computers. Students learn how to install integrated circuits for memory into a computer's motherboard, upgrade video displays, upgrade disk controller boards, replace disk drives, and perform diagnostic tests on equipment. Common system problems are also covered as part of hands-on troubleshooting using Intel-based computers.

CIS 110 Computer Concepts—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: Before enrolling in this course, you must demonstrate that you are ready to succeed. A survey course on computer concepts and applications associated with the current generation of computer technology. In addition, technological trends and the potential impact computers have on careers and lifestyles are discussed. Computer Concepts also provides hands-on work with computers through the introduction of commonly used application packages—word processing, electronic spreadsheets, presentation graphics, image editing, and Internet browsing software within the Windows operating environment. Students interested in business applications and the introduction to computer programming should enroll in CIS 120A Introduction to Computer Information Systems.

CIS 115 Introduction to Word Processing—1 Cr. Hr. – 1 Contact Hr. Prerequisites: CIS 100 and BUS 179 or proficiency with Intel-compatible microcomputer operations. Before enrolling in this course, you must demonstrate that you are ready to succeed. Suffixes: CIS115WW—Word for Windows and CIS115PW—WordPerfect for Windows. Students in this course are introduced to word processing concepts and skills through hands-on experience. Common editing and formatting features are discussed, demonstrated, and then applied through the creation of professional-looking documents. Students with good typing skills have an advantage when learning to create, edit, and print documents using popular word processing software. Students will apply all competencies needed for the Microsoft Office Word Proficiency certification. This course was formerly offered as CIS111: Introduction to WordStar, CIS113: Introduction to Word and CIS115W: Introduction to WordPerfect.

CIS 119 Introduction to Presentation Graphics—1 Cr. Hr. – 1 Contact Hr. Prerequisite: CIS 100 or permission of instructor. Before enrolling in this course, you must demonstrate that you are ready to succeed. Suffix: CIS119PP—PowerPoint for Windows. This course is designed to introduce students to the fundamentals of creating, saving, and retrieving presentation using a computer; creating presentations using auto content help systems and style checkers; incorporating design elements

in constructing professional presentations; adding visual effects and animation to presentations; creating graphs and organizational charts; and packaging presentation for oral presentations. Students will apply all competencies needed for the Microsoft Office PowerPoint Expert certification.

CIS 120A Introduction to Computer Information Systems—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: Keyboarding or equivalent. Before enrolling in this course, you must demonstrate that you are ready to succeed. A business-oriented introduction to data processing principles and information systems. Course topics include the analysis and design of business computer systems, the components of a computer system, the capabilities and limitations of computer technology, and careers for the information age. Students work with computers by learning to operate Internet browsers, electronic spreadsheets, and database systems within the Windows operating environment along with programming computers using popular programming languages. Students are expected to be able to use word processing software before enrolling in this course. This course was formerly offered as CIS120: Introduction to Data Processing.

CIS 121 File Design and Utilities for Midrange Computers—1 Cr. Hr. – 1 Contact Hr. Prerequisite: CIS 120A. This course introduces students to the fundamentals of file design in a midrange computing environment. Students learn a midrange data definition language and use the utilities of a midrange operating system to create and maintain physical and logical files, database relationships, and queries.

CIS 129 Introduction to Technology—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: none. This course provides an "integrated" introduction to the current computer-based technologies of manufacturing. Students will develop a foundation of understanding through hands-on experience in: basic microcomputer operations, Computer-Aided Design (CAD), Computer-Aided Machining (CAM), Computer Numerical Control (CNC), robotics, Computer Automated Process Control, spreadsheets, and word processing. The course also promotes problem solving, group process decision-making, and communication skills.

CIS 130 COBOL Programming—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 120A or permission of instructor. This first course in COBOL covers the fundamentals of designing and developing structured programs, sequential and indexed files, input validation techniques, branching, and conditional structures. Output includes detail, summary, and exception reports. Students design, write, test and document COBOL programs within a midrange operating environment.

CIS 131 Operations and Commands for Midrange Computers—1 Cr. Hr. – 1 Contact Hr. Prerequisite: CIS 120A. This course introduces students to a midrange operating system. Students learn fundamental skills necessary to interface with the system, including using control language commands, prompting, and handling job queues, output queues, and messages. Students will also become familiar with the operating system's architecture, and will be briefly introduced to control language programming.

CIS 143 Introduction to Local Area Networks—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 110 or CIS 120A, CIS 193A or CIS 210 recommended. This course provides a comprehensive coverage of the skills necessary for network management. Topics include concepts related to the planning of network file systems, implementation of security, the installation of application software as well as more advanced concepts such as protocol support, server management and performance issues.

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CIS 153 Introduction to Database Management—1 Cr. Hr. – 1 Contact Hr. Prerequisites: CIS 100 or CIS 110 or CIS 120A or proficiency with Intel-compatible microcomputer operations. Before enrolling in this course, you must demonstrate that you are ready to succeed. Suffixes: CIS153AW—Access for Windows and CIS153PW—Paradox for Windows. This course is designed to be an introduction to database management software. Students taking this class are taught to create and manipulate databases of their own design. The development of user-oriented queries, forms and printed reports using database data is also discussed in detail. This course was formerly offered as CIS153: Introduction to dBase.

CIS 157 Introduction to the Internet—1 Cr. Hrs. – 1 Contact Hrs. Prerequisite: CIS 100 or CIS 110 or CIS 120A or permission of instructor. This course is designed to introduce students to the wide area network called the Internet. All of the skills required to navigate the Internet to find and retrieve information in an easy to understand format are covered. Students also learn how to communicate with other Internet users. This course provides hands-on experience using popular browser software.

CIS 160 Programming Small Computers in BASIC—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: CIS 120A or CIS 163 or permission of instructor. Suffixes: CIS160VB—Visual Basic. This course is designed to explore the BASIC programming language through the introduction of mathematical computations, data handling and editing, branching, subroutines, array manipulations and sequential file processing. Students use BASIC interpreters to design, write, test and document programs.

CIS 163 VB Visual Basic for Applications—1 Cr. Hr. – 1 Contact Hr. Prerequisite: CIS 100 or CIS 110 or CIS 120A or proficiency with Intel-compatible microcomputer operations. This course is designed to be an elementary introduction to the BASIC programming language and editor. Students taking this class are taught to create programs that interact with the user. CIS 110 students with an interest in learning to program are advised to take this class. This class also serves as a prerequisite to CIS 160.

CIS 165 FORTRAN Programming—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: CIS 120A or CIS 125 or CSCI 125 or permission of instructor. A general introduction to the concepts, basic features, capabilities, and limitations of the FORTRAN programming language. Students will write code to perform computations, data manipulation, and file processing. Emphasis is placed on the development of structured programs, thorough program testing, and user-oriented documentation. Offered on demand or as independent study.

CIS 167 Introduction to Internet Animation—1 Cr Hr. – 1 Contact Hr. Prerequisite: CIS 100, CIS 110, or CIS 120A. Suffix: CIS 167FL--Flash. This course provides students with hands-on experience creating web-based animation using an animation editor. Topics include working with the various tools and objects available in the editor, creating and manipulating multi-layered graphics, an introduction to scripting, working with animation frames and tweening, and publishing the graphics for use on the Internet.

CIS 170 RPG Programming—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 120A or permission of instructor. This course covers fundamentals of designing and developing computer programs written using the RPG IV programming language. Topics include program logic, arithmetic operations, decision-making stuctures, external input and output definitions, sequential processing of batch files, and an introduction to interactive programming. Students design, wirte, test and document RPG IV programs within the IBM iSeries (formerly known as the AS/400) oeprating environment.

CIS 177 Introduction to HTML Editors—1 Cr Hr. – 1 Contact Hr. Prerequisites: CIS100 or CIS110 or CIS120A. Suffixes: CIS177FP - FrontPage and CIS177DW – Dreamweaver. This course introduces students to creating and managing web sites and pages through the use of an HTML editor. Students will learn to maintain a site by utilizing an HTML editor to create and edit HTML documents. This includes changing text properties, adding and

deleting design elements, creating hyperlinks to other web pages and inserting multimedia objects. Students learn to work with HTML code through class demonstration and completing assignments.

CIS 183 Networking Technologies – 3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: CIS 110 or CIS 120A. CIS 143 recommended. This course focuses on essential issues related to data communications and networking technologies. Topics include established networking standards and terminology, the OSI model, physical and logical network topologies, the use and function of various networking hardware, media, protocols, and the fundamentals of internetworking.

CIS 185 C Programming—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 120A or permission of instructor. The major elements of the C programming language are introduced through a series of applications featuring C program structure, variables, integer and floating point arithmetic, looping, conditionals, arrays, functions, strings, pointers, structures and sequential file syntax. Syntactical, structural and procedural differences of C++ object-oriented methodologies are integrated into the course after a firm foundation in standard C is presented.

CIS 187 Multimedia Digitizing—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 100 or CIS 110 or CIS 120A or permission of instructor. This course serves as an introduction to many of the multimedia devices that allow the acquisition, manipulation, and storage of non-text media. Devices and topics include full-color, flatbed scanners, slide and negative scanners, frame-grabbers, digital camera use, audio digitizing, video digitizing, Zip drives, USB Flash drives, and CD-DVD burners. The class uses state of the art devices and software to manipulate the digital data. Additional costs include a pair of stereo headsets, blank CD and DVD disks, a blank VHS videotape, and removable read/write media as dictated by the current syllabus. This course was formerly offered as CIS297DD: Introduction to Digital Data.

CIS 193A Introduction to Operating Systems—1 Cr. Hr. – 1 Contact Hr. Prerequisite or Co-requisite: CIS 110 or CIS 120A. This course surveys disk operating systems for Intel-compatible microcomputers. Students learn to take advantage of a microcomputer's disk operating system by working with common commands and utility programs. In class discussions and demonstrations will focus on terms and basic concepts of memory management, hard disk management and personalizing computer operations.

CIS 195 Assembler Programming—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: CIS 120A and at least one programming course or permission of instructor. Students should be proficient with another programming language before enrolling in this course which covers the use of a low-level command language. Students write instructions for mathematical computations, data handling, branching, looping, indexing and other assembler operations.

CIS 200 Comprehensive Windows—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: CIS 100 or CIS 110 or CIS 120A or permission of instructor. Suffix: CIS200B—Windows 95/98. This course presents a thorough treatment of Windows concepts and skills by providing discussion, demonstrations and hands-on student/software interaction. Class content ranges from basic introductory skills to customization of an individual student's Windows environment. Topics include in-depth discussion of Windows' built-in applications, file management, object linking and embedding, use of peripherals, and error analysis and recovery.

CIS 209 Personal Computer Maintenance II (A+ Certification) — 3 Cr. Hrs. – 5 Contact Hrs. Prerequisite: CIS 109, ELTR 109 or permission of instructor. This course is designed to take the successful PC Maintenance student to the next, more in-depth level of PC maintenance and repair. The Web presentations, text assignments, demonstrations, and related CD-ROM teaching materials will help prepare the student to be competent to pass the A+ Certification written exam. The related labs will provide the needed hands-on experience to develop system understanding and competent analysis and repair procedures. Lab experience will include the building of a complete computer system, with troubleshooting and analysis of the system. It is recommended that CIS 143 be taken to provide more network background before taking the A+ exam.

CIS 210 Operating Systems Concepts— 3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 110 or CIS 120A or CIS 193A or permission of instructor. This course takes a functional view of the essential concepts relative to computer operating systems. Topics include principles of memory management, pro cessor management, concurrent processes, device management, file management, and system management. The course incorporates how these essential principles are applied to Personal Computer (PC) operating systems in practice with a hands-on approach. Primary operating systems studied included MS-DOS and Windows operating systems.

CIS 217 Introduction to JavaScript Programming— 1 Cr. Hr. – 1 Contact Hr. Prerequisites: CIS 257 and one computer programming class (CIS 125, CIS 130, CIS 160, CIS 170, or CIS 185). Students will learn how to program by using JavaScript. Students will learn how to write JavaScript programs that use the latest language techniques. Students will also learn how to write programs that are compatible with previous versions of the language and are cross-browser compatible. They will also be required to implement scripts on a web page and publish a web site on the Internet using File Transfer Protocols (FTP).

CIS 220 E-Business— 3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: none. This course provides an overview of the aspects and opportunities of doing business on the Internet, by examining how e-business strategies differ from those of a land only based business. Topics include the history of business on the Internet, viability of a business using the Internet, what makes an effective web site, technology, marketing, payment, safety, security, customer service, regulation, ethics, intellectual property, and current issues facing businesses that use the Internet.

CIS 230 Advanced COBOL Programming—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 130. Advanced COBOL programming concepts using a midrange operation environment are introduced as students design, write, test and document batch and interactive programs. Topics will include random file processing, file manitenance, interactive programming (includes screen design), arrays, and tables. Functional programs that are well-designed and documented are the main emphasis of the course.

CIS 243 Telecommunications—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: CIS 110 or CIS 120A, CIS 143 or CIS 183 recommended. This course provides an introduction to telecommunication concepts and network configurations. Students learn standard procedures and protocols for data transmission over various communication channels and study the components of a telecommunications system. Network architectures and designs are examined through the use of discussion and case studies.

CIS 250 Developing Information Systems—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 120A and previous (or current) enrollment in an advanced level programming course. This course reviews and applies traditional systems development methodologies implemented by project teams. Classroom discussion centers on the design and development of user-oriented information systems. Course content includes feasibility studies, systems analysis, design concepts, and implementation strategies.

CIS 251 Database Programming for Midrange Computers—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 121. This course covers a midrange integrated database management system. Students learn fundamental relational database modeling and implement efficient solutions for storing and manipulating large volumes of data. Through the implementation of these models, students will become proficient with using DB2 Universal Database, Structured Query Language, and trigger programs.

CIS 253A Database Design and Implementation—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: CIS 153 and a programming course. This course provides students with systems development experience within a database environment. Fourth-generation languages, report generators, and other system design tools are used in conjunction with case studies to provide real-life applications of the systems development process.

CIS 257 Designing Internet Applications—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 110 or CIS

120A or CIS 157 or permission of instructor. Before enrolling in this course, you must demonstrate that you are ready to succeed. This course is designed to help students learn the fundamentals of the Hyper Text Markup Language (HTML), Extensible Hyper Text Markup Language (XHTML), and web page design. Students will learn how to use Internet browsers, graphic editors and to markup text, graphics, and pictures for the Internet using text editing software, like Microsoft Notepad. They will also learn to create a web page and publish a small web site on the Internet using File Transfer Protocols (FTP). Students will be expected to critique other web pages and time permitting, there will be demonstrations of Javascript, animated GIF files, and other Internet tools.

CIS 260 Advanced BASIC Programming—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 160. Suffixes: CIS260VB—Visual Basic. Advanced BASIC programming concepts are introduced as students design, write, test and document a system of interactive programs. This course emphasizes the interrelationship between programs and data in a business environment. The use of utility programs, string manipulations, file-handling routines for updating random files and screen design utilities are introduced along with design considerations for user-oriented input, output and documentation.

CIS 271 Advanced RPG Programming—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 170. Students taking this course write interactive RPG IV programs. Structured diesign and coding techniques are emphasized as students design screen formats, online queries, and file maintenance routines for relational databases. Students design, write, test, and document RPG IV programs within the IBM iSeries (formerly known as the AS/400) operating environment.

CIS 277 Internet Site Administration—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: (CIS 110 or CIS 120A) and CIS 193A and CIS 257. Suffixes: CIS277LA – Linux and Apache and CIS 277MS – Microsoft's Networking Technologies. This class is designed to teach students how to setup and administer an Internet Web server using popular operating system and server software. Students will set up their own Web server by installing the operating system software, establishing user accounts and rights, creating designated work spaces, and installing appropriate server software. In addition, students use the server software to establish an Internet domain, support HTML documents, and run server side programs.

CIS 280 Java Programming—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 185. This course addresses advanced level object-oriented programming techniques using the Java programming language. Coverage includes construction of basic Java programs, use of input/output and other common instance and static methods, unique syntactical constructs, conditions and iteration, differences between the C++ environment and the Java environment, the acquisition and installation of the Java compiler and runtime platform, and the interpretation of common errors and warnings. These concepts are presented through the use of extensive examples and assignments.

CIS 283 Advanced Local Area Network Administration – 3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: CIS 143 and either CIS 183 or CIS243, or permission of instructor. This course covers the fundamentals of designing and installing network hardware and software for a small LAN. Topics include network adapters and cabling, disk expansion, common network problems, and troubleshooting. Students are provided with a series of lecture and lab exercises intended to develop ability to design, implement, troubleshoot and solve network problems.

CIS 285 Advanced C Programming—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 185. This course concentrates on the design, writing, and testing of specific utility programs, and the creation of a multi-program, user-oriented, semester programming project. The student must demonstrate a thorough knowledge of the application and the C/C++ programming tools required to create it. Structures, unions, pointers, recursive calls, sorting techniques, sequential and binary searches, stack considerations, operating system calls, advanced-level memory management, accessing memory-mapped video and window creation are used as tools for creating projects. Random data file creation and updating techniques are discussed.

CIS 287 Personal Computer Digital Video Editing—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 110 or CIS 120A or permission of instructor. This course serves as an introduction to video editing on the PC. Topics covered include PC hardware and software selection, construction, configuration, and installation required for video editing, capturing, codecs, editors, audio editing, cutting scenes, moving scenes, manipulating the timeline, rendering, transitions, crossfades, fade to and from black, basic and advanced titling, graphics, overlays, keying, manipulating still images, interlace removal, slow and fast motion, color balance, brightness, contrast, and exporting projects from computer to videotape. Additional costs include a pair of stereo headsets, blank CD and DVD disks, digital and analog video tapes, and removable read/write media as dictated by the current syllabus.

CIS 293 Contemporary Issues In Networking Design—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: CIS 283 and all other courses in the Networking curriculum or permission of the instructor. This course is offered as a topics seminar where issues will be examined that concern a more advanced application of computer networking. It is a capstone class where students will apply the summation of their knowledge from all previous networking courses to the study and analysis of the chosen topics. This course is designed as a research and discussion course.

CRIMINAL JUSTICE

CJ 101 Introduction to Law Enforcement —3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. A study of the organization and jurisdiction of local, state, and federal law enforcement, judicial, and correctional systems. Also includes the history and philosophy, career opportunities and qualifying requirements, terminology and constitutional limitations of the system.

CJ 102 Police Administration I—3 Cr. Hrs. – 3 Contact Hrs. A study of the principles of police administration and organization; administration of staff units; function and activities of Criminal Justice Agencies.

CJ 104 Criminology—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. The study of deviance and society's role in defining behavior. Theories of criminality and the economic, social, and psychological impact of crime, victimization, and relationship between statistics and crime trends.

CJ 109 Crime Prevention and Juvenile Delinquency —3 Cr. Hrs. – 3 Contact Hrs. A practical study of the history and development of juvenile justice theories, procedures and institutions. Problems of juvenile delinquency, theories of causation and prevention programs. Police prevention programs, juvenile courts, federal, state and local treatment and prevention.

CJ 110 Defensive Tactics—2 Cr. Hrs. – 4 Contact Hrs. Prerequisites: Passing pre-admission physical test, student must be enrolled in a certified police academy or be a sworn peace officer. The focus of attention in this course will be the use of basic techniques. Each technique demonstrated by the instructor will have a variety of uses. All techniques will be designed to incapacitate the object of focus as quickly and professionally as possible. The importance of documentation followed by court testimony techniques will be strictly emphasized throughout the entire course. 1 lecture hour / 3 lab hours.

CJ 112 Emergency Vehicle Operations—1 Cr. Hr. – 1 Contact Hr. Prerequisites: Valid driver's license, enrolled in a certified police academy or be sworn officer or certified EMS provider. This course is designed for Emergency and Commercial vehicle operators. The course will emphasize the legal aspects of emergency vehicle operation, vehicle dynamics, vehicle maintenance, vehicle inspections and human dynamics. The practical exercise of the course will be conducted at an outdoor site, where the student will practice, then demonstrate their individual proficiency in operating the type of vehicle appropriate for their individual operation. The outdoor course will be set up in conformance with the recommended National Law Enforcement Driver's Training Guide and Federal Emergency Management Agency Training Guide. 1 hour lecture.

CJ 120 Firearms Certification—2 Cr. Hrs. – 4 Contact Hrs. Prerequisites: Student must be registered as part of a law enforcement or corrections program. This course will prepare a student to use firearms safely. The course will be conducted in compliance with the curriculum set forth by the National Rifle Association Police Practical Course. It will cover areas such as semiautomatic handguns, shotguns, use of force, safe handling of guns, ballistics, malfunctions and overall safety. 1 hour lecture and 3 hours lab.

CJ 122 The Police Patrol Function—3 Cr. Hrs. – 5 Contact Hrs. Prerequisites: Student must be enrolled in the Law Enforcement AAS degree Program. A study of the history, theory, duties and responsibilities of the patrol division; communications, development of observational powers, care and use of protective weapons, patrol vehicles & other equipment. Handling of emergency request for assistance, vehicle stops, burglary, robbery, sex offenses, the mentally ill and other kinds of situations. 2 hours lecture / 3 hour lab.

CJ 123 Traffic Enforcement—3 Cr. Hrs. – 5 Contact Hrs. Prerequisites: Student must be enrolled in the Law Enforcement AAS degree program. This course provides the student with the knowledge needed to analyze traffic control problems and the fundamentals of traffic accident investigations. The course will include motor vehicle laws in the state of Michigan. 2 hours lecture / 3 hours lab.

CJ 130 Tactical Language—3 Cr. Hrs. – 3 Contact Hrs. The class focuses on a basic introduction to tactical Spanish with an emphasis on commands and informational phrases for the Emergency and Law Enforcement personnel. This allows them to handle situations, to acquire information about what they see, and to read necessary information to others in Spanish. 3 hours lecture.

CJ 193 HAZ-MAT Communications—1 Cr. Hr. – 1 Contact Hr. A study of the 29 Codes of Federal Regulations (CFR), Section 1910.1200 and the Hazard Communications (Right to Know) Regulation. The course focuses on the impact these regulations have on the occupational workforce. Requirements for the implementation and monitoring of the regulations are examined. Also included are the studies of Federal Regulations cited in Section 301, Title III, Superfund Amendments and Reauthorization Act (SARA) of 1968, Right To Know Act of 1968. 1 lecture hour.

CJ 201 Criminal Law—3 Cr. Hrs. – 3 Contact Hrs. The study of the philosophy of legal sanctions and their historical development, from common law to modern American criminal law. Includes the judicial process, classification of crimes, elements of and parties to crimes, general definitions of crimes, and common defenses.

CJ 202 Police Administration II —3 Cr. Hrs. – 3 Contact Hrs. The study of theories, procedures and methods of operation of public police with emphasis on discretionary powers. This course is a study of the administration of police line operations; including theories, types and methods of patrol, liaison between units, enforcement policy, manpower distribution and analysis of operations. We will discuss the operation of the detective and juvenile divisions and such problems as organized crime, vice, etc. Also includes a review of career opportunities and current trends in law enforcement.

CJ 204 Criminal Investigation —3 Cr. Hrs. – 3 Contact Hrs. An introduction to criminal investigation procedures including theory of investigation, conduct at crime scene, collecting and preservation of criminal evidence. Methods in the use of police science laboratory, fingerprinting, ballistics, documents, report writing and procedures in the courtroom are covered. Additionally, study in case preparation, interviewing, and basic investigative techniques will be included.

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CJ 205 Interrogation and Case Preparation —3 Cr. Hrs. – 3 Contact Hrs. Comprehensive study of Miranda decision; principles of psychology of questioning, interrogation of suspects, interviewing witnesses and informants, preparation of statements, declarations and confessions, problems in case preparation, and mechanical means of deception.

CJ 206 Evidence and Criminal Procedure —3 Cr. Hrs. – 3 Contact Hrs. This course deals with rules of evidence of particular import at the operational level in law enforcement and with criminal procedures in important areas such as arrest, force and search and seizure. An introduction to major court holdings, procedural requirements that stem from these holdings, and their effects on daily operations of the criminal justice system.

CJ 207 Police and Community Relations —3 Cr. Hrs. – 3 Contact Hrs. The primary objective of this course is to acquaint the student with the need for the police to become a part of the community rather than apart from it. An examination of the attitude of people towards the police, as well as the feelings of the police about the community they are sworn to protect will be made. Public relations will be distinguished from community relations. The image of the police will be examined as well as the current methods being used by police agencies to better their relations with the community. A study of the police officer's role in attaining and maintaining public support. Including recognition and understanding of community problems, community action programs, methods of coping with crisis situations, victimology, ethics and minority cultures, environments, crime prevention and police operations.

CJ 208 Police Science Laboratory I —3 Cr. Hrs. – 3 Contact Hrs. General course in police laboratory techniques: photography, recording the crime scene, collection and preservation of evidence and fingerprints, development of studies in the area of firearms, hair microscopy and chemistry.

CJ 250 Corrections I —3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. History, development and philosophy of corrections; tribal and biblical antecedents; Western adaptations; developments in the U.S.; current forms and approaches to include probation, parole, medium security concepts; the work of related agencies.

CJ 251-A Legal Issues in Corrections—3 Cr. Hrs. – 3 Contact Hrs. Exploration of probation, sentencing and philosophies, legal concepts applicable to probation, parole, sentencing and incarceration; objectives of the correctional process and factors influencing correctional decision-making.

CJ 252-A Correctional Institutions/Facilities—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Before enrolling in this course, you must demonstrate that you are ready to succeed. This course is designed to provide a more in-depth study of corrections as part of the Criminal Justice System and specific discussions of the evolution of corrections, organization and development of jails in America, alternatives to incarceration, probation, parole and the concept of community-based corrections. Emphasis will be placed on community-based corrections and corrections as it could be in the year 2000. The course will provide the student with a background for coursework in corrections. Particular emphasis will be placed on the Michigan Department of Corrections with some discussions of alternatives to the current correctional philosophy in Michigan.

CJ 257 Client Relations in Corrections—3 Cr. Hrs. – 3 Contact Hrs. This course is designed to provide a basic understanding of the meaning and function of culture, the impact and meaning of discrimination and discussion of the various minorities represented in the State of Michigan. Attitude formation, including such topics as self-perception, human relations and group and peer pressure will be studied. Affirmative action will be highlighted.

CJ 258-A Client Growth and Development—3 Cr. Hrs. – 3 Contact Hrs. This course is designed to examine the growth and development of the correctional client, with particular emphasis on early environment, psychological and sociological factors. Specific problems such as substance abuse, sexual

deviations, medical disorders and mental disorders will be discussed. Intervention strategies will be considered.

CJ 290CI Criminal Justice Cooperative Internship—Variable 1-4 Cr. Hrs. Prerequisites: The student must have a GPA of 2.5 or higher. The student must have completed a minimum of 6 credit hours in their major field of study and 30 credit hours toward a degree. The Cooperative Internship Program is a paid or non-paid field work experience in the industry within the student's major area of study. Variable credit (1-4 cr. hrs. per semester) may be earned dependent upon the number of work hours available from the employing organization. A student may sign up for as many internships as desired, however, the number of credit hours which can be applied towards a degree/certificate depends on the student's course of study and departmental requirements. The maximum number of hours of cooperative internship is 12 credit hours depending upon the program. This course is offered on a pass/no pass basis.

CJ 298 Instructor Skill Development—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: Student must be a certified law enforcement or corrections officer, currently employed by an agency. This course is designed to impart a wide range of teaching skills, concepts, and techniques specific to the law enforcement trainer. Topics covered include adult learning, training needs, research methodology, instructional methodology, and evaluation techniques. 3 lecture hours.

DANCE

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

DNC 100 Modern Dance I—1 Cr. Hr. – 2 Contact Hrs. Basic exercises and technique for the beginning student in modern dance. Movement, rhythmic and compositional forms will be studied.

DNC 101 Modern Jazz Dance I—1 Cr. Hr. – 2 Contact Hrs. Basic dance exercises, technique, and jazz sequences will be taught in this course. Students will gain the ability to recognize appropriate music and various phases of jazz dance history.

DNC 102 Ballet I—1 Cr. Hr. – 2 Contact Hrs. Beginning and intermediate level Ballet dance exercises, techniques, and Ballet dance sequences will be taught in this course.

DNC 106 Social Dance—1 Cr. Hr. – 2 Contact Hrs. Beginning dance steps and techniques relating to social dance, including ballroom and contemporary novelty dances. A study of the history, music and rhythms that are related to social dance.

DNC 200 Modern Dance II—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: DNC 100 or permission of instructor. Intermediate work in modern dance composition and technique. History of modern dance is also studied as well as different dance forms used in composing dance.

DNC 201 Modern Jazz Dance II—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: DNC 101 or permission of instructor. Continuation of beginning and intermediate level jazz dance exercises, techniques and sequences will be taught in this course.

DNC 213 Modern Jazz Dance III—2 Cr. Hrs. – 4 Contact Hrs. Prerequisite: DNC 201 or permission of instructor. Continuation of intermediate and advanced level modern jazz exercises, techniques and sequences will be taught in this course.

DNC 218 Dance Choreography and Design—2 Cr. Hr. – Variable Contact Hrs. Prerequisite: DNC 100 or permission of instructor. Application of choreographic knowledge in the design of a dance work to include the principles of dance composition, direction and performance.

ECONOMICS

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

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ECON 101 Principles of Economics*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: MATH 40. A course appropriate for economics, social science, business administration, and engineering majors, and any other students interested in how their economic system works. This is a course in macroeconomics, which attempts to show how a market system determines levels of employment and unemployment, and the factors affecting inflation and economic growth. Various theories of the macro economy are examined. Government attempts at economic stabilization, including the role of the Federal Reserve System are discussed.

ECON 102 Principles of Economics*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: MATH 40. A course in microeconomics, especially suited for social science, business and engineering majors. Various types of competition and how these affect decision making by the firm are discussed. Price and output determination by the firm are also examined. Other topics include the pricing of resources, the role of trade unions, international trade and finance, income distribution and poverty, and the basic characteristics of the economic systems of selected countries other than the United States.

ECON 130 Money and Banking—3 Cr. Hrs. – 3 Contact Hrs. A course appropriate for anyone interested in the role of money in an economic system. This course examines the working of the banking system and the role of the Federal Reserve System. The historical development of money and the U.S. banking system is examined. Some attention is given to the various types of financial institutions, practical bank management, government efforts at economic stabilization and developments in our monetary and banking systems.

*Denotes course that contains an International Component.

EDUCATION

ED 101 Introduction to Education—2 Cr. Hrs. – 2 Contact Hrs. A comprehensive survey of preschool, elementary and secondary teaching, stressing objectives and philosophy, student guidance, curriculum study, and methods of teaching. Opportunities to explore professional education as a career, directed observation, and professional readings are included. Twenty-five hours of field work are required.

ED 103 Constructive Play for the Developing Child—1 Cr. Hr. – 1 Contact Hr. This course will examine the dynamics of play relative to early childhood education. We will discover how young children develop through play. Students will learn to recognize play as a learning medium, study educational theories of play, and learn how to create a meaningful play environment. Fifteen hours of field work are required. (May be used towards CDA renewal.)

ED 106 Introduction to Outdoor Education—2 Cr. Hrs. – 2 Contact Hrs. This course presents information, techniques and activities for exploring the positive relationships between the individual and the natural environment of the outdoor world. It provides students hands-on learning experiences and teaches learning functions of community living and cooperation away from home. Emphasis is placed upon living and learning with children in an outdoor educational environment. Twenty-five hours of on-site field work are required. (May be taken for CDA renewal.)

ED 107 Child Care: Operating a Successful Business—3 Cr. Hrs. – 3 Contact Hrs. Existing licensed centers and child care providers will develop an understanding of administrative and business responsibilities, record keeping, taxes, curriculum development, personnel, parent involvement and the developmental growth needs of child care setting. Twenty-five hours of field work are required. (May be used for CDA renewal.)

ED 108 Creativity in the Classroom—2 Cr. Hrs. – 2 Contact Hrs. Creativity will be explored as a potential/need of every human person, as a necessity for living fully in today's world, and as an essential element in the education of children. Our model for education will be the creative learning process. A philosophical foundation and practical ideas/materials for stimulating creativity will be provided in this course. Twenty-five hours of field work are required. (May be used for CDA renewal.)

ED 109 The Parent-Child Connection—3 Cr. Hrs. – 3 Contact Hrs. This course will develop an understanding of the parenting process and present content and research basic to the fundamental concepts, issues and skills in child rearing. Twenty-five hours of field work are required. (May be used for CDA renewal.)

ED 111 Introduction to the Education of Young Children—3 Cr. Hrs. – 3 Contact Hrs. **Prerequisite: An interview with the program coordinator**. The course is designed to introduce students to the field of early childhood education, and to the certificate programs offered by the Education Department. The education of young children will be examined from a broad perspective. Various philosophies, program models and current trends in early childhood education will be emphasized. Criteria for "safe", "healthy", exemplary early childhood programs, developmentally appropriate practices, and learning environments – including multicultural and special needs – will be examined. Training prescriptions will be developed for all students. Field trips to day care centers or preschools, and twenty-five hours of field work are required. **ED 111 is a prerequisite for all students seeking the CDA Certificate.**

ED 116 Children's Poetry—1 Cr. Hrs. – 1 Contact Hr. Formerly ED 206. Poetry will be reviewed as a natural phenomenon in the lives of children. It is seen as necessary for living fully in today's world and is an essential element in the education of children. The course will focus on the nature of poetry as it relates to the developmental stages of childhood. Subject matter, intent, sensory relationships, mechanics and form will be explored. Fifteen hours of field work are required. (May be used for CDA renewal.)

ED 117 The Whole Child—3 Cr. Hrs. – 3 Contact Hrs. This on-line and video series covers topics of central importance to the education and development of your children. Watch the interaction of teachers and children in a variety of settings. Real caregivers work with children from multi-cultural backgrounds and all developmental levels. (Computer/Internet skills are needed.) Twenty-five hours of field work are required. Before enrolling in this couse, you must demonstrate that you are ready to succeed.

ED 118 Creative Curriculum for Children—3 Cr. Hrs. – 3 Contact Hrs. Formerly ED 215. Designed for home day care and MI School Age credential. Program development will be offered in the areas of science, social studies, art, music, outdoor environment, language arts, math, multi-cultural learning, and reading. Instructional techniques, curriculum materials, guidance, school/family relationships, and community resources will be investigated. Twenty-five hours of field work are required. (May be used for CDA renewal.)

ED 120 Early Childhood Education —3 Cr. Hrs. – 3 Contact Hrs. Formerly ED 205. An introduction to current practices in early childhood education as related to the total growth and development of young children. Professional staff responsibility, program development, scheduling, evaluation and instructional techniques will be investigated. Curriculum materials, guidance, school-family relationships, community resources and significant child development research will be explored. Twenty-five hours of field work are required. Before enrolling in this couse, you must demonstrate that you are ready to succeed.

ED 200 Literacy Birth to Five—3 Cr. Hrs. – 3 Contact Hrs. Emphasis will be placed on developing literacy in the young child age 0-5 through appropriate practices, processes, and contexts. Theory and Practice will be linked for success; and Evaluating and Directing Learning will occur. Twenty-five hours of field work are required.

ED 202 Teaching of Reading in the Elementary School*—3 Cr. Hrs. – 3 Contact Hrs. A study of current philosophies, instructional strategies and materials in the teaching of reading from preschool through middle school grades. Lectures, discussions, readings, research, workshops, and classroom observation/participation will be included. Particular interests in reading at specific age/grade levels may be pursued in depth. Twenty-five hours of field work are required.

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ED 207 Principles of Elementary Education—3 Cr. Hrs. – 3 Contact Hrs. Appropriate for the elementary school curriculum, this course will include educational philosophies, learning theories, teaching strategies, teaching and support staff responsibilities, parent/community/volunteer involvement, curriculum modeling, trends and innovations, behavior management, scheduling and evaluation, multi-cultural learning opportunities, developmental and special learning and growth needs of children with different learning abilities, special topics, and current research. Particular interests at specific age/grade levels may be pursued in depth. Twenty-five hours of field work are required.

ED 210 Child Care and Guidance—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Departmental approval. This is the culminating course in the early childhood education sequence. Instruction is provided in competency and guidance techniques for the young child. Students will write, have proofed and finalize the six "competency goals". These are required for the credential, in preparation for the final evaluation. Their autobiography and an individualized training prescription will be written by the field advisor following the on-site observation. Counseling, evaluations and recommendations for the completion of the program are provided. A twenty-five hour internship is required.

ED 211 Behavior Management—3 Cr. Hrs. – 3 Contact Hrs. A comprehensive review of the theory and practice of behavior management in applied settings. Emphasis will be placed on the development of entry-level competency in behavior analysis and treatment. This will include, but not be limited to, an introduction to the principles of behavior modification as well as the theories and techniques associated with the psychodynamic, biophysical, and environmental perspectives as they relate to the broad field of behavior management. Twenty-five hours of field work are required. (May be used for CDA renewal.)

ED 214 Infants and Toddlers—3 Cr. Hrs. – 3 Contact Hrs. The development of the newborn to 36-month-old child is examined in this course. Current research practices and publications of leading child specialists are reviewed as they relate to the cognitive, language, social, emotional and sensorimotor growth of the infant and toddler. Twenty-five hours of field work are required.

ED 216 Educating the Exceptional Child and Young Adult—3 Cr. Hrs. – 3 Contact Hrs. A comprehensive survey of professional research, practice, trends and laws in the education of people with special needs. Areas of impairment studied include mental, hearing, visual, physical, emotional, and learning disabled. The exceptionality of gifted and talented are examined as well. Twenty-five hours of field work are required. (May be used for CDA renewal.)

ED 217 Creative Dramatics—1 Cr. Hr. – 1 Contact Hr. This course is an introduction to creative dramatics appropriate for the classroom, home and community. The goals and concerns of creative drama will be explored as well as methods for incorporating these techniques into a curriculum. Focus will be centered on the activities that are the basis of every creative dramatics program. A particular interest will be centered on the novice who needs practical advice on how to begin teaching creative thinking and problem-solving. Fifteen hours of field work are required. (May be used for CDA renewal.)

ED 219 Science in the Elementary Classroom—3 Cr. Hrs. – 3 Contact Hrs. The focus of this course is on learning science concepts and methods relating to the physical environment, and learning to teach the concepts to children. Basic life, earth and physical science content will be taught, as well as instructional methods for application in the elementary school classroom. Students will gain practical knowledge through field work and on-site investigations. The course is designed for prospective elementary school classroom teachers, and is a part of the elementary school curriculum in many colleges. Twenty-five hours of field work are required.

ED 220A Early Childhood Assessment—2 Cr. Hrs. – 2 Contact Hrs. An introduction to techniques and strategies assessing the behavior, achievement and performance of young children. The importance and value of observations of children, types and varieties of assessment, role of assessment in

multi-cultural settings, importance of portfolio development and observation systems will be discussed. Twenty-five hours of field work are required.

ED 221 Teaching Students with Learning and Behavior Problems—3 Cr. Hrs. – 3 Contact Hrs. This course is designed to enable students to effectively teach children with learning disabilities and emotional or behavioral impairments. The emphasis is on teaching skills and content areas, methods and procedures, interventions and strategies helpful in educating children at risk. The course is required of students enrolled in the Instructional Assistant - Special Education and MCC MI School Age Certificate Programs. It is highly desirable and recommended for any student who plans to work with special needs children, or in inclusive classrooms. Twenty-five hours of field work are required.

ED 222 Educating the Deaf—3 Cr. Hrs. – 3 Contact Hrs. This course deals with the educational, social and psychological implications of deafness. Historical perspectives and contemporary practices in elementary, secondary and post-secondary deaf education will be explored. Causal factors relative to deafness will be investigated along with current developments in treatment. An additional focus of the course will be interpersonal relationships of deaf members. "No-voice" class assignments and examinations will be designed to develop basic competency in receptive (seeing and understanding) and expressive (signing) use of American Sign Language (ASL). The course could be used as an elective in the A.S.A. degree or in any of the certificate programs, or as an alternative to ED221 in the Instructional Assistant-Special Education Certificate sequence. Twenty-five hours of field work with hearing impaired are required. (May be used for CDA renewal.)

ED 223 Child Care Center Administration—3 Cr. Hrs. – 3 Contact Hrs. This course is designed for those who wish to begin a child care business as well as those already engaged in working as a child care center director. It deals with the nature of childcare, the challenges and procedures of building a new center, classroom design, and analysis of the problems faced by a start up business. Emphasis will be placed on solving practical problems by developing a personnel notebook, parent/guardian notebook, center notebook, a budget/business plan, designing room space and being prepared to order age appropriate equipment and materials. Twenty-five hours of field work are required.

ED 224 Comparative Education*—3 Cr. Hrs. – 3 Contact Hrs. An introduction to educational philosophies, methods, patterns of control, financing, organization and relationship with the larger society in selected countries of the world, including the United States. The emphasis is upon comparison, and a comprehensive social science methodology is utilized which examines historical, political, economic, and social factors that serve as the foundation for the educational systems of nations. Systems to be compared are drawn from all regions of the world and are representative of prevailing economic, political, and social conditions. Twenty-five hours of field work are required.

ED 225 Child Development—3 Cr. Hrs. – 3 Contact Hrs. Formerly ED 114. Basic issues in the development of infants and children, and methods of studying children will be discussed. In-depth exploration of the physical, behavioral, psychosocial and cognitive development of children will be viewed from a multi-cultural perspective. This course may be used in addition to, or in place of ED250 (Human Growth and Learning) to fill the requirements of all Education Department certificate and degree programs. It may also be used to meet the academic requirements of C.D.A. certificate renewal. Twenty-five hours of field work are required.

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ED 226 Interdisciplinary Approaches to Early Interventions—3 Cr. Hrs. – 3 Contact Hrs. Before enrolling in this course, you must demonstrate that you are ready to proceed. This course is a comprehensive review of the needs, services and issues for infants and toddlers ages 0-3 at risk and with special needs. The students will begin to understand/ develop a team base and collaborative approaches when working with and providing services to children with special needs. In addition, the role of parents and caregivers will also be emphasized. Twenty-five hours of field work are required, including lab experiences at selected sites.

ED 230 Children's Literature—3 Cr. Hrs. – 3 Contact Hrs. This course will investigate literature for children, and appropriate learning activities suitable for the preschool, elementary and middle school student. Relationships are explored between child development, school curricula, instructional strategies, language arts, multi-cultural activities, and literature. Particular interests in the practical application of literature with specific age/grade levels may be pursued in depth. Twenty-five hours of field work are required.

ED 250 Human Growth and Learning—3 Cr. Hrs. – 3 Contact Hrs. A comprehensive study of the human life cycle will be explored. This course will include all stages of growth and development—from birth to death, language acquisition and information processing, learning theories and basic theoretical models. Domains of cognitive, affective, physical and social development will be explored. Current research in the field will be investigated. Students may pursue in–depth interests in human growth/learning at specific age/grade/ability levels. Twenty-five hours of field work are required. (May be used for CDA renewal.)

ED 251 Health Needs of the Young Child—3 Cr. Hrs. – 3 Contact Hrs. The emphasis in this course is on identification, treatment, and prevention of common childhood illnesses, and the promotion of good health, safety and nutrition for the young child. Physical and dental health will be emphasized, along with signs and symptoms of illness within varying age groups. Treatment options and procedures for non-professionals will be discussed. Prevention will be focused on how to promote optimum health, how to prevent injuries, and nutritional requirements of young children. Twenty-five hours of field work are required. (May be used for CDA renewal.)

ED 290CI Cooperative Internship for CDA/ Michigan School Age Credential Certificates—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Successful completion of ED 210 and 2.5 GPA or better. Before taking this course, the student must have completed 21 credit hours toward their CDA certificate or 28 credit hours toward their Michigan School Age certificate as well as 480 hours of paid or non-paid fieldwork hours within the student's choice of certificate program. The instructor will meet with the student three times during the semester, and will perform two on site observations of the student working in the appropriate childcare setting. The student will work with the instructor and the work site supervisor chosen to supervise the internship. The student should expect to spend 45 hours during the semester. Credit is awarded only when the student, the instructor and the work supervisor have completed evaluations/observations and supporting academic requirements.

*Denotes course that contains an International Component.

EDUCATION RELATED, courses which may be used for CDA renewal.

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

ART 211 Art Education Workshop—3 Cr. Hrs. – 6 Contact Hrs. Experience through studio work with art materials and methods appropriate to grade school use.

MATH 105 Mathematics for Elementary Teachers—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Assignment by Math Placement Test, or must have earned a grade of "C" or better in Math 050. Not a "methods" course. A general course for students majoring in elementary education. The basic ideas behind our number system and geometric concepts are discussed. Topics include: problem solving,

sets, system of numeration, the real number system, geometry and metric measure.

MU 192 Music for the Classroom Teacher—4 Cr. Hrs. – 4 Contact Hrs. Co-requisite: MU 190C, unless requirements can be met by examination. See instructor. This course is required for future elementary classroom teachers. No previous musical training is necessary. The course provides a background in the fundamental elements of music through singing, playing classroom rhythm and melody instruments, recorder and autoharp. Includes introduction to methods of teaching music, observation and participation in area schools.

PEP 201 Elementary Physical Education for the Classroom Teacher—2 Cr. Hrs. – 2 Contact Hrs. A theory and activity course designed to acquaint the prospective classroom teacher with planning and teaching his/her own physical education program. Concepts of program planning plus practical experience in teaching varied levels of physical education activities are included. This course is required for physical education majors and suggested for elementary education majors.

PSYC 202 Educational Psychology—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: A grade of C or better in PSYC 201 or permission of the instructor. This course explores interrelationships between the fields of psychology and education. Research data, learning theories, cultural pluralism and special topics reflective of current educational change are examined. Particular interests in educational psychology at specific age/grade levels may be pursued in depth. Forty-five (45) hours of classroom experience in the public/private schools will be required. Exceptions to be approved by the instructor.

ELECTRICITY

ELTC 101 L & L Electricity-Basic—3 Cr. Hrs. – 4 Contact Hrs. This course is not a requirement of the Electronics Technology Program. A theory and activity course designed to introduce the basic relationships between voltage, current, and resistance. Topics include: soldering, DC circuits, volt-ohm-amp meter operation, alternating current, relays, ladder diagrams, residential wiring, and safety. Practical laboratory experiments reinforcing the above topics are provided.

ELTC 103 Residential Wiring—3 Cr.Hrs. – 4 Contact Hrs. Prerequisite/co-requisite: ELTC 101. A study of the layout, installation and testing of electrical components and circuits found in residential wiring. Extensive hands-on assignments are combined with the application of the current National Electrical Code governing residential wiring.

ELTC 150 Industrial Electricity—3 Cr. Hrs. – 4 Contact Hrs. (1 hour lecture, 3 hours laboratory) Prerequisite: Recommended minimum of six months electrical experience or previous Basic Electricity course. This course is intended for electrical maintenance personnel with some previous electrical experience or coursework. It will review basic DC and AC electrical theory and components, safety, use of test instruments and electrical symbols. Other topics include: ladder diagrams, control circuits, starters, contactors, relays and overload devices. "Troubleshooting" will be emphasized and there will be an introduction to the use of programmable controllers for machine control.

ELTC 152 National Electrical Code—3 Cr.Hrs. – 3 Contact Hrs. This course covers the National Electrical Code as currently adopted by the State of Michigan. Designed for the apprentice electrician, this course is also approved by the State of Michigan for the required upgrade for Journeymen and Master Electricians.

ELTC 160 Programmable Controllers—3 Cr.Hrs. – 4 Contact Hrs. Prerequisite: ELTC 150 or instructor permission. This course introduces the concept of machine control through programmable controllers. Program design, controller operation, wiring techniques, programming techniques, and applications are examined; related lab exercises will be conducted with Allen-Bradley SLC 500 controllers and RSLogix 500 Software.

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ELTC 203 Advanced Programmable Controllers—3 Cr.Hrs. – 4 Contact Hrs. Prerequisite: ELTC 160 or instructor permission. This course is a continuation of ELTC 160. Applications and programming of advanced instructions from the Allen-Bradley SLC 500/MicroLogix 1000 instruction set are covered. Topics include data handling, logic functions, bit shift/sequencer functions, math operations, analog I/O, subroutine files and interrupts.

ELECTRONICS

ELTR 101 Electronics-Basic—4 Cr. Hrs. – 6 Contact Hrs. Pre-or-Co-requisites: ELTR 111. Topics include: series and parallel circuits, batteries, electromagnetism, conductors, insulators, volt-ohm-amp-meters, oscilloscopes, capacitance, inductance, resonance, impedance matching, and transformers. Laboratory experiments reinforcing the above topics are provided. This course covers: familiarity with common hand tools, safety practices, soldering, use and care of common laboratory equipment.

ELTR 102A Active Devices and Circuit Analysis—4 Cr. Hrs. – 6 Contact Hrs. Prerequisites: ELTR 101 and ELTR 111. This is a course in solid state devices and circuits. It includes performance measurements, device testing, multi-stage amplifiers, coupling techniques, amplifier design, and feedback principles. Some devices covered are BJT's, JFET's, MOSFET's, and diodes. Laboratory experiments will be required.

ELTR 109 Personal Computer Maintenance—2 Cr. Hrs. – 2 Contact Hrs. Prerequisite: CIS 110, CIS 120A or instructor approval. This course provides students with skills needed in the upgrading and maintenance of personal computers. Students will learn how to install integrated circuits for memory into a computer's motherboard, upgrade video displays and drivers, upgrade disk controller boards, replace disk drive, install a multimedia system, and perform diagnostic tests on equipment. Common system problems will also be covered as part of hands-on troubleshooting using Intel-based computers.

ELTR 111 Electronic Mathematics—5 Cr. Hrs. – 5 Contact Hrs. Prerequisite: One year high school algebra recommended. Co-requisite: ELTR 101. This course gives the beginning electronics student the mathematical skills necessary to solve electronic problems. Topics include: basic algebra, series and parallel circuits, direct and alternating current solutions, Kirchoff's loop equations, Thevinin's Theorem, right triangle trigonometry, vector algebra, logarithmic and exponential equation solution.

ELTR 112 Digital Electronics I—3 Cr. Hrs. – 4 Contact Hrs. Digital Electronics I is the first course in a three-semester sequence of digital courses. Content includes number systems, codes, logic gates, Boolean algebra and combinational logic circuits. Relevant laboratory experiments will be required of students each week.

ELTR 201A Communications (Principles & Servicing)—4 Cr. Hrs. – 6 Contact Hrs. Prerequisite: ELTR 102. A study of the electronic devices, theory, and circuits used in modern communication systems. Topics to be covered include: modulation and transmission principles, antenna theory, demodulation system, troubleshooting techniques, and servicing procedures. A.M., F.M. stereo, and color television receivers will be used for laboratory experience.

ELTR 202A Industrial Electronic Systems—4 Cr. Hrs. – 6 Contact Hrs. Prerequisite: ELTR 102. The advanced study of electronic circuits and their application to the control of industrial and commercial equipment and processes. The design, construction and analysis of operational circuits includes power supplies, SCRs, UJTs, diacs, triacs, phototransistors, relays, programmable controllers, timing circuits and motors with their associated control circuits. Proper procedures are stressed in laboratory assignments which are designed to provide practical experiences for the student.

ELTR 205 Electronic Circuit Design—3 Cr. Hrs. – 4 Contact Hrs. Prerequisite: ELTR 102. This course deals with the application of linear integrated circuits. The student will be given a series of design specifications for a number of circuits which he/she

will convert into practical working models. Circuits found in communications electronics, industrial electronics, and instrumentation electronics will be used as a basis for the design problems. Some of the topics will be inverting and non-inverting amps, comparators, op amp filters, timers, and voltage regulators.

ELTR 209 Personal Computer Maintenance II (A+ Certification)—3 Cr. Hrs. – 5 Contact Hrs. Prerequisite: ELTR 109, CIS 109, or instructor approval. This course is designed to take the successful PC Maintenance student to the next, more in-depth level of PC Maintenance and Repair. The Web presentations, text assignments, demonstrations, and related CD-ROM teaching materials willhelp prepare the student to be competent to pass the A+ Certification written exam. The related labs will provide the needed hands-on experience to develop system understanding and competent analysis and repair procedures. Lab experience will include the building of a complete computer system, with troubleshooting and analysis of the system. It is recommended that CIS 143 be taken to provide more network background before taking the A+ exam.

ELTR 210 Introduction to Microprocessors—3 Cr. Hrs. – 4 Contact Hrs. Prerequisite: ELTR 112. This course deals with basic concepts common to all microprocessors such as bus structure, memory, C.P.U. functions and timing. The student will construct and troubleshoot input and output ports and device select circuits. A number of assignments will be given which require the student to program a microcomputer trainer in assembler language.

ELTR 211A Microcomputer Interfacing —3 Cr. Hrs. – 5 Contact Hrs. Prerequisites: ELTR 205 and ELTR 210 or instructor approval. The third in a series of digital courses in which principles and techniques of interfacing a microprocessor to special peripheral hardware are examined. The student will design and construct circuits to interface data converters, stepper motors, and AC/DC loads to a variety of I/O port configurations.

ELTR 212 Medical Instrumentation and Measurement—4 Cr. Hrs. – 6 Contact Hrs. Prerequisite: ELTR 205. This course introduces the student to operating and servicing basic medical instrumentation such as EEG, ECG, defibrillators, safety analyzers, etc. Basic physiological signals and terminology are covered. Typical medical equipment circuits are constructed and tested. Electrical safety is emphasized.

ENGINEERING

MCC offers the pre-engineering courses required by all ABET accredited engineering schools in Michigan. Before enrolling in these courses, you must demonstrate that you are ready to succeed.

ENGR 105 Introduction to Engineering—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: MATH 50 or its equivalent as determined by the Math Placement Test. An introduction to the engineering profession and to its various disciplines; to the professional skills required of engineers; including oral and written communications, ethics of the profession, and team building and teamwork; and to the design process. Video presentations of professional activities and studies will be shown.

ENGR 202 Statics—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: PHYS 203 and MATH 283. A study of force systems in two and three dimensions. Composition and resolution of forces and force systems, principles of equilibrium applied to various bodies, simple structures, friction, centroids, moments of inertia. Vector algebra is used where appropriate. Graphing calculator required. (TI-85 or higher recommended.)

ENGR 204 Engineering Dynamics—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: PHYS 203, ENGR 202, MATH 283, and MATH 295. Vector description of force, position, velocity, and acceleration in fixed and moving reference frames. Kinematics and kinetics of particles, assemblies of particles and rigid bodies. Includes translation, plane motion, rotation, impulse-momentum and work-energy methods. Introduction to vibrations and time response. Graphing calculator required. (TI-85/or higher recommended.)

ENGLISH

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

IT IS IMPORTANT FOR STUDENTS TO TAKE THEIR ENGLISH CLASSES EARLY!
Knowledge of the English language and skill in using it are required in many aspects of life, including one's employment and, consequently, many MCC courses, programs, and degrees require competency in English composition. If you are contemplating earning an ASA degree or are planning to earn a bachelor's degree at a four-year school, you are strongly advised to follow the guidelines below. If you are planning to enter another program or are unsure of your plans, see a counselor for specific requirements that may apply to you.

STUDENTS MUST TEST BEFORE ENROLLING IN ENGLISH CLASSES.

Before enrolling in English 101, you must demonstrate that you are READY TO SUCCEED.

Before you register, please make an appointment to take the English Placement Test (a reading and writing test) by calling 231.777.0394, or submit an overall/composite ACT test score of 22 or higher, or submit a Level 1 or Level 2 on both reading and writing on the MEAP tests. The Testing Center, located in Room 353, in open days and evenings. Testing is free.

Based upon the results of the test, you will receive a letter code of A, 2A, B, or C and be directed to do one of the following:

Code A: Enroll in English 101

Code 2A: Enroll in English 101 and English 114

Code B: Enroll in English 091 and Reading 040A

Code C: Enroll in English 085 and Reading 040C

Students with an A code should enroll in English classes the first semester of attendance (first 15 credit hours). Students who fulfill the English 101 prerequisite should enroll in English 102 the second semester of attendance (first 30 credit hours).

The College requires that students with a 2A, B or C code enroll in the necessary courses during the first semester of attendance.

Students who have questions pertaining to the above placement policies should consult with a counselor.

GUIDELINES
If you are required to take English 091, take it your first semester. Take English 101 in your second semester and English 102 in your third semester.

If you are not required to take English 091, take English 101 within your first 15 hours of course work, even if you are required to take English 114 concurrently, and English 102 within your first 30 hours of course work.

All 091 level classes and 101 level classes use computers for writing, so knowledge of some word processing program is helpful.

ENG 085 Essential Writing Skills—2 Cr. Hrs. – 3 Contact Hrs. For students with a C code, this course will prepare the student for ENG 091 or ENG 101. This course is an equivalent to English 089 in a classroom setting. The student will improve writing skills using the writing process, including group editing, and study basic sentence structure.

ENG 089 Refresher English—2 Cr. Hrs. – Variable Contact Hrs. Co-requisite: ENG 002 Day or Evening Lab. An individualized introduction to basic writing through process oriented instruction. The self-paced course covers basic skills, including sentence structure, writing journals, paragraphs, and short essays.

ENG 091 Introduction to English Composition—3 Cr. Hrs. – 4 Contact Hrs. Prerequisite: A code of "C" or "D" on the English Placement Test. A course in which students concentrate on mastering basic principles of English grammar, sentence structure, punctuation, usage, and spelling. Emphasis is placed on writing clear sentences, effectively devel-

oped paragraphs, and short essays. The course is intended to prepare students for English 101 and 102 as well as to assist them in other college courses in which writing is required. This course includes a one-hour laboratory to be used for additional group instruction or individual instruction as deemed necessary by the instructor.

ENG 101 English Composition—3 Cr. Hrs. – 4 Contact Hrs. Prerequisite: A code of "A" or "B" on the English Placement Test or a grade of "C" or better in ENG 091 or ENG 089 with instructor recommendation. A course in which students will develop the abilities to read critically, to think logically, to discuss intelligently, and primarily to write effectively using exposition, argumentation, and research. A grade of "C" or better is required to enter into English 102.

ENG 102 English Composition—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: A grade of "C" or better in ENG 101. A course in which the student will develop the ability to interpret and criticize a variety of literary forms, especially fiction, drama and poetry. Students will discuss these works and write critical essays.

ENG 114 Refresher English—1 Cr. Hr. – Variable Contact Hrs. Co-requisite: ENG 002 Day or Evening Lab. A course designed to improve basic skills so that students can successfully complete writing assignments given in college classes. Emphasis is placed on sentence writing, punctuation, usage, paragraph development, and research skills. The course is individualized and self-paced. It should be taken before or at the same time as English 101.

ENG 199-A Personalized Writing—1 Cr. Hr. – Variable Contact Hrs. Co-requisite: ENG 002 Day or Evening Lab. An individual program of study designed to help students expand writing skills. Students pursue a self-paced course emphasizing specific skills needed at work, in school, or in everyday life. Course content depends on individual needs. Students meet once a week with an instructor for direction, instruction, and encouragement.

ENG 199-B Personalized Writing—2 Cr. Hrs. – Variable Contact Hrs. Co-requisite: ENG 002 Day or Evening Lab. Similar to ENG 199A.

ENG 200 Literature of Western Civilization*—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102. An intensive study of selected major literary works of Western Civilization from 2600 B.C. through the Renaissance.

ENG 201 Literature of Western Civilization*—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102. A continuation of English 200. Study of world literary classics from the Renaissance until modern times.

ENG 204 Introduction to Fiction*—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102 or concurrent enrollment in ENG 102 and permission of instructor. An analytical study of novels, novellas and short stories ranging from ROBINSON CRUSOE to modern African short stories with the purpose of developing and enlarging an understanding of and appreciation for cross-cultural literary forms and fiction itself.

ENG 205 Introduction to Poetry—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102. An introduction to the study of poetry with the purpose of developing critical values and the ability to read with understanding and appreciation. Students will each select a poem by a leading English or American poet as the basis of a major critical study.

ENG 206 Introduction to Drama—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102. A study of representative dramas and theaters from Greek to modern times.

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ENG 207 Diverse Voices*—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102 or concurrent enrollment in ENG 102 and instructor permission. This course focuses on literature of multicultural origins: ethnic voices from America, representative fiction from Japan, India, Russia, Africa, South and Central America, Western Europe and developing national communities. This course analyzes the literature from these varied cultures by exploring ethnic, aesthetic, and thematic cultural inspirations.

ENG 208/COM 203 Introduction to Cinema—3 Cr. Hrs. – 3 Contact Hrs. An introduction to the art of the film; the course will include representative foreign and domestic films, at least one documentary film, and several (2-4) experimental and/or underground films. In addition to thematic study of films, the course explores the various elements of movie-making (i.e. script, light, sound, color, acting, directing, editing).

ENG 210 The Nature of Language—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102 or permission of instructor. Introduction to the English language through a study of its history and characteristics as described by structural and transformational grammarians and cultural mavens. Interested students are advised to contact the Chairperson of the English Department.

ENG 211 Literature of World Mythology*—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102 or permission of instructor. Overview of representative Greco-Roman, Middle Eastern, Norse, English, Pacific Island, Indian, Chinese, Japanese, African, South American, Native American mythology and epics. Surveyed for understanding of creation, Fertility and Hero myths and their meaning in our cultural and personal attitudes and ideas.

ENG 213 Literature of Shakespeare*—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102 or permission of instructor. Overview of Western Civilization's most respected and famous author, William Shakespeare. The course explores several plays and poems in depth as well as the culture and traditions of Shakepeare's England. In addition, students will discover Shakespeare's influence on our contemporary world. Field trips are anticipated (optional).

ENG 218 Popular Literary Genres: Horror, Fantasy and Science Fiction—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and 102 or concurrent enrollment in ENG 102 with instructor approval. This course focuses on three genres of literature possessing rich histories in the development of folklore, literary forms, and literary criticism, as well as abundant connections with the development of popular culture in the twentieth and twenty first centuries. The class will read five novels spanning these genres, as well as selected short works of fiction and commentary by authors and critics active in these fields. In addition, films with connections to the literature will be viewed to better understand the themes expressed in the literature and their popular reception in a visual medium.

ENG 221 Advanced Writing—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102 or permission of instructor. A writing "workshop" course designed to introduce students to the practice of expository prose. Students will read and write in a variety of essay forms – from personal narratives to critical reviews –as well as critique each other's work.

ENG 222 Creative Writing—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102 or permission of instructor. Written recommendation of the freshman composition instructor may be required. The study of writing techniques as well as actual writing and critical discussion of various types of short fiction are stressed. Students are encouraged to take a literature course prior to enrolling in this writing-intensive course.

ENG 223 Poetry Writing Seminar—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102 or permission of instructor. An informal forum in which students experiment writing their own poetry. It includes the study of open forms and patterned forms. Students discuss each other's work as well as the works of modern and contemporary poets.

ENG 225 Major American Writers/American Literature I—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102 or concurrent enrollment in ENG 102 and instructor permission. This course is a study of representative literature of the United States from the earliest settlement to 1865. Serving both the historical and critical perspectives, the focus is upon certain recurring themes which have grown out of the American experience and their continuing relevance for today's student.

ENG 226 Major American Writers/American Literature II—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and ENG 102 or concurrent enrollment in ENG 102 and instructor permission. Continuation of English 225, from the Civil War to the present.

ENG 227 British Literature 1 (673-1744)*—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and 102 or concurrent enrollment in ENG 102 with instructor approval. In Introduction to British Literature I (673-1744), students will survey the realm of British Literature and discuss its forms, functions, meanings and themes. Students will write formal and informal interpretations of the writings and complete essays and take two exams.

ENG 228 British Literature II (1750-today)* — 3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: ENG 101 and 102 or concurrent enrollment in ENG 102 with instructor approval. Completion of English 227, British Literature 1 (673-1744) is recommended. In Introduction to British Literature II (1750-today), students will survey the realm of British Literature and discuss its forms, functions, meaning and themes. Students will write formal and informal interpretations of the writings and complete essays and take two exams

ENG 234D Library Skills/Research Skills—1 Cr. Hr. – 1 Contact Hr. This course is designed to acquaint the student with resources available in the library: print, CD-ROM, online databases, and the Internet. It will give the student basic knowledge for developing search strategies, conducting research, evaluating source material, and compiling an extensive bibliography.

ENG 250 Poetry Workshop—3 Cr. Hrs. – 3 Contact Hrs. Generally a summer offering with specialists in poetry. Workshop includes writing and criticism. May be elected for a maximum of six credits over a period of two summers - three credits per summer.

*Denotes course that contains an International Component.

FOREIGN LANGUAGES

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

FRENCH

FR 101 Basic French*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: The student must have either completed ENG 101, be presently enrolled in ENG 101, have passed the English Placement Exam indicating they may enroll in ENG 101, or have the permission of the instructor. This is a beginning course for students who have had no previous study of French. The emphasis is on developing communication in French through listening, speaking, reading and writing activities.

FR 102 Basic French*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Must have earned a grade of "C" or better in FR 101, or successful completion of two recent years of high school French, or have the permission of the instructor. A continuation of FR 101. The student continues to develop the capacity to understand, speak, read and write French.

FR 201 Intermediate French*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisites: Must have earned a grade of "C" or better in FR 101 and FR 102 or satisfactory completion of three recent years of high school French, or have the permission of the instructor. This second year course is designed to improve the four basic skills begun in the first year. This course reviews and reinforces material learned in the first year, examines more tenses and other aspects of grammar, and provides practice in expanding capabilities in reading, writing, speaking and understanding French.

FR 202 Intermediate French*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Must have earned a grade of "C" or better in FR 201, or successful completion of four recent years of high school French, or have the permission of the instructor. This course is a continuation of FR 201.

GERMAN

GER 101 Basic German*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: The student must have either completed ENG 101, be presently enrolled in ENG 101, have passed the English Placement Exam indicating they may enroll in ENG 101, or have the permission of the instructor. This course is the first semester of a communicative language course to promote proficiency and practical competence in elementary German. It will focus on the essential elements of effective communication by teaching skills in listening, speaking, reading and writing. It will also provide cultural insights into life in German-speaking countries.

GER 102 Basic German*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Must have earned a grade of "C" or better in GER 101, or successful completion of two recent years of high school German, or have the permission of the instructor. This course is a continuation of GER 101 with continued emphasis on communication and proficiency.

GER 103 Basic German* (Intensive Grammar Supplement and Advanced Conversation)—2 Cr. Hrs. – 2 Contact Hrs. Prerequisites: Must have earned a grade of "C" or better in GER 101 and GER 102, or successful completion of three recent years of high school German, or have the permission of the instructor. This course will provide an intensive grammar review and serve as a supplement to German 101 and 102 so that the student will have a complete introduction to ALL grammatical elements of the German language. Advanced conversation and written assignments will complement this grammatical study. The topics for conversation, written work and readings will include German history, the situation of foreign workers in Germany, the apprenticeship system and German unification.

GER 201 Intermediate German*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisites: Must have earned a grade of "C" or better in GER 101 and GER 102, or successful completion of three recent years of high school German, or have the permission of the instructor. This is the first semester of an intermediate level German course, which stresses skills to help the student communicate competently and appropriately in various situations in German. It reflects the American Council on the Teaching of Foreign Languages (ACTFL) proficiency guidelines. Listening, speaking, reading and writing skills will be strengthened by using authentic, contemporary information.

GER 202 Intermediate German*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisites: Must have earned a grade of "C" or better in GER 101, GER 102, and GER 201, or successful completion of four recent years of high school German, or have the permission of the instructor. This is a continuation of German 201 with expansion of communicative and proficiency abilities, contemporary cultural information, and grammatical knowledge.

ICS 101 GER International Cultural Studies in Germany*—2 Cr. Hrs. – 1 Contact Hr. Prerequisite: Selection to participate in the Exchange Program between Muskegon Community College and the Kaufmännische Schule Stuttgart-Nord and acceptance of the terms of participation. German language abilities are not required but highly recommended. The course introduces students to the Global Community as represented by Germany. The student will study German culture, history, and politics through lectures, discussions, and actual travel to Stuttgart, Germany. It is offered in conjunction with the Kaufmännische Schule Stuttgart-Nord in Stuttgart, Germany, and culminates with a ten-day visit to Germany. Beyond tuition and texts, additional costs include the airfare to Stuttgart, Germany, and spending money while in Germany. ***Please note: This course does not carry the Ready to Succeed prerequisite, but does not fulfill the Foreign Language requirement under the International category of the ASA degree.***

*Denotes course that contains an International Component.

SPANISH

SPAN 101 Basic Spanish*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: The student must have either completed ENG 101, be presently enrolled in ENG 101, have passed the English Placement Exam indicating the student may enroll in ENG 101, or have the permission of the instructor. This course is for students with little or no experience with Spanish. It is designed to help the student achieve a minimal oral capability, to comprehend the structure of the language, and to develop moderate reading and writing skills. There is no laboratory requirement, but the student is required to spend five sessions with a native speaker, when available, for group conversation practice. There will be occasional sessions on cultural matters.

SPAN 102 Basic Spanish*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite : Must have earned a grade of "C" or better in SPAN 101, or successful completion of two recent years of high school Spanish, or have the permission of the instructor. Spanish 102 assumes that the student has studied Spanish for at least one semester at the college level (preferably Spanish 101). The student continues to develop the capacity to read, write, speak and understand Spanish. There will be occasional sessions on cultural matters. The grammatical emphasis is on identifying and using the various tenses. There is no laboratory requirement, but the student is required to spend five sessions with a native speaker when available for group conversation practice.

SPAN 201 Intermediate Spanish*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisites: Must have earned a grade of "C" or better in SPAN 101 and SPAN 102, or successful completion of three recent years of high school Spanish, or have the permission of the instructor. This course reviews and reinforces the material learned in the first two semesters, examines more tenses and other aspects of grammar, and provides practice in expanding capabilities in reading, writing, speaking and understanding Spanish. There is no laboratory requirement, but the student is required to spend five sessions with a native speaker, when available, for group conversation practice. There will be occasional sessions on cultural matters.

SPAN 202 Intermediate Spanish*—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Must have earned a grade of "C" or better in SPAN 201, or successful completion of four recent years of high school Spanish, or have the permission of the instructor. This course focuses on the remaining tenses and on the subjunctive mood. The student will have more opportunities to develop skills in reading, writing, speaking and understanding Spanish. There is no laboratory requirement, but the student is required to spend five sessions with a native speaker, when available, for group conversation practice. There will be occasional sessions on cultural matters.

.*Denotes course that contains an International Component

GEOGRAPHY

GEOG 101A Physical Geography*—4 Cr. Hrs. – 5 Contact Hrs. (5 hours Integrated Lecture and Lab) Physical Geography is a course study in Earth Systems Science; the atmosphere, hydrosphere, and surface features of the lithosphere. The course work focuses on the development of geographic models and their use as a tool to explain phenomena in man's physical environment.

GEOG 102C Cultural Geography*—4 Cr. Hrs. – 4 Contact Hrs. A study of the world's people and how they occupy the earth. Important topics include: population density and distribution, languages, religions, political systems and international relations, economic systems, and urbanization.

GEOG 105 World Regional Geography*—3 Cr. Hrs. – 3 Contact hrs. World regional geography is an introductory examination of the major cultural realms of the world—areas which share similar cultural and economic conditions. The physical environment and human impact on that environment will also be studied for each region. Units of study may include: Anglo-America, Europe, Russia and her neighbors, sub-Saharan Africa, North Africa/ Southwest Asia, Monsoon Asia, East Asia, and middle and South America. A previous course in physical or human geography would be helpful, but is not mandatory.

GEOG 215 Introduction to Weather and Climate—4 Cr. Hrs. – 5 Contact Hrs. (5 Hrs. Integrated Lecture and Lab). This course is an introductory study of the atmosphere which includes both weather and climate. Fundamental physical laws governing weather elements will be examined; such as solar radiation, temperature, moisture, pressure, winds, and weather systems. Current weather data is delivered via the internet, which is coordinated with learning activities. Students will be introduced to the excitement of weather in near real-time. Broad aspects of climates and local microclimatology will also be integrated. An optional field trip to the National Weather Service Office, Grand Rapids may be offered. No prerequisites, although physical geography and the knowledge of basic computer skills including the ability to manipulate images are recommended.

*Denotes course that contains an International Component

GEOLOGY

GEOL 101A Introduction to Physical Geology—4 Credit Hrs. – 5 Contact Hrs. (5 hrs. integrated lecture and lab.) Physical geology is the scientific study of the materials, structures and systems of the planet Earth. Students will investigate the processes affecting the interior and exterior of the Earth, and the rocks, minerals, and structures produced by these processes. The course may include a one-day weekend field trip, weather permitting.

GEOL 102 Introduction to Earth History—4 Credit Hrs. – 5 Contact Hrs. (5 hrs. integrated lecture and lab.) GEOL 101 is not a prerequisite for GEOL 102. This course is an introduction to the geologic history of the planet Earth and its life forms. Based on the unifying theories of plate tectonics and organic evolution, the course presents the evidence used by geologists to reconstruct Earth's ancient environments and organisms, and establishes connections between Earth's past and present environments. The course may include a one-day weekend field trip, weather permitting.

GERMAN
(SEE FOREIGN LANGUAGES)

GRAPHIC DESIGN

GR 110 Introduction to Graphic Reproduction—3 Cr. Hrs. – 6 Contact Hrs. A lecture/lab course which will be an entry-level course for all graphic reproduction students. Work will be done in the areas of copy preparation, composition, production camera and offset press operation. The five major printing processes will be explored, with major emphasis placed on offset lithography.

GR 160 Digital Imaging—3 Cr. Hrs. – 6 Contact Hrs. Knowledge of digital imaging is vital to the printing industry because of the variety of media production systems available. Emphasis will be placed on creating quality output for diverse media applications.

GR 180DP Digital Photography—1 Cr. Hr. – 1 Contact Hr. Digital photography is finding its way into the publishing, industrial and business communities for use in newsletters, process documentation, and multimedia presentations. The student's ability to interpret the image for its final use will be developed.

GR 180PR Photo Restoration—1 Cr. Hr. – 1 Contact Hr. Photo restoration will deal with restoring and preserving photos and drawings that have historical, social or personal value. The student's ability to select, calibrate and use the proper software tools will be developed.

GR 180VC Vinyl Cutting—1 Cr. Hr. – 1 Contact Hr. Vinyl cutting and its associated hardware, software, substrates and its unique design considerations will be explored. Design considerations and applications will be emphasized to demonstrate mastery.

GR 180WF Wide Format—1 Cr. Hr. – 1 Contact Hr. Wide format printing will stress the design implications of large display and poster printing. Various substrates and orientations will be used depending on the applications.

GR 200 Principles of 35 mm B&W Photography—3 Cr. Hrs. – 6 Contact Hrs. Fundamentals of photography, including cameras, emulsion characteristics, processing, filters, chemistry, and optics. The student must have the use of a 35 mm SLR or viewfinder camera. The student will be expected to buy film and paper as directed by the instructor.

GR 220 Electronic Publishing—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: BUS 179 or a demonstrated keyboard proficiency. This course will explore several contemporary PC based publishing and creative software programs. The student will perform minimal keystroking of text and utilize existing word processing files as source files. Students will be expected to create and produce their own designs within certain parameters.

GR 270 Computer Imaging for the Printing Industry—3 Cr. Hrs. – 6 Contact Hrs. This course will explore the IBM PC computers, with their companion creative software, in the context of the printing industry. The selection of the appropriate computer, software and database, and the manipulation and editing of the image, will be prime components of this course.

GRD 107 Image Assembly—2 Cr. Hrs. – 4 Contact Hrs. Image Assembly is a lecture/laboratory course which will place major emphasis on precision hand work and correct interpretation of the job specifications as they relate to the assembly of film and electronic images. Extensive computer file manipulation will be stressed as well as page imposition. Contemporary preflighting and page imposition software will be used.

GRD 120 Introduction to Graphic Design—3 Cr. Hrs. – 6 Contact Hrs. Introduction, study and practice of basic Graphic design vocabulary, elements, and principles. Individual elements of design such as line, shape, value, texture, space, size and color will be integrated with design principles including balance, emphasis, rhythm and unity to analyze and create effective, organized, and attractive compositions and communications.

GRD 130 Drawing for Graphic Design—3 Cr. Hrs. – 6 Contact Hrs. Study and practice of basic graphic design drawing elements such as line, value, texture, composition, one and two-point perspective and color. Application of these elements in the process of developing concepts through the use of sketching/thumbs, roughs and comps with pencil, pen/ ink and colored markers.

GRD 140 Introduction to Typography—3 Cr. Hrs. – 6 Contact Hrs. Introduction and study of history, vocabulary, and principles of typography. Basic type identification, styles, and measurement will be discussed and practiced. The primary purpose of type as a means communication combining readability and legibility will be reinforced. Design elements and principles will be presented in relation to designing with type.

GRD 150 Multimedia Production—3 Cr. Hrs. – 6 Contact Hrs. The student will use contemporary multimedia software and prepared files to create, storyboard, assemble and produce multimedia presentations. The fundamentals and terminology of "movie" production will be taught. Techniques in basic interactivity, presentations, animation, and commercial production, as well as preparing files for various kinds of output will be stressed. The student should have strong knowledge of the computer operating system, contemporary photo editing software and drawing software.

GRD 160 History of Graphic Design*—3 Cr. Hrs. – 3 Contact Hrs. This course will explore the evolution of graphic design and the features that distinguish one design from another. Applications will be identified and used to enhance logos, visual designs, and printed materials.

GRD 167 Introduction to Internet Animation—1 Cr. Hour - 1 Contact Hr. Prerequisite: CIS 100, CIS 110, or CIS 120A. This course provides students with hands on experience creating web-based animation using an animation editor. Topics include working with the various tools and objects available in the editor, creating and manipulating multi-layered graphics, working with animation frames and tweening, and publishing the graphics for use on the Internet.

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GRD 290CI Production Practicum—3 Cr. Hrs. – Variable Contact Hrs. This is a capstone class. The purpose of this class is to give the student intense on-the-job experiences either in their area of interest or an area where they feel they would like further exposure that may not be available at the college.

HEALTH EDUCATION (See Also Allied Health)

HE 100A Community First Aid and Safety—2 Cr. Hrs. – 2 Contact Hrs. Course is designed to prepare the general public with first aid knowledge and skills necessary to care for most injuries and emergencies, including First Aid, Adult, Child, and Infant CPR and AED. Accident prevention information is included. American Red Cross certification can be awarded upon satisfactory completion of 80% or better.

HE 102 Nutrition for Fitness and Sport—3 Cr. Hrs. – 3 Contact Hrs. A course designed to provide holistic health, and information to the individual who is physically active, or to those who desire to initiate a personalized fitness program. Required for individuals interested in Physical Edu cation and Health Education majors.

HE 106 Concepts of Health and Well-being—3 Cr. Hrs. – 3 Contact Hrs. This class is designed to advance the student's knowledge and to enhance their own health. An examination of national health priorities regarding the reduction of preventable death, disease and disability will be studied. Health related issues included are: substance abuse, stress reduction, grief and loss, development of healthy relationships, sexually transmitted diseases, lifestyle related diseases and principles of a healthy life-style.

HE 110 Industrial Safety and Workplace Training—1 Cr. Hr. – 2 Contact Hrs. Industrial Safety and Workplace Training is a first aid, prevention, and cardiopulmonary resuscitation (CPR/AED) program to prepare individuals to respond to injuries and sudden illnesses that may arise in the workplace. This course is designed to meet the specific training needs of employers and their employees. The course gives individuals in the workplace the knowledge and skills necessary to prevent, recognize and provide basic care for injuries and sudden illnesses until advanced medical personnel arrive and take over. Included are a review of basic safety laws (MIOSHA, OSHA, HAZMAT) and personal safety measures, which an employee can practice at home in preparation for work.

HE 202A Sports Injuries and Prevention—3 Cr. Hrs. – 4 Contact Hrs. A study of the basic fundamentals of sports injury care. The course includes the organization of and procedures for the prevention and taping of sports injuries. BIOL 105 is not required as a prerequisite but is strongly encouraged.

HE 220 Internship in Athletic Training—1 Cr. Hr. – 2 Contact Hrs. A 40 clock-hour internship in an area sports medicine clinic. This course will give prospective athletic trainers the opportunity to acquaint themselves with the advanced therapeutic modalities and rehabilitative exercise equipment not found in the smaller athletic training setting. It will also allow the student to observe differences (and similarities) between the clinical and collegiate training facilities.

HISTORY

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

HIST 101 Western Civilization to 1500*– 4 Cr. Hrs. – 4 Contact Hrs. This course will examine the development of Western Civilization from pre-history to the High Middle Ages/Renaissance, investigating the legacies of the Neolithic Period, ancient Mesopotamia and Egypt, Greece, Rome, Islam and Medieval Europe. Topics will include political structures, artistic expressions, religious beliefs, and intellectual developments. Social history will be emphasized and the course may culminate with student participation in a Medieval Festival.

HIST 102 Western Civilization* - 1500 to Present—4 Cr. Hrs. – 4 Contact Hrs. This course will investigate the development of modern Western Civilization covering the period from the Re-

naissance (about 1500) to the present, emphasizing the developments which have shaped the civilization of the 20th century in the West: government, economics, society, religion, philosophy, ethics, science, and the arts.

HIST 201 United States to 1877—3 Cr. Hrs. – 3 Contact Hrs. A course covering the history of the United States from its Native American and European origins to the end of Reconstruction. Major topics include the development of British colonial policy, the causes of the War for Independence, the formation of the Constitution and Bill of Rights, the development of democracy during the Jefferson and Jackson Administrations, immigration, industrial and urban history, Manifest Destiny and territorial expansion, the institution of slavery, the antebellum reform movement, the causes and consequence of the Civil War and Reconstruction.

HIST 202 United States from Reconstruction to Present*—3 Cr. Hrs. – 3 Contact Hrs. A study of the social, economic, political, and intellectual development of the American nation and people, from Reconstruction to the present. The major topics include: territorial expansion and American foreign policy; the growth and importance of industry and business; the urban community and its problems; trade-commerce fields; the urban community and its problems; industry and business; the struggle and achievement of labor; the study of immigration and race relations; the quest for women's equality; American educational and cultural advances; the increased use of government to improve society; the Cold War, détente and current to developments in U.S. – World relations; and the transformation of American Political ideology.

HIST 204 Imperial and Soviet Russia 1622 to the Present*—3 Cr. Hrs. – 3 Contact Hrs. A course covering the reigns of Peter the Great, Catherine the Great and the later Romanovs; political, economic and social development in the 18th and 19th centuries; the Russian Revolution of 1917-21; the Five-Year Plans; Soviet foreign policy during World War II; Soviet policy after Stalin; Soviet society and culture to its collapse in 1991.

HIST 207 African American History— 3 Cr. Hrs. – 3 Contact Hrs. A study of the dynamic role of Black people in the United States from their African origins to present day America. The course emphasizes significant Black contributions in American history, and selected achievements of African American women will be studied. Contemporary issues related to the African American experience in the U.S. will be researched. A visit to an African American historical site or event may be included in the course.

HIST 210 World History II: From 1500*—3 Cr. Hrs. – 3 Contact Hrs. This course deals with the non-western world from 1500 to the present. This course will treat the civilizations of the world excluding the European and U.S. (These latter two areas are treated in respectively HIST 101, 102, and 201 and 202.) The course will show the development of Africa, Asia, India, Central Asia, Malaysia, the Pacific Island nations, and Latin America from approximately 1500. While Europe has an impact on each of these areas, each area has a historical, political, economic, social, and cultural development independent of Europe. This course does not ignore the impact of European colonization, but attempts to see European colonization as only one aspect of ethnic and national development within each geographic area. European history will be touched upon only within this perspective of non western, indigenous development. This course provides a good basis of preparation for future K-12 teachers and for those who wish to go on to study international relations, comparative government and international business.

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HIST 211 Michigan History—3 Cr. Hrs. – 3 Contact Hrs. A study of the social, economic, and political development of Michigan. Emphasis is on Michigan's history since the time of French exploration. Major topics dealt with in the course include: American Indians; French exploration and settlement; Michigan under the British flag; "territoryhood" to statehood; Michigan's role in the Civil War; lumbering and mining activity in the latter half of the 19th century, the development of Michigan's automotive industry and the concurrent rise of industrial unionism in Michigan. Some emphasis will also be placed on Great Lakes history and the local history of the Muskegon area.

HIST 220 Labor Studies—3 Cr. Hrs. – 3 Contact Hrs. A survey course studying and critically analyzing the historical, political, and legal frameworks of the labor movement, major labor laws, causes and purposes of the labor movement, union structure and behavior, and labor-management approaches to solving employment disputes in the U.S. and internationally.

*Denotes course that contains an International Component.

HUMANITIES

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

HUM 195 Introduction to Humanities*—3 Cr. Hrs. – 3 Contact Hrs. This course will provide the student with an awareness of the cultural strengths and weaknesses of our changing cybernetic society. The student will study how the performing and creative arts, philosophy, psychology, religion and applied technological impact on the individual as well as society. In both an historical and individual context, the student will learn that the understanding of what it means to be human is an art which can help facilitate the development of one's full potential.

*Denotes course that contains an International Component.

MACHINING TECHNOLOGY

MT 101A Basic Machining—3 Cr. Hrs. – 5 Contact Hrs. This introductory course presents theory and hands-on experience in the practical application of machining. The course is structured for the student who has little or no previous experience in the field. The course introduces the student to industrial safety, precision measuring, common manufacturing materials, fasteners, and the operation of basic machine tools. These machine tools include the pedestal grinder, drill press, lathe, vertical milling machine, horizontal milling machine, and the surface grinder. CNC machining and other advanced metalworking methods will also be discussed.

MT 102 Intermediate Machining—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MT 101A or permission of instructor. This course offers an in-depth examination of the machine tools commonly found in industry. The capabilities of drilling, turning, milling, and grinding machines will be explored as well as how these methods relate to advanced machining techniques and modern machine controls. A major focus of milling and turning will be experienced in the lab portion of this course. Each student will operate a CNC machine during the lab. The precision and quality that can be expected of these processes and their relationship to manufacturing will be stressed throughout the course.

MT 103 Advanced Machining—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MT 102 or Instructor permission. This course will explore advanced machine tool operation and advanced grinding techniques. A major focus of grinding will be experienced in the lab portion of the course. Machines to be used in this class are: EDM, Surface Grinder, and Numerical Control Machine. Advanced operation of the Lathe, Mill, and Grinder will be discussed.

MT 205 NC/CNC (Numerical Control/Computer Numerical Control)—3Cr. Hrs. – 4 Contact Hrs. Prerequisite: MT 101A or permission of instructor. An introductory course in practical application of numerical control machining, and offline programming. Designed to expose students to

the basic concepts of numerical control with G and M codes.

MT 206 2-D CAD/CAM Computer-Aided Design/Machining—3 Cr. Hrs. – 5 Contact Hrs. Prerequisite: MT 205. Using Master CAM software, this class first explores the fundamentals of 2-D CAM systems. Students will learn to use the design package to create part drawings and simple solid models. Tool paths for these parts will be generated using the tool path module to create CNC program for the Lathe, Wire EDM, and Mill. Part processing will be covered and reviewed in detail for each program written.

MT 216 3-D CAD/CAM Computer-Aided Design/Machining—3 Cr. Hrs. – 5 Contact Hrs. Prerequisite: MT 206. This class continues the study of CAM into the realm of complex 3-D machining. Various complex surfaces will be designed, programmed, and machined. 3-D CNC programs will be created for both the Mill and Wire EDM. 3-D part processing will be covered in detail for each program. The trimming of complex surfaces is stressed. Installation of third-party software and interfacing with CAD software will also be covered. Students will also learn to create tooling and material libraries.

MT 225 Moldmaking—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MT 206. In this course, the student will learn proper machining techniques and design considerations for manufacturing many different types of molds. The student will apply precision machining methods in the production of several molds used for the manufacturing of plastic components. Molds for many common molding processes will be explored including blow molding, compression molding, thermoforming, and injection molding.

MT 230 Basic Diemaking—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MT 206. This course offers an overview of Diemaking for the machinist. Components of both punching dies and simple progressive dies will be explored. Students will apply their skills to both the manufacture of single stage punches and dies and routine punch repair processes. Primary learning will focus on precision grinding, machining, and material selection. The ram EDM machine will also be introduced.

MT 235 Advanced Diemaking—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MT 216.This course continues the study of Diemaking which begins in MT 230. The student will study the manufacture of compound dies for both forming and punching. Both ram and wire EDM processes will be explored. Precision grinding and machining will be stressed throughout. Common die feeding mechanisms, die setting, and die safety will also be covered.

MT 240 Basic Machine Repair—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MT 101. This course provides a general overview of various mechanical systems found in manufacturing equipment. Both preventive maintenance and repair skills are stressed. The systems examined are: basic mechanics and mechanical skills, lubrication systems, bearings, belt drives, chain drives, gears and gear systems, couplings, fluid power systems and variable speed drives. Troubleshooting techniques are stressed throughout the course.

MT 245 Advanced Machine Repair—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MT 240. This course stresses preventive maintenance of the various mechanical systems found in the manufacturing environment. Both preventive and predictive maintenance will be explored in depth. This course culminates in the student preparing a computerized preventive maintenance plan for an actual manufacturing facility. Basic electronics will be covered as it relates to troubleshooting machine problems.

MATERIALS TECHNOLOGY

MET 101 Industrial Materials—3 Cr. Hrs. – 4 Contact Hrs. Industrial Materials is the study of the many materials which are used by modern industry, their basic similarities and differences, their physical, chemical, and electrical properties, and the ways in which materials are altered or combined to enhance their suitability for a specific industrial application.

MET 102 Basic Cast Metals—3 Cr. Hrs. – 5 Contact Hrs. Basic cast metals is an introductory study of the processes and methods of producing castings. The student will be introduced to patternmaking, finishing, and inspection. Laboratory tests of materials used in cast metals will be conducted. The student will be given an overview of cast metal manufacturing procedures. This course attempts to create a basic understanding and appreciation of the complexities of the cast metal industry.

MET 201 Metallurgy—3 Cr. Hrs. – 5 Contact Hrs. Metallurgy studies the physical, chemical, and electrical properties of metals and their alloys, as well as the effect on these properties of various mechanical and thermal treatments. The many indications of these properties and tests to establish their magnitude are also included.

MET 202 Advanced Materials—3 Cr. Hrs. – 5 Contact Hrs. Prerequisite: MET 101. Advanced Metals studies adhesives, ceramics, coatings, composites, lubrication, and other emerging materials used in manufacturing. A major emphasis is placed on the testing of material to determine properties, usability, and magnitude. Students must have access to transportation as this course also involves off-campus lab experiments.

MET 203 Materials Testing—3 Cr. Hrs. – 5 Contact Hrs. Prerequisite: MET 101. Conventional destructive and non-destructive testing and evaluation of materials. To detect and characterize flaws and microstructure changes in materials, using lab equipment and reporting the findings. Also, analysis of the relationship between externally applied forces and internal reactions in materials.

MET 204 Introduction to Plastics—3 Cr. Hrs. – 5 Contact Hrs. Prerequisite: MET 101. This course covers an introductory study of plastic materials, their applications, and the plastics industry. The students will be introduced to thermoplastics and thermosetting plastic materials, processing methods, applications, tooling, and plastic equipment.

MET 210 Pattern and Casting Design and Construction—3 Cr. Hrs. – 5 Contact Hrs. Prerequisite: MET 102. Introduction to the fundamental of functional, metallurgical and economic designs of castings and patterns. Students will interpret drawings related to the casting and patterns and do layout and measurements. Students will design and build a pattern, pour the casting and evaluate the design. This course is utilized in the patternmaking apprentice program.

MET 211 Gating and Risering—3 Cr. Hrs. – 5 Contact Hrs. Prerequisite: MET 102. A course dealing with the principles of gating and risering, solidification and heat transfer as related to casting. Gating ratios, metal velocity, and flow rates will be calculated. The function of risers, their design, location, and shape will be studied. The student will design, construct, mold and pour typical gating and risering systems. Data gained through actual design and pouring will be gathered and interpreted.

MANAGEMENT (SEE BUSINESS)

MARKETING (SEE BUSINESS)

MASSAGE THERAPY

MSTH 100 Introduction to Massage Therapy – 1 Cr. Hr. – 1 Contact Hr. Prerequisite: This course is the prerequisite to the one year massage therapy program at Muskegon Community College. It is designed to give the student insight into the massage therapy profession. It offers the student a basic overview including the environments of massage, the ethics of massage, the types of massage, and the effects of massage. A basic flow of soft tissue manipulation is also covered. Each student must provide one set of twin size flannel sheets, along with one extra firm pillow for this course. Tables will be provided.

MSTH 110 Massage I—4 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MSTH 100. This is the first of the cornerstone courses of the one-year massage therapy program. These cornerstone courses are designed to provide instruction in diagnostic/therapeutic techniques generally expected of an entry level practitioner. Each student must provide one set of twin size flannel sheets for this course. Tables

will be provided.

MSTH 111A Bodywork Pathology—4 Cr. Hrs. – 5 Contact Hrs. Prerequisite: MSTH 100. This is one of the three basic life science courses in the one-year massage therapy program. This course will run concurrently with BIOL 105, an anatomy and physiology course for health care practitioners. MSTH 111will cover the definition and/or identification and description of the pathologies of the human body that are commonly encountered in massage therapy and bodywork practice.

MSTH 120 Massage II—4 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MSTH 110. This is the second of the cornerstone courses of the one year massage therapy program. The cornerstone courses are designed to provide instruction in diagnostic and therapeutic techniques generally expected of an entry-level massage practitioner. Each student must provide one set of twin size flannel sheets, along with one extra firm pillow for this course. Tables will be provided.

MSTH 121 Bodywork Career Guide—2 Cr. Hrs. – 2 Contact Hrs. Prerequisite: MSTH 110. This course is designed to help the student turn hands-on skills into lifelong success. Topics include the nuts and bolts of the massage business, touch and the law, using space efficiently and effectively, charting, scheduling, fee setting, and other information to help the student launch a successful career as a massage practitioner.

MSTH 122 Clinical I—2 Cr. Hrs. – 4 Contact Hrs. Prerequisite: MSTH 110. This is the first of the clinical/fieldwork courses in the one year massage therapy program. During this course, the student will be giving massages to the general public. Included in this course will be the taking of patient histories, assessing treatment plans, integrating massage techniques learned in Massage I into specific and appropriate session flow patterns. Each student must provide four sets of twin size flannel sheets on site each day for this course. Each student must also purchase and wear a uniform (polo shirt and pants) for about $40. Tables will be provided on site, but students must purchase a table ($300-400) for use off-site.

MSTH 130 Massage III—2 Cr. Hrs. – 3 Contact Hrs. Prerequisite: MSTH 120. This is the third of the cornerstone courses of the massage therapy program. The cornerstone courses are designed to provide instruction in diagnostic and therapeutic techniques generally expected of an entry-level massage practitioner. Each student must provide one set of twin size flannel sheets for this course. Tables will be provided.

MSTH 131 Bodywork Seminar—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: MSTH 120. This course is designed to expose the student to a greater variety of bodywork approaches and disciplines. Guest speakers from different bodywork disciplines will be invited to give one-hour presentations, followed by discussion and demonstrations. Also, one of the last days of this course will be dedicated to preparing for the NCBTMB exam.

MSTH 132 Clinical II—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: MSTH 120. This is the second of the clinical/fieldwork courses in this massage therapy program. During this course, the student will be giving massages to the general public. Included in this course will be the taking of patient histories, assessing treatment plans, integrating massage techniques learned in Massage I and Massage II into specific and appropriate session flow patterns. Each student must provide four sets of twin size flannel sheets for this course. Tables will be provided.

MATHEMATICS
(Includes CS Center courses)

Students MUST take the Math Placement Test. Test results will help place students into the appropriate math course.

Before enrolling in math courses numbered MATH 050 or above, you must demonstrate that you are ready to succeed.

MATH 035—0.5 Cr. Hrs. per module-Variable Contact Hrs. Co-requisite: Math Lab.
This course offers students an opportunity to improve their basic math skills in the following seven modules:

Module A - Pre-Algebra— 0.5 Cr.

Module B - Fractions— 0.5 Cr.

Module C - Decimals— 0.5 Cr.

Module D - Percents & Percentages— 0.5 Cr.

Module E - Units of Measurement— 0.5 Cr.

Module F - Metrics— 0.5 Cr.

Module G - Ratios, Proportions, & Averages— 0.5 Cr.

MATH 036A Basic Math and Pre-Algebra—3 Cr. Hrs. – 3 Contact Hrs. This course offers students the opportunity to improve their basic math skills. The material covered is the same as is covered in the seven MATH 035 modules. (This course satisfies the nursing prerequisite when the required proficiency is demonstrated.)

MATH 040 Beginning Algebra—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Assignment by Math Placement Test or must have earned a grade of "C" or better in required math modules or MATH 036. An introductory course for students who have not successfully passed a high school algebra course, or who have lost their facility with algebra as time has passed. Fractions, signed numbers, and order of operations are reviewed. Variables and equation solving are introduced, along with exponents, polynomials, factoring, rational expressions and equations, graphing, and application problems.

MATH 050 Intermediate Algebra—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Assignment by Math Placement Test or must have earned a grade of "C" or better in MATH 040 . A second course in algebra in which concepts developed in Math 040 are studied in more depth and more advanced topics are introduced. New topics include fractional exponents, radicals, methods for solving quadratic equations, systems of equations with two and three unknowns, functional notations, logarithmic and exponential functions, and application problems.

MATH 105 Mathematics for Elementary Teachers—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Assignment by Math Placement Test or must have earned a grade of "C" or better in MATH 050 . Not a "methods" course. A general course for students majoring in elementary education. The basic ideas behind our number system and geometric concepts are discussed. Topics include: problem solving, sets, system of numeration, the real number system, geometry, and metric measure.

MATH 107 Mathematical Excursions—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Assignment by Math Placement Test or must have earned a grade of "C" or better in MATH 040. A survey of mathematics intended for students whose program of study has no further mathematics requirements. Its purpose is to develop mathematical literacy in today's world. This course satisfies the general education requirements for mathematics. Topics are selected from finance mathematics, scheduling, logic, geometry, decision making, patterns and art, modeling, and applications.

MATH 109 College Algebra with Applications—4 Cr. Hrs. – 4 Contact Hrs. Prerequisites: Assignment by Math Placement Test or must have earned a grade of "C" or better in MATH 050. A college algebra course stressing applications and graphing in the following areas: the process of creating a mathematical model of a real life situation, linear,

quadratic, periodic, exponential and logarithmic models; mathematics of finance; selected topics in probability. TI-83 graphing calculator required.

MATH 111 Algebra With Coordinate Geometry—4 Cr. Hrs. – 4 Contact Hrs. Prerequisites: Assignment by Math Placement Test or must have earned a grade of "C" or better in MATH 050. Pre-calculus algebra and analytic geometry designed for the student who will be taking calculus. Topics include: solving equations and inequalities algebraically and graphically; functions and graphs; polynomial functions; rational functions and functions involving radicals; exponential and logarithmic functions; linear systems and matrices. Graphing calculator required (TI-86 or higher recommended).

MATH 112 Trigonometric Functions with Coordinate Geometry—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Assignment by Math Placement Test or must have earned a grade of "C" or better in MATH 111. Pre-calculus trigonometry and analytic geometry designed for the student who will be taking calculus. Topics include: trigonometric functions, identities and equations, graphs of trigonometric functions and their inverse functions, solution of triangles, sequences and series, polar coordinates, parametric equations, DeMoivre's Theorem, binomial theorem, mathematical induction, and conic sections. Graphing calculator required (TI-86 or higher recommended).

MATH 115 Probability and Statistics—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: Assignment by Math Placement Test, or two years of beginning and intermediate algebra, or must have earned a grade of "C" or better in MATH 050. Probability and statistics for business, social science, mathematics, and biological science majors. Topics include: descriptive statistics, probability, probability distributions, confidence intervals, hypothesis testing, analysis of variance, regression, and non-parametric statistics. Graphing calculator required (TI-83 or higher recommended).

MATH 151 Survey of Calculus—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Assignment by Math Placement Test, or two years of beginning and intermediate algebra, or must have earned a grade of "C" or better in MATH 050. The study of limits, continuous functions, derivatives, integrals, and their applications in business, economics, life sciences and social sciences. This is a terminal, one-semester course and should not be elected by those taking the calculus sequence of MATH 161, 162, 283 and 295. Graphing calculator required (TI-86 or higher recommended.)

MATH 161 Calculus I—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Assignment by Math Placement Test, or must have earned a grade of "C" or better in MATH 112. The calculus of elementary functions of one variable. Topics include: definition of a derivative, limits, derivatives and integrals of functions of one variable, related rates, maxima and minima, Rolle's Theorem, the Mean Value Theorem, and the Fundamental Theorem of Calculus. Graphing calculator required (TI-86 or higher recommended).

MATH 162 Calculus II—3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: Must have earned a grade of "C" or better in MATH 161. Recommended co-requisite: MATH 274 if required for transfer. A continuation of the calculus of functions of one variable. Topics include: methods of integration such as substitution, parts, trigonometric substitution and partial fractions; improper integrals; applications of integrals to area, volume, and arc length; an introduction to differential equations; and infinite series. Graphing calculator required (TI-86 or higher recommended).

MATH 215 Probability & Statistics for Engineering—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: Must have earned a grade of "C" or better in MATH 161. This is a calculus-based statistics course. However, no previous statistics experience is required. Topics include: descriptive statistics, probability, discrete and continuous probability distributions, joint probability distributions, confidence intervals, hypothesis testing, analysis of variance, correlation and linear regression, non-parametric techniques, and quality control methods. Graphing calculator required (TI-86 or higher recommended).

MATH 274 Linear Algebra & Matrices—2 Cr. Hrs. – 2 Contact Hrs. Prerequisite: Must have earned a grade of "C" or better in MATH 161. Co-requisite: MATH 162 if required for transfer. A study of matrices, matrix operations, systems of linear equations, determinants, vectors, vector operations, vector spaces, eigenvalues and linear transformations. Graphing calculator required (TI-86 or higher recommended).

MATH 283 Calculus III—4 Cr. Hrs. – 4 Contact Hrs. Prerequisites: Must have earned a grade of "C" or better in MATH 162. The calculus of functions of more than one variable. Topics include: vectors, vector functions, surfaces, limits and continuity in 3 dimensions, partial derivatives, chain rule for partial derivatives, multiple integrals, line integrals, surface integrals, and vector calculus. Graphing calculator required (TI-86 or higher recommended).

MATH 295 Differential Equations with Linear Algebra—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: Must have earned a grade of "C" or better in MATH 162 and MATH 274. An introduction to the theory and solution of ordinary differential equations. Topics included are: first order techniques with applications, second and higher methods including linear equations, power series, Laplace transforms and numerical methods. Application of techniques of linear algebra to systems of differential equations. Introduction to Fourier series and phase plane analysis. Introduction to C.A.S. Graphing calculator required (TI-86 or higher recommended).

MUSIC

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

MU 50-89 Remedial Applied Music—2 Cr. Hrs. – 2 Contact Hrs. The following courses are designed for students who do not meet the freshman performance proficiency level as determined by the faculty. Recommendation for participation in 100 numbered applied music courses will be made when the faculty feels that adequate advancement has been made by the student to perform at the level of a freshman music student.

MU 50, 51 Voice – 2 Cr. Hrs.

MU 52, 53 Piano – 2 Cr. Hrs.

MU 54, 55 Cornet (Trumpet) – 2 Cr. Hrs.

MU 56, 57 Clarinet – 2 Cr. Hrs.

MU 58, 59 Trombone – 2 Cr. Hrs.

MU 60, 61 Baritone (Euphonium) – 2 Cr. Hrs.

MU 62, 63 Tuba – 2 Cr. Hrs.

MU 64, 65 French Horn – 2 Cr. Hrs.

MU 66, 67 Flute – 2 Cr. Hrs.

MU 68, 69 Oboe (English Horn) – 2 Cr. Hrs.

MU 70, 71 Bassoon – 2 Cr. Hrs.

MU 72, 73 Saxophone – 2 Cr. Hrs.

MU 74, 75 Percussion – 2 Cr. Hrs.

MU 76, 77 Guitar – 2 Cr. Hrs.

MU 78, 79 Organ – 2 Cr. Hrs.

MU 80, 81 Harp – 2 Cr. Hrs.

MU 82, 83 Violin – 2 Cr. Hrs.

MU 84, 85 Viola – 2 Cr. Hrs.

MU 86, 87 Cello – 2 Cr. Hrs.

MU 88, 89 Double Bass – 2 Cr. Hrs.

MU 100 Introduction to Music Theory—3 Cr. Hrs. – 3 Contact Hrs. Designed for students with little or no theoretical background who are considering music as their major field, or high school seniors who do not have access to a high school theory course. Includes fundamentals to basic musicianship: notation, clefs, scales, intervals, triads, rhythm, meter and tonality.

MU 101 Music Theory—3 Cr. Hrs. – 3 Contact Hrs. Co-requisite: MU 190A and MU 194. Fundamentals of basic musicianship, including notation, clefs, scales, intervals, triads, meter, rhythm and tonality. The analysis and writing of harmony in the styles of composers of the tonal period will be stressed.

MU 102 Music Theory—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: MU 101 and MU 190A. Co-requisites: MU 191A and MU 195. A continuation of MU 101.

MU 103 Introduction to Music Literature*—3 Cr. Hrs. – 3 Contact Hrs. A first course in listening to music designed primarily for students with little or no musical training. Starting with the basic elements of music, the course uses extensive audio and visual materials, illustrating the development of music through the ages.

MU 104CS College Singers—1 Cr. Hr. – 2 Contact Hrs. This is a performance ensemble for students with previous musical experience. Auditions will be held at the first class session for placement within the group and to verify that the student and ensemble are a reasonable match. High standards of musical performance are upheld. There are performances held throughout the year for student and adult audiences.

MU 105CS College Singers—1 Cr. Hr. – 2 Contact Hrs. An extension of MU 104CS.

MU 108CB Concert Band (West Michigan Concert WINDS)—1 Cr. Hr. – 2 Contact Hrs. This is a performance ensemble for students with previous musical experience. Auditions will be held at the first class session for placement within the group and to verify that the student and ensemble are a reasonable match. High standards of musical performance are upheld. There are performances held throughout the year for student and adult audiences.

MU 109CB Concert Band (West Michigan Concert WINDS)—1 Cr. Hr. – 2 Contact Hrs. An extension of MU 108CB.

MU 110 Stage Band—1 Cr. Hr. – 3 Contact Hrs. This organization is open to all students. Membership will be determined by audition prior to enrollment. Frequent public performances will be held. Work in improvisation and arranging will be encouraged.

MU 111 Stage Band—1 Cr. Hr. – 3 Contact Hrs. An extension of MU 110.

MU 112 Woodwind Ensemble—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: Consultation with instructor.

MU 116 Percussion Ensemble—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: Consultation with instructor.

MU 117 Percussion Ensemble—1 Cr. Hr. – 2 Contact Hrs. A continuation of MU 116.

MU 118WSO West Shore Symphony Orchestra— 1 Cr. Hr. – 2 Contact Hrs. Students who play in the West Shore Symphony Orchestra may receive college ensemble credit. Audition and consent of director determine participation.

MU 118YSO West Shore Youth Symphony—1 Cr. Hr. – 2 Contact Hrs. Students who play in the West Shore Youth Symphony may receive college ensemble credit. This is a performance ensemble for students with previous musical experience. Auditions will be held at the first class session for placement within the group and to verify that the student and ensemble are a reasonable match.

MU 119A or B Symphonic Ensemble—1 Cr. Hr. – Variable Contact Hrs. A continuation of MU 118WSO or 118YSO.

MU 127 to 147 Applied Music-Secondary Instrument—1 Cr. Hr. – Variable Contact Hrs. Private study on an instrument. The student must meet with a private instructor a specified number of hours. Attendance at studio class may be required and performance is encouraged. Letters A, B, C, D, after number indicate semesters so that the correct number of credits will be shown on transcript.

MU 127-A, B, C, D Jazz Guitar – 1 Cr. Hr.

MU 128-A, B, C, D Voice – 1 Cr. Hr.

MU 129-A, B, C, D Piano – 1 Cr. Hr.

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MU 130-A, B, C, D Cornet-Trumpet – 1 Cr. Hr.

MU 131-A, B, C, D Clarinet – 1 Cr. Hr.

MU 132-A, B, C, D Trombone – 1 Cr. Hr.

MU 133-A, B, C, D Baritone (Euphonium) – 1 Cr. Hr.

MU 134-A, B, C, D Tuba – 1 Cr. Hr.

MU 135-A, B, C, D French Horn – 1 Cr. Hr.

MU 136-A, B, C, D Flute – 1 Cr. Hr.

MU 137-A, B, C, D Oboe (English Horn) – 1 Cr. Hr.

MU 138-A, B, C, D Bassoon (Contra-Bassoon) – 1 Cr. Hr.

MU 139-A, B, C, D Saxophone – 1 Cr. Hr.

MU 140-A, B, C, D Percussion – 1 Cr. Hr.

MU 141-A, B, C, D Guitar – 1 Cr. Hr.

MU 142-A, B, C, D Organ – 1 Cr. Hr.

MU 143-A, B, C, D Harp – 1 Cr. Hr.

MU 144-A, B, C, D Violin – 1 Cr. Hr.

MU 145-A, B, C, D Viola – 1 Cr. Hr.

MU 146-A, B, C, D Cello – 1 Cr. Hr.

MU 147-A, B, C, D Double Bass – 1 Cr. Hr.

MU 148 to 189 Applied Music – Primary Instrument—2 Cr. Hrs. -Variable Contact Hrs. Intensive private study on an instrument. Must meet with a private instructor a specified number of hours per semester. Attendance and performance at studio class may be required. There is a public-recital at the end of the year.

MU 148, 149 Jazz Guitar – 2 Cr. Hrs.

MU 150, 151 Voice – 2 Cr. Hrs.

MU 152, 153 Piano – 2 Cr. Hrs.

MU 154, 155 Cornet (Trumpet) – 2 Cr. Hrs.

MU 156, 157 Clarinet – 2 Cr. Hrs.

MU 158, 159 Trombone – 2 Cr. Hrs.

MU 160, 161 Baritone (Euphonium) – 2 Cr. Hrs.

MU 162, 163 Tuba – 2 Cr. Hrs.

MU 164, 165 French Horn – 2 Cr. Hrs.

MU 166, 167 Flute – 2 Cr. Hrs.

MU 168, 169 Oboe (English Horn) – 2 Cr. Hrs.

MU 170, 171 Bassoon (Contra-Bassoon) – 2 Cr. Hrs.

MU 172, 173 Saxophone – 2 Cr. Hrs.

MU 174, 175 Percussion – 2 Cr. Hrs.

MU 176, 177 Guitar – 2 Cr. Hrs.

MU 178, 179 Organ – 2 Cr. Hrs.

MU 180, 181 Harp – 2 Cr. Hrs.

MU 182, 183 Violin – 2 Cr. Hrs.

MU 184, 185 Viola – 2 Cr. Hrs.

MU 186, 187 Cello – 2 Cr. Hrs.

MU 188, 189 Double Bass – 2 Cr. Hrs.

NOTE: There are several sections of class piano. Students with piano background should audition with instructor before enrolling.

MU 190A Classical Piano for Music Majors—2 Cr. Hrs. – 3 Contact Hrs. Co-requisites: MU 101 and MU 194. This course is required of all music majors and is open also to students with some previous keyboard experience who can use these transferable humanities credits or desire the training. Special emphasis is given to sight-reading, transposition, playing by ear, harmonizing melodies, accompaniments and scales.

MU 190B Classical Piano (Non-Music Majors)—2 Cr. Hrs. – 3 Contact Hrs. This course is open to any student who wishes to learn to play the piano. No previous training or knowledge of music is necessary.

MU 190C Classical Piano (Basic Piano)—1 Cr. Hr. – 2 Contact Hrs. This course in basic piano is a required corequisite for students in MU 192 unless requirements can be met by examination. See instructor.

MU 191A Classical Piano (Music Majors)—2 Cr. Hrs. – 3 Contact Hrs. Prerequisite: MU 190-A. A continuation of MU 190A.

MU 191B Classical Piano (Non-Music Majors—2 Cr. Hrs. – 3 Contact Hrs. Prerequisite: MU 190-B. A continuation of MU 190B.

MU 192 Music for the Classroom Teacher—4 Cr. Hrs. – 4 Contact Hrs. Co-requisite: MU 190C, unless requirements can be met by examination. See instructor. This course is required for future elementary classroom teachers. No previous musical training is necessary. The course provides a background in the fundamental elements of music through singing, playing classroom rhythm and melody instruments, recorder and autoharp. Includes introduction to methods of teaching music, observation and participation in area schools.

MU 194 Sight-Reading and Ear Training—1 Cr. Hr. – 2 Contact Hrs. Co-requisite: MU 101 and MU 190A. The acquisition of the skills of melodic and rhythmic sight-reading and the disciplining of the ear to reproduce melodies, harmonies and rhythms by dictation.

MU 195 Sight-Reading and Ear Training—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: MU 194. A continuation of MU 194.

MU 198 Introduction to MIDI (Musical Instrument Digital Interface)—3 Cr. Hrs. – 3 Contact Hrs. An introductory course in the use and interface of synthesizers and computers. There are no prerequisites and students do not need to have a synthesizer or computer at home. Involves 2-4 lab hours per week.

MU 201 Advanced Theory—4 Cr. Hrs. – 5 Contact Hrs. Prerequisite: MU 101 and MU 102. Co-requisite: MU 290. A continuation of Theory required of music majors. It combines the elements of counter-point, form analysis and 20th century practices with an emphasis on creative writing and arranging. Advanced sight-singing and melodic, harmonic, and rhythmic dictations are also stressed.

MU 202 Advanced Theory—4 Cr. Hrs. – 5 Contact Hrs. Prerequisite: MU 201. Co-requisite: MU 291A. A continuation of MU 201.

MU 203 Vocal and Instrumental Conducting Techniques—2 Cr. Hrs. – 2 Contact Hrs. Practical methods and conducting techniques for instrumental and vocal ensembles, with emphasis on rehearsal preparation, interpretation and performance, and basic communication between conductor and ensemble members.

MU 248 to 289 Applied Music - Advanced Instrument—2 Cr. Hrs. – 2 Contact Hrs. Prerequisite: Two semesters of study on the same instrument at the 100-level. Private study of an instrument. The student must meet with private instructor a minimum of 13 hours per semester. Attendance and performance at studio is required. There is a staff audition at the end of each semester and a public recital at the end of the year.

MU 248, 249 Jazz Guitar – 2 Cr. Hrs.

MU 250, 251 Voice – 2 Cr. Hrs.

MU 252, 253 Piano – 2 Cr. Hrs.

MU 254, 255 Cornet (Trumpet) – 2 Cr. Hrs.

MU 256, 257 Clarinet – 2 Cr. Hrs.

MU 258, 259 Trombone – 2 Cr. Hrs.

MU 260, 261 Baritone (Euphonium) – 2 Cr. Hrs.

MU 262, 263 Tuba – 2 Cr. Hrs.

MU 264, 265 French Horn – 2 Cr. Hrs.

MU 266, 267 Flute – 2 Cr. Hrs.

MU 268, 269 Oboe (English Horn) – 2 Cr. Hrs.

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MU 270, 271 Bassoon (Contra-Bassoon) – 2 Cr. Hrs.

MU 272, 273 Saxophone – 2 Cr. Hrs.

MU 274, 275 Percussion – 2 Cr. Hrs.

MU 276, 277 Guitar – 2 Cr. Hrs.

MU 278, 279 Organ – 2 Cr. Hrs.

MU 280, 281 Harp—2 Cr. Hrs.

MU 282, 283 Violin – 2 Cr. Hrs.

MU 284, 285 Viola – 2 Cr. Hrs.

MU 286, 287 Cello – 2 Cr. Hrs.

MU 288, 289 Double Bass – 2 Cr. Hrs.

MU 290 Classical Piano—2 Cr. Hrs. – 3 Contact Hrs. Co-requisite: MU 201. A continuation of the freshman piano class plus the addition of clef and vocal score reading. Required of all music majors unless they are able to pass the requirements at the end of their freshman year.

MU 291 Classical Piano—2 Cr. Hrs. – 3 Contact Hrs. Prerequisite: MU 290A. A continuation of MU 290A.

*Denotes a course that contains an International Component.

NURSING

A malpractice insurance fee, health status evaluation fee, and course fee are assessed for some of the following courses.

NUR 100 Overview of the Nursing Profession—1 Cr. Hr. – 1 Contact Hr. Prerequisites: Entry level requirements. Co-requisites: NUR 111, COM 100, PSYC 201, BIOL 105, PEA 101A. This course is designed to provide students with an overview for a career in the profession of nursing. The focus of the course is on the roles and responsibilities of the licensed practical nurse and the registered nurse as members of the health care delivery team. Emphasis is placed on current issues and trends in nursing practice and education, and the derivation of medical terminology.

AH 111 Environmental Stressors and Nutrition—1 Cr. Hr. – 1 Contact Hr. Co-requisite: NUR 100. This course is designed to provide the student with the theoretical foundation for the clinical application of nutrition principles, in relation to stress adaptation, throughout the curriculum. The focus of the course is on the identification of the role of nutrients in maintaining man's dynamic equilibrium and the use of therapeutic diets for clients.

NUR 121 Environmental Stressors and Pharmacotherapeutics —1 Cr. Hr. – 1 Contact Hr. Co-requisites: NUR 123A, NUR 124A, and NUR 125. This course is designed to provide the student with the theoretical foundation for the clinical application of pharmacotherapeutic concepts, in relation to stress adaptation, throughout the curriculum. The focus of the course is on the identification of the major drug classifications. Emphasis is placed on the identification of the basic mode of action, therapeutic effects, adverse effects, nursing implications, and patient/family teaching for the most common drug groups within each classification..

NUR 123A Introduction to Nursing Practice —3 Cr. Hrs. – 3 Contact Hrs. Prerequisites: NUR 100. Co-requisites: NUR 121, NUR 125, ENG 101. This course is designed to provide the student with a conceptual framework for nursing practice. The focus of the course is on the identification of fundamental principles and processes from the natural, behavioral and social sciences, and nursing essential for facilitating man's stress adaptation. Concurrent laboratory practice enables the student to apply these principles and processes. Emphasis is placed on the nursing process, communication techniques, and basic nursing psychomotor skills with clinical experiences in community, screening, primary care, and acute care settings.

NUR 124A Care of the Childbearing Family — 4 Cr. Hrs. – 8 Contact Hrs. Prerequisite: NUR 123A. Co-requisites: NUR 121, NUR 125, ENG 101. This course is designed to provide the student with the theoretical foundation for facilitating stress adaptation related to childbearing. The focus of the course is on the application of previously learned

biopsychosocial and nursing principles and processes in the care of the childbearing family. Emphasis is placed on the identification of the changing priority of human needs in response to childbearing.

NUR 125 Basic Physical Assessment—1 Cr. Hr. – 1 Contact Hr. Prerequisites: NUR 100. Co-requisites: NUR 121, NUR 123A, NUR 124A. This course is designed to teach beginning nursing students the skills necessary to conduct the nursing health history and basic head-to-toe physical assessment on any healthy adult.

NUR 131B Care of the Childrearing Family—8 Cr. Hrs. – 16 Contact Hrs. Prerequisite: NUR 124A. Co-requisite: BIOL 106. This course is designed to provide the student with the theoretical foundation for facilitating stress adaptation related to childrearing. The focus of the course is on the application of previously learned biopsychosocial and nursing principles and processes in the care of the childrearing family. Emphasis is placed on the identification of the changing priority of human needs and adaptation problems associated with infancy through young adulthood in acute care settings.

NUR 141B Care of the Maturing Family —8 Cr. Hrs. – 16 Contact Hrs. Prerequisite: NUR 131B. Co-requisites: PHIL 204, PEA/DNC elective. This course is designed to provide the student with the theoretical foundation for facilitating stress adaptation related to adult maturation. The focus of the course is on the application of previously learned biopsychosocial and nursing principles and processes in the care of the maturing family. Emphasis is placed on the identification of the changing priority of human needs and medical adaptation problems associated with middle and late adulthood.

NUR 211A Care of the Family in Psychological Crisis—4 Cr. Hrs – 8 Contact Hrs. Prerequisite: NUR 212B. Co-requisite: ANTH 103. This course is designed to provide the student with the theoretical foundation for facilitating stress adaptation in clients/families in psychological crisis. The focus of the course is on the identification of biopsychosocial and nursing principles and processes used in the nursing of these individuals. Emphasis is placed on all components of the nursing process, therapeutic communication, and collaboration with team members in the care of psychiatric clients.

NUR 212B Care of the Family in Physiological Crisis —8 Cr. Hrs. – 16 Contact Hrs. Prerequisite: NUR 141B. Co-requisite: BIOL 207. This course is designed to provide the student with the theoretical foundation for facilitating man's adaptation to multiple stressors in acute care settings. The focus of the course is on the identification and application of biopsychosocial and nursing principles and processes in the care of the family with acute, complex adaptation problems. Emphasis is placed on the application of all components of the nursing process, including use of advanced psychomotor skills, in the care of adults in physiological crisis.

NUR 222A Managing the Care of the Family—5 Cr. Hrs. – 11 Contact Hrs. Prerequisite: NUR 211A. Co-requisite: ANTH 103. This course is designed to provide the student with a theoretical foundation for managing the nursing care for groups of individual patients and their families. Previously learned biopsychosocial and nursing principles are integrated into the nurse manager role. Emphasis is placed on the use of management principles, the nursing process, trends in nursing, and transition into the registered nurse role.

OFFICE SYSTEMS EDUCATION (SEE BUSINESS)

PHILOSOPHY

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

PHIL 101 Basic Concepts of Philosophy—3 Cr. Hrs. – 3 Contact Hrs. A course which presents some of the issues, questions and problems of philosophy and quasi-philosophical thought, as these issues and thoughts are developed by traditional and contemporary philosophers.

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PHIL 102 Principles of Logic—3 Cr. Hrs. – 3 Contact Hrs. A course which aims to give students an understanding of the fundamental forms of rational argument and critical reasoning skills that can be used in a wide range of disciplines and careers. There will be an examination of deductive and inductive reasoning, as well as formal and informal fallacies to facilitate the art of distinguishing correct from incorrect reasoning.

PHIL 104 Symbolic Logic—3 Cr. Hrs. – 3 Contact Hrs. No prerequisite. An introductory course in Symbolic Logic, the most powerful system of deductive logic yet devised. Includes propositional and predicate logic through identity with an emphasis on natural deduction. Particularly of value for those interested in computer science, mathematics, logic or philosophy.

PHIL 202 Introduction to Ethics*—3 Cr. Hrs. – 3 Contact Hrs. An inquiry into both the good of the individual person and the good of society. Two-thirds of the course presents logic and an in-depth analysis of such ethical theories as relativism, egoism, utilitarianism, deontology, virtue ethics, religion, and contractarianism. One-third of the course will examine a varying assortment of such applied ethical issues as euthanasia, abortion, distributive justice, sexual ethics, and environmental ethics.

PHIL 203 Philosophy of Religion*—3 Cr.Hrs. – 3 Contact Hrs. A brief comparative study of the history and content of major world religions followed by philosophical inquiry into the meaning, truth and value of religious phenomena.

PHIL 204 Biomedical Ethics*—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: ENG 101. An inquiry into many ethical problems which are particularly connected to the health care professions, but which are of concern to all persons. Issues studied include: individual responsibility in institutional settings, paternalism, patients' rights, human experimentation, the right to die, abortion and the right to health care in the context of limited societal resources. About one-third of the course consists of a survey of those issues and results of ethical theory and logic which sharpen perception, reduce confusion and encourage headway. No prerequisite, but students who have completed Philosophy 202 will be assigned a special research project.

PHIL 205 Business Ethics*—3 Cr. Hrs. – 3 Contact Hrs. One-third of this course presents basic ethical theory and logic which together facilitate a deeper understanding of ethical problems. The second third covers those ethical problems that are apt to confront the business person directly and frequently. The final third of the course is an inquiry into broader ethical problems confronting business and society.

PHIL 210 World Religions—3 Cr. Hrs. – 3 Contact Hrs. In this course the student will attempt to understand and critically analyze the world's major religions and how they impact societies and individuals. The religions covered are: Hinduism, Jainism, Buddhism, Taoism and Confucianism, Shinto, Judaism, Christianity, Islam and Sikhism. Other topics that may be covered are religious movements and the impact of religion on world culture and society, Native American religion.

*Denotes course that contains an International Component.

PHYSICAL EDUCATION—ACTIVITY/DANCE

Before enrolling in these courses, you must demonstrate that you are ready to succeed. See first page of course description section for complete details.

All Muskegon Community College Physical Education activity classes are co-ed; the strength and physical ability required should be carefully considered in registering for individual or team activities.

Students must take one credit hour from: PEA 101A, PEA 103, PEA 104A, PEA 118, or PEA 201 and one PEA/DNC credit hour of choice to satisfy graduation requirements.

All DNC classes may be taken as either Aesthetic Values credit or elective Physical Education credit. Any single course, however, will not satisfy both PEA and Aesthetic Values requirements.

Many classes are offered on the modular system (less than *fifteen* weeks) to take advantage of Michigan weather. Most modular classes are *7½* weeks. Check the schedule of classes for starting date. Classes meet in the gym for the initial meeting unless noted in the semester schedule.

Although it is still highly recommended, a physical examination is not mandatory for physical education activity classes. The physical education requirement may be waived by a medical excuse based on a physician's signed statement. Where the physical education requirement has been waived, the student must still complete 62 credit hours to earn a degree.

Some courses require payment of a fee in addition to tuition. Please check the appropriate semester schedule for individual amounts.

PHYSICAL EDUCATION-ACTIVITY

PEA 100B Yoga I—1 Cr. Hr. – 2 Contact Hrs. Basic postures, nutrition, meditation and the psychological and philosophical principles of yoga will be studied. Breath control and focusing the mind are practiced throughout the course.

PEA 101A Fitness, Wellness & Nutrition—1 Cr. Hr. – 2 Contact Hrs. A study of the body functions as they relate to exercise, postural alignment, good nutrition and diet. Students will understand and experience factors important to the physical, psychological and social well-being of the individual. Individual physical fitness testing, exercise programs, leisure-time exploration and consumer skill development will be presented.

PEA 103 Weight Training—1 Cr. Hr. – 2 Contact Hrs. Weight training is a course which covers objectives, fundamental skills, safety suggestions and procedures to develop individual conditioning and weight training programs. Performance and written tests are given.

PEA 104A Walking, Jogging and Conditioning—1 Cr. Hr. – 2 Contact Hrs. A co-educational course designed for individuals interested in establishing a physical fitness program emphasizing the cardiovascular component. The class includes individually prepared programs of walking/jogging, flexibility and muscular endurance conditioning.

PEA 105 Pocket Billiards—1 Cr. Hr. – 2 Contact Hrs. This course is designed to teach the various games of pocket billiards. It will include rules, regulations, the fundamentals of the different games, and match play tactics and tournament competition.

PEA 106 Leisure Games—1 Cr. Hr. – 2 Contact Hrs. Explanation of rules, strategies and courtesies of table tennis, shuffleboard, badminton, table games and other appropriate lifetime activities. This class includes singles and doubles play.

PEA 107 Archery—1 Cr. Hr. – 2 Contact Hrs. Fundamental skills, techniques and rules of archery are practiced and studied, shooting 10-160 yards.

PEA 108 Bowling—1 Cr. Hr. – 2 Contact Hrs. This course includes history, rules, courtesies, fundamental skills, and team competition. **(Fee)**

PEA 109 Sport Judo and Self-Defense*—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: Must be at least 14 years of age. The course will include a history of the sport, basic individual fundamentals, rules interpretation, courtesies and self-defense techniques.

PEA 110 American Karate System I*—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: Must be at least 14 years of age. Course is designed to acquaint the student with the basics and history of karate. The beginning student will learn the proper stretching and warm-up exercises. Students will be instructed in the proper attitude and application of hand and foot techniques of the American Karate System.

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PEA 111A Tae Kwon Do Ap Koobi*—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: Must be at least 14 years of age. Students will: practice the breathing, balance, rhythm, timing, and focus necessary to perform the basic blocks, punches, strikes, kicks, and turns from the front stance; transfer power through physics; translate spoken Korean protocol into English; learn the first Kee Cho form and the significance of the Korean flag; apply front stance controlled training and self-defense from wrist/hand grabs; begin to develop an awareness of one's surroundings for safety issues.

PEA 112 Wrestling I—1 Cr. Hr. – 2 Contact Hrs. This course covers: history, explanation of rules and regulations, demonstration and practice of basic holds, rides and takedowns. Practical and written testing.

PEA 114 Golf I—1 Cr. Hr. – 2 Contact Hrs. Fundamentals, skills, strategies and rules of golf are practiced and studied. Practice on the driving range, putting green and actual play are included. Skill and written testing. **(Fee)**

PEA 116 Tennis I—1 Cr. Hr. – 2 Contact Hrs. This course includes the history, explanation of rules and regulations, practice of fundamental skills and class tournament competition. Skill and knowledge testing.

PEA 118 Cycling—1 Cr. Hr. – 2 Contact Hrs. This course is designed to introduce the individual to the activity of cycling. The class will include safety factors of cycling and a progressive cycling program. Fitness and written testing are included.

PEA 119 Alpine Skiing—1 Cr. Hr. – 2 Contact Hrs. This course is designed for those students interested in learning the fundamentals and techniques of downhill skiing and snowboarding. The class is open to students of varied abilities. Equipment will be furnished, but students will be responsible for providing their own transportation to the off-campus site. **(Fee)**

PEA 120 Nordic Skiing I—1 Cr. Hr. – 2 Contact Hrs. This is a course designed for those students interested in learning the fundamentals and techniques of cross country (Nordic) skiing. The class is open to students of varied abilities. Equipment can be rented, and students will be responsible for providing their own transportation to the off-campus site. **(Fee)**

PEA 130 Beginning Swimming—1 Cr. Hr. – 2 Contact Hrs. Course is designed for beginners and advanced beginners. Materials covered include: adapting to the water, basic strokes, including side stroke as well as front and back styles. Individual instruction in sequence as readiness occurs. American Red Cross certification is awarded upon satisfactory testing and completion.

PEA 131 Intermediate Swimming—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: PEA 130 or American Red Cross Beginners certificate or its equivalent. This course is designed for intermediate swimmers. Materials covered include: improving the five basic strokes, safety, and learning three new strokes. Individualized instruction in sequence as readiness occurs. American Red Cross certification is awarded upon satisfactory testing and completion.

PEA 133 Water Safety Instructor—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: Must be 16 years of age, take a pre-course written test on first day of class on Water Safety and pre-course skills test. The skills test includes: swim 50 yards of front crawl, back crawl, side stroke, breast stroke, and elementary back stroke; perform a standing front dive, long shallow dive, and surface dive; and perform elementary forms of rescue. Course covers review of the styles of swimming, teaching the styles, and observation and teaching. Upon successful completion of the course, water safety instructors are qualified to teach all levels of the American Red Cross Infant and Pre-school Aquatics Program, Levels I-VI in the Learn to Swim Program, Community Water Safety and the Water Safety Instructor Aid course. They will also have Fundamentals of Instructor Training. American Red Cross certification is awarded upon satisfactory testing and completion.

PEA 134A Lifeguard Training—1 Cr. Hr. – 3 Contact Hrs. Prerequisites: Be at least 15 years old. Swim 500 yards continuously: swim 200 yard in front crawl, 100 yards of breast stroke, 200 yards either front crawl or breast stroke. Swim 20 yards using front crawl or breast stroke and then surface dive to a depth of 7-10 feet, retrieve a 10-pound object and return to the surface and swim 20 yards back to the starting point with the object. This course focuses on Lifeguarding skills and knowledge needed to prevent and respond to aquatic emergencies. It prepares lifeguard candidates to recognize emergencies, respond quickly and effectively to emergencies and prevent drowning and other incidents. The course also teaches other skills and individual needs to become a professional lifeguard. American Red Cross certificates for Lifeguard Training, First Aid, CPR for Professional Rescuers, Waterfront Lifeguarding, Preventing Disease Transmission, Oxygen Administration, and AED Essentials are awarded upon satisfactory testing and completion.

PEA 137 Beginning Scuba—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: Be at least 15 years of age, able to swim and be reasonably comfortable in the water. To become a certified diver, the student must be able to perform the following: a 200 yard swim (no time limit) and a 10 minute float/treading water without aid of equipment. There are three sections a student must complete to become a "Certified diver:" classroom, pool and open water divers. This course covers the classroom and pool sessions. The purpose of this course is to provide students with the elemental knowledge and skills they need to safely gain experience in the diving environment. Students may participate in the Open Water Dives after successful completion of the course through Muskegon Community College or any PADI dive store (additional fee). A 75% or better is required on all written work for certification. All equipment is provided except mask, snorkel, fins and boots, which may be rented. **(Fee)**

PEA 139A Basic Canoeing/Kayaking – 1 Cr. Hr. – 2 Contact Hrs. This course is designed for those students who wish to gain additional knowledge and skill in the sports of canoeing and kayaking. The course will cover the history, equipment design, regulations, skills and techniques involved in safe paddling in flat, open and swift water. For admittance into the course, the student must have swimming ability sufficient to enable him/her to maintain himself/herself in the water for ten minutes comfortably and calmly, with relaxation and gentle movements, while clothed in shirts, trousers and tennis shoes or the equivalent.

PEA 140 Principles of Sailing—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: American Red Cross Beginners Swimming Certificate or permission of instructor. A small boat sailing course that will include basic seamanship, water safety, boat care, including rigging, and elementary sailboat racing.

PEA 152 Softball—1 Cr. Hr. – 2 Contact Hrs. A course which covers skills, explanation of rules and regulations, demonstration and practice of basic skills. There will be practical and written testing.

PEA 153 Baseball I—1 Cr. Hr. – 2 Contact Hrs.This course is designed to cover the basic fundamental skills, rules and strategies of baseball. There will be practical skill and written tests on rules and basic fundamentals.

PEA 154A Volleyball I—1 Cr. Hr. – 2 Contact Hrs. The fundamental skills, rules, strategies and courtesies of power volleyball are practiced and studied. Written and skill testing are required.

PEA 155 Basketball I—1 Cr. Hr. – 2 Contact Hrs. This course includes: history, explanation of rules, basic individual fundamentals, offensive and defensive theory and testing of individual skills and knowledge.

PEA 156 Beach Volleyball—1 Cr. Hr. – 2 Contact Hrs. The fundamental skills, rules, strategies and courtesies of beach volleyball are practiced and studied. Opportunity to play, officiate and critique will be offered. Written and skill testing are required.

PEA 201 Aerobic Movement For Fitness—1 Cr. Hr. – 2 Contact Hrs. An introduction to aerobic fitness programs and routines. Students will learn simple aerobic routines including steps set to music, achieving better cardiovascular endurance, muscular strength, overall flexibility and individual fitness testing.

PEA 209 Sport Judo and Self Defense II*—1 Cr. Hr. – 2 Contact Hrs. Prerequisites: Students must have basic experience in some Martial art such as Judo, Jujutsu, Karate, Self Defense or other similar art. A Muskegon Community College physical card must be on file in the Physical Education Office prior to the beginning of participation in class. Sport Judo and Self Defense II (Jujutsu) will include advanced techniques enabling the student to become more skilled in Martial Arts such as KATA (forms) and SHIAI (competition).

PEA 210 American Karate System II*—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: PEA 110 or permission of instructor and be at least 14 years of age. Course includes a review of previous requirements. The major objectives of the class are to learn advanced karate techniques; tournament rules; develop confidence, coordination and character; prepare the student in officiating and the responsibility of teaching basic karate techniques.

PEA 211A Tae Kwon Do Dwit Koobi*—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: PEA 111A or permission of instructor and be at least 14 years of age. Students will: practice the breathing, balance, rhythm, timing, and focus necessary to perform the basic blocks, punches, strikes, kicks, and turns from the back stance; increase power through physics; translate spoken Korean numbers (8), stances (3), blocks (2), and kicks (3) into English; learn the first Pal Gwe form and its relationship to ancient Chinese philosophy; apply back-stance controlled training and self-defense from chokes and body grabs; begin to develop an awareness of one's habits for safety issues.

PEA 212 Wrestling II—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: PEA 112 or permission of instructor. This course is designed to teach wrestling in theory and practice. Specialized work at different levels to increase the standards of wrestling for coaches or physical educators will be emphasized. Students will have an opportunity to discover their own shortcomings and how to cope with them.

PEA 214 Golf II—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: PEA 114 or permission of instructor. This course is designed for those students who wish to play, teach or coach the game of golf. Normally considered to be for the intermediate and advanced student of golf. **(Fee)**

PEA 216 Tennis II—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: PEA 116 or permission of instructor. This course is designed for those students who wish to gain additional knowledge and skill for advanced play, teaching or coaching tennis.

PEA 220 Nordic Skiing II —1 Cr. Hr. – 2 Contact Hrs. Prerequisite: PEA 120 or instructor permission. The technique and application of techniques for cross-country (Nordic) skiing with emphasis on refinement and execution at higher speeds (racing) built upon basic skills. Equipment can be rented and students will be responsible for providing their own transportation. **(Fee)**

PEA 237 Advanced Scuba —1 Cr. Hr. – 2 Contact Hrs. Prerequisite: Be at least 16 years of age and be certified as a PADI Open Water Diver or have an equivalent rating. There are three sections a student must complete to receive an "Advanced Plus Rating," nine open water dives, medic first aid training, and advanced diving theory. This course includes classroom and open water dives. The purpose of this course is to provide students with advanced knowledge and specialized diver's activities. PADI certification is awarded to those students who successfully complete all required dives and earn 75% or better on all written work. All equipment is provided for the class except mask, snorkel, fins and boots, which may be rented. **(Fee)**

PEA 253 Baseball II—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: PEA 153 or permission of instructor. The course will specialize in teaching the theory and practice of baseball. Work will be provided at different levels to increase knowledge and understanding of the game for coaches and teachers.

PEA 254A Volleyball II—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: PEA 154A or permission of instructor. This course includes the study of advanced individual skills and team strategies. Coaching techniques and officiating are emphasized. Outside team competition is offered. Practical skill tests and written exams.

PEA 255 Basketball II—1 Cr. Hr. – 2 Contact Hrs. Prerequisite: PEA 155 or permission of instructor. This course is designed for those students who wish to gain additional knowledge and skill which would be of value to those who wish to play, teach, officiate or coach the game of basketball.

*Denotes course that contains an International Component.

PHYSICAL EDUCATION-PROFESSIONAL

PEP 100 Foundations of Physical Education—2 Cr. Hrs. – 2 Contact Hrs. An orientation to the profession of physical education, its history, basic principles, relation to growth and mental health and vocational opportunities. This course is intended for all students who wish to major or minor in physical education and/or related fields.

PEP 201 Elementary Physical Education for the Classroom Teacher—2 Cr. Hrs. – 2 Contact Hrs. A theory and activity course designed to acquaint the prospective classroom teacher with planning and teaching his/her own physical education program. Concepts of program planning plus practical experience in teaching varied levels of physical education activities are included**.**

PEP 202 Teaching Procedures—2 Cr. Hrs. – 2 Contact Hrs. The contribution of physical education to education shown through methods and procedures. Unit and lesson plans, testing and grading will be covered. The course will include observations in local school systems.

PEP 203 Fundamentals of Coaching--3 Cr. Hrs. - 3 Contact Hrs. This course is designed for both experienced and novice coaches interested in understanding and/or improving their professional coaching skills. Topics to be covered include: philosophy, growth and development, sports safety training, psychology, litigation/liability and sports management. PACE (Program for Athletic Coaches' Education) and American Red Cross Sports Safety Training, which includes adult CPR, certification is awarded upon successful completion (80% or better) for each emphasis in the course.

PHYSICAL SCIENCE

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

PHSC 099 Contemporary Topics in the Physical Sciences—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: None. This is a beginning science course for students with limited previous background in the sciences. The approach is conceptual and contemporary with emphasis on skill building rather than subject content. These skills should enhance the chances of successfully completing the 100 level courses in the physical sciences. Topics will be taken from astronomy, chemistry, geology and physics.

PHSC 101A Introductory Physical Science Lecture and Lab—4 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MATH 040. This is a course for non-science majors offering students a broad exposure to the physical sciences. The approach to this course is conceptual and contemporary, and includes topics from various physical sciences. Students will use both empirical and theoretical evidence to gain an understanding of the fundamental laws that govern the universe.

PHYSICS

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

PHYS 105A Cosmology—4 Cr. Hrs. – 4 Contact Hrs. Prerequisites: MATH 050 or assignment by Math Placement Test. While Astronomy is concerned with the contents of the Universe, Cosmology is the science of the origin, current state and ultimate fate of the universe. In this course, the foundations of modern Cosmology are presented from a historical perspective, covering the physical fundamentals, the impact of Einstein's Theories of relativity on modern cosmologies and finally from the perspective of the most recent astronomical discoveries.

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PHYS 201 Principles of Physics L & L—4 Cr. Hrs. – 6 Contact Hrs. (6 hour integrated lecture and lab.) (Engineering student—see Physics 203.) Prerequisites: MATH 112 or instructor permission. A course that develops, by means of lecture and laboratory experience, a basis for understanding the physical aspects of phenomenon classified as mechanics, heat, and waves (sound). This course is especially suitable for pre-professional students such as pre-med, pre-law, pre-dental, and life science and liberal arts majors.

PHYS 202 Principles of Physics L & L—4 Cr. Hrs. – 6 Contact Hrs. (6 hours integrated lecture and lab.) Prerequisites: PHYS 201 or permission of instructor. A continuation of PHYS 201 which considers the physical aspects of phenomenon classified as magnetism, electricity, light, and nuclear physics. This course is especially suitable for pre-professional students such as pre-med, pre-law, pre-dental, and life science and liberal arts majors.

PHYS 203 Engineering Physics L & L—5 Cr. Hrs. – 7 Contact Hrs. Prerequisite: MATH 161. A course designed for students majoring in engineering, mathematics or the physical sciences. Lectures, labs, demonstrations, discussions and problems on the principles of mechanics, sound, waves, heat and thermodynamics. Graphing calculator required (TI-85 or higher recommended).

PHYS 204 Engineering Physics L & L—5 Cr. Hrs. – 7 Contact Hrs. Prerequisites: MATH 161 and PHYS 203, or permission of the instructor. A continuation of PHYS 203 which considers magnetism, electricity, light and modern physics. Graphing calculator required (TI-85 or higher recommended).

POLITICAL SCIENCE

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

PSCI 111 Introduction to American Government—4 Cr. Hrs. – 4 Contact Hrs. A study of the structure and function of U.S. national, state, and local government emphasizing the basic rights and responsibilities of citizenship, as well as an introduction to basic forms and philosophies of government.

PSCI 112A Contemporary Issues in U.S. Public Administration—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: PSCI 111 or permission of instructor. A study of the administration of American government and the problems currently confronting it. Emphasis will be placed upon current and controversial problems of administration. An attempt will be made to include those areas meeting needs and interests of students.

PSCI 202 International Relations*—3 Cr. Hrs. – 3 Contact Hrs. This course examines political relationships worldwide. It will include the analysis of conflicts in the world, and how nations search for peace through the United Nations. Additional areas to be examined are international law, the World Trade Organization, the International Monetary Fund, the World Bank, currency exchange rates, the integration of trade blocs like the European Union, environmental pollution, and economic development.

PSCI 203 Readings In the History of Western Political Thought—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: PSCI 111 or permission of instructor. An introduction to the history of Western Political Thought from Plato to Neitzsche. The course will concentrate on the original texts which will be subjected to critical analysis. Major themes will be identified and examined in the light of the American democratic experience.

PSCI 205 Contemporary Political Issues in United States Government*—3 Cr. Hrs. – 3 Contact Hrs. An intensive study and critical analysis of contemporary political issues in U.S. Government involving issues that deal with some or all of the following: basic concepts of U.S. democracy, state-federal relationships, government finance, political interest groups, legislative powers, executive powers, judicial powers, civil rights, civil liberties, and international relations.

PSCI 210 International Organizations*—1 Cr. Hr. – 1 Contact Hr. This course concentrates on the objectives, functions and structure of selected international organizations. Potential organizations

include but are not limited to: United Nations, Arab League, North Atlantic Treaty Organization, Organization of African Unity. International Organizations study will prepare and provide students an opportunity to participate in an off campus conference featuring simulations of a selected organization.

PSCI 211 Comparative Government*—3 Cr. Hrs. – 3 Contact Hrs. This course will compare governments in various European, American, Asian, and African states. Students will examine political, cultural, economic, and historical reasons for similarities and differences between nations. The United States will be used as a model for comparison.

PSCI 220 Labor Studies—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: PSCI 111 or permission of instructor. A survey course studying and critically analyzing the historical, political, and legal frameworks of the labor movement, major labor laws, causes and purposes of the labor movement, union structure and behavior, and labor-management approaches to solving employment disputes in the U.S. and internationally.

*Denotes course that contains an International Component.

PSYCHOLOGY

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

PSYC 102 Applied Psychology—3 Cr. Hrs. – 3 Contact Hrs. This course stresses the useful, relevant application of psychological knowledge and research to everyday life. A variety of perspectives will be used to apply the principles, discoveries and theories of psychology in practical ways.

PSYC 201 General Psychology—4 Cr. Hrs. – 4 Contact Hrs. This course provides an academic survey of research methods and statistics, and in-depth study of neuroscience, development, learning/memory, sensation/perception, states of consciousness, motivation/emotion, stress/health, disorders/therapy, and social psychology. It is especially recommended for those who plan to continue their education beyond the associate degree level.

PSYC 202 Educational Psychology—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: A grade of "C" or better in PSYC 201, or permission of instructor. This course explores interrelationships between the fields of psychology and education. Research data, learning theories, cultural pluralism and special topics reflective of current educational change are examined. Particular interests in educational psychology at specific age/grade levels may be pursued in depth. Forty-five (45) hours of classroom experience in the public/private schools will be required. Exceptions to be approved by the instructor.

PSYC 203 Abnormal Psychology —4 Cr. Hrs. — 4 Contact Hrs. Prerequisite: A grade of "C" or better in PSYC 201 or permission of instructor. This course is designed as a sequel to General Psychology. Students will examine the origins of mental illness using biological, psychodynamic, behavioral, cognitive, humanistic-existential, and socio-cultural perspectives. They will study the biomedical and psychologically-based interventions used in the treatment of maladaptive behavior, and the community-based prevention measures and treatment efforts used to promote mental health.

PSYC 205A Developmental Disabilities & the Exceptional Child—4 Cr. Hrs. – 4 Contact Hrs. Prerequisite: A grade of "C" or better in PSYC 201, or permission of instructor. The course is an introduction to the study of the psychology of exceptional children. Classification of exceptionality, causal factors, treatment and prevention are studied. The course is especially relevant to parents and caregivers of exceptional children, and to those considering professions or careers in psychology, education or special education, childcare or treatment, social work and nursing.

READING

RDG 040A Essential Reading Skills—1 Cr. Hr. – Variable Contact Hrs. Co-requisite: RDG 001 Day or Evening Lab. For students reading below 10th grade level. Includes word attack, prefixes-suffixes, vocabulary, reading for the main idea, and finding supporting details. Course includes individualized weekly assignments and private instruction. Additional lab time is required.

RDG 040C Essential Reading Skills—3 Cr. Hrs. – 3 Contact Hrs. This course is for students scoring below 10th grade level on the Nelson-Denny Reading Test. Includes prefixes, suffixes, vocabulary, reading for the main idea, and identifying supporting details. Course includes weekly assignments, some one-on-one and small group instruction. Additional lab time is required.

RDG 040E Reading and Succeeding in College—1 Cr. Hr. – Variable Contact Hrs. Prerequisite: RDG 040A or RDG 040C. Co-requisite: Enrollment in a class which requires a textbook and has an instructor lecture and RDG 001 Day or Evening Lab. This course is designed for at-risk students who have completed RDG 040A or RDG 040C but have not reached 10th grade reading level on the Nelson-Denny Reading Test and, consequently, are not ready for RDG 134A, RDG 134B, or RDG 134C. Students will learn time management, concentration strategies, reading strategies, how to read and study a textbook assignment, how to take lecture notes, and how to study for tests. Additional lab time is required.

RDG 134A Vocabulary/Spelling—1 Cr. Hr. – Variable Contact Hrs. Co-requisite: RDG 001 Day or Evening Lab. Builds a practical college-level vocabulary by teaching Greek and Latin etymology, dictionary skills, vocabulary memory devices and use of context. Additional lab time is required.

RDG 134B Comprehension/Speed—1 Cr. Hr. – Variable Contact Hrs. Co-requisite: RDG 001 Day or Evening Lab. Improves reading speed and develops comprehension of main ideas and details. Additional lab time is required.

RDG 134C Study Skills/Test Taking—1 Cr. Hr. – Variable Contact Hrs. Co-requisite: RDG 001 Day or Evening Lab. Teaches time management, concentration, memory improvement, note taking, test taking, text-study, and college library skills. Note: We recommend that students taking RDG 134C also take at least one lecture-type college course during that semester. Additional lab time is required.

REAL ESTATE

RE 101 Real Estate I—3 Cr. Hrs. – 3 Contact Hrs. This course provides background information for the State Real Estate Salesperson's examination. The course is designed for real estate sales people and those interested in entering the real estate profession. Content includes economics, legal aspects, nature of real property, ownership, and property rights. Several certified professional realtors are used as resource persons for key subject areas.

RECREATION

REC 111 Introduction to Recreation and Leisure*—3 Cr. Hrs. – 3 Contact Hrs. An examination of the history and development of the park and recreation movement; sociological, economical, psychological and political consideration of leisure and recreation in contemporary societies; professional and service organizations and their interrelationships; and orientation to the professional field.

REC 122 Leadership in Recreation—2 Cr. Hrs. – 2 Contact Hrs. This course is designed to acquaint the student with fundamental knowledge of leadership and group functioning. It presents, among several related aspects, the development of leadership study, characteristics of group functioning, and selected supervision topics such as delegation and evaluation. Some questions to be considered are: What determines leadership effectiveness? What influence does the situational environment have on leader behavior? What contributes to group cohesion and stability? What leadership roles present difficulty to the recreation and leisure service practitioner? What factors motivate subordinate work behavior?

REC 123 Recreation and Leisure Programming—2 Cr. Hrs. – 2 Contact Hrs. This course is designed to provide the student with an understanding of recreation programming as it relates to a variety of settings, situations and people. Emphasis will be placed on the concepts and processes of organizing, conducting and evaluating programs.

REC 211-214 Field Study in Recreation Leadership—1-4 Cr. Hrs. – Variable Contact Hrs. Prerequisites: REC 111, REC 122, and REC 123. An in-depth experience in the field(s) of private, agency, or municipal recreation and parks (to include community school programs) primarily for recreation majors and minors. Students will meet several times prior to their field study experience with the college coordinator. REC 211/1 credit - 60 hours; REC 212/ 2 credits - 120 hours; REC 213/3 credits - 180 hours; REC 214/4 credits - 240 hours.

REC 215 Recreation and Special Populations—2 Cr. Hrs. – 2 Contact Hrs. Prerequisite: REC 111 or instructor permission. This course is specifically designed to acquaint the student with an overview of therapeutic recreation which involves physically, mentally or emotionally challenged; social deviant; the aged and substance abusers within institutions, agencies and in the community. The course is intended for students interested in general recreation as well as those who wish to specialize in working with special groups.

*Denotes course that contains an International Component.

RESPIRATORY THERAPY

RT 101 Respiratory Therapy Physics—1 Cr. Hr. – 1 Contact Hr. This course introduces the student to the basic concepts of classical physics used in respiratory care.

RT 110 Equipment and Procedures—3 Cr. Hrs. – 5 Contact Hrs. This course is designed to cover equipment and procedures in routine oxygen therapy. Topics included are: the physical properties of gases, manufacture and transport of medical gases, oxygen storage systems, pressure regulating systems, flow regulating systems, oxygen delivery equipment, and oxygen analyzers.

RT 111 Introduction to Respiratory Therapy—3 Cr. Hrs. – 3 Contact Hrs. This course is designed to give an introduction to the field of Respiratory Therapy and to basic medical sciences. Topics included are: the gas laws, physical states and structure of matter, role of energy in chemical and biological systems, acid-base physiology and processes of body metabolism.

RT 120 Equipment and Procedures II—3 Cr. Hrs. – 5 Contact Hrs. This course is designed to familiarize the student with proper techniques and equipment used for the delivery of aerosol/humidity therapy, incentive spirometry, intermittent positive pressure breathing (IPPB) and chest physical therapy.

RT 121 Pharmacology—2 Cr. Hrs. – 2 Contact Hrs. This course introduces the student to the general principles of pharmacology and gives an in-depth study of cardiopulmonary drugs.

RT 122 Clinical I—2 Cr. Hrs. – 4 Contact Hrs. This course is designed to introduce the student to patient care. The student will be assigned such responsibilities as general rounds. In addition, students will observe certain respiratory care procedures being performed.

RT 130 Equipment and Procedures III—3 Cr. Hrs. – 5 Contact Hrs. This course is designed to present procedural tasks including: intubation, airway care and management, pulmonary function testing and arterial blood gas sampling.

RT 131 Physiology—3 Cr. Hrs. – 3 Contact Hrs. This course is designed to give the student an in-depth study of cardiopulmonary physiology.

RT 132 Clinical II—3 Cr. Hrs. – 8 Contact Hrs. This course is designed to allow the student to practice techniques mastered in the previous practicum. During this course, the student will also become proficient in performing all basic respiratory care in the hospital.

RT 134 Introduction to Mechanical Ventilation—1 Cr. Hr. – 1 Contact Hr. Co-requisite: RT 130 Equipment & Procedures III. This course is designed to introduce the student to the theories of adult mechanical ventilation. Emphasis will be placed on patient assessment, indications, modes of ventilation, and management of the mechanically ventilated adult patient.

RT 141 Pulmonary Pathophysiology—2 Cr. Hrs. – 2 Contact Hrs. This course examines the mechanism of pulmonary disease. Emphasis is placed on a detailed study of etiology, clinical manifestations, treatment, complications, and prognosis for most pulmonary disorders.

RT 144 Adult Mechanical Ventilation—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: RT 134 Introduction to Mechanical Ventilation. This course is a continuation of the Introduction to Mechancial Ventilation course. Emphasis will be placed on the evaluation, care and management of mechanically ventilated adult patients. Additional emphasis will be placed on the application, mechanical functions and operation of specific ventilator systems.

RT 152 Clinical IV—5 Cr. Hrs. – 12 Contact Hrs. This course is designed to allow the student to develop competency in the critical care areas, mastering skills in mechanical ventilation of adult patients.

RT 162 Clinical V—7 Cr. Hrs. – 16 Contact Hrs. This course is designed to allow the student to further develop skills and competence in the adult critical care areas. Here the student will master ventilator therapy of the adult patient. By the end of the semester, the student should be able to assume a well-rounded position on the Respiratory care team.

RT 210 Cardiovascular and Renal Physiology—4 Cr. Hrs. – 4 Contact Hrs. This course is designed to present the anatomy, physiology and monitoring methods used to examine the heart-lung system and the kidneys. Emphasis will be placed on the electrocardiogram and hemodynamic monitoring, cardiac pharmacology, renal control of electrolytes and applications toward clinical respiratory care.

RT 212 Advanced Clinical Practicum I—3 Cr. Hrs. – 16 Contact Hrs. This clinical rotation is designed to prepare the student for an in-depth analysis of various critical care and diagnostic specialties.

RT 220C Pediatric/Neonatal Critical Care—4 Cr. Hrs. – 6 Contact Hrs. This course is designed to examine the various methods and procedures used to evaluate and care for the high-risk infant and pediatric patient. Emphasis will be placed on fetal development and monitoring, maternal risk factors, labor and delivery, newborn pathophysiology, mechanical ventilation and cardiopulmonary monitoring.

RT 222A Clinical Rotation VII—3 Cr. Hrs. – 8 Contact Hrs. This is the second and last clinical rotation taken by the second-year student. It is designed to expose the student to various specialties of respiratory care, including one day each in: home care; rehabilitative care; pulmonary function testing; sleep studies; smoking cessation; asthma education.

RT 230 Pulmonary Diagnostics and Rehabilitation—2 Cr. Hrs. – 2 Contact Hrs. This course explores the various methods of testing, evaluating and rehabilitating patients with pulmonary disease and disability. Emphasis will be placed on organization of rehabilitation programs, preventive care and home care.

RT 240 The Health Care Environment—1 Cr. Hr. – 1 Contact Hr. This course is designed to acquaint the student with the environments and forces that shape health care policy. Emphasis is placed on the social, political, medical and economic forces that influence the provision of health care today.

RT 250 Asthma Educator Course – 3 Cr. Hrs. – 3 Contact Hrs. This is a post-graduate course designed to train health care practitioners to be asthma educators and to prepare them for the national certification exam currently being developed by the American Lung Association. This course is for those health care professionals who have completed formal training in accredited health care programs. This

course will cover all aspects of asthma education including pathology, pharmacology, diagnostics, psychosocial training, and asthma management planning.

SOCIAL SCIENCE

Before enrolling in this course, you must demonstrate that you are ready to succeed.

AS 201 American Studies—4 Cr. Hrs. – 4 Contact Hrs. The purpose of this course is to trace American social and cultural history from the colonial period to the present by means of a variety of inter-disciplinary approaches and techniques.

SOCIOLOGY

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

SOC 101 Principles of Sociology—3 Cr. Hrs. – 3 Contact Hrs. A course offering the student an opportunity to grasp the basic principles necessary to develop sociological insights. Societal structure, as well as the basic tools of sociological measurement are surveyed. Emphasis is on the United States from a global perspective. The course is designed to equip sociology majors with the necessary foundation to continue in sociology and to provide non-majors with a general understanding of the structure and processes of society.

SOC 102 Principal Ethnic Minorities in America—3 Cr. Hrs. – 3 Contact Hrs. A survey of the dominant ethnic minority groups in our present day population. Emphasis is placed on those minority groups which have traditionally had to look to human service agencies to meet some of their basic needs. The course is open to all students with a basic sociology background.

SOC 202 Social Disorganization (Social Problems)—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: SOC 101. A course designed to aid the student in understanding the basic causes of the social ills that plague the contemporary social scene. Emphasis in this course is on those aspects of culture such as crime which contribute to inequities in our social system. Social problems of our judicial and educational institutions, as well as sexism and racism constitute the basis of our inquiry.

SOC 203 Introduction to Social Work—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: SOC 101 or SOC 202 or permission of instructor. Designed to present the objectives, methods and practices of the current field of social work. Where possible and whenever possible field work is included as part of the course offering. Field observation trips, presentations by practicing social workers, research practitioners and members of relevant social institutions and agencies will also be included. This course also assists those students majoring in education, ministry, medicine or law to gain intelligent awareness of the functions of existing social agencies in the Muskegon community.

SOC 206 Introduction to Aging—3 Cr. Hrs. – 3 Contact Hrs. An overview of gerontology that emphasizes identifying, describing and explaining challenges, patterns and processes concerning the elderly. This approach enables students and practitioners to acquire basic knowledge critical for careers related to gerontology, and to anticipate problems and promises of their own later lives.

SPANISH
(SEE FOREIGN LANGUAGES)

STUDENT DEVELOPMENT

PSYC 101 Human Potential Seminar—2 Cr. Hrs. – 3 Contact Hrs. The purpose of the course is to help individuals discover and actualize their unique strengths and potentials. The goals are to assist individuals to increase their self-affirmation, self-motivation, self-determination, and regard for others.

TECHNICAL APPRENTICESHIP RELATED INSTRUCTION

Muskegon Community College, in cooperation with Muskegon Area industrial employers, labor councils, and the U.S. Department of Labor help train skilled workers for the future needs of industry. Apprenticeship Training programs are divided into two parts: on-the-job training under the supervision of a journeyman in the trade, and a minimum of 576 hours of related classroom instruction at a Federally approved training site.

Muskegon Community College provides the related classroom instruction which accompanies apprenticeship training programs.

Muskegon Community College does not select or place students in apprenticeship programs. It does provide the related technical courses which all apprentices must attend. Non-apprentices may also enroll in the courses, to prepare themselves for a subsequent apprenticeship, or to upgrade their qualifications for their present jobs.

Any trade which is recognized as apprenticeable by the U.S. Bureau of Apprenticeship and Training may have a local apprentice training program. Local programs require the cooperation of employers and a joint apprenticeship committee representing management and labor.

For information on class schedules and entrance into specific programs, call the Apprenticeship Coordinator at Muskegon Community College.

Successful completion of an apprenticeship training program may be credited toward an Associate in Applied Science Degree Program.

TECHNOLOGY-RELATED COURSES

AMT 129 Introduction to Technology—3 Cr. Hrs. – 6 Contact Hrs. This course provides an "integrated" introduction to the current computer-based technologies of manufacturing. Students will develop a foundation of understanding through hands-on experience in: basic microcomputer operations, Computer-Aided-Design (CAD), Computer-Aided-Machining (CAM), Computer Numerical Control (CNC), Robotics, Computer Automated Process Control, spreadsheets and Word-processing. The course also promotes: problem solving, group process, decision making, planning, and communication skills.

HP 101 Hydraulics/Pneumatics—3 Cr. Hrs. – 4 Contact Hrs. Prerequisite: TMAT 101 or equivalent. An overview of industrial fluid power technology with emphasis on hydraulic and pneumatic components and circuits. Practical hands-on exercises are provided using pneumatic training equipment. Component recognition and circuit analysis are covered for their applications to maintenance, modifications, and design activities in the field.

QC 101 Basic Quality Control—3 Cr. Hrs. – 3 Contact Hrs. This course presents practical approaches to quality problems. It includes study of basic techniques and laboratory workshop periods in developments of functional quality control. These include charting, sampling, analyzing probability relations, frequency distributions, vendor control, diagnosing the cause of defects, quality improvement and supervisory obligations.

QC 105 Quality & Productivity Using SPC-Statistical Process Control—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: QC 101 or instructor permission. This course instructs students in the methods and techniques of improved quality of productivity in all types of business and industry. Students are taught to understand the impact of foreign and domestic competition on their own organization and/or future employers. Topics covered include: operating a prevention system versus a detection system of quality control, defining and identifying inhibitors to quality and how to overcome them, chart construction, problem-solving using Pareto analysis, process flow charts, and cause and effect diagrams. The course is project-oriented and team-based.

TECH 200 Applied Alternative and Renewable Energy—3 Cr. Hrs. (1 Hour Lecture, 2 Hours Lab). Prerequisites: MATH 050, CHEM 100, ELTC 101 or instructor permission. This course introduces

the student to the power generating technologies. It will cover the operating principles, benefits and challenges in traditional, alternative and renewable energy fields. An emphasis is made on fuel cells, wind power, photovoltaics, energy storage, and distribute power generation. An overview of the associated topics in economics and politics will be provided.

TECH 290CI Cooperative Internship—Variable 1-4 Cr. Hrs. Prerequisites: The student must have a GPA of 2.5 or better. The student should have completed a significant portion of the core career requirements in their major field of study with a total of 30 credit hours towards a degree. Additionally, a faculty recommendation from the student's major field of study is required. The Cooperative Internship Program is a paid or non-paid fieldwork experience in business and/or industry within the student's major area of study. Variable credit hours (1-4 Cr. Hrs. per semester) may be earned dependent upon the number of work hours available from the employing organization. A student may sign up for as many internships as desired, however, the number of credit hours which can be applied towards a degree/certificate depends on the student's course of study and departmental requirements. This course is offered as a pass/no pass grade. The internship course starting and ending dates are determined on an individual basis.

TMAT 101 Technical Math I—3 Cr. Hrs. – 3 Contact Hrs. A course for technical students who require a review of the principles of arithmetic as applied to manufacturing and business problems. Also included will be the use of the scientific calculator, basic algebra, trigonometry, and statistics.

TMAT 102 Technical Math II—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: TMAT 101 or high school equivalent. A course presenting the fundamentals of algebra and geometry as applied to the technical and industrial field.

TMAT 201 Technical Math III—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: TMAT 102 or high school advanced algebra and geometry. A thorough study of basic trigonometry with applications to technical and industrial problems.

TMAT 202 Technical Math IV—3 Cr. Hrs. – 3 Contact Hrs. Prerequisite: TMAT 201. This course familiarizes the technical student with the Machinery Handbook and its uses in the solution of problems. A continuation of the study of algebra, geometry, and trigonometry in addition to logarithms is included.

THEATER

Before enrolling in these courses, you must demonstrate that you are ready to succeed.

TH 101 Theater Appreciation—3 Cr. Hrs. – 3 Contact Hrs. Designed for non-majors, this class attempts to prepare students for success as theatergoers. We will study the requirements of being an involved spectator at live theater and be introduced to the many elements of production. This is an experience-oriented course and requires attendance at play performances outside of class.

TH 102 Introduction to Acting I—3 Cr. Hrs. – 3 Contact Hrs. An introduction to the art and craft of acting for the stage. Focuses on character analysis and performance. Physical, vocal, and mental exercises are utilized to develop the individual's self-awareness and communicative skills.

TH 108 Theater for Children—3 Cr. Hrs. – 3 Contact Hrs. A course exploring the specialized techniques of play production for or with children, creative dramatics, and theater games. The class is designed for persons working with children such as elementary schoolteachers, special education workers, recreation leaders, and religious education staff. The use of theatrical techniques as educational tools to enhance the learning experience in other subjects is explored.

TH 120 Technical Theater I—1 Cr. Hr. – 1 Contact Hr. (5 week course) The fundamental course in the technical theater sequence specifically designed as a prerequisite for Applied Theater classes and crew assignments for play productions. Introduces production staff organization and different types of stages and scenery.

(continued on next page)

TH 141 Applied Theater Acting—1 Cr. Hr. – Variable Contact Hrs. Practicum class earning credit for acting in a Center for Theater production. Scheduling is flexible but will include weekend performances and probably evening rehearsals.

TH 142 Applied Theater – Dance—1 Cr. Hr. – Variable Contact Hrs. Practicum class for performing in a Center for Theater production. Scheduling is flexible but will include weekend performances and probably evening rehearsals.

TH 144 Applied Theater – Costuming—1 Cr. Hr. – Variable Contact Hrs. Practicum class earning credit for crew work on a Center for Theater play production. Scheduling is flexible but requires forty hours of lab work during available times.

TH 145 Applied Theater – Scenery Construction—1 Cr. Hr. – Variable Contact Hrs. Practicum class earning credit for crew work on a Center for Theater play production. Scheduling is flexible but requires forty hours of lab work during available hours.

TH 147 Applied Theater – Production Crew—1 Cr. Hr. – Variable Contact Hrs. (4-week course) Practicum class earning credit for crew work on Center for Theater productions. Scheduling is flexible but requires forty hours of lab time in a four-week period. Work assignments are made in terms of student interest and production needs. Includes scenery construction, painting, properties, costume, lighting, and/or sound crews.

TH 148 Applied Theater – Performance Crew—1 Cr. Hr. – Variable Contact Hrs. (2-week course) Practicum class earning credit for crew work on Center for Theater productions. Requires attendance at weekend and evening rehearsals and performances for a two-week period. Work assignments will be made in terms of student interest and production needs. Includes scenery shifting, properties, costume running, and lighting, and/or sound crews.

TH 160 Acting for TV and Film—3 Cr. Hrs. – 3 Contact Hrs. This course is designed to prepare the student with the basic skills necessary for TV and/or film acting. Among the topics covered are: acting for the camera, the use of and differences between the television and film camera, the use of the storyboard, shooting out of sequence, developing continuity, and the use of lighting, sound, special effects and editing. Rehearsal outside of class time and shooting on location may be required. The final class project will culminate in each student acting in a prepared film scene. Before enrolling in this course, you must demonstrate that you are ready to succeed.

TH 201 Introduction to Theater History*—3 Cr. Hrs. – 3 Contact Hrs. An introductory course designed to give the student an awareness of the development of theater from classical Greece through Neo-classical France.

TH 202 Introduction to Acting II—3 Cr. Hrs. – 3 Contact Hrs. An acting class emphasizing the analysis of scripted scenes and character interactions. Selected scenes are rehearsed for possible performance at the end of the semester.

TH 203 Readers Theater—3 Cr. Hrs. – 3 Contact Hrs. This performance course is designed to give the student knowledge of and experience in oral reading as a theatrical form. Out-of-class rehearsal and performance time may be required.

TH 210 Play Production—3 Cr. Hrs. – 3 Contact hrs. An introductory course in the process of play production from script selection through final performance.

TH 212 Summer Theater Workshop—3 Cr. Hrs. – Variable Contact Hrs. A practicum course allowing advanced students to undertake special projects in conjunction with a summer theater company. Projects are usually creative in nature and are undertaken with the advice and supervision of an approved mentor. Although focusing on the specialized crafts of acting, directing, design, technical production, or arts management, project implementation will emphasize the cooperative nature of theater.

TH 217 Creative Dramatics—1 Cr. Hr. – 1 Contact Hr. This course is an introduction to the use of creative dramatics in the classroom, home, and community. The goals and concerns of creative drama will be explored as well as methods for incorporat-

ing these techniques into a curriculum. Focus will be centered on the activities that are the basis of every creative dramatics program. A particular interest will be centered on the novice who needs practical advice on how to begin teaching creative thinking and problem solving.

TH 260 Student Production Practicum – 2 Cr. Hrs. – Variable Contact Hrs. An experiential — course giving credit for creative involvement in the planning, rehearsal, and performance of a play.

*Denotes course that contains an International Component.

WELDING TECHNOLOGY

W 101 Basic Welding—3 Cr. Hrs. – 5 Contact Hrs. Basic Welding is designed for the learner who has no welding experience or limited welding experience. Subject material will focus on the theory of welding processes common to local industries. The welding and cutting processes covered will be: Oxyacetylene Welding and Oxyacetylene Brazing (OAW and OAB), Oxyacetylene Cutting (OAC), Plasma Arc Cutting (PAC), heating and bending with the torch, Gas Tungsten Arc Welding (GTAW), Shielded Metal Arc Welding (SMAW), and Gas Metal Arc Welding (GMAW). Students will learn to set-up and operate welding equipment according to approved standards. Theory of each welding process will be covered in the classroom followed by practical experience in the lab. Lab projects will provide experiences in the fabrication of typical weld joints all done in the flat position. Welding symbols found on drawings and welding terminology will be an integral part of the course.

W 102 Introduction to Advanced Welding—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: W 101 or instructor permission. This course will cover the three most common electric arc welding methods: Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW), and Gas Metal Arc Welding (GMAW). The course is designed for the learner who has limited or some previous welding experience. Material covered will be safety and theory of the processes as well as equipment set-up and the creation of typical joint used during metal fabrication.

SMAW - This process involves constructing typical welded joints in the horizontal, vertical-up and overhead positions. The electrode used will be the fast fill/ fast freeze group, which is the E6010/E6011 electrode.

GTAW - This part of the course will present the theory and application of the TIG welding process. Shielding gases, tungsten selection and preparation, polarity selection and welding machine set-up will be covered. Welds will be constructed in the flat position only. Projects will be done in mild steel, aluminum, and stainless steel.

MIG - In the MIG portion of the course both theory and applications of the welding process will be covered. Topics of discussion will include the following: transfer modes, types and application of shielding gases, stick-out distance, wire feed speeds, voltage selection and machine set-up. Wire and gun maintenance will also be covered. Typical welded joints will be constructed in the flat position only.

W 103 MIG (Gas Metal Arc) Welding/TIG (Gas Tungsten Arc)—3 Cr. Hrs. – 6 Contact Hrs.
Prerequisite: W 102 or instructor permission. This course is an intensive study of Gas Tungsten Arc Welding (GTAW) and Gas Metal Arc Welding (GMAW) processes. This course is designed for students who need to improve their welding skills in these processes.

GTAW - Instruction will include the theory and applications of shielding gases, tungsten electrodes, polarity settings and equipment set-up procedures. Students will weld ferrous and non-ferrous materials. Welding joints will be done in all positions. The course material will place emphasis on creating a fabricated joint that has the same metallurgical and physical properties as the base metal.

GMAW - Instruction will include the theory of the welding process, transfer modes, types and applications of shielding gases and machine set-up. Welds will be created in the flat, horizontal, vertical-up/ down and overhead positions. Both ferrous and non-ferrous materials will be used. Topics of discussion will include: safety precautions, joint preparation, current selection, wire speed and proper selection of inert gas mixtures.

W 201 Structural Welding—3 Cr. Hrs. – 6 Contact Hrs. Prerequisites: W 102 or instructor permission. A course designed for advanced welders who want to improve their skills in stick welding or who are preparing to certify to AWS D1.1 code standard. This code is used for welding on bridges, buildings, steel structures, road machinery, farm equipment and other structures. Materials presented will be the AWS code book, safety precautions, joint preparation, electrode selection, setting up equipment and welding procedures. Lab work will include out-of-position welding using the fast fill/ fast freeze (E6010) and fast fill/ slow freeze (E7018) category electrodes. Weld testing-- both visually and mechanically will be an integral part of the coursework.

W 202 Pipe Welding—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: W 201 or instructor permission.
This course is designed for the advanced welders who want to improve their pipe welding skills or are preparing for pipe welding certification to the AWS D1.1 welding code standard. Topics covered will include: safety practices, tack welds, positioning and pipe welding using methods most frequently found in industrial processes and fieldwork. All common welding positions will be covered. Students are required to perform root pass, filler pass and cover pass on each specimen. Welding processes which will be covered are Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW), and Gas Metal Arc Welding (GMAW). Destructive and visual testing will be part of the coursework.

W 203 Maintenance Welding—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: W 201 and W202 or instructor permission. A course with emphasis on safety and the combined skills obtained from previous welding and related courses. Students should have a working knowledge of jigs and fixtures, welding symbols and blueprints that will enable them to fabricate assembly parts according to print specifications. A degree of creative and technical talent will be needed to translate theory to productivity. The student will be presented with a problem, be expected to find the solution and deliver an oral or written report.

W 204 Welding Supervision—3 Cr. Hrs. – 6 Contact Hrs. Prerequisite: MET 201. Pre- or Corequisites: W 203 and BCOM 102. A course that requires the welding student to combine hands-on skills and intellectual knowledge of welding processes and use this ability to help beginning welders. The student will assist the instructor in demonstrations of welding processes and techniques used in today's welding operations. Students will be required to produce weld specimens in all positions and perform destructive tests for weld soundness. This course provides skills that help you stand out among other candidates in the welding industry.

WOMEN'S STUDIES

Before enrolling in this course, you must demonstrate that you are ready to succeed.

WS 101 Introduction to Women's Studies—3 Cr. Hrs. – 3 Contact Hrs. Students will look at women's positions in our culture and others, both now and historically, considering issues such as media portrayals, economics, violence against women, socialization, and body image. The course will consider how race, class, and sexual orientation affect a person's experiences with regard to each of these issues. Students will also look at the various movements for change. This course satisfies the social relationships general requirement for an ASA degree.

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