

environment (including major court decisions which have transformed the juvenile system), exploring the theories of the causes of juvenile delinquency, and discussion of juvenile delinquency prevention and control programs. *One semester; three credits*

CJ 245. CHILD SEXUAL ABUSE

This class will acquaint the student with the various players involved in the crime of child sexual abuse, dispel many of the popular myths associated with this crime and introduce the physical and behavioral indicators of abuse. The most recent research on forensic interviewing and repressed memory will be reviewed. Guest speakers will include prosecutors and police investigators with the Child Protection Investigation Team. *One semester; three credits*

CJ 250. SERIAL KILLERS

This class will present a brief history of the more famous serial killers in both the United States and abroad and the increasing phenomenon of serial killings will be discussed. Students will be introduced to the science of profiling and other techniques used in the investigation of serial killings and psychological profiles of two contemporary serial killers will be compared. *One semester; three credits*

CJ 280-287. SELECTED TOPICS IN CRIMINAL JUSTICE

Directed work on a special topic or project in criminal justice. *One semester; one to three credits*

CJ 290-299. HONORS SPECIAL TOPICS.

Special topics in criminal justice open to members of the Honors Program or by permission of instructor. *One semester; one to four credits*

CJ 315. CROSS-CULTURAL CRIMINAL JUSTICE

Crime, justice, and retribution vary tremendously around the globe. Some cultures have meetings with parties rather than courts, and, in some, suspects merely vanish never to be seen again. This course will look at varieties of concepts of crime, wrongdoing, punishment (or lack of), and systems for dealing with these in other parts of the world, and compare some of these systems to the criminal justice system and its ideology in the United States. *One semester; three credits*

CJ 362. SOCIOLOGY OF ADDICTION

(Same as SOC 362) Prerequisite: SOC 101. *One semester; three credits*

CJ 365. DEVIANT BEHAVIOR

An exploration of theoretical perspectives on deviance, problems in defining deviance and specific categories of deviance. Deviant behaviors discussed may include but are not limited to prostitution, gambling, transgenderedness, pornography, mental illness, sexualities, and physical disability. (Same as PSYC 365 and SOC 365) *One semester; three credits*

CJ 370. APPLICATIONS OF MEMORY

An examination of the application of memory in such diverse areas as courtroom testimony (e.g. factors influencing witnesses, hypnosis, repressed memory, false memory, voice identification), memory for everyday events, memory aids, and advertising. The relevant theories and research in each are examined. Prerequisite: PSYC 105. (Same as PSYC 370) *One semester; three credits*

CJ 380-387. SELECTED TOPICS IN CRIMINAL JUSTICE

Directed work on a special topic or project in criminal justice. *One semester; one to three credits*

CJ 401. CONSTITUTIONAL LAW

(Same as POLS 471) Prerequisite: POLS 112 or HIST 151 or Permissions of the department chair. *One semester; three credits*

CJ 455. CORRECTIONAL COUNSELING

This course is designed to present some of the counseling and treatment techniques that are available to assist correctional workers toward assisting the offender to establish a satisfying lifestyle that conforms to the regulations as well as protecting the community from harmful activity by offenders placed under the correctional workers' supervision. (Same as PSYC 455) *One semester; three credits*

CJ 480-487. ADVANCED TOPICS IN CRIMINAL JUSTICE

Directed work on a special topic or project in criminal justice. *One semester; one to three credits*

■ ECONOMICS COURSES

ECON 214. PRINCIPLES OF MICROECONOMICS (Formerly ECON 212)

Attention is focused on the micro concept of economic analysis, and primary attention given to the theory of the firm and partial equilibrium problems arising within any enterprise economy. Attention is also given to government regulation of business, the theory of income distribution as it pertains to the determination of wages, rents and profits, and international trade. Offered in both Fall and Spring semesters. *One semester; three credits*

ECON 215. PRINCIPLES OF MACROECONOMICS (Formerly ECON 211)

This course focuses attention on the aggregate or macroeconomic relationships and gives attention to the central problems of economic organization, the functioning of the price system, the economic role of government, the determination of national income, employment, the rate of inflation, and fiscal and monetary policy. Further, the student is introduced to the interactions between aggregate markets such as the product market, the factor/labor market, and the money market. Prerequisite: ECON 214. Offered in both Fall and Spring semesters. *One semester; three credits*

ECON 323. THE ECONOMICS OF HEALTH AND HEALTHCARE

The course uses the tools of economic thinking and economic analysis to examine the current state of health and healthcare in the United States.

Economic concepts to be discussed include scarcity, rationing, the roles of the free market and government, sensitivity to price, determinants of the demand for, and the supply of, healthcare, and production possibilities. These and other tools will be used to examine such topics as changing demographics, alternative production and delivery systems, health insurance, regulation of the health sector, and the legal environment. Prerequisite: ECON 214 or consent of instructor. Offered as needed. *One semester; three credits*

ECON 343. INTERMEDIATE MACROECONOMICS

The theory of national income and employment, analysis of aggregate demand, the general degree of utilization of productive resources and the general level of prices as well as related questions of policy. Prerequisites: ECON 214, 215. Offered in the Fall semester. *One semester; three credits*

ECON 344. INTERMEDIATE MICROECONOMICS

A study of basic economic theory as it pertains to the individual economic units of a society, a study of the tools which are used in analyzing these units. Price determination, market analysis, and resource allocation are stressed. Prerequisites: ECON 214, 215. Offered in the Spring semester. *One semester; three credits*

ECON 346. CURRENT ECONOMIC TOPICS

Analysis and discussion of current issues from an economic perspective. Possible subject areas include the environment, health care, comparative economic systems, welfare, growth and development, crime, religion and economics, and other current topics. The course may examine several current issues or may focus on just one or two. Offered in even-numbered Fall semesters. *One semester; three credits*

ECON 400. ECONOMICS INTERNSHIP

Under the supervision of a faculty member from the appropriate department, students in the School of Business, after receiving the approval of the faculty, are placed in the offices of cooperating firms to receive on-the-job training under the supervision of members of the firm. Credit is granted upon acceptance of periodic reports and a final summary report of work done verified by the authorized supervisor and the instructor. Offered in the Fall and Spring. Pass/Fail grading. *One semester; three credits*

ECON 420. MANAGERIAL ECONOMICS

This course focuses on the application of economics theory to the problems and decisions faced by business managers in a market-oriented economy. The economic aspects of business departments such as marketing, finance, accounting, and law are explored and integrated into the applicable economic theories and models. Thus, in a very general sense, this course attempts to provide the student with a method of looking at the world of microeconomics through the eyes of an economist and from the perspective of a business person. Prerequisites: ECON 214, 215. Offered in both Fall and Spring semester. *One semester; three credits*

ECON 422. INTERNATIONAL TRADE

This course is designed to provide the student with a basic understanding of the principles of international trade, marketing, and finance. Specific topics which will be introduced include but are not limited to: tariffs, subsidies, import restrictions, foreign exchange, methods, agencies, and middlemen and business practices which influence trade relations. In addition, students will study the basics of the field of International Business including national differences in political economy and culture, global trade and investments, foreign direct investments, regional economic integration, foreign exchange markets, and strategic alliances. Prerequisites: ECON 214, 215. Offered in the Fall semester. *One semester; three credits*

ECON 450. ECONOMICS POLICY

Application of economic theory and methodology to the study of decision making in both the political arena and various government agencies. This will include the study of politics using the economic ways of thinking, various theories of justice and approaches to public policy, analysis of representative/democratic government, study of decision making inside bureaucracies, and development of the process of public policy formulation and implementation. Among the policy areas covered will be an analysis of policy programs in the areas of education, welfare, and health care. Prerequisites: ECON 214. Offered in odd-numbered Fall semesters. *One semester; three credits*

ECON 460-466. SPECIAL TOPICS IN ECONOMICS

The reading and discussion of significant economic literature. The course is designed to improve the student's approach to modern economic problem solving and to stimulate economic thinking and the analysis of modern business problems. Prerequisites: ECON 214, 215. Offered as needed. *One semester; three credits*

■ EDUCATION COURSES

EDUC 211. INTRODUCTION TO EDUCATION

Introduction to the profession of teaching and development of a personal philosophy of teaching and learning; examination of American education and contemporary schools. Orients prospective teachers to licensure requirements and the Teacher Education Program. Field experience is a required part of the course. *One semester; three credits*

EDUC 303. PROFESSIONAL FOUNDATIONS I

Students acquire background in the professional foundations of education, emphasizing perspectives on the profession of teaching, the teacher as a leader, the history of schooling, philosophies of curriculum, social and cultural influences on schools and classrooms, the diversity of student populations, and the politics, economics, and law of education. *One semester; three credits.*

EDUC 304. PROFESSIONAL FOUNDATIONS II

Students acquire background and skill in curriculum design and instructional strategies and methods, instructional planning and guidance, analysis of patterns of classroom dynamics, classroom assessment, and classroom inquiry in conjunction with perspectives on school reform, teacher leadership, and lifelong professional development. *One semester; three credits.*

EDUC 331. SURVEY OF EXCEPTIONAL LEARNERS

This course surveys and assesses the physical, psychological, social, and learning characteristics and needs of atypical learners with emphasis on skills and techniques for identifying and teaching such learners in a heterogeneous classroom. Requires interviews with and observations of practitioners in special education and a practicum experience of at least ten hours. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 350. PORTFOLIO AND PRACTICUM I

Required for elementary licensure. Candidates recently admitted to the Teacher Education Program complete 30 clock-hours of school-based experience and assessments, including initial development of technology driven portfolio. Prerequisites: Admission to the Teacher Education Program. *One semester; one credit.*

EDUC 390. PRINCIPLES AND METHODS OF INSTRUCTION

This course, designed for students seeking secondary licensure, focuses on the skills appropriate to designing and implementing an instructional system suited to various types of learning, student competence levels, and curricular demands. Emphasis is placed on specific competencies in objective setting, lesson planning, testing, diagnosis, remediation, and alternative grading methods. Prerequisite: Admission to Teacher Education Program. *One semester; three credits*

EDUC 391. FIELD EXPERIENCE

Direct observation and participation in selected attendance centers. Fifteen clock hours of classroom work are required under the supervision of the classroom teacher and a college supervisor. Prerequisite: Admission to the Teacher Education Program. *One semester; one credit*

EDUC 392. FIELD EXPERIENCE

Direct observation and participation in selected schools, either elementary or secondary, depending upon the licensure track of the student. Thirty clock hours of classroom work are required under the supervision of a classroom teacher and a college supervisor. Prerequisite: Admission to the Teacher Education Program. *One semester; two credits.*

EDUC 393. FIELD EXPERIENCE

Direct observation and participation in selected schools, either elementary or secondary, depending upon the licensure track of the student. Forty-five clock hours of classroom work are required under the supervision of a classroom teacher and a college supervisor. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits.*

EDUC 402. PRACTICUM IN EDUCATION

Required for students choosing middle or secondary teaching majors linked with the MAT route to middle or secondary licensure. Also required for students in K-6 Liberal Studies, Pre-licensure program. Weekly one-hour seminar, readings, and 30 hours of field experience. *One semester; three credits*

EDUC 405. CURRICULUM AND METHODS IN LANGUAGE ARTS, K-3

Students examine the theory and practice of transforming the methods of inquiry and the knowledge base of the language arts into language curriculum, emphasizing content and performance standards, planning for instruction, teaching methods and materials, including the integration of technology into the elementary school language arts curriculum. Specialized instruction in teaching grades K-3 to read is an integral part of this course. *One semester; three credits*

EDUC 406. CURRICULUM AND METHODS IN LANGUAGE ARTS, 4-8

Required for elementary licensure. Theory and practice in reading and instruction and in the knowledge and skills of language literacy, emphasizing content and performance standards in the language arts, planning for instruction, teaching methods, and materials, including the integration of technology into the 4-8 language arts curriculum. Field experience is a required part of this course/ Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 407. CLASSROOM MANAGEMENT AND METHODS (Formerly EDUC 407)

Students develop and practice competence in various classroom management methods, including unit and lesson planning, interpersonal and group communication skills, and principles of effective classroom organization. Course topics include analyzing, comparing, evaluating, and applying various theories and methods of classroom motivation, management, and discipline. Ten hours of field experience required. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 408. ASSESSMENT OF LEARNING AND PRACTICE, K-12

Elective course in education giving in-depth study in assessment and evaluation methods, including test design and interpretation of results and development of authentic and performance-based approaches to measuring student learning. *One semester; three credits.*

EDUC 411. CURRICULUM AND METHODS IN SCIENCE, K-8

Required for elementary licensure. Theory and practice in transforming the methods of inquiry and the knowledge base of the sciences into the elementary science curriculum, emphasizing content and performance standards, planning for instruction, teaching methods, and materials, including the integration of technology into the elementary science curriculum. Field experience is a required part of this course. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 412. CURRICULUM AND METHODS IN SOCIAL STUDIES, K-8

Required for elementary licensure. Theory and practice in transforming the methods of inquiry and the knowledge base of the social sciences into the elementary social studies curriculum, emphasizing content and performance standards, planning for instruction, teaching methods, and

materials, including the integration of technology into the elementary social studies curriculum. Field experience is a required part of this course. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 420. PORTFOLIO AND PRACTICUM II

Required for elementary licensure. Candidates at a mid-point in the Teacher Education Program complete 30 clock-hours of school-based experience and assessments, including further development of technology-driven portfolio, appropriate Praxis II tests, and application for student teaching experience. Prerequisite: Admission to the Teacher Education Program. *One semester; one credit*

EDUC 422. CURRICULUM AND METHODS IN MATHEMATICS, K-8

Required for elementary licensure. Theory and practice in transforming the methods of reasoning and the knowledge base of mathematics into the elementary math curriculum, emphasizing content and performance standards, planning for instruction, teaching methods, and materials, including the integration of technology into the elementary math curriculum. Field experience is a required part of this course. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 424. CREATIVE EXPRESSION IN ELEMENTARY SCHOOLS, K-6

Required for elementary licensure. Integration of concepts of music, visual art, drama, and dance into the elementary classroom. Prerequisite: Admission to the Teacher Education Program. *One semester; one credit*

EDUC 426. INTEGRATING CURRICULUM

This course examines features of integrated curriculum, including standards-driven instruction, concept-and theme-based units, and integration of content to ensure transfer of knowledge. Prerequisite: Admission to Teacher Education Program. *One semester; three credits*

EDUC 427. MIDDLE SCHOOL STRATEGIES

This course analyzes elements of high-performing middle schools in relation to characteristics of young adolescents. Topics include interdisciplinary teaming, block scheduling, teacher-based guidance, exploratory experiences, and the changing roles of middle school teachers. Prerequisite: Admission to Teacher Education Program. *One semester; three credits.*

EDUC 428. ADOLESCENT LITERATURE

A study of literature written for preadolescent children and adolescents designed for those who will teach middle school and high school English and language arts. Prerequisite: Admission to the Teacher Education Program or permission of instructor. *One semester; three credits.*

EDUC 429. READING AND WRITING ACROSS THE CURRICULUM, 7-12

(Formerly EDUC 415) Emphasizes and fosters continued development in student literacy and academic ability in all disciplines taught in the secondary school. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits.*

EDUC 430. CURRICULUM AND ASSESSMENT IN SECONDARY SCHOOLS, 7-12

Elective course focusing on standards-based curriculum development and assessment strategies in the secondary school. *One semester; three credits.*

EDUC 431. STUDENT TEACHING—ELEMENTARY LEVEL I

Directed student teaching in the early childhood grades is under the supervision of a selected cooperating teacher and a selected University supervisor. There is a \$150.00 fee attached to this course. Prerequisites: Permission of the department chair and admission to Teacher Education Program. Corequisites: EDUC 432, 438. No other courses may be taken concurrently except corequisites. Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 432. STUDENT TEACHING—ELEMENTARY LEVEL II

Directed student teaching in the middle grades is under the supervision of a selected cooperating teacher and a selected University supervisor. There is a \$150.00 fee attached to this course. Prerequisites: Permission of the department chair and admission to Teacher Education Program. Corequisites: EDUC 431, 438. No other courses may be taken concurrently except corequisites. Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 433. STUDENT TEACHING—ELEMENTARY LEVEL III

Directed student teaching in grades K-6 under the supervision of a selected cooperating teacher and a selected University supervisor. Reserved only for students seeking K-12 licenses who must also complete part of their student teaching experience in a 7-12 setting (see EDUC 437). There is a \$150.00 fee attached to this course. Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 435. STUDENT TEACHING—SECONDARY LEVEL I

Directed student teaching in grades 7-9 is under the supervision of a selected cooperating teacher and a selected University supervisor. There is a \$150.00 fee attached to this course. Prerequisites: Permission of the department chair and admission to Teacher Education Program. Corequisites: EDUC 436, 438. No other courses may be taken concurrently except corequisites. Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 436. STUDENT TEACHING—SECONDARY LEVEL II

Directed student teaching in grades 10-12 is under the supervision of a selected cooperating teacher and a selected University supervisor. There is a \$150.00 fee attached to this course. Prerequisites: Permission of the department chair and admission to Teacher Education Program. Corequisites: EDUC 435, 438. No other courses may be taken concurrently except corequisites. Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 437. STUDENT TEACHING—SECONDARY LEVEL III

Directed student teaching in grades 7-12 under the supervision of a selected cooperating teacher and a selected University supervisor. Reserved only

for students seeking K-12 licenses who must also complete part of their student teaching experience in a K-6 setting (see EDUC 433). There is a \$150.00 fee attached to this course. Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 438. STUDENT TEACHING SEMINAR

The seminar includes discussion of classroom experiences, lesson plan preparation, lessons taught and observed, as well as ways to integrate resources, to recognize and refer problem students, to study and manage time. Progress on the development of state-mandated knowledge and skills will be reviewed. Prerequisite: Admission to Teacher Education Program. Corequisites: EDUC 431, 432 or 435, 436. *One semester; one credit.*

EDUC 441. CONTEMPORARY SECONDARY METHODS, 7-12

Strategies for use in the secondary English, mathematics, social studies, science, and foreign language classrooms presented and practiced by students. Ten to fifteen hours of field experience required. *One semester; three credits*

EDUC 444. ART IN THE SCHOOLS.

Perspective on the role of art and art education in the schools. Required curriculum and methods course for prospective art teachers. *One semester; three credits.*

EDUC 445. SCHOOL HEALTH

This course covers school health knowledge and skills required for teachers, including health services, healthful school living, health screening, home and school safety, health content skills and materials, and first aid with CPR. *One semester; one credit*

EDUC 450. TEACHING FOREIGN LANGUAGE, K-12

Required curriculum and instructional methods course for all students completing a licensure program in a foreign language. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits.*

EDUC 451. RELIGIOUS EDUCATION CURRICULUM AND METHODS, K-6

This course explores appropriate curriculum and instruction for religious education programs and courses in the elementary school or at the elementary level. *One semester; three credits*

EDUC 452. RELIGIOUS EDUCATION CURRICULUM AND METHODS, 7-12

This course explores appropriate curriculum and instruction for religious education programs and courses in the secondary school or at the secondary level. *One semester; three credits*

EDUC 473. TEACHING PRACTICUM III

Culminating semester long experience of supervised teaching for students in the Early Childhood Pre-K-3 degree program. During Teaching Practicum III, students are expected to improve their instructional methods and classroom management, to become more reflective and analytical about their own professional practice, and to utilize clinical methods, assessment strategies, and classroom inquiry techniques to investigate their impact on student learning. Students continue to compile their portfolio and are required to take EDUC 474, Professional Seminar and Portfolio III, with EDUC 473. *One semester; four credits*

EDUC 474. PROFESSIONAL SEMINAR AND PORTFOLIO III

Seminar accompanies EDUC 473 and supports students in their experience of supervised teaching in the Early Childhood Pre-K-3 program. During the seminar, students complete the final components of required assessments for their licensure program, including their portfolio. *One Semester; one credit*

EDUC 490-498. PROBLEMS IN EDUCATION

Directed work in a special topic in education approved by the department up to 3 credit hours. Prerequisite: Approval of Director of Teacher Education. *One semester; one to three credits*

■ ELECTRICAL AND COMPUTER ENGINEERING COURSES

Requirements for the degree are found on Pages 72-73. Requirements for a dual degree in Electrical Engineering and Computer Science are found on Page 74.

ECE 101. INTRODUCTION TO ENGINEERING PROBLEM SOLVING

An overview of the salient math topics most heavily used in the core sophomore-level engineering courses. These include algebraic manipulation of engineering equations, trigonometry, vectors and complex numbers, sinusoids and harmonic signals, systems of equations and matrices, differentiation, integration and differential equations. All math topics will be presented within the context of an engineering application and reinforced through extensive examples of their use in core engineering courses. Corequisite: Math 117. Offered in the Fall semester. *One semester; three credits*

ECE 112. COMPUTERS IN ENGINEERING PROBLEM SOLVING

Introduction to the use of the digital computer in problem solving. Topics include flow of control, functions and user defined functions, pointers, array, strings and File I/O, study structured programming, pseudocode. Some applications will include graphics. Corequisite: MATH 117, 129, or 131 or registration therein. Offered in the Fall and Spring. *One semester; three credits*

ECE 120. INTRODUCTION TO JAVA PROGRAMMING

Introduction to the use of the digital computer in problem solving. Topics include flow of control, functions and user defined functions, array, strings, and File I/O, study structured programming. Some applications will include graphics. On-Line Course. Offered as needed. *One semester; three credits*

ECE 130. INTRODUCTION TO PROGRAMMING USING 3D GRAPHICS

This course is an introduction to object oriented programming using graphics in the creation of 3D movies, games and interactive applications. It studies: Algorithmic thinking and expression (how to read and write in a formal language); Abstraction (how to communicate complex ideas simply, and decompose problems logically); Appreciating elegance (why some solutions are inherently better than others); Object development (classes, objects, methods, parameters, and inheritance); Interactive programs (events and event handling); Core programming concepts (functions, if/else, loops, recursion, lists, arrays, variables). *One semester; three credits*

ECE 172. INTERMEDIATE PROGRAMMING AND ALGORITHMS (Formerly ECE 112)

This course concerns more topics in algorithms and program development using object-oriented programming concepts. Topics include methods, arrays, classes, objects, encapsulation, inheritance, composition, abstraction and graphical user interfaces. It uses the Java language for programming exercises and projects. Corequisite: MATH 117, 129, or 131. *One semester; three credits*

ECE 172L. INTERMEDIATE PROGRAMMING AND ALGORITHMS LAB

Lab to accompany ECE 172. Corequisite: ECE 172. *One semester; one credit*

ECE 201. ENGINEERING INSTRUMENTATION

A laboratory course designed to instruct students in the theory and use of various engineering instruments and transducers. Emphasis is placed on appropriate error analysis in the reduction, analysis, and reporting of data. Technical report preparation is emphasized. Two lecture periods and one laboratory period of three hours. Corequisite: ECE 221. Offered in the Fall and Spring. (Same as ME 301) *One semester; two credits*

ECE 221. ELECTRIC CIRCUIT ANALYSIS I

Fundamental electrical concepts: charge, voltage, current, power, resistance, capacitance and inductance. Techniques of circuit analysis; Kirchhoff's Laws; nodal and mesh analysis; source transformations. Thevenin's and Norton's theorems; linearity and superposition. Transient analysis; source free R-L, R-C, and R-L-C networks; unit step forcing function; natural and forced responses. Sinusoidal steady-state analysis; the complex forcing function; phasors-complex impedance; complex power; effective values and balanced three-phase systems. Prerequisite: MATH 132. Corequisite:PHYS 251. Offered in the Fall and Spring. *One semester; three credits*

ECE 222. ELECTRIC CIRCUIT ANALYSIS II

Complex frequency; damped sinusoidal forcing function, $Z(s)$ and $Y(s)$. Frequency response; series and parallel resonance. Magnetically coupled circuits; mutual inductance, linear and ideal transformers. Two-port networks; admittance, impedance and hybrid parameters. Fourier analysis; trigonometric and complex forms; complete response to periodic forcing functions. Fourier transforms; unit impulse function; convolution and circuit response in the time and frequency domain; system transfer functions. Laplace transform techniques; initial and final value theorems and transfer functions. Prerequisite: ECE 221 and MATH 231. Corequisite: PHYS 251. Offered in the Fall and Spring. *One semester; three credits*

ECE 234. DATA STRUCTURES

The course teaches the student important data structures, such as lists, stacks, queues, trees and tables. The student designs and implements correct readable and efficient software systems with interacting components. Prerequisite: ECE 172. Corequisite: ECE 244. *One semester; three credits*

ECE 244 DATA STRUCTURES LABORATORY

Lab to accompany ECE 234. *One semester; one credit*

ECE 250. DIGITAL DESIGN

Binary number system and Boolean Algebra. Minimization of logic functions. Implementation of logic circuits. Design of combinational circuits. Sequential devices. Design of synchronous sequential circuits. Introduction to counters, registers, and Register Transfer Language. Design of advanced arithmetic circuits. Memory devices. Processor design and microprogramming. Written reports are required for each of three design projects. Prerequisites: ECE 112 or CS 122 and 122L. Corequisite: ECE 172 or CS 171. Offered in the Spring semester. *One semester; three credits*

ECE 251. MICROPROCESSOR ARCHITECTURE AND PROGRAMMING

Eight bit microcomputer architecture, instructions, addressing modes registers, assembly language. Interfacing methods and devices. Current popular microprocessors with emphasis on the Motorola 68HCII. Two design projects will be required, one of which must include hardware. Prerequisite: ECE 250. Offered in the Fall semester. *One semester; three credits*

ECE 314. ENGINEERING ECONOMY

Fundamentals of engineering economy. Cost concepts. Time value of money and equivalence. Economic analysis of alternatives. Depreciation and after-tax analysis. Effects of inflation on economic analysis. Currency exchange rates. Effects of global economic issues on engineering decision making. Prerequisite: MATH 132. (Same as CH E 314, CE 314, ME 314) *One semester; three credits*

ECE 322. LINEAR CONTROL SYSTEMS

Analysis and design of linear control systems. Transfer function, block diagrams and state-variable representation. Feedback concepts and stability analysis in both the frequency and time domain. Design by Root locus, Bode plots, and state variable methods. Emphasis on use of computational software for complex cases. (Same as ME 422 Control Systems Engineering) Prerequisites: MATH 231, ECE 221, and ME 202. Offered in the Fall semester. *One semester; three credits*

ECE 331. ELECTRONICS I

Properties of semiconductors. PN-junction diodes: theory, models, and circuit applications. Operation and characteristics of bipolar junction and field effect transistors. Analysis and design of transistor bias circuits. Low frequency transistor models. Analysis and design of single stage amplifiers. Introduction to the operational amplifier and some of its applications. Introduction to frequency response of amplifiers. Introduction to oscillation. Prerequisites: ECE 221, 201, and MATH 132. Corequisite: ECE 341. Offered in the Fall semester. *One semester; three credits*

ECE 332. ELECTRONICS II

Analysis and design of single and multi-stage transistor circuits. Applications of the operational amplifiers and other integrated circuits. Introduction to feedback amplifiers, digital electronics, and small analog-digital systems. Introduction to power devices and circuits. Prerequisites: ECE 222 and 331. Offered in the Spring semester. *One semester; three credits*

ECE 335. SYSTEMS, SIGNALS AND NOISE

Signal models, systems analysis, random variables and random processes. Analog communication systems, baseband analog signal transmission, and continuous wave modulation techniques for analog transmission. Digital transmission for analog signals, sampling, quantizing, encoding of analog signals for transmission over digital systems. Analysis and design of digital communications systems, information theory, discrete pulse and carrier wave modulation schemes. Written reports are required for each of the three design projects. Prerequisites: ECE 222 and MATH 309. Offered in the Spring semester. *One semester; three credits*

ECE 341. JUNIOR LABORATORY I

Experiments paralleling topics from ECE 222 and ECE 331. Most experiments will relate to topics from electronics and stress designing with discrete electronic devices. Introduction to integrated circuits through circuit applications. Students will be required to maintain a lab journal. Prerequisite: ECE 201. Prerequisites: ECE 201 and 221. Corequisite: ECE 331. Offered in the Fall semester. *One semester; one credit*

ECE 342. JUNIOR LABORATORY II

Design projects paralleling ECE 322 and ECE 331. Some experiments may be assigned by the instructor, but some projects will be proposed by the students and submitted to the instructor for approval prior to the initiation of the work. An engineering notebook is kept by each student. Prerequisite: ECE 341. Corequisite: ECE 332. Offered in the Spring semester. *One semester; one credit*

ECE 350. COMPUTER SYSTEMS DESIGN AND ARCHITECTURE

General-purpose machines. Machine language and instruction set design. Simple RISC Computer using RTN, CISC (Motorola 68000) and RISC (SPARC) machines. Processor design, machine reset and exceptions. Pipelining and parallelism. Radix conversion, fixed and floating point arithmetic. Memory system design, virtual memory, and multi level memory. I/O subsystems, DMA, and error control. Peripheral Devices and intro to computer communication. Offered in the Fall semester. Prerequisite: ECE 251. *One semester; three credits*

ECE 360. OBJECT ORIENTED SYSTEMS DESIGN

The course uses object oriented analysis and design techniques and tools to develop and implement solutions to problems in business, engineering and science. Prerequisite: ECE 234 or CS 234. *One semester; three credits*

ECE 370. OPERATING SYSTEMS

The course presents the fundamental topics and principles that govern the behavior of operating systems. Topics include processor scheduling, memory management, input, output, file storage allocation, protection and security. Prerequisite: ECE 234 or CS 234. *One semester; three credits*

ECE 400. THE COMPLETE ENGINEER

This course deals with a wide array of issues facing the practicing engineer. Topics include: engineering ethics; regulatory issues; health, safety, and environmental factors; reliability, maintainability, producibility, sustainability; and the context of engineering in the enterprise, in society, and as part of the global economy (Same as CH E 400, CE 400, and ME 400). Prerequisite: Permission of the department and MATH 232. *One semester; three credits*

ECE 401. ELECTROMECHANICAL ENERGY CONVERSION

Linear and nonlinear magnetic circuits of transformers. Basic principles of electromechanical energy conversion, electromechanical devices and feedback control systems. Derivation and analysis of mathematical models. Rotating a.c. and d.c. machinery and their use to control systems. Direct energy conversion systems. Prerequisite: ECE 222. Corequisite: ECE 403. Offered in the Fall semester. *One semester; three credits*

ECE 403. ENERGY CONVERSION LABORATORY

Laboratory experiments paralleling ECE 401. Single phase transformers. Induction and synchronous machines. Use of variable frequency sources for speed control of induction motors, voltage and speed control circuits of d.c. machines. Structured, written laboratory reports. Corequisite: ECE 401. Offered in the Fall semester. *One semester; one credit*

ECE 406. ELECTROMAGNETIC FIELD THEORY

Field and vector operations. Electrostatic and magnetostatic fields. Time varying fields and electrodynamics. Plane waves. Transmission lines, transient and steady state. Prerequisites: ECE 221, MATH 232 and PHYS 251. Offered in the Fall semester. *One semester; three credits*

ECE 409. ELECTRICAL AND COMPUTER ENGINEERING PROJECT I

Design, development and implementation of student selected projects. Projects are sponsored by local and national industry. Includes complete engineering and testing as well as economic analysis. Written reports are required with the final product in engineering report form. A required oral presentation of the project to industry sponsors, faculty and students. Prerequisites: ECE 332, Senior Standing, and approval of Department advisor. Offered in the Fall semester. *One semester; one credit*

ECE 410. ELECTRICAL AND COMPUTER ENGINEERING PROJECT II

This is the major design experience for ECE students in which they demonstrate knowledge and skills acquired in earlier course work, technical and non-technical. They must also incorporate relevant engineering standards and realistic constraints in their work. Students select, design, develop and implement solutions to selected projects. Projects are suggested and sponsored by local and national industry, government, and institutions. Written reports are required with the final report in engineering report form. A final oral presentation to sponsors, faculty and friends is required. Prerequisites: ECE 409, senior standing and approval of department advisor. Offered in the Spring semester. *One semester; two credits*

ECE 420. DIGITAL CONTROL SYSTEMS

Analysis of discrete time systems, sampled-data systems, and digital systems. Development of Z transforms and pulse-transfer functions. Characterization of dynamic response of D/A-A/D conversion, sampling, aliasing. Elements of the design of digital feedback control systems. Transform techniques. Design using control system specifications and root loci diagrams. State variable methods. Introduction to random processes and modern filtering. Effects of quantization. Prerequisite: ECE 322. *One semester; three credits*

ECE 450. COMPUTER NETWORKS

The course emphasizes the relationship between computer systems and network services. HTTP, SMTP, DNS, NNTP and other networking services are introduced and explained. The Unix operating system implementation of these services is studied. Network based programming projects are assigned to verify understanding of protocols and operating system issues. Security and privacy issues in a networked environment are addressed. Prerequisite: ECE 234 or CS 234 or permission of instructor. Offered in the Spring semester. *One semester; three credits*

ECE 451. ADVANCED C++ PROGRAMMING

This course extends the object-oriented concepts developed in ECE. The course will cover topics that address namespaces, templates, exceptions, run time type identification, and the standard library including containers, iterators, and algorithms. Prerequisites: Senior standing or Permission of the instructor and either ECE 112 or CS 122. *One semester; three credits*

ECE 454. COMPUTER HARDWARE

Review of logic operations. Boolean algebra. Analysis and design of combinatorial circuits and sequential circuits. Race conditions and state assignments. Use of FPGA, EPLD, and VHDL in embedded digital design. Design tradeoffs: economics, speed, power dissipation, timing considerations, hardware and software. Computer related I/O standards such as: IEEE 488, CAMAC, RS449. Prerequisites: ECE 251 and Senior standing. *One semester; three credits*

ECE 470. DATA COMMUNICATIONS

Elements of data communication and the ISO reference model. Network structure, architectures and protocol hierarchies. Algorithms and heuristics for design of computer network topology. Physical basis for data communication. Synchronous and asynchronous data communication, interface standards, data channels and modulation schemes. Data link protocols. Point-to-point, satellite, packet radio, and local area networks. Written reports are required for each of the three design projects. Prerequisite: ECE 335. Offered in the Fall semester. *One semester; three credits*

ECE 471. DESIGN OF DATABASE SYSTEMS

Comprehensive introduction to the design of databases and the use of database management systems for the implementation of database applications. Entity-relationship and relational data models and database design. Abstract query languages (relational algebra) and SQL (language for creating, querying, and modifying relational and object-relational databases). Views, integrity, constraints, triggers, transactions, and security. Data warehouses, data mining, temporal databases, XML. Prerequisite: Junior standing. *One semester; three credits*

ECE 472. DATABASE SYSTEM IMPLEMENTATION

File organization and access, buffer management, performance analysis, and storage management. Database system architecture, query optimization, transaction management, recovery, concurrency control. Reliability, protection, and integrity. Design and management issues. Prerequisite: Junior standing. *One semester; three credits*

ECE 473. HUMAN COMPUTER INTERACTION

This course focuses on issues involved in the design of computer systems as they relate to the interaction between people and computers. Techniques demonstrating effective human computer interaction are assessed. Students will evaluate the human factors and theories associated with human-computer interaction. Prerequisite: Junior standing. *One semester; three credits*

ECE 477. DIGITAL SIGNAL PROCESSING

Discrete time signals and systems. The discrete time Fourier transform. The z-transform. The inverse z-transform. The discrete Fourier series. The discrete Fourier transform. Circular convolution. Representation of linear digital networks. Network structures for IIR systems. Network structures for FIR systems. Design of IIR digital filters. Digital Butterworth filters. Design of FIR filters. Computation of the discrete Fourier transform. The FFT. Written reports are required for each of the three design projects. Prerequisite: ECE 335. Offered in the Spring semester. *One semester; three credits*

ECE 480-489. SPECIAL TOPICS

Elective courses of special or current interest. Usually taught by visiting faculty with special or unique qualifications. Normally taken by Seniors. Prerequisites are announced with course offerings. *One semester; three credits*

ECE 490-494. SEMINAR

Special series of lectures on selected topics. Course credit assigned may range from zero to two. *One semester; zero to two credits*

ECE 495-496. INTERNSHIPS IN ELECTRICAL AND COMPUTER ENGINEERING

Students majoring in electrical engineering may be placed in the engineering offices of contracted firms to receive job training under the supervision of qualified engineers. Tasks completed as part of the internship must be approved by an authorized work supervisor. Credit is granted upon faculty approval of periodic review reports and a final summary report describing the work performed. Minimum time 200 hours. Prerequisites: Junior standing and Permission of the department. *Pass/Fail Grading. One semester; three credits*

ECE 497, 498, 499. TOPICS IN ELECTRICAL AND COMPUTER ENGINEERING I, II, III

Directed work on a special problem. Problems of an interdisciplinary nature are encouraged. A written report is required. A contract outlining the scope of the project is required prior to the initiation of work. Prerequisite: Senior standing and a duly executed contract. ECE 497 & 498 are Pass/Fail grading. *One semester each; one, two, and three credits respectively.*

■ ENGLISH COURSES

Requirements for the degree are found on Pages 34 and 35.

ENG 100. DEVELOPMENTAL COMPOSITION I

Intensive work on basic grammar, punctuation, sentence structure, paragraph development, and reading skills designed to prepare students for ENG 111. Separate sections will be offered for native and non-native speakers. Offered in the Fall semester. *One semester; three credits*

ENG 111. ENGLISH COMPOSITION I

An introduction to rhetorical modes and methods for critical reading. Writing sequences with practical application of specific strategies for invention, drafting, frequent revision, peer review, and editing. Offered in the Fall and Spring. Honors Program students typically take ENG 231 and 232 instead of ENG 111 and 112 and a literature course. *One semester; three credits*

ENG 112. ENGLISH COMPOSITION II

An introduction to argumentative strategies, research skills, and other applied writing. Students will write several short pieces and a research paper. Special sections which focus on a specific topic, such as “censorship” or “gender,” may be designated. Prerequisites: ENG 111. Offered in the Fall and Spring. Honors Program students typically take ENG 231 and 232 instead of ENG 111 and 112 and a literature course. *One semester; three credits*

ENG 211. INTRODUCTION TO LITERATURE I

A study of the literary forms of the novel and the short story, including the reading of significant world novels and short stories. This course will include an emphasis on writing skills cultivated in ENG 111, 112. Prerequisites: ENG 111, 112. Offered in the Fall and Spring. *One semester; three credits*

ENG 212. INTRODUCTION TO LITERATURE II

A study of the literary forms of drama and poetry, including the reading of significant world plays and poems. This course will include an emphasis on writing skills cultivated in ENG 111, 112. Prerequisites: ENG 111, 112. *One semester; three credits*

ENG 215. GATEWAY COURSE FOR MAJORS

A survey of the elements of poetry, drama, and fiction, and an introduction to contemporary critical approaches and MLA style. Will include an emphasis on writing about literature and incorporating critical research. For English, ECC, and English Education majors, this course is required before enrolling in any 300-400 level English course. *One semester; three credits.*

ENG 221. SURVEY OF BRITISH LITERATURE I

A survey of the representative prose and poetry writers of Great Britain from the beginnings through the 18th Century. Fulfills ENG 211 requirements. Prerequisites: ENG 111, 112 or Permission of Department Chair. Offered in the Fall semester. *One semester; three credits*

ENG 222. SURVEY OF BRITISH LITERATURE II

A survey of the representative prose and poetry writers of Great Britain since 19th-century Romantic Period. Fulfills ENG 212 requirement. Prerequisites: ENG 111,112 or Permission of Department Chair. Offered in the Spring semester. *One semester; three credits*

ENG 231. HONORS SURVEY OF WORLD LITERATURE I

A survey of significant prose and poetry writers of world literature from ancient times through 1600. This course will include an emphasis on writing skills. ENG 231 by itself can be substituted for ENG 111. Prerequisite: Membership in the Honors Program. Offered in the Fall semester. *One semester; four credits*

ENG 232. HONORS SURVEY OF WORLD LITERATURE II

A survey of significant prose and poetry writers of world literature from 1600 through the present. This course will include an emphasis on writing skills. ENG 232 by itself can be substituted for ENG 112. ENG 231 and 232 together can be substituted for ENG 111, 112, and one of the following: ENG 211, 212, 221, or 222. Prerequisite: Membership in the Honors Program. Offered in the Spring semester. *One semester; four credits*

ENG 240-249. SPECIAL TOPICS

Topics vary with the instructor. Prerequisite: ENG 111,112 or ENG 231, 232. *One semester; one to three credits*

ALL 300 AND 400 LEVEL COURSES ARE OPEN TO STUDENTS WHO HAVE COMPLETED ONE 200 LEVEL ENGLISH COURSE (211, 212, 221, 222, 231, 232). ENGLISH, ECC, AND ENGLISH EDUCATION MAJORS MUST HAVE COMPLETED ENG 215.

ENG 315. HISTORY OF THE THEATRE

An in-depth study of the theatre including samples of dramatic literature from ancient Greece to the present. (Same as THEA 315) *One semester; three credits*

ENG 331. AMERICAN LITERATURE TO 1865

A study of the representative prose and poetry writers of American literature set against the political, religious, and philosophical backgrounds from the Colonial Period through the Romantic Period. *One semester; three credits*

ENG 332. AMERICAN LITERATURE FROM 1865

A study of representative prose and poetry writers of American literature set against the social, political, and philosophical backgrounds since the Romantic Period. *One semester; three credits*

ENG 339. EIGHTEENTH-CENTURY BRITISH NOVEL

Extensive reading in novels by representative eighteenth-century British novelists such as Defoe, Richardson, Fielding, Smollett, and Sterne. *One semester; three credits*

ENG 340. NINETEENTH-CENTURY BRITISH NOVEL

Extensive reading in novels by representative nineteenth-century British novelists such as Austen, the Brontës, Dickens, Eliot, and Hardy. *One semester; three credits*

ENG 341. NINETEENTH-CENTURY AMERICAN NOVEL

Extensive reading in representative nineteenth-century American novels, set against the social, political, and literary backgrounds of their times. *One semester; three credits*

ENG 342. AMERICAN ROMANTICISM

A study of the representative influences, characteristics, and figures of the American Romantic Movement from 1830 to 1860. *One semester; three credits*

ENG 343. LITERATURE OF THE AMERICAN SOUTH

A survey of Southern American literature, including its background and themes, with emphasis on twentieth-century writers such as Faulkner, Welty, and Warren. *One semester; three credits*

ENG 351. MODERN NOVEL

An examination of modern modes of fiction through representative novelists and the stylistic concepts that shape their expression. *One semester; three credits*

ENG 352. MODERN POETRY

A study of theory and representative poets in the United States, Great Britain, and Ireland from 1900 to the 1960s. *One semester; three credits*

ENG 354. MODERN DRAMA

An examination of modern American drama from 1880-1960, beginning with a survey of late nineteenth-century European works followed by an intensive study of major playwrights and movements of the twentieth century. *One semester; three credits*

ENG 361. AFRICAN-AMERICAN LITERATURE

A study of poetry and prose by representative African-American writers, reflecting the development of African-American literature in the United States. *One semester; three credits*

ENG 362. WOMEN IN LITERATURE

An examination of literature by women in light of feminist literary theory. *One semester; three credits*

ENG 370. ADVANCED PRACTICAL GRAMMAR

The forms, relationships, and functions of language with emphasis on the elements of words and sentences. *One semester; three credits*

ENG 371. BUSINESS WRITING

An examination of logical and psychological patterns of business communication and adaptation to varying audiences. A study of forms of written and oral communication in the business world from letters for both routine and problem situations to memos, proposals, short and long reports, in the context of relevant technologies. Offered in the Fall and Spring. *One semester; three credits*

ENG 373. ADVANCED COMPOSITION

A study of rhetorical theory and rhetorical models accompanied by advanced practice in composition. *One semester; three credits*

ENG 375. SCIENTIFIC AND TECHNICAL WRITING

An examination of the principles of effective communication in industry, business, and government with emphasis on practical writing skills for technical articles, reports, proposals, and documentation. Heavy emphasis on the computer as the technical writer's workspace. *One semester; three credits*

ENG 376. CREATIVE WRITING

A workshop in writing fiction and/or poetry. Texts will be assigned for discussion of techniques and form. *One semester; three credits*

ENG 377. TECHNOLOGY FOR THE ARTS

A practical introduction to the working world of electronic texts and electronic publication. Students will design and create websites as well as publishing projects while they explore the world of digital photography. To provide the language and conceptual context for cybertext, lectures and discussions include the history of ink-and-fiber publishing as well as the emergence of hypertext and the internet. *One semester; three credits*

ENG 380-389. SPECIAL TOPICS

Topics vary with the instructor. Prerequisite: ENG 111, 112, and one 200 level English course (211, 212, 215, 221, 222, 231, 232). *One semester; one to three credits*

ENG 390-399. HONORS ENGLISH SPECIAL TOPICS

Special topics in English open to members of the Honors Program or by Permission of the instructor. *One semester; one to four credits*

ENG 432. MEDIEVAL LITERATURE

A study of representative works, European as well as British, from the Medieval Period. *One semester; three credits*

ENG 440. CHAUCER

A study of Chaucer's major works with emphasis on *The Canterbury Tales* and *Troilus and Criseyde*. *One semester; three credits*

ENG 441. SHAKESPEARE

An extensive and intensive study of both the comedies and tragedies. *One semester; three credits*

ENG 442. RENAISSANCE LITERATURE

A study of the major poets and prose writers of the English Renaissance Period including Spenser, Marlowe, and others. *One semester; three credits*

ENG 443. MILTON

A study of Milton's poetry with emphasis on *Paradise Lost*. *One semester; three credits*

ENG 444. RESTORATION AND THE EIGHTEENTH CENTURY

Dryden, Pope, Swift, and Johnson together with minor writers in poetry, prose, and drama. *One semester; three credits*

ENG 445. ROMANTIC PROSE AND POETRY

Wordsworth, Coleridge, Byron, Shelley, Keats-their practice and theory-as well as the Romantic essayists. *One semester; three credits*

ENG 446. VICTORIAN PROSE AND POETRY

Tennyson, Arnold, Browning, Hopkins, Carlyle, Newman, Ruskin-their lyrics and essays. *One semester; three credits*

ENG 447. SEVENTEENTH-CENTURY POETRY

A study of the poets of the seventeenth century including Jonson, Donne, Herbert, Marvell, Herrick, Lady Mary Wroth, and Aemilia Lanyer. *One semester; three credits*

ENG 450. CONTEMPORARY LITERATURE

A study of American and British fiction, poetry, and drama of the past twenty-five years. *One semester; three credits*

ENG 460-469. SPECIAL TOPICS

Topics of special interest including Comic Drama, Literary Non-Fiction, Tragic Drama, Detective Fiction, Publishing History of the United States, Baseball in American Literature, etc. Topics vary with instructor. Prerequisite: one 200 level English class (211, 212, 215, 221, 222, 231, 232). *One semester; one to three credits each*

ENG 479. JUNIOR SEMINAR

This course should be taken in the Spring semester of the junior year. Students will examine contemporary critical approaches to literature and will engage in preliminary work on their senior seminar thesis. Offered in the Spring semester. *One semester; one credit*

ENG 480. SENIOR SEMINAR

This course should be taken during the Fall semester of the senior year. In the course students will examine methods and approaches to literary research and will produce a major term paper, their senior thesis, on a writer or literary theme of their choosing. Offered in the Fall semester. *One semester; three credits*

ENG 486. CASTINGS INTERNSHIP

Experience in editing CBU's literary magazine. For editor(s) only. Students may enroll in this course more than one time. *Pass/Fail Grading. One semester; one to three credits*

ENG 487. HONORS JOURNAL INTERNSHIP

Experience in soliciting submissions for and editing the Honors Journal. Prerequisite: Honors Program membership and Approval by the Honors Program Director. Students may enroll in this course more than one time. *Pass/Fail Grading. One to two semesters; one to three credits*

ENG 488. WRITING CENTER TUTOR PRACTICUM

A practical introduction to the problems and management of a writing center and to the skills of one-to-one intervention in the student's writing process. Enrollment limited to Writing Center Tutorial Staff. Students may enroll in this course more than one time. *Pass/Fail Grading. One semester; one credit.*

ENG 489. INTERNSHIP

Major-related work experience through which students apply English subject matter skills to professional activity. Prerequisite: Junior standing and Permission of the English faculty. Offered in the Spring Semester. One hour per week in class required. *One semester; three credits.*

ENG 490-498. RESEARCH TOPICS IN ENGLISH

Original writing projects or independent study and research in literature pursued under the guidance of a member of the English faculty. Syllabus and credit hours contracted by the student with the English Department. *One semester each; one to three credits each*

■ ENGINEERING COURSES**ENGR 100. EXPLORING ENGINEERING**

Exploration of the Engineering profession, Engineering disciplines, and careers. Basic engineering calculations, unit conversions, etc. *One semester; two to three credits.*

ENGR 200-210. ENGINEERING CO-OP

Requires placement at an appropriate engineering or engineering related firm. Documentation of engineering work performed is required for course completion. Prerequisite: Approval of the Department Chair. Pass/Fail Grading. *One semester each; three credits each.*

■ FINANCE COURSES

Requirements for the concentration are found on Page 63.

FIN 300/301 CAREERS IN FINANCE

Intended to provide students with an overview of the various types of career opportunities available to finance and accounting graduates and how to prepare for each. Finance and Accounting professionals from industry will make presentations to the class regarding their own career experiences, the skills and knowledge required to obtain entry level positions in their field and internship opportunities. Students will be expected to develop a career plan as part of the course. Required of all Finance majors. Open to any interested student. No prerequisites but recommended for spring of the sophomore or junior years. (Same as ACCT 300/301). Pass/Fail. Offered in the Spring semester. *One semester; one credit*

FIN 327. FINANCIAL MANAGEMENT I

An introduction to the basic concepts, principles and analysis techniques of finance as applied to business organizations. The basis for virtually all financial analysis methodology lies in discounted cash flow analysis which is covered in this course. DCF techniques are then applied to areas of basic corporate decision-making involving the acquisition or replacement of physical assets and the decision to pursue capital projects. Finance 327 is a quantitative, problem solving course. Prerequisites: ACCT 260, ITM 153, and MATH 105. Offered in both the Fall and Spring semesters. *One semester; three credits*

FIN 340. INVESTMENTS (Formerly FIN 429)

Finance 340 covers the principles governing the selection of investment media, topics in modern portfolio theory, and techniques of analysis and evaluation as applied to various investment alternatives. The functioning of security markets and how financial assets are traded as well as valuation techniques for bonds, equity instruments, options and futures are covered. Emphasis is on gaining a more in-depth understanding of financial investment alternatives, their valuation and analysis. Prerequisite: FIN 327. Offered in the Spring semester. *One semester; three credits*

FIN 340L. INVESTMENTS TVA LAB

Students will meet in a lab environment to apply the concepts and principles governing the selection of equity securities by making investment recommendations – buy, hold, sell – used to invest the Tennessee Valley Authority's \$350,000 portfolio. Co-requisite with FIN 340. *One semester; one credit hour*

FIN 346. PERSONAL FINANCE

The course is designed to acquaint the student with basic principles necessary to efficiently manage personal financial affairs. Special attention is given to the areas of budgeting, insurance, consumer credit, housing cost problems, and investment opportunities. This course cannot be used to fulfill any of the Finance requirements in the School of Business. Offered in even-numbered Fall semesters. *One semester; three credits*

FIN 350. FINANCIAL MARKETS AND INSTITUTIONS

Survey of financial markets and institutions and their individual characteristics; sources of supply of and demand for funds in each market, the complex interrelations among markets and the role of each in the process of capital formation and allocation. Prerequisites: FIN 327, ECON 303. Offered in the Spring semester. *One semester; three credits*

FIN 400. FINANCE INTERNSHIP (Formerly BUS 400)

Under the supervision of a faculty member from the appropriate department, students in the School of Business, after receiving the approval of the faculty, are placed in the offices of cooperating firms to receive on-the-job training under the supervision of members of the firm. Credit is granted upon acceptance of periodic reports and a final summary report of work done verified by the authorized supervisor and the instructor. *Pass/Fail Grading. One semester; three credits*

FIN 410. DERIVATIVE SECURITIES

Structure, operation, and mechanics of trading in markets for futures, swaps, options, synthetic options, and futures on options; transfer of risk and stabilization of prices through futures trading; buying/selling strategies; valuation of futures contracts and options. Applications of derivatives to hedging and speculating strategies. Prerequisite: FIN 340. Offered in the Fall semester. *One semester; three credits*

FIN 427. FINANCIAL MANAGEMENT II (Formerly FIN 328)

Extends the knowledge of financial management and provides insights into the complexity of the decisions faced by practicing financial managers. Various topics are covered in the course with major emphasis on capital budgeting. Other topics covered include working capital management, international mergers and acquisitions, financial engineering, optimal capital structure, and enterprise value. Prerequisite: FIN 327. Offered in both the Fall and Spring semesters. *One semester; three credits*

FIN 430-436. SPECIAL PROJECTS IN FINANCE

Readings and discussions of recent significant finance and investment literature. Possible subject areas include leveraged buyouts, mergers and acquisitions, junk bonds, speculative markets, fixed-income investments, foreign markets and exchanges, and hedging. Prerequisites: FIN 327, 340. Offered as needed. *One semester; three credits*

FIN 437. INTERNATIONAL FINANCIAL MANAGEMENT

The international aspects of financial management. Topics include currency markets and exchange rate determination, transfer of funds, banking services, international financial institutions, parity conditions, foreign exchange exposure and management, and valuation of international projects. Prerequisite: FIN 427. Offered in the Spring semester. *One semester; three credits*

FIN 440. PORTFOLIO MANAGEMENT

The analysis and valuation of securities and the selection, timing, diversification, and other aspects of supervising the management of investment portfolios. Students analyze the composition of, make buy/sell recommendations for, and evaluate the performance of a portfolio during the semester. Prerequisite: FIN 340. Offered in the Fall semester. *One semester; three credits*

FIN 440L. PORTFOLIO MANAGEMENT TVA LAB

Students will meet in a lab environment to apply the concepts and principles governing the Management of equity portfolios by making investment recommendations used to invest CBU's Tennessee Valley Authority's portfolio. Recommended co-requisite with FIN 440. *One semester; one credit*

FIN 455. PRACTICUM AND PROJECT IN FINANCE

This course is designed to explore and put to practical use the entire body of knowledge gained in previous FIN courses. Project Management concepts will be covered, including use of project management tools. A comprehensive project will assess the student's ability to apply classroom principles and skills to specific problems in the financial services professions. Prerequisite: Permission of the Instructor. Offered in the Fall and Spring semesters. *One semester; three credits*

■ FOREIGN LANGUAGE COURSE REQUIREMENTS (for courses taught at CBU)

When a student has passed two or more years of the *same* foreign language with at least a "C" average in high school, she/he may choose one of the following options:

1. Enroll in the same foreign language studied in high school at the 201 level (recommended option) or at the 101 or 102 level (permitted options).
2. Enroll at the elementary level (101) of a foreign language not studied in high school (Note that a 101 course must be followed by the corresponding 102 course in order to acquire elementary competency in a language.)

A minimum of thirty minutes per week in the language laboratory is required for all 100 and 200 level courses.

Upper-division language courses may be taken concurrently with intermediate courses with prior approval of the instructor.

Upper-division language courses may be offered as tutorial courses with the availability and the consent of the instructor and the approval of the Chair of the Department of Literature and Languages.

■ FOREIGN LANGUAGE COURSES**FORN LANG 101, 102. SPECIAL TOPICS IN FOREIGN LANGUAGES**

The study of a language other than French, German or Spanish. Offered in sequence in the Fall and Spring. *Two semesters; six credits*

■ FRENCH COURSES**FREN 101, 102. ELEMENTARY FRENCH**

Fundamentals of grammar and pronunciation, elementary conversation. Second semester includes reading and translation of texts of graded difficulty. Not open for credit to native speakers of French. Offered in sequence in the Fall and Spring. *Two semesters; six credits*

FREN 201, 202. INTERMEDIATE FRENCH

A review of French grammar with composition and conversation. Second semester includes the reading of French short stories selected from French literature, designed to increase the student's vocabulary and to contribute to his mastery of idiomatic constructions. Prerequisites: FREN 101, 102. Not open for credit to native speakers of French. Offered in sequence in the Fall and Spring. *Two semesters; six credits*

FREN 301, 302. COMPOSITION AND CONVERSATION

Continued study of French grammar and composition. Drill on idioms and difficult constructions with reading in French civilization. Prerequisites: FREN 201, 202 or the equivalent. Not open for credit to native speakers of French. Offered in sequence in the Fall and Spring. *Two semesters; six credits*

FREN 311. SURVEY OF FRENCH LITERATURE I

A survey of the chief French authors and their works from the beginnings through the Golden Age. Readings, lectures, discussions. Prerequisite: Two years of college French or the equivalent. Offered in the Fall semester. *One semester; three credits*

FREN 312. SURVEY OF FRENCH LITERATURE II

A survey of the chief periods and movements in French literature from the 18th to the 20th century. Reading in French of selections from the masterpieces of the principal authors of these centuries. Prerequisite: Two years of college French or equivalent. *One semester; three credits*

FREN 313. FRENCH CIVILIZATION I

An overview of the chief historical, political, and artistic periods in French civilization from the Middle Ages through the 18th century. Readings, lectures, discussions, films, and presentations. Prerequisite: Two years of college French or equivalent. Offered in the Fall semester. *One semester; three credits*

FREN 314. FRENCH CIVILIZATION II

Continued study of the principal historical, political, and artistic periods in French civilization, with an emphasis on the 19th and 20th centuries. Readings, lectures, discussions, films, and presentations. Prerequisite: Two years of college French or equivalent. Offered in the Spring semester. *One semester; three credits*

FREN 315. BUSINESS FRENCH I

An introduction to business and technology in the French-speaking world from a personal, everyday life perspective. Study includes banking, telecommunications, computers, and the Internet. Prerequisite: Two years of college French or the equivalent. Offered in the Fall semester. *One semester; three credits*

FREN 316. BUSINESS FRENCH II

Continued study of business and technology in the French-speaking world. Units include interviewing, resume writing, business correspondence, and corporate organization. Prerequisite: Two years of college French or the equivalent. Offered in the Spring semester. *One semester; three credits*

FREN 380-389. SPECIAL TOPICS IN FRENCH.

Topics of special interest related to French literature, language, or culture. Prerequisites: French 302 and 312 and permission of instructor. Offered in Fall or Spring. *One semester; three credits*

FREN 400-410. RESEARCH TOPICS IN FRENCH

Original writing projects or independent study and research in literature, pursued under the guidance of a member of the French faculty. Syllabus and credit hours contracted by the student with the French professor. *One semester each; one to three credits each*

FREN 480-489. SPECIAL TOPICS IN FRENCH.

Topics of special interest related to advanced study of French literature, language, or culture. Prerequisites: French 302 and 312 and permission of instructor. Offered in Fall or Spring. *One semester; three credits*

■ GEOGRAPHY COURSES**GEOG 280. GEOGRAPHY SURVEY**

The study of the general nature of the earth, focusing on topography and climate of land areas, ways of living of the world's peoples, and relationships of people, their resources and environment. *One semester; three credits.*

GEOG 310. PHYSICAL GEOGRAPHY

An introduction to environmental and earth science, particularly weather and climate. Study of atmospheric phenomena, global climate systems and patterns; emphasis on the development of map and globe skills. *One semester; three credits*

GEOG 325. REGIONAL GEOGRAPHY

Spatial analysis of economic, cultural, and physical characteristics of selected areas of the world. Comparisons of developing and industrialized nations involving population distribution, spatial patterns of economic activity, and human-environmental relationships. *One semester; three credits*

GEOG 340. HUMAN GEOGRAPHY

Study of cultural, political, and economic aspects of major ethnographic areas and selected cultures of the world. *One semester; three credits*

■ GERMAN COURSES**GERM 101, 102. ELEMENTARY GERMAN**

Fundamentals of grammar and pronunciation, elementary conversation. Second semester includes reading and translation of texts of graded difficulty. Not open for credit to native speakers of German. Offered in sequence in the Fall and Spring. *Two semesters; six credits*

GERM 201, 202. INTERMEDIATE GERMAN

A review of German grammar with composition and conversation. Second semester includes the reading of German short stories selected from German literature, designed to increase the student's vocabulary and to contribute to his mastery of idiomatic constructions. Prerequisites: GERM 101 & 102. Not open for credit to native speakers of German. Offered in sequence in the Fall and Spring. *Two semesters; six credits*

■ GLOBAL STUDIES COURSE**GS 200. FOUNDATIONS OF GLOBAL STUDIES**

In this course we will explore the diverse and often conflicting meanings associated with the concept of globalization. We will examine world geography with respect to major regions and consider political, economic, and cultural systems with an eye to what it means in the 21st century to be or become a "global citizen." The course will be interdisciplinary and will offer the students the opportunity to examine ways to "globalize" their horizons, their major disciplines, and their career paths. (Same as HUM 200). *One semester; three credits*

GS 300-301. SPECIAL TOPICS IN GLOBAL STUDIES

Special topics courses of interest which include some study abroad. Offered as needed. *One semester; one to three credits*

■ HISTORY COURSES

Requirements for the degree are found on Page 37.

HIST 107. WORLD CIVILIZATION TO 1500

An introduction to the political, economic, social, and cultural histories of Asia, the Middle East, Africa, Europe and pre-Columbian Central and South America to 1500. *One semester; three credits*

HIST 108. WORLD CIVILIZATION SINCE 1500

An introduction to the political, economic, social, and cultural histories of Asia, the Middle East, Europe, and Africa since 1500. *One semester; three credits*

HIST 151. AMERICAN SOCIETY TO 1877

Colonial America; the Revolution; Confederation and Constitution; Ante-Bellum Period; the Civil War and Reconstruction. *One semester; three credits*

HIST 152. AMERICAN SOCIETY SINCE 1877

Post-Civil War Industrialization and Reform; the Progressive Era; World War I; the Depression and the New Deal; World War II; the Cold War; Recent Developments. *One semester; three credits*

HIST 200-210. TOPICS IN HISTORY

Topics vary with instructor. Prerequisite: History majors and minors must receive the permission of the department chair and are permitted a maximum of 3 credit hours in this 200 level topics area. *One semester; three credits*

UPPER DIVISION COURSES ARE OPEN TO STUDENTS WHO HAVE MET SPECIFIC COURSE PREREQUISITES.

HIST 301. ANCIENT CIVILIZATION

A study of the origins of civilizations in the Near East and the Mediterranean area: Mesopotamia, Egypt, Israel, Persia, Greece, Rome. Prerequisite: permission of the instructor. *One semester; three credits*

HIST 305. THE MIDDLE AGES

A political, economic, social, and intellectual history of medieval western civilization. Among other things, the course will cover topics such as the transition from Roman to Medieval civilization, monasticism, feudal society, the religious and intellectual revival of the High Middle Ages, the Papal Monarchy and the Crusades, the Black Death and the transition from Medieval to early modern European civilization. Prerequisite: permission of the instructor. *One semester; three credits*

HISTORY 309. MODERN MIDDLE EAST, 1800 TO PRESENT

This class will detail the history of the Modern Middle East from a political, economic, and social perspective. The course will cover the region from North Africa to Iran, and it will address such issues as the confrontation with Europe, the rise of nationalism and nation-states, the role of imperialism, the Arab-Israeli conflict, and the rise of political and radical Islamic movements. Prerequisite: HIST 108 or permission of the instructor. *One semester; three credits*

HIST 313. BRITISH INDIA

The history of British India from the founding of the East India Company in 1600 to partition and the transfer of power in 1947. The main focus will be on the encounter between the British and the Indians, but we will also explore the process of British conquest, the development of colonial policy and imperial ideology, the various forms of Indian reaction and resistance, and the origins and growth of the independence movement. Prerequisite HIST 108 or permission of the instructor. *One semester; three credits*

HIST 315. MODERN EAST ASIA

This course examines the history of China and Japan since 1800. Particular attention is given to the reaction to Western Imperialism and each country's development into a modern nation. Prerequisite: HIST 108 or permission of the instructor. *One semester; three credits*

HIST 324. SCIENTIFIC REVOLUTION

This course is an examination of the origins and development of the scientific revolution in Europe from 1450 to 1750. The course focuses on the social and cultural forces that shaped the scientific revolution as well as the revolution's broad impact beyond the world of science. The lives and accomplishments of famous scientists, such as Galileo and Newton, will also be covered. Prerequisite: HIST 108 or permission of the instructor. *One semester; three credits*

HIST 336. EUROPE IN THE AGE OF EMPIRE

This course will examine the evolution of modern imperialism from the 18th through the early 20th century. In addition to the military and political expansion of Europe abroad, the course will examine the economic and cultural impact of modern imperialism on the colonized, as well as the colonizer. Prerequisite: HIST 108 or permission of the instructor. *One semester; three credits*

HIST 339. EUROPE AND THE GREAT WAR.

This course details the history of World War One with a focus on the war's causes and its cultural and social impact within Europe. It will also examine the course of the fighting and major military and political personalities. Prerequisite: HIST 108 or permission of the instructor. *One semester; three credits*

HIST 340. WEIMAR REPUBLIC AND NAZI GERMANY

This course covers the history of Germany from 1919 to 1945. It will examine the collapse of the Weimar Republic and the rise of Nazi power. It will also cover the life of Adolf Hitler, the Holocaust, and Nazi ideology, policy, and war aims. Prerequisite: HIST 108 or POLS 113 or POLS 320 or permission of the instructor. (Same as POLS 340) *One semester; three credits*

HIST 341. MODERN EUROPE

A study of several major topics in European history since 1750 including the French Revolution, the Industrial Revolution, and the rise and fall of the Soviet Union. Prerequisite: HIST 108 or permission of the instructor. *One semester; three credits*

HIST 342. COLONIAL AMERICA

A study of primarily British North America from settlement to 1763 with some discussion of Spanish, French and Indian cultures. Prerequisite: HIST 151 or permission of the instructor. *One semester; three credits*

HIST 343. THE AMERICAN REVOLUTION AND EARLY NATIONAL PERIOD

A study of the origins, causes, and results of the American Revolution; the Confederation Period; the Constitutional Convention; the early years of the new nation; emphasis on the emergence of political parties and the Jefferson Presidency. Prerequisite: HIST 151 or permission of the instructor. *One semester; three credits*

HIST 345. THE ANTEBELLUM SOUTH

The study of social, cultural, economic, and political developments in the antebellum South. Prerequisite: HIST 151 or permission of the instructor. *One semester; three credits*

HIST 346. THE CIVIL WAR AND RECONSTRUCTION

An examination of the causes of the Civil War; a comparison of the Union and the Confederacy; military phases of the War; emphasis on Lincoln and Davis; aftermath of the Civil War and the role of the Radical Republicans. Prerequisite: HIST 151 or permission of the instructor. *One semester; three credits*

HIST 347. EMERGENCE OF MODERN AMERICA

A political, economic, social, and diplomatic history of America from the end of Reconstruction to the Great Depression. Prerequisite: HIST 152 or permission of the instructor. *One semester; three credits*

HIST 348. MODERN AMERICA

A political, economic, social, and diplomatic history of America from the Great Depression to the present. Prerequisite: HIST 152 or permission of the instructor. *One semester; three credits*

HIST 349. THE SOUTH SINCE RECONSTRUCTION

A survey of the political, economic, social, and cultural history of the former Confederate and slave states since 1877. Prerequisite: HIST 152 or permission of the instructor. *One semester; three credits*

HIST 350. HONORS AFRICAN-AMERICAN HISTORY

Social, cultural, economic, and political role of African-Americans in the United States from 1619 to the present. Prerequisite: HIST 151, 152, Membership in Honors Program or permission of the instructor. *One semester; three credits*

HIST 351. HISTORY OF THE AMERICAN WEST

This course covers the history of the trans-Mississippi West during the nineteenth century, examining the region's geography, as well as, describing its impact on American history until the symbolic "closing of the frontier" in the 1890s and beyond. As an examination of this distinctive part of American history and culture, this course will also focus on the mythology of the West and the creation of some of America's most lasting and important imagery, especially in movies, music, and literature. Prerequisite: HIST 151, 152, or permission of the instructor. *One semester; three credits*

HIST 360. AMERICAN POLITICAL THOUGHT

(Same as POLS 360) Prerequisite: HIST 151 or POLS 112 or permission of instructor. Offered in the Fall semester. *One semester; three credits*

HIST 375. UNITED STATES FOREIGN POLICY

This course will examine the history and practice of U.S. foreign policy. It will examine current issues in U.S. foreign policy, the organization and function of institutions, how decisions are made, and the politics of foreign policy making. Prerequisite: any political science or history course or permission of the instructor. Recommended but not required, one of the following: HIST 152 or POLS 112 or POLS 113. (Same as POLS 375) *One semester; three credits*

HIST 376. MEXICO, CENTRAL AMERICA, AND THE CARIBBEAN

A political, military, and cultural history of three important regions of Latin America. This course will examine the course and impact of European conquest, the role of colonial institutions, and independence movements. The greatest attention will be paid to twentieth-century events and trends, in order to analyze their influence on contemporary societies in these areas. Prerequisite: HIST 108 or permission of the instructor. *One semester; three credits*

HIST 377. REVOLUTIONARY LATIN AMERICA

This course will examine the role of revolutions throughout nineteenth and twentieth century Latin America. The focus of the course will be on political and military events, as well as the theory behind revolutionary activity. Careful attention will be paid to revolutions in Mexico, Guatemala, Cuba, Nicaragua, and El Salvador. Prerequisite: HIST 108 or permission of the instructor. *One semester; three credits*

HIST 385-389. SPECIAL TOPICS IN NON-WESTERN HISTORY

Topics vary with instructor. Prerequisite: permission of the instructor. *One semester; three credits*

HIST 390-399. HONORS SPECIAL TOPICS

Special topics in history open to members of the Honors Program or by permission of instructor. *One semester; one to four credits*

HIST 401-402. INTERNSHIP

Content varies with specific internship program. Prerequisites: permission of History Internship Director and Junior standing. *One semester each; one to three credits each*

HIST 490-497. TOPICS IN HISTORY

Topics vary with instructor. Prerequisite: permission of instructor. *One semester; three credits*

■ HUMANITIES COURSES

HUM 150. PERSPECTIVES ON PUBLIC LIFE

This course will examine what it has meant throughout history and in different cultures to be a member of a society. Students will learn about and critically analyze the role of the individual in civil society from depictions in history, literature, religion, philosophy, and the fine arts. A key aim of the course is to provide students with essential insight into the opportunities and justification for lives of community involvement. *One semester; three credits*

HUM 160. HONORS PERSPECTIVES ON PUBLIC LIFE

This honors seminar will examine what it has meant throughout history and in different cultures to be a member of society. The primary focus will be on the role of the individual in civil society as depicted in history, literature, religion, philosophy, and the fine arts. Students will be required to complete a service learning project and follow-up paper/class presentation in which opportunities and justifications for lives of community involvement are explored. Prerequisite: Membership in the Honors Program. *One semester; three credits*

HUM 200. FOUNDATIONS OF GLOBAL STUDIES

In this course we will explore the diverse and often conflicting meanings associated with the concept of globalization. We will examine world geography with respect to major regions and consider political, economic, and cultural systems with an eye to what it means in the 21st century to be or become a “global citizen.” The course will be interdisciplinary and will offer the students the opportunity for students to examine ways to “globalize” their horizons, their major disciplines, and their career paths. (Same as GS 200) *One semester; three credits*

HUM 254. CHRISTIANITY AND PEACE (Formerly HUM 354)

(Same as RS 254) *One semester; three credits*

HUM 256. RELIGION AND NON-VIOLENT SOCIAL CHANGE (Formerly HUM 356)

(Same as RS 256) *One semester; three credits*

HUM 295, 395. COMMUNITY SERVICE

A structured opportunity for students to select and participate in a community service project in the Memphis area. Includes regular meetings with the faculty advisor, group meetings for reflection and discussion. Normally involves a minimum of 60 hours of service. *One semester; three credits*

HUM 306. COMPUTERS AND SOCIETY

An examination of the social implications of computer technology and of the special social and ethical issues raised by the growing use of computers in all aspects of human life, including business and finance, science, education, government, etc. Among topics considered will be privacy and security, quality of work life, the potentials and problems of computer modeling, information systems and artificial intelligence, and the responsibilities of computer professionals and others for the use of computers. *One semester; three credits*

HUM 498. HONORS INTEGRATIVE SEMINAR

As a required capstone experience, each Honors student will participate in the Honors Integrative Seminar in either the Junior or Senior year. Using an interdisciplinary approach and drawing upon a special topic or theme that can vary from year to year, students will critically reflect upon their academic major and previous Honors courses in the context of broader moral visions and public commitments. *One semester; three credits*

■ INFORMATION TECHNOLOGY MANAGEMENT COURSES

ITM courses with an asterisk () are “Key ITM Skill Courses,” and as such have a final comprehensive exam. A student must get a passing grade to pass the entire course.*

ITM 153. INTRODUCTION TO COMPUTER BUSINESS APPLICATIONS

This course is intended to provide to students a working knowledge of modern computation and business information processing via the common tools of word processing, presentation, spreadsheet, and data base management. Information coverage will include test, numerical, graphical, and functional representations via common business applications such as break-even analysis, present value determination, depreciation schedules, loan amortization tables, et. Depending upon the course section (day or evening, MWF or TT), a portion of the course may be offered in the distance education format. Offered in the Fall and Spring semesters. *One semester; three credits*

ITM 171. INTRODUCTION TO COMPUTER ARCHITECTURE AND PROGRAMMING This course concerns elementary logic and programming. Topics include an overview of computer hardware and software, system architecture, data representation, basic data structures, Boolean logic, digital circuit design, discovery and introduction to algorithms, programming and control structures and basic operating system commands. It uses a Java based language for programming exercises. Prerequisite: ITM 153 & MATH 105. Offered as needed. *One semester; three credits*

ITM 172. INTERMEDIATE COMPUTERS AND PROGRAMMING

This course concerns more topics in computational logic and program development. Topics include methods, arrays, classes, objects, encapsulation, inheritance, composition, abstraction, arrays and graphical user interfaces. It uses the Java language for programming exercises and projects. Prerequisite: CS 171 or ITM 171. Corequisite: CS 172L/ ECE 172L/ ITM 172L. Offered as needed. *One semester; three credits*

ITM 172L. INTERMEDIATE COMPUTERS AND PROGRAMMING LAB

Lab to accompany ITM 172. Prerequisite: CS 171/ITM 271. Corequisite: CS 172/ECE 172/ITM 172. Offered in the Spring semester. *One semester; one credit*

ITM 231. INTRODUCTION TO MIS

The purpose of this course is to introduce the fundamentals of Management Information Systems. This course discusses components of information systems (hardware, software, databases, and data communication technologies) and uses examples and cases to demonstrate important uses of

information systems in organizations. Topics include transaction processing e-commerce, supply chain systems, customer relationship management systems, marketing information systems, decision support systems, knowledge management systems, and ethics and security issues. Depending upon the course section (day or evening, MWF or TT), a portion of the course may be offered in the distance education format. Prerequisite: ITM 153 or passing a placement exam. Offered in the Fall and Spring semesters. *One semester; three credits*

ITM 271-279. ITM SEMINARS

Through contractual arrangements with companies, government agencies, and/or organizations, the School of Business will offer courses on selected ITM topics. Students may take up to nine seminars as long as duties and content are clearly distinctive. Credit awarded may be used as free elective hours only. Enrollment is limited and requires permission of the Director of the associated program or Dean of the School of Business. Offered as needed. *One semester; one, two, or three credits*

ITM 295. DATA COMMUNICATIONS, NETWORKS, AND CYBER SECURITY

The purpose of this course is to introduce the fundamentals of systems software, telecommunications, and network design. It covers basic telecommunication concepts such as data transmission methods, signals encoding, transmission media characteristics, and the hybrid TCP/IP-OSI architecture. Ethernet LAN's, wireless LAN's, and wide area networks as well as cyber security issues and standards. Prerequisite; ITM 231 and MATH 105. Offered as needed. *One semester; three credits*

ITM 320. JAVA PROGRAMMING

This course formally utilizes the Java language with a focus on developing solutions to business problems. Topics covered are: data types, classes including inheritance and composition, conditional logic, iteration and looping, general program control flow and structured design, functions, strings, file and database I/O, graphical user interfaces, exception handling, multi-threading, multimedia, and animation. Prerequisites: ITM 171 and ITM 172. Offered as needed. *One semester; three credits*

ITM 351. SYSTEMS ANALYSIS AND DESIGN

This course presents methods for analyzing and designing business IT systems. The course emphasizes the Systems Development Life Cycle (SDLC) methodology. Classical and object oriented methods and tools are applied to business analysis and problem solving situations with adjustments as required to today's business environment included are requirements analysis and use case analysis, process models, data models, consistency of process and data models, justification and costing techniques, conversion and implementation procedures. A case study is employed to provide a practical "hands-on" approach. Prerequisite: ITM 231 or permission of the instructor. Offered as needed. *One semester; three credits*

ITM 356. ADVANCED C++ PROGRAMMING

An introduction to object oriented programming using the C++ language to solve business problems. This class includes a solid understanding of C pointers and C++ classes and references. Topics such as object oriented analysis and design, member functions, templates, composition, inheritance, and graphical user interfaces will be covered. Prerequisites: ITM 171/172 or Permission of the instructor. *One semester; three credits*

ITM 360. SOFTWARE ENGINEERING

The course uses modern analysis and design techniques (including use case diagrams, structure/class diagrams, and activity/event diagrams) and tools to design, develop, and implement object oriented solutions to problems in business and related disciplines. Prerequisite: ITM 320 or CS/ECE 234 or permission of the instructor. Generally offered in the Spring semester. Offered as needed. *One semester; three credits*

ITM 370. OPERATING SYSTEMS

This course examines the design, implementation, philosophy, and structure of modern operating systems. Topics include file structures, memory structures, process control, security and protection, commands, shells, and usage. Lab exercises involving planning, implementation and configuration of systems are used to reinforce concepts presented. The course compares and examines the design, philosophy, and structure of modern operating systems such as Unix/Linux and Microsoft Windows. Prerequisite: ITM 231 & 295. Offered as needed. *One semester; three credits*

ITM 400-401. ITM INTERNSHIP

Under the supervision of a faculty member, students work on a real work project ("on-the-job-training") either for a company, for CBU, or for a charity organization. Procedures and deliverables are defined on the School of Business website. Special CBU approval forms must be completed. A student may take two internships, but only one per organization. Prerequisite: ITM 231, 295, & 351. Offered as needed. *One semester; three credits*

ITM 455. INFORMATION SYSTEMS PRACTICUM AND PROJECT MANAGEMENT

This course is designed to explore and put to practical use the entire body of knowledge gained in previous ITM courses. Topics will principally focus upon the managerial aspects of effective information technology deployment. Project Management concepts will be covered, including use of project management tools. A comprehensive project will test student's ability to apply technology and business skills to develop a workable, manageable, and effective information systems solution. Prerequisite: ITM 231, 295, 351, 470, 471 or permission of the instructor. Offered as needed. *One semester; three credits*

ITM 457 SPECIAL TOPICS IN ITM

Course designed to permit intensive study into topics of special interest and timeliness in the area of Information Technology Management. Prerequisites depend upon topics and approval of instructor. Offered as needed. *One semester; three credits*

ITM 458. VISUAL BASIC

This course introduces students to Visual Basic environment and its applications in the business world. The students will using the Visual Studio and its development tools. Visual Basic fundamentals such as working with objects, methods, procedures, subroutines, and using various control objects will be covered. Through projects and hands-on exercises, students will learn to design and develop visual interfaces for data manipulations and data storage management. Prerequisites: ITM 171/172 or instructor's permission. Generally offered in the Fall semester. *One semester; three credits*

ITM 460-466. SPECIAL TOPICS IN MANAGEMENT INFORMATION SYSTEMS

Course designed to permit intensive study into topics of special interest and timelines in the area of Management Information systems Management. Prerequisites depend upon topics and approval of instructor. Offered as needed. *One semester; three credits*

ITM 470. APPLICATION AND WEB DEVELOPMENT

This course familiarizes students with the modern web based application development and programming environment. It also teaches students the basics of key Internet technologies (HTML, JavaScript, Dynamic HTML, CSS, ASP, PHP, AJAX, and XML), and trains students into the application and usage of key Internet tools. Upon completion of this course, students will be able to create and maintain modern advanced dynamic web sites. Prerequisites: ITM 231, 351, 471, or permission of the instructor. Offered as needed. *One semester; three credits*

ITM 471. DATA BASE DESIGN AND BUSINESS INTELLIGENCE

This course presents database design and management and emphasizes the relational model and Structured Query Language. Topics include database models, query languages, query optimization database implementation, distributed processing, data mining, and business intelligence. Prerequisite: ITM 153 and 231, or permission of the instructor. Offered as needed. *One semester; three credits*

ITM 480. DECISION SUPPORT

This course provides an examination of the role of technology and information systems in the business decision making process. The focus will be on decision support systems and will provide introductions to important modern decision-aiding tools and quantitative approaches including network and PERT/CPM analysis, transportation and routing, linear and non-linear programming, optimization, goal and dynamic programming, simulation and queuing, artificial intelligence (expert systems, neural networks, genetic programming), analytic hierarchy processes, executive information systems, data warehousing, and data mining. Prerequisites: ITM 153, 231, & 471; or instructor's permission. Offered as needed. *One semester; three credits*

■ INTERDISCIPLINARY STUDIES COURSES**IDS 101. DIMENSIONS OF FAITH AND COMMUNITY**

This course is designed as part of a shared first-year experience. It introduces freshmen to college academic life and the Christian Brothers University community. Students identify and assess their roles and responsibilities as citizens in the multiple communities to which they belong. The CBU and Lasallian core values of faith, service, and community provide a context for understanding local, national, and global dimensions of faith and citizenship. The course stresses written and oral communication. Opportunities for community service may be offered. *One semester; three credits*

IDS 201. SCIENCE, TECHNOLOGY, AND SOCIETY

This course continues the shared experience of CBU students as they reflect upon the impact of science and technology in their communities. Students analyze and interpret data as they study the relationship of individual and collective decision making. The course stresses working in interdisciplinary teams, communication, and critical thinking. *One semester; three credits*

■ MANAGEMENT COURSES

Requirements for the degree are found on Page 64. Requirements for the concentration are found on page 63.

MGMT 290. HONORS LEADERSHIP

Using a multidisciplinary approach to leadership, this class will include both theoretical and practical material from fields such as management, psychology, literature, history and religion. Students will develop their own philosophy of leadership and prepare themselves for leadership roles based on a thorough understanding of case studies and theoretical models. Prerequisite: membership in the Honors Program or permission of Honors Program Director and instructor. *One semester; three credits*

MGMT 291-299. HONORS SPECIAL TOPICS

Special topics in management open to members of the Honors Program or by permission of Honors Program Director and instructor. *One semester; one to four credits*

MGMT 300. INTERNATIONAL BUSINESS & CULTURAL EXPERIENCE

This course introduces students to the business, political, economic, and cultural environments of a selected country. Experiential study, classroom lectures, and activities including site visits, guest lectures, and cultural experiences are integrated to develop a comprehensive understanding of the country selected. The course content includes a visit to the country selected for study. Open to all students. Students must have a valid passport. Course may be repeated for different countries. *One semester; three credits*

MGMT 337. PRINCIPLES OF ORGANIZATION AND MANAGEMENT

An examination of the management functions and the basic concepts and principles of management. Major topics include the history of management, planning and decision making, organizational structure and design issues, leadership theory, and control. Social, legal and ethical principles and an international perspective are also developed. Prerequisite: Junior Standing. Offered in both the Fall and Spring semesters. *One semester; three credits*

MGMT 339. OPERATIONS MANAGEMENT

An in-depth look at the production/operations functions of organizations. Topics will include product and process strategies, quality programs, location and layout strategies, inventory control techniques, and a comparison of the operational strategies used by both manufacturing and service organizations. The course will integrate quantitative modeling with business problem solving. Prerequisites: Junior standing and MGMT 352. Offered in the Fall semester. *One semester; three credits*