3710. Computer Organization. 3 hours. Principles of computer system organization, instruction sets, computer arithmetic, data and control paths, memory hierarchies. Prerequisite(s): CSCE 1030 and EENG 2710. (Same as CSCE 2610.)

3810. Communications Systems. 3 hours. Introduction to the concepts of transmission of information via communication channels. Amplitude and angle modulation for the transmission of continuous-time signals. Analog-to-digital conversion and pulse code modulation. Transmission of digital data. Introduction to random signals and noise and their effects on communication. Optimum detection systems in the presence of noise. Prerequisite(s): EENG 2620 and MATH 1780 or equivalent. (Same as CSCE 3020.)

3910. Project V (Digital Signal Processing Theory and Design). 3 hours. Basic theory and applications of modern signal processing. Topics include filter z-transform, filter design, Fast Fourier Transform (FFT) and applications of signal processing algorithms. Students are required to design a signal processing project using MATLAB or CADENCE software. Prerequisite(s): EENG 2620.

3920. Project VI (Electronic and Analog Design). 3 hours. Designing an analog system (such as Op-Amp) consisting of electronic devices such as MOS transistors, capacitors and resistors. Simulation tools are SPICE software. Prerequisite(s): EENG 3510. Corequisite(s); EENG 3520.

4010. Advanced Topics in Electrical Engineering I. 3 hours. Materials taught in the advanced topic I are decided by the instructor each term/semester, reflecting the state-of-the-art technology progress in electrical engineering. Prerequisite(s): to be decided by the instructor.

4020. Advanced Topics in Electrical Engineering II. 3 hours. Materials taught in the advanced topic II are decided by the instructor each term/semester, reflecting the state-of-the-art technology progress in electrical engineering. Prerequisite(s): to be decided by the instructor.

4710. VLSI Design. 3 hours. Basic knowledge of various aspects of modern VLSI design. They include MOS transistors, circuit design and analysis at transistor level, logic and digital sub-system and analysis, VLSI architecture, hardware description languages (VHDL, Verilog-HDL), VLSI testing and VLSI physical design (layout, floor planning, placement and routing), design examples using CAD tools and design projects. Prerequisite(s): EENG 2710 or equivalent. (Same as CSCE 4730.)

4810. Computer Networks. 3 hours. Introduction to data communication; asynchronous, synchronous, networks, TCP/IP and current technology. Prerequisite(s): EENG 2710, EENG 3810 and MATH 1780.

4910. Project VII (Communication System Design). 3 hours. Designing wireless communication system based on CADENCE software. This project aims to solve a practical engineering problem. Prerequisite(s): EENG 3810.

4951. Honors College Capstone Thesis. 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

4990. Project VIII (Capstone Senior Design). 3 hours. The capstone senior design course is a comprehensive electrical engineering design course. Students may choose a design topic in VLSI, communications, Signal Processing or any other relevant electrical engineering area. Substantial design work is required for passing this course. Prerequisite(s): students may register only after all other required courses have been taken and passed.

Electronics Engineering Technology

see Engineering Technology

Elementary Education

see Teacher Education and Administration

Emergency Administration and Planning

see Public Administration

Engineering Technology

Construction Engineering Technology, CNET

1160. Construction Methods and Materials. 3 hours. (1;3) Introduction to the materials, systems, methods and procedures of building construction.

2180. Construction Methods and Surveying. 4 hours. (3;3) Contemporary methods and materials used in the construction industry; nature, use and characteristics of materials; construction methodology, application and sequencing in the building process. Surveying principles, instruments, measurements and calculations fundamentals of surveying for building construction; survey drawings and mapping. Prerequisite(s): CNET 1160.

2300. Architectural Drawing. 2 hours. (1;3) Emphasizes architectural details; home planning. Prerequisite(s): CNET 1160.

2900. Special Problems. 1–4 hours. Individualized instruction in theoretical or experimental problems. Prerequisite(s): consent of instructor.

3150. Construction Contract Documents. 2 hours. Interpretation of construction drawings; architectural, structural, mechanical, electrical and landscaping documents; development, interpretation and implementation of specifications and other construction documents. Prerequisite(s): CNET 2180.

3160. Construction Cost Estimating. 3 hours. Procedures, techniques and systems of construction cost estimating. Includes work classification, quantity detailing, specification interpretation and bid preparation. Prerequisite(s): CNET 1160 and 2300.

3190. Construction Scheduling. 3 hours. Study of construction scheduling utilizing current techniques including Critical Path Method (CPM), the Precedence Method (PM), the Program Evaluation and Review Technique (PERT) and a probabilistic method. Prerequisite(s): CNET 3160.

3410. Occupational Safety and Liability. 3 hours. Study of basic concepts of accident prevention, safety education, economic impact and environmental hazard control. Includes OSHA regulations and other regulations as they relate to the employer, the employee and the public.

3430. Structural Analysis. 3 hours. Analysis of continuous structures using slope-deflection, conjugate-beam, and virtual work methods. Force and stiffness methods of analysis are applied to truss and frame structures. Relevant computer applications are applied. Prerequisite(s): ENGR 2332.

3440. Steel Structures. 3 hours. Principles, analysis and methodologies for conceptual and detailed design of steel structures. Emphasis on the role of mechanics in modern structural engineering design specifications with a focus on load and resistance factor design. Topics include behavior and design of hot-rolled and cold-formed steel, connections, members frames and advanced analysis techniques. Prerequisite(s): CNET 3420.

3460. Soils and Foundations. 3 hours.(2;3) Study of the properties of subsurface materials and the principles of subsurface construction. Topics include soil classification and testing, soil mechanics, and foundation systems. Prerequisite(s): CNET 2180 and ENGR 2332.

3480. Structural Design with Concrete, Timber and other Materials. 3 hours. (2;3) Review of current requirements and techniques for design of modern structures using materials such as reinforced concrete, timber, engineered brick and concrete masonry. Relevant design specifications and criteria are included. Prerequisite(s): CNET 2180 and 3420.

4170. Construction Management. 3 hours. Planning, organizing, scheduling and managing construction projects. Includes preconstruction planning, cost and quality control, materials procurement, subcontractor management, start-up and close-out. Prerequisite(s): CNET 3160.

4180. Problems in Project Management. 3 hours. Construction project management simulation involving bid preparation, cost control, scheduling, contract preparation, construction documents interpretation, punchlist management and project evaluation. Prerequisite(s): CNET 4170.

4620. Advanced Design in Cold-Formed Steel Structures. 3 hours. (2;3) Study of the theories of design and behavior of cold-formed/light gauge steel structural members, connections and systems. Relevant design specifications and computer applications are included. Prerequisite(s): CNET 3420 and 3440.

4780. Senior Design I. 2 hours. Project teams specify, plan and design a product or process. Written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): CNET 3150, 3410, 3190 and senior standing.

4790. Senior Design II. 2 hours (1;3) Implement, test and demonstrate a product or process. Oral and written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): CNET 4780.

4900-4910. Special Problems. 1–4 hours each. Individualized instruction in theoretical or experimental problems. Written report required. Prerequisite(s): consent of instructor and program coordinator.

4920. Cooperative Education Internship. 1 hour. Supervised industrial internship requiring a minimum of 150 hours of work experience. Prerequisite(s): consent of department.

4951. Honors College Capstone Thesis. 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

Electronics Engineering Technology, ELET

2900. Special Problems. 1–4 hours.

3700. Circuit Analysis. 4 hours. (3;3) Application of Laplace transforms and switching functions to the solution of complex electronic circuits and networks in both transient and steady state. Block diagrams and transfer functions are included as well as the use of computer solutions. Prerequisite(s): ENGR 2405 and MATH 1720.

3720. Electronics I. 4 hours. (3;3) Introduction to semiconductors with emphasis on terminal characteristics; diodes, bipolar junction transistors and field effect transistors. The principle of power supplies. Small signal analysis and modeling techniques. Bias stabilization and feedback are included. Prerequisite(s): ENGR 2405 and MATH 1720.

3740. Electronics II. 4 hours. (3;3) Electronic amplifiers using bipolar junction transistors and field effect transistors. Frequency response and compensation of these devices. The use of design of operational amplifiers in control and instrumentation circuits. Prerequisite(s): ELET 3720.

3750. Digital Systems. 4 hours. (3;3) The use of microcomputers in control and instrumentation systems, including interfacing in real time. Data communications, multiplexing, digitizing and sampling techniques are covered. Prerequisite(s): ENGR 2405 and 2750.

3760. Design of DSP Systems. 4 hours. (3;3) Introduction to digital signal processing, emphasizing digital audio applications. A DSP primer covering important topics such as phasors, the wave equation, sampling and quantizing, feedforward and feedback filters, periodic sound, transform methods, and filter design. The course will use intuitive and quantitative approaches to develop the mathematics critical to understanding DSP techniques. Prerequisite(s): ELET 3700 and 3750.

3970. Electronic Devices and Controls. 3 hours. (2;3) Fundamentals of solid state electronic devices; their applications in amplifiers, digital logic, industrial controls and instrumentation; feedback and stability of electronic systems. Prerequisite(s): ENGR 2405.

4710. High Frequency Systems I. 4 hours. (3;3) Receiver and transmitter circuits and systems; antennas, modulation, detection, high frequency oscillators and tuned amplifiers. Prerequisite(s): ELET 3700 and 3740.

4720. Control Systems. 4 hours. (3;3) Classical control theory; block diagrams, applications of Laplace transforms, stability criteria and feedback. Use of computer software to evaluate complex systems. Prerequisite(s): ELET 3700 and 3740.

4770. High-Frequency Systems II. 4 hours. (3;3) Microwave techniques and systems; measurements in the UHF spectrum, transmission lines, Smith charts, computer analysis and satellite communications. Prerequisite(s): ELET 4710.

4780. Senior Design I. 2 hours. Project teams specify, plan and design a product or process. Written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): ELET 3760 and senior standing.

4790. Senior Design II. 2 hours. (1;3) Implement, test and demonstrate a product or process. Oral and written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): ELET 4720, ELET 4770 and ELET 4780**.**

4900-4910. Special Problems. 1–4 hours each.

4920. Cooperative Education. 1 hour. A supervised industrial internship requiring a minimum of 150 hours of work experience. Prerequisite(s): consent of department.

4951. Honors College Capstone Thesis. 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

Engineering, ENGR

1030. Technological Systems. 3 hours. Introduction to technological systems with focus on societal interrelationships; past, present and future trends; and influence and impact on technological literacy. *Satisfies the Social and Behavioral Sciences requirement of the University Core Curriculum*.

1304 (ENGR 1204 or 1304). Engineering Graphics. 3 hours. (1;4) Fundamentals and principles of engineering drafting practices used in technical processes.

2060. Professional Presentations. 3 hours. (2;3) Oral and written communication techniques to include conceptualization, design, development and delivery with special reference to engineering/science related technical material. Content will address speaker support materials including visuals, speaker note pages, interactive software and audience and handouts using industrial graphics computer software. Prerequisite(s): ENGL 1320 or ENGL 2700 (either may be taken concurrently). *Satisfies the Communication requirement of the University Core Curriculum*.

2301 (ENGR 2303 or 2403). Statics. 3 hours. Introduction to mechanics of materials, concurrent, parallel and non-concurrent forces in equilibrium; free body diagrams, moments, centroids, and friction; beam design and columns. Prerequisite(s): PHYS 1710 and 1730 and MATH 1710.

2302 (ENGR 2302 or 2402). Dynamics. 3 hours. Analysis of bodies in motion; kinematics and kinetics of particles, systems of particles and rigid bodies. Prerequisite(s): ENGR 2301 and MATH 1720.

2303. Statics and Dynamics. 4 hours. (3;0;3) Statics of particles and rigid bodies. Concepts of force, moments, free body diagrams, equilibrium and friction with engineering applications. Kinematics and kinetics of particles and rigid bodies. Energy and impulse momentum methods applied to particles and rigid bodies. Plane motion of rigid bodies and force analysis of linkages. Prerequisite(s): MATH 1720 and PHYS 1710. Corequisite(s): MATH 2730.

2332. Mechanics of Materials. 4 hours. (3;3) Relationships among loads placed on structural components; shape and size of components; resultant stresses, strains and deflections of components. Prerequisite(s): ENGR 2301.

2405. Fundamentals of Electrical Engineering. 4 hours. (3;3) Instructional program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of electrical, electronic and related communications systems and their components, including electrical power generation systems. Analysis of problems such as superconduction, wave propagation, energy and retrieval, and reception and amplification. Prerequisite(s): ENGR 2060 (may be taken concurrently) and MATH 1720.

2720. Digital Logic. 4 hours. (3;3) Digital logic circuits and techniques. Analysis, design and simulation of combinational and sequential systems using: classical Boolean algebra techniques, laboratory hardware experiments and computer simulation. Introduction to programmable logic devices (PLDs) and application-specific integrated circuits using CASE tools. .

2750. Introduction to Microprocessors. 4 hours. (3;3) The fundamentals of microprocessor hardware and assembly language interaction are studied in detail. Emphasis is on the use of the processor to control external systems and devices. Prerequisite(s): ENGL 2700 and ENGR 2060 and 2720.

Engineering Technology, Master's Courses – see *Graduate Catalog*

Manufacturing Engineering Technology, MFET

2100. Manufacturing Processes and Materials. 3 hours. (2;2) Comprehensive study of conventional manufacturing tools, equipment and processes. Major focus on selected industrial materials, hot and cold forming, heat treatment, plastic processing techniques, chip removal techniques, fusion welding and manufacturing planning.

2900. Special Problems. 1–4 hours.

3110. Machining Principles and Processes. 4 hours. (3;3) Machine tool manufacturing techniques emphasizing sequence of operations, cutting tool geometry, tooling systems, tool materials and performance characteristics, cutting forces, speeds, feeds, surface finish, horsepower calculation and cutting fluids. Prerequisite(s): MFET 2100 and MATH 1650.

3250. Plastic Materials and Processes. 3 hours. (2;3) Characteristics and application of major resins and composites. Emphasis is on: properties, organic matrix composites, industrial processing techniques, and design using plastics and composites. Prerequisite(s): MFET 2100 and CHEM 1410/1430.

3450. Engineering Materials. 4 hours. (3;3) Principles of bonding, structure, and structure/property relationships for metals and their alloys, ceramics, polymers and composites. Emphasis on properties and how processes change structure and, consequently, properties. Prerequisite(s): MFET 2100, MATH 1710, CHEM 1410/1430.

3510. Electronic Properties of Materials. 4 hours. (3;3) Introduction to the electronic structure and properties of crystalline and non-crystalline materials. Band theory is discussed and applied to conducting, semiconducting, and insulating materials. Structure and properties are related. Prerequisite(s): MFET 3450, MATH 1720, PHYS 2220/2240.

3520. Soldering, Brazing and Adhesive Bonding. 3 hours. (2;3) Principles of brazing, soldering and adhesive bonding. Relationships among processing conditions, filler materials and adhesives, base materials, joint geometry, and their influence on joint integrity are examined. Applications to microelectronics emphasized. Prerequisite(s): CHEM 1410/1430, PHYS 1710/ 1730, MATH 1720.

4190. Quality Assurance. 3 hours. Review of statistics and discussion of statistical process control (SPC). The study of quality management, including preproduction supplier, in-process and finished product quality; methods of statistical analysis and quality audits, costs and employee training. Prerequisite(s): MFET 3110 or consent of department.

4200. Engineering Cost Analysis. 2 hours. Principles and techniques for cost evaluation of engineering design including: labor, material and business accounting analysis; forecasting tools and techniques; operation, product, project and system estimating; and, contract considerations. Prerequisite(s): MFET 4190 and MGMT 3830.

4210. CAD/CAM System Operations. 3 hours. (2;3) CAD/CAM programming, compilation of generic tape files for N/C and CNC machine tools local N/C and CNC part programming and operational techniques, G codes and M codes. Prerequisite(s): MFET 3110, CSCE 1020 and completion of math and science requirements.

4230. CNC Programming and Operation. 4 hours. (3;3) Intermediate-level CAD/CAM techniques; local programming, program editing and operation of Computer Numerical Control machining and turning centers; and local programming, program editing and interfacing of machine-tending robot. Prerequisite(s): MFET 4210.

4510. Industrial Experiment Design. 3 hours. Fundamental concepts involved in the design and analysis of industrial experiments with major emphasis on electronic applications. Common statistical tools with application to engineering; statistical distributions; development and organization of parametric and nonparametric experiments to render statistically significant data; and data analysis methods and reporting techniques. Prerequisite(s): DSCI 2710 and MFET 4190.

4780. Senior Design I. 2 hours. Project teams specify, plan and design a product or process. Written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): MFET 4210 and senior standing.

4790. Senior Design II. 2 hours. (1;3) Implement, test and demonstrate a product or process. Oral and written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): MFET 4780 and MFET 4230 or concurrent enrollment

4900-4910. Special Problems. 1–4 hours each.

4920. Cooperative Education. 1 hour. Supervised industrial internship requiring a minimum of 150 hours of work experience. Prerequisite(s): consent of department.

4951. Honors College Capstone Thesis. 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

Mechanical Engineering Technology, MEET

2900. Special Problems. 1–4 hours.

3650. Design of Mechanical Components. 3 hours. Design and selection of machine elements. Prerequisite(s): ENGR 2332.

3660. Applications in Thermal Sciences. 3 hours. Introduction to the basic applications of thermodynamics, fluid dynamics, and heat transfer to energy use, transfer, and conversion. Prerequisite(s): MATH 1720, PHYS 2220/2240 and junior standing.

3940. Fluid Mechanics Applications. 3 hours. (2;2) Study of incompressible fluid mechanics, including pressure, force and velocity; hydraulic fluid power circuits and systems as used in industrial applications. Prerequisite(s): ENGR 2302 and MATH 1720.

3990. Applied Thermodynamics. 3 hours. Principles of energy balance and substance behavior as related to different engineering systems. Topics include gas laws, laws of thermodynamics, relationship between thermodynamics variables, thermodynamic tables and charts, power cycle and various applications. Prerequisite(s): CHEM 1410/1430, MATH 1720 and PHYS 1710/1730.

4050. Mechanical Design. 3 hours. (2;3) Elements, principles and graphic representation techniques of the design process. Design methodology and process in applied engineering design. Design problem identification, refinement and analysis in the development of machines. Prerequisite(s): senior standing and completion of all 3000-level engineering technology courses. Prerequisite(s): MEET 3650.

4350. Heat Transfer Applications. 3 hours. Principles of energy transfer by heat; conduction, free and forced convection, radiation, condensation and boiling heat transfer; combined heat transfer; introduction to heat exchanger; simple numerical techniques and computer applications. Prerequisite(s): MEET 3940, CHEM 1410/1430, MATH 1720 and PHYS 1710/1730.

4360. Experimental Thermal Sciences. 2 hours. (1;3) Designing and conducting experiments in fluid mechanics, hydraulics, thermodynamics and heat transfer. Prerequisite(s): for MFET students, MEET 3660; for MEET students, MEET 3940, 3990 and 4350 or concurrent enrollment.

4780. Senior Design I. 2 hours. Project teams specify, plan and design a product or process. Written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): MFET 4210 and senior standing.

4790. Senior Design II. 2 hours. (1;3) Implement, test and demonstrate a product or process. Oral and written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): MEET 4780 and MFET 4200.

4900-4910. Special Problems. 1–4 hours each.

4920. Cooperative Education. 1 hour. A supervised industrial internship requiring a minimum of 150 hours of work experience. Prerequisite(s): consent of department.

4951. Honors College Capstone Thesis. 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

Nuclear Engineering Technology, NUET

2900. Special Problems. 1–4 hours.

3910. Principles of Nuclear Technology. 3 hours. Introduction to nuclear technology and radiation physics; includes sources of radiation, its interaction with matter, and radiation detection and measurement. Prerequisite(s): MATH 1720 and PHYS 2220.

3920. Nuclear Instrumentation and Measurement. 4 hours. (3;2) Measurement of radioactive materials commonly encountered in commercial nuclear facilities; includes engineering and scientific principles, measurement techniques and data analysis. Prerequisite(s): NUET 3910.

3930. Radiation Biology and Safety. 4 hours. (3;2) The interaction of radioactive sources and living organisms; effects of both long- and short-term exposure to radiation; ionizing radiation, detection, measurement, shielding, exposure limiting, radiation handling and disposal. Prerequisite(s): NUET 3910.

4050. Nuclear Reactor Theory. 3 hours. A study of neutron transport theory and neutron diffusion mechanics as applied to nuclear fission and reactor core's criticality analysis and behavior. Multi-region core configurations and group diffusion theory included. Prerequisite(s): MATH 1720 and PHYS 3010/3030.

4780. Senior Design I. 2 hours. Project teams specify, plan and design a product or process. Written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): NUET 3930 and 4050.

4790. Senior Design II. 2 hours. (1;3) Implement, test, and demonstrate a product or process. Oral and written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): NUET 4780.

4850. Computational Methods for Nuclear Engineering Technology. 4 hours. (3;3) Computer design and analysis for nuclear reactors and shielding. Methodology and theory for codes representative of cross section preparation, criticality calculation, gamma ray shielding and dose estimation from air scattered radiation. Prerequisite(s): NUET 3930, CSCE 1020 or consent of department.

4880. Health Physics and Radiation Protection. 3 hours. (2;3) Study and analysis of current health physics issues, practices and implementation. Radiation protection guides for both external and internal exposure and the methodology for establishing guidelines are explored. Methods of evaluation of effectiveness, environmental sampling and protection methods for monitoring radiation are introduced. Prerequisite(s): PHYS 1710/1730; MATH 1720, or consent of department.

4900-4910. Special Problems. 1–4 hours each.

4920. Cooperative Education. 1 hour. Supervised industrial internship requiring a minimum of 150 hours of work experience. Prerequisite(s): consent of department.

4930. Reactor Engineering Design and Operation. 4 hours. (3;2) Theory and practice of commercial nuclear reactor operation; includes neutron distribution in space and energy, design of conduction and convective heat transfer systems, and the design of reactor shielding. Prerequisite(s): NUET 3920 and 4050.

4940. Electrical Power Generation and Transmission. 3 hours. Electric energy production and transmission, including AC generator construction and operation, power transformers, transmission lines, and load-flow analysis; system modeling and computer applications. Prerequisite(s): ENGR 2405.

4951. Honors College Capstone Thesis. 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

4970. Modern Power Plant Design and Operation. 3 hours. Study and analysis of modern power plant engineering and technology including fossil and nuclear fueled. Heat generated mechanical and electrical power operations with alternative energy resources. Prerequisite(s): MATH 1710/1720, and MEET 3990 or consent of department.

English

English, ENGL

The prerequisites to sophomore-level English are 3 semester hours of freshman-level English or equivalent credit. A student may enroll for sophomore-level English concurrently with the second term/semester of freshman-level English.

ENGL 2210 or ENGL 2220 will satisfy the university's humanities requirement. Students may take any literature course at the 2000, 3000, or 4000 level to satisfy the literature requirement of the College of Arts and Sciences Core. The same course may not be used to satisfy both requirements. ENGL 2700 may be substituted for ENGL 1320 in some majors. Students should consult advisers in their majors.

1200. Developmental Writing. 3 hours. Fulfills TSI requirements for students who have not passed the writing portion of the Texas Higher Education Assessment with a score of 7 or 8 prior to enrolling in the university or who are not otherwise exempt. Covers sentence formation and skills needed for argumentation and exposition. Emphasizes audience, purpose and occasion. Students must receive a score of 4 or 5 on the THEA and complete the requirements of the course with a grade of C or better in order to meet the prerequisite for ENGL 1310/1313.

1310-1320. Freshman English.

1310 (ENGL 1301). College Writing I. 3 hours. Writing as a means of ordering and shaping experience, information and ideas. Emphasis on perfecting texts through several drafts.