and noise and their effects on communication. Optimum detection systems in the presence of noise. Prerequisite(s): EENG 2620; EENG 3510; and MATH 1780 or MATH 3680. (Same as CSCE 3020.)

EENG 3910. Project V: DSP System Design. 2 hours. To study basic theory and applications of modern digital signal processing, to learn basic theory of real-time digital signal processing, and to develop ability to implement and simulate digital signal processing algorithms using MATLAB and on real-time DSP platform. Prerequisite(s): EENG 2620.

EENG 3920. Project VI: Modern Communication System Design. 2 hours. Students are required to design electronic communication systems with electronic devices such as MOS transistors, capacitors and resistors. Topics include LC circuits and oscillators, AM modulation, SSB communications and FM modulation. Corequisite(s): EENG 3520.

EENG 4010. Topics in Electrical Engineering. 3 hours. Technical elective specifically designed by the instructor each term/semester to cover topics in the latest state-of-the-art technology advancements in electrical engineering. Prerequisite(s): consent of the instructor. May be repeated for credit. Maximum total number of repeat hours allowed is 6 hours.

EENG 4710. VLSI Design. 3 hours. Introduction to VLSI design using CAD tools, CMOS logic, switch level modeling, circuit characterization, logic design in CMOS, systems design methods, test subsystem design, design examples, student design project. Prerequisite(s): EENG 2710 and EENG 3510. (Same as CSCE 4730.)

EENG 4810. Computer Networks. 3 hours. History and overview of computer networks, protocols and network layers, application layer, socket programming, transport layer protocols and TCP, network layer protocols and IP, network routing, data link and physical layers, introduction to network security. Prerequisite(s): EENG 3810 and MATH 3680.

EENG 4900. Special Problems in Electrical Engineering. 1–3 hours. Individualized instruction in theoretical or experimental problems in electrical engineering. For elective credit only. Prerequisite(s): consent of instructor. May be repeated for credit.

EENG 4910. Project VII: Senior Design I. 3 hours. The senior design project course is a comprehensive electrical engineering design course providing major design experience. Students form teams of two to three members and work under the supervision of a faculty advisor. Identifying, formulating and solving an electrical engineering design problem of practical value under realistic design and implementation constraints by conforming to the engineering standards wherever appropriate. Development of an awareness of contemporary issues and professional ethics. Each project team is required to submit a proposal, present and submit a mid-term progress report, and present and submit a final report according to a prescribed project schedule. Prerequisite(s): EENG 3810, EENG 3910, and EENG 3920; consent of instructor.

EENG 4920. Cooperative Education in Electrical Engineering. 1–3 hours. Supervised field work in a job directly related to the student's major field of study or career objective. Prerequisite(s): junior- or senior-level standing in electrical engineering. May be repeated for credit.

EENG 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.

EENG 4990. Project VIII: Senior Design II. 3 hours. The senior design project course is a comprehensive electrical engineering design course providing major design experience. Students form teams of two to three members and work under the supervision of a faculty advisor. Identifying, formulating and solving an electrical engineering design problem of practical value under realistic design and implementation constraints by conforming to the engineering standards wherever appropriate. Development of an awareness of contemporary issues and professional ethics. Each project team is required to submit a proposal, present and submit a mid-term progress report, and present and submit a final report according to a prescribed project schedule. Prerequisite(s): EENG 4910.

Electrical 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

CNET 1160. Construction Methods and Materials. 3 hours. (2;3) Introduction to the materials, systems, methods and procedures of building construction.

CNET 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.

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

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

CNET 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.

CNET 3160. Construction Cost Estimating. 3 hours. (2;3) Procedures, techniques and systems of construction cost estimating. Includes work classification, quantity detailing, specification interpretation and bid preparation. Prerequisite(s): CNET 1160 and CNET 2300.

CNET 3190. Construction Scheduling. 3 hours. (2;3) 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.

CNET 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.

CNET 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.

CNET 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 3430.

CNET 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.

CNET 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 CNET 3430.

CNET 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.

CNET 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.

CNET 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 CNET 3440.

CNET 4630. Construction Management for Mechanical, Electrical and Plumbing (MEP) Systems. 2 hours. Investigation into the integrated approach of managing and scheduling the installation of MEP systems, including the study and analysis of basic mechanical, electrical and plumbing components in construction and their relationships to the overall building. Prerequisite(s): CNET 2180.

CNET 4780. Senior Design I. 1 hour. Project teams specify, plan and perform management analysis of an engineering or construction product or process. Oral and written documentation required. Projects to be supplied by the local construction industry whenever possible. Prerequisite(s): CNET 3190, CNET 3440, CNET 3460 and senior standing.

CNET 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 3480 and CNET 4780.

CNET 4900-CNET 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.

CNET 4920. Cooperative Education Internship. 1 hour. Supervised industrial internship requiring a minimum of 150 hours of work per experience. Prerequisite(s): consent of department. May be repeated for credit up to a maximum of 3 semester credit hours.

CNET 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.

Electrical Engineering Technology, ELET

ELET 2900. Special Problems. 1–4 hours.

ELET 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.

ELET 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.

ELET 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.

ELET 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 ENGR 2750.

ELET 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 ELET 3750.

ELET 3980. Digital Control of Industrial Processes. 3 hours. (2;3) Introduction to and use of programmable logic controllers; topics include terminology, basic and advanced relay logic programming, and connection and control of input/output devices. Emphasis is placed on interfacing, operating and programming a wide range of industrial automation devices. Prerequisite(s): junior standing.

ELET 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 ELET 3740.

ELET 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 ELET 3740.

ELET 4730. Advanced Analog and Mixed Signal Electronics. 4 hours. (3;3) Theory and techniques of analog and mixed signal electronic systems and use of CAD tools for design and simulation. Basic transistor-level design of current sources, references, differential amplifiers, comparators, data convertors, and digital and linear phase locked loops. Designing a circuit of modest complexity. Prerequisite(s): ELET 3740 and ELET 3750.

ELET 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.

ELET 4780. Senior Design I. 1 hour. 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.

ELET 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 4780**.**

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

ELET 4920. Cooperative Education. 1 hour. A supervised industrial internship requiring a minimum of 150 hours of work per experience. Prerequisite(s): consent of department. May be repeated for credit up to a maximum of 3 semester credit hours.

ELET 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 Technology, ENGR

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*.

ENGR 1060. Communication and Ethics. 3 hours. Technical/workplace written communication; critique of existing technical documents; preparation and delivery of a professional presentation; introduction to engineering ethics including plagiarism, professional codes of ethics and case studies. Prerequisite(s): ENGL 1310.

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

ENGR 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 TECM 2700 (either may be taken concurrently). *Satisfies a portion of the Understanding the Human Community requirement of the University Core Curriculum*.

ENGR 2301 (ENGR 2303 or ENGR 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 PHYS 1730 and MATH 1710.

ENGR 2302 (ENGR 2302 or ENGR 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.

ENGR 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.

ENGR 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.

ENGR 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.

ENGR 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): TECM 2700 and ENGR 2060 and ENGR 2720.

ENGR 3450. Engineering Materials. 3 hours. 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): MATH 1710; CHEM 1410/1430 or CHEM 1415/1435.

ENGR 3451. Engineering Materials Lab. 1 hour. (0;1) Provides students with hands-on experience in materials science and engineering, involving experiments and data acquisition, analysis of results, report writing and oral presentation. Corequisite(s): ENGR 3450.

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

Manufacturing Engineering Technology, MFET

MFET 2900. Special Problems. 1–4 hours.

MFET 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.

MFET 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.

MFET 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.

MFET 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.

MFET 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.

MFET 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.

MFET 4780. Senior Design I. 1 hour. 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.

MFET 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.

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

MFET 4920. Cooperative Education. 1 hour. Supervised industrial internship requiring a minimum of 150 hours of work per experience. Prerequisite(s): consent of department. May be repeated for credit up to a maximum of 3 semester credit hours.

MFET 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

MEET 2900. Special Problems. 1–4 hours.

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

MEET 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.

MEET 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.

MEET 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.

MEET 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.

MEET 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, MEET 3990 and MEET 4350 or concurrent enrollment.

MEET 4780. Senior Design I. 1 hour. 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.

MEET 4790. Senior Design II. 3 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.

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

MEET 4920. Cooperative Education. 1 hour. A supervised industrial internship requiring a minimum of 150 hours of work per experience. Prerequisite(s): consent of department. May be repeated for credit up to a maximum of 3 semester credit hours.

MEET 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

NUET 2900. Special Problems. 1–4 hours.

NUET 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.

NUET 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.

NUET 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.

NUET 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.

NUET 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 NUET 4050.

NUET 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.

NUET 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.

NUET 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.

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

NUET 4920. Cooperative Education. 1 hour. Supervised industrial internship requiring a minimum of 150 hours of work per experience. Prerequisite(s): consent of department. May be repeated for credit up to a maximum of 3 semester credit hours.

NUET 4930. Reactor Engineering Design and Operation. 3 hours. 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 NUET 4050.

NUET 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.

NUET 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.

NUET 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.