REPORT FROM THE OFFICE OF THE VICE PRESIDENT FOR ACADEMIC AFFAIRS

The following Undergraduate petitions have been approved:

Undergraduate Experimental Course:

ENGR 222X Route Surveying  3 Cr. Hrs. Implementation Date: Fall, 2003.

Undergraduate Course Minor Modification:

MS 204 Leader's Training Course (Basic Camp)  4 Cr. Hrs.
Change from "Letter Grade" to "Pass/Fail". The course activities occur off campus and would be difficult to quantify into a system other than Pass/Fail. The Pass/Fail option would also mirror the Army’s grading criteria of the student while at Ft. Knox.
Implementation Date: Summer II, 2003.

Undergraduate Program Minor Modification:

Bachelor of General Studies – As now approved, the BGS program provides the opportunity of a 1-6 hour internship experience (GENS 490 – General Studies Internship) for students enrolled in the Applied Studies option, but not in the Individualized Studies option. Several students seeking to complete the Individualized Studies option have inquired about using GENS 490. As designed, the course is to be a synthesizing experience using the student's knowledge and experience in a self-designed, committee-approved project. Students and others have made a strong case that the course/experience can be an important component of the self-designed major for Individualized Studies students.

The BGS Advisory Committee supports this program change and requests that the course GENS 490 be made applicable to the Individualized Studies option as well as the Applied Studies option. The committee requests approval for fall semester, 2003 implementation.

The following undergraduate petitions will be discussed when the Curriculum Committee meets on Friday, April 11, 2003 from 11:00 a.m. – noon in UC 215.

Undergraduate New Course Petitions

ENGR 362 Manufacturing  1-3 Cr. Hrs.
This course covers manual, automated, and mixed-mode manufacturing systems, including single and multiple station operations. Various levels of production such as job shop, batch, and mass production are covered. The equipment used for processing, transportation, and storage will also be covered. Numerical analysis of the systems covered includes cost, time, and efficiency. Lab experiences will include the programming and operation of robots and other computer numerical controlled machines. Prerequisites: Junior standing or above.
Rationale: This will be an elective course used in the mechanical option track of the engineering program. It will cover the concepts, tools, and practices used in the manufacturing processes of turning raw materials into finished products.

Implementation Date: Fall, 2004.

ENGR 365 Mechanical Systems and Controls 3 Cr. Hrs.
Mathematical and computer modeling of dynamic systems, including mechanical, electrical, electro-mechanical, thermal, and fluid systems. Standard feedback control formulation. Transient and sinusoidal steady state analysis. Prerequisites: ENGR 245-Dynamics.

Rationale: This is an elective course that is targeted to engineering students who wish to focus on a mechanical area of interest. More than ever before, engineers are responsible for the total system design of the products they create. While many engineering courses focus on analysis and design related to a specific engineering topic, they do not enable students with the tools and understanding of complex system dynamics. Furthermore, an understanding of control theory is important because of the widespread use of electronic controls in mechanical systems.

Implementation Date: Spring, 2004.

ENGR 428 Environmental Engineering (3 hours lecture, 3 hours lab) 4 Cr. Hrs.
Study of environmental systems, water/air/soil resources, environmental legislation, and design of pollution control equipment. Topics include legislation review, water chemistry, water treatment, wastewater treatment, air pollution abatement, solid waste treatment, and hazardous waste treatment. Prerequisites: ENGR 375-Fluid Mechanics, CHEM 261-General Chemistry I.

Rationale: This course will provide theoretical and empirical analysis of environmental relationships for upper-class engineering students. Upon completion of this course the students will have a firm foundation of environmental topics; environmental chemistry, legislation, water treatment operations, wastewater treatment operations, air pollution abatement methods, solid waste management, hazardous waste treatment, and pollution prevention practices. Emphasis will be placed on the accumulation and review of data, the design of treatment operations, and the ethical considerations of environmental management.

Implementation Date: Fall, 2004.

ENGR 429 Water Resources and Hydrologic Design (3 hours lecture, 3 hours lab) 4 Cr. Hrs.
Study of the hydrologic cycle. Topics include precipitation analysis, infiltration analysis, groundwater flow, unit hydrograph development, hydrologic probabilities, and flow measurement. This course will consider designs of water use and water excess management facilities. Prerequisites: ENGR 375-Fluid Mechanics.

Rationale: This course will provide upper class engineering students with the fundamentals of hydrology and basic design of water retention, diversion, storage and acquisition facilities. Upon completion of this course the students will have a firm understanding of the basic topics of hydrology; physical processes of the hydrologic cycle, measurement and collection of precipitation data, model conceptualization and data analysis, and design synthesis.

Implementation Date: Spring, 2004.

ENGR 445 Signals and Systems (2 hours lecture, 3 hours lab) 3 Cr. Hrs.
This course concentrates on the classification, analysis and design of systems in both the time- and frequency-domains. Continuous-time
linear systems, such as Fourier Series, Fourier Transform, bilateral Laplace Transform are studied. Discrete-time linear systems, such as solving difference equations, Discrete-Time Fourier Transform, bilateral z-Transform. Sampling, quantization, and discrete-time processing of continuous-time signals. Prerequisites: ENGR 255-Electric Circuits.

Rationale: This course will prepare students to study communication theory, signal processing, sampling theory and controls. This class focuses on the analysis of deterministic signals and linear time-invariant systems.

Implementation Date: Spring, 2004.

ENGR 449 Electrical Power 3 Cr. Hrs.
This course teaches students the fundamentals of three phase power, per unit calculations, one line diagrams, transmission line characteristics, system modeling, symmetrical components, fault current calculations. Prerequisites: ENGR 349-Electrical Machines.

Rationale: A course covering electrical power concepts will prepare students for professional practice in system analysis and in system design. Professional registration examinations heavily test electrical power subject matter.

Implementation Date: Fall, 2004.

ENGR 465 Fluid/Thermal Design 3 (2 hours lecture, 3 hours lab) 3 Cr. Hrs.
Application of the fundamental principles of heat transfer and fluid flow in the engineering analysis and design of fluid/thermal systems (piping layouts, air conditioners, heat exchangers, power plants, solar and wind power, compressors, etc.). Prerequisites: ENGR 375 and ENGR 463.

Rationale: Consistent with EC/ABET criteria, this course is the capstone in energy systems that require knowledge in the thermal sciences (thermodynamics, fluid mechanics, and heat transfer) with subsequent design that is thermal/ fluid in nature. It is comparable to machine design in the mechanical systems area. Typical device examples are a pump and piping network, a household air conditioner, a baseboard heater, a water slide, a vacuum cleaner, etc.

Implementation Date: Fall, 2004.

HONS 102 Honors Learning Community Seminar 1 Cr. Hr.
This course provides the integrative component for the Honors Freshmen Interest Group. It continues the attention to critical thinking developed in HONS 101 and develops service learning opportunities for the living-learning community members. Prerequisites: HONS 101 or consent of instructor.

Rationale: The concept of the Freshmen Interest Group (FIG) revolves around the integration of students' living environment (their floor in their residence hall) and learning environment (their courses and co-curricular and extra-curricular learning opportunities). Students participating in the FIG take a cluster of courses in common, including an integrative seminar. The seminar seeks to pull together the several courses in the cluster, identifying and exploring common themes. The 102 course will expand upon HONS 101 with particular attention to the development of service-learning opportunities for the students in the course.

Implementation Date: Spring, 2004.

UNIV 102 Learning Communities Seminar II 1 Cr. Hr.
This second semester course continues to provide the integrative component for the identified Freshman Interest Group linked courses. It provides opportunities for students to connect prior knowledge and experiences with new learning tasks and content in a shared learning experience. This course will focus on understanding the co-curriculum
and self, career exploration, technological literacy, and improving the educational experiences of first-year students. Prerequisites: UNIV 101.

Rationale: Research suggests that providing opportunities for students to connect content and knowledge from various disciplines helps students acquire a deeper understanding of course material and increases the relevance of higher education to students.

The seminar will continue to provide the integrative component for the identified Freshman Interest Group linked courses. The focus will be on personal development, career exploration, technological literacy, and content analysis demonstrating connections between linked courses. It will prepare students to succeed in college by helping to develop relationships with campus faculty, administration, and peers, and improve the educational experiences of first-year students.

Implementation Date: Spring, 2004.