

Engineering (ENGR)

Courses

ENGR 5501 Methods of Engineering: 3 semester hours.

Introduction to fundamental concepts of engineering related to hazardous waste management. Not counted toward graduation. PREREQ: PHYS 1111.

ENGR 5510 Introduction to Environmental Engineering: 3 semester hours.

Introduction to physical, chemical, and biological principles of solid and hazardous waste management, water and wastewater treatment, air pollutant control, and national environmental regulation. PREREQ: CHEM 1112 or permission of instructor.

ENGR 5516 Applied Engineering Methods: 3 semester hours.

Applied discrete and continuous probability, random variables, probability distributions, sampling, data description, parameter estimation, hypothesis testing, inference, correlation, and linear and multiple regression. PREREQ: MATH 1170.

ENGR 5560 Engineering Cost Estimating: 3 semester hours.

Introduction to design/construction processes, planning, contracts, procurement, plans/specifications, productivity analyses, safety, cost estimating, scheduling and environmental considerations. Use of data from actual construction projects. PREREQ: MATH 3360 or permission of instructor.

ENGR 5570 Survey of Hazardous Waste Management Problems: 3 semester hours.

Environmental, technical, political and economic aspects of hazardous waste management. Credit not given if UI ChE 570 or ISU ENVE 6607 taken. PREREQ: ENGR 5501 or equivalent.

ENGR 5572 Waste Treatment Technologies: 3 semester hours.

Procedures for characterization of hazardous waste sites, identification and application of physical, chemical, biological and thermal treatment. PREREQ: Permission of instructor.

ENGR 5578 Probabilistic Risk Assessment: 3 semester hours.

Probabilistic methods applied to analysis and design. Setting probabilistic design objectives and calculating probabilistic performance emphasized. Equivalent to NE 5578. PREREQ: MATH 3364 and MATH 3360.

ENGR 5589 Principles of Hazardous Waste Site Remediation: 3 semester hours.

Restoration technologies for waste sites. Site characterization and clean-up methods for chemical, radioactive, mixed wastes in soils and water. Practical methodologies. Credit not granted if ENVE 6614 taken. PREREQ: ENGR 5570 or ENVE 6607.

ENGR 5591 Seminar in Engineering: 1 semester hour.

A series of lectures on current topics in the literature by participants or guest lecturers chosen from industry. May be repeated. PREREQ: Permission of instructor.

ENGR 5593 Human Factors in Engineering: 3 semester hours.

Overview of the discipline of human factors engineering, including design of information displays, controls, workspace, and human performance. Relationship of engineering to corporate issues such as R&D, maintenance, training, operations, safety.

ENGR 5599 Experimental Course: 1-6 semester hours.

The content of this course is not described in the catalog. Title and number of credits are announced in the Class Schedule. Experimental courses may be offered no more than three times with the same title and content. May be repeated.

ENGR 6606 Environmental Law and Regulations: 3 semester hours.

Federal, state, local environmental regulations addressing environmental impact assessment; water and air pollution control, hazardous waste, resource recovery, reuses, toxic substances, occupational safety and health, radiation, siting, auditing, liability. Equivalent to POLS 6606. PREREQ: Permission of instructor.

ENGR 6607 Hazardous Waste Management: 3 semester hours.

Management of hazardous and solid wastes, emphasis on CERCLA (Superfund) process for cleaning of uncontrolled hazardous waste sites and RECRA process for industrial treatment, storages, disposal facilities. PREREQ: MATH 5508.

ENGR 6650 Thesis: 1-9 semester hours.

Thesis research must be approved by the student's advisory committee. Six credits may be used to satisfy the research requirements for the degree. 1-9 credits. May be repeated. Graded S/U.

ENGR 6651 Seminar: 1 semester hour.

Current topics in engineering. Invited speakers will be used when possible. Students presentations required. May be taken a maximum of four times. 1 credit. Graded S/U.

ENGR 6652 Special Problems: 1-3 semester hours.

Special experimental, computational, or theoretical investigation leading to development of proficiency in some area of engineering. Formal report required. 1-3 credits. May be repeated. May be graded S/U.

ENGR 6655 Environmental Topics Seminar: 1 semester hour.

Environmental engineering and science topics related to hazardous waste characterization, cleanup, regulations. Includes case histories and presentations by graduate students and visiting speakers. May be repeated.

ENGR 6660 Special Project: 1-9 semester hours.

A significant project, involving engineering applications, toward the completion of M.S. program with non-thesis option. Includes a report and oral examination. 1-9 credits. May be repeated. Graded S/U.

ENGR 6670 Industrial Practice: 1 semester hour.

Work in an approved, supervised, engineering and/or computer science position. Students will submit a report, inclusive of hours logged, to the instructor with a written narrative focusing on the accomplishments and learning gained through the work performed. May be repeated. Not counted towards graduation requirements. PREREQ: Instructor approval.

ENGR 6699 Experimental Course: 1-6 semester hours.

The content of this course is not described in the catalog. Title and number of credits are announced in the Class Schedule. Experimental courses may be offered no more than three times with the same title and content. May be repeated.

ENGR 8850 Doctoral Dissertation: 1-24 semester hours.

Research toward completion of the dissertation for the Ph.D. in Engineering and Applied Science. Variable credits. May be repeated. Graded S/U.