Industrial Engineering Courses

Courses

IE 5195. Graduate Seminar.
Graduate Seminar (1-0) Lectures and discussions of various topics in industrial engineering by faculty, graduate students, and speakers from industry and other institutions. Required for all non-thesis graduate students each semester in the graduate program. This seminar will be counted only once towards graduate degree requirements.
1 Credit Hour
1 Total Contact Hour
0 Lab Hour
1 Lecture Hour
0 Other Hour

IE 5291. Comprehensive Integrat of IE.
Comprehensive Integration of Industrial Engineering (0-0-2) This course is designed to prepare the non-thesis student for the written and oral components of the final comprehensive examination. Key technical concepts, methodologies, and issues in the core subject areas will be taken in the student's final semester in the non-thesis M.S. program. If the student fails the exam (and thus the course), the student can re-enroll for IE 5291 the following semester, up to a total of three semester attempts.
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
0 Lecture Hours
2 Other Hours

IE 5316. Advanced Work Design.
Advanced Work Design (3-0) This course will focus on the theoretical and practical issues concerning the design of work. It will provide a thorough coverage of the principles of industrial safety, plant layout and design, and methods engineering from a productivity and quality man-machine system perspective. The course will consist of lectures, class discussions, and student projects.
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

IE 5330. Industrial Statistics.
Industrial Statistics (3-0) Industrial Statistics techniques such as generating functions, multivariate transformations, modes of convergence, limit theorems, parametrical statistical models, sufficiency, estimation, confidence intervals, hypothesis testing, optimal tests, and large sample theory. A strong emphasis is placed on the application of statistical techniques to industrial problems.
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Prerequisite(s): (IE 3330 w/C or better)

Advanced Concepts in Safety Engineering (3-0) Survey of industrial safety engineering topics to include hazard control principles, tools and machines, materials handling, noise and vibration, chemicals, ventilation, hazardous waste, personal protective equipment risk assessment, facility development process and safety, risk management and assessment, system safety, and accident investigation and analysis. This course will consist of lectures and class discussions. A semester project is an integral part of this course.
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Prerequisite(s): (IE 4332 w/C or better)
IE 5341. Adv Production/Inven Control.
Advanced Production and Inventory Control (3-0) This course emphasizes inventory management for production planning and includes topics in inventory control, forecasting, lot sizing, dispatching, scheduling, releasing, kitting, MRP and just-in-time models. Strong emphasis on the solution and research of existing production and inventory control problems.
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

IE 5351. Linear and Combin Optimiz Meth.
Linear and Combinatorial Optimization Methods (3-0) Deterministic operations research techniques such as linear programming and its extensions, duality theory, sensitivity analysis, network related models, integer programming, and dynamic programming. Applications include production planning and project networks such as PERT/CPM.
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

IE 5352. Design/Analysis Indust Exprmnt.
Design and Analysis of Industrial Experiments (3-0) Investigation of statistical sampling methods, hypothesis testing procedures, and design of experiments. Both parametric and non-parametric procedures are included.
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Prerequisite(s): (IE 4385 w/C or better)

IE 5354. Advanced Engineering Economy.
Advanced Engineering Economy (3-0) Capital budgeting, deterministic investment analysis, probabilistic engineering economy, manufacturing cost models, utility theory, and computer applications to engineering economy.
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Prerequisite(s): (IE 3326 w/C or better)

IE 5357. Computer Simulation Appli.
Computer Simulation Applications (3-0) An introduction to the concepts of simulation methodology as applied to the design and analysis of industrial systems. Specialized computer simulation language is applied to an industrial analysis or design term project.
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Advanced Ergonomics and Process Design (3-0) This course emphasizes the tools, techniques, concepts, and theories of ergonomics and human performance criteria for work in the manufacturing environment. Emphasis is on the design and evaluation of workstations, man-machine systems and processes.
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours
IE 5385. Advanced Quality Control.
Advanced Quality Control (3-0) This course covers current advances in quality control. The emphasis of the course is on continuous quality improvement. The course will concentrate on advanced quality control topics including, but not limited to, process, capability analysis, philosophies of quality management, advanced statistical process control, quality costs and automated quality control.

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

IE 5387. Quality Engineering.
Quality Engineering (3-0) Topics such as quality organization, quality assurance, quality policies and objectives, quality information systems, metrology, inspection and testing, quality planning, quality function development and supplier quality assurance. Quality standards and legal issues with respect to quality such as torts, negligence, contracts will also be addressed. A semester project is an integral part of this course.

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

The course introduces fundamental concepts of green energy and environmentally conscious (benign) manufacturing. This course also acquaints students with the energy and environmental issues surrounding product and process design decisions. Identification and development of strategies, techniques, and methods that can be used to make more environmentally responsible decisions are discussed. The life cycle assessment of (LCA) is implemented and illustrated with software and case studies.

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

IE 5390. Special Topics Industrial Engr.
Special Topics in Industrial Engineering (3-0) Advanced topics of contemporary interest in industrial engineering. May be repeated for credit when topic varies.

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

IE 5391. Individual Studies.
Individual Studies (3-0) Individual variable-credit research, design or analysis on advanced phases of industrial engineering problems conducted under the direct supervision of a faculty member. A maximum of 3 credit hours may be applied towards the M.S. degree.

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

IE 5394. Graduate Research.
Graduate Research (0-0-3) Individual variable-credit research of contemporary topics in industrial engineering.

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
0 Lecture Hours
3 Other Hours
IE 5397. Graduate Projects.
Graduate Projects (0-0-3) Individual research, design or analysis on advanced phases of industrial engineering problems conducted under the direct supervision of a faculty member.

**3 Credit Hours**
**3 Total Contact Hours**
0 Lab Hours
0 Lecture Hours
3 Other Hours

**Prerequisite(s):** (IE 5396 w/P or better)

IE 5398. Thesis.
Thesis (0-0-3).

**3 Credit Hours**
**3 Total Contact Hours**
0 Lab Hours
0 Lecture Hours
3 Other Hours

Thesis (0-0-3).

**3 Credit Hours**
**3 Total Contact Hours**
0 Lab Hours
0 Lecture Hours
3 Other Hours

**Prerequisite(s):** (IE 5398 w/P or better)