INDUSTRIAL ENGINEERING


I E 201 System Design I 4(3,3) Introduction to the design of industrial engineering systems. Design methodologies are introduced in the context of a design process that includes identifying user needs; developing a design specification; generating, evaluating, refining, and selecting design concepts; detail design; constructing, testing, and refining prototypes; and delivering the product to the customer. Prereq: CES 102, ENGL 103.

I E 210 Design and Analysis of Work Systems 4(3,3) Workplace design, ergonomics of workplace design, performance measurement, and methods engineering are discussed.

I E 220 Design of Information Systems in Industrial Engineering 3(3,0) Introduction to Visual Basic and object-oriented programming principles, databases, and software applications of human-centered system design.

I E 280 Methods of Operational Research I 3(3,0) Introduction to operations research models, including linear programming, integer linear programming, transportation and assignment problems, and network flows. Prereq: MTHSC 106.

I E H 300 Junior Honors Seminar 1(1,0) A quants students enrolled in the Departmental Honors Program with current research issues in the profession. This assists students in preparing a research proposal for the senior thesis. Prereq: Junior standing, admission to Departmental Honors Program.

I E 360 Industrial Applications of Probability and Statistics 3(3,0) Axioms of probability, discrete and continuous distributions, and sampling distributions applied to industrial engineering applications. Engineering applications of statistical estimation, hypothesis testing, and confidence intervals. Prereq: MTHSC 206.

I E 361 Industrial Quality Control 3(3,0) Quality engineering techniques focusing on process control using statistical methods including control charts and acceptance sampling. Prereq: I E 360.

I E 368 Professional Practice in Industrial Engineering 1(1,0) Seminar to orient students to issues of professional development and professional practice of industrial engineering.

I E 381 Methods of Operational Research II 3(3,0) Probabilistic modeling of engineering systems. Topics include calculus-based probability, decision analysis, Markov processes, queuing, and reliability. Prereq: I E 280, 360.


I E 386 Production Planning and Control 3(3,0) Fundamentals of forecasting demand, scheduling production, and controlling the movement and storage of material associated with production are studied. State-of-the-art manufacturing techniques are discussed. Prereq: I E 280, CP SC 161 or I E 220.

I E 440, 640 Decision Support Systems in Industrial Engineering 4(3,2) Design of decision support systems for production and service systems based on operations research models of use of spreadsheets, databases, and integrated software development environments to implement decision support systems. Prereq: I E 280, CP SC 161 or I E 220.

I E (MGT) 444 International Perspectives in Industrial Management 3(3-3,6) See MGT 444.

I E 452, 652 Reliability Engineering 3(3,0) Probabilistic approach to assessing system reliability. Methods for analyzing serial, parallel, and complex systems. Reliability life testing and its acceleration are covered. Essential elements of maintainability are identified and related to system availability. Prereq: I E 360.

I E 456, 656 Supply Chain Design and Control 3(3,0) Industrial engineering aspects of supply chains including design and control of material and information systems. Prereq: I E 386.

I E 460, 660 Quality Improvement Methods 3(3,0) Study of modern quality improvement techniques presented in an integrated, comprehensive context. Prereq: Senior standing.

I E 461, 661 Quality Engineering 3(3,0) Design aspects of quality and the engineer's role in problems of quality in production systems. Prereq: I E 360.

I E 465, 665 Facilities Planning and Design 3(3,0) Study of the principles and techniques of building layout. Economic selection of materials handling equipment and integration of this equipment into the layout plan to provide effective product flow. Quantitative techniques for evaluation of facilities plans. Design project is required. Prereq: I E 280.

I E 476 Systems Design II 3(2,3) Provides students with the challenge of integrating and synthesizing general engineering knowledge into creating a successful real-world, open-ended problem. This includes developing the problem statement, objectives, and criteria; data collection; technical analysis, developing and integrating recommendations; and presenting results. Prereq: A required industrial engineering courses in the Industrial Engineering curriculum.

I E 482, 682 Systems Modeling 4(4,0) Modeling of discrete industrial systems using a digital computer. The purpose, theory, and techniques of system modeling are presented. Prereq: I E 381.

I E (B E, EE & S) 484, 684 Municipal Solid Waste Management 3(3,0) See EE & S 484.

I E 485, 685 Industrial Systems Engineering 3(3,0) Multidisciplinary plant problem analysis is introduced. Economic selection of materials handling equipment and integration of this equipment into the layout plan to provide effective product flow. Quantitative techniques for evaluation of facilities plans. Design project is required. Prereq: I E 280.

I E 487, 687 Industrial Safety 3(3,0) Recognition and prevention of hazards; recognition and control of hazardous materials; developing and managing a safety program; designing inherently safe equipment and workplaces. Prereq: Junior standing.

I E 489, 689 Industrial Ergonomics and Automation 3(2,3) Physical ergonomics and ergonomics in industrial settings, including work physiology, the physical environment, automated systems, and hybrid work systems. Prereq: I E 210.

I E 491, H 491, 691 Selected Topics in Industrial Engineering 3(0-3,0-9) Comprehensive study of any timely or special topic in industrial engineering not included in other courses. May be repeated for a maximum of six credits. Prereq: Consent of instructor.

INTEGRATED PEST MANAGEMENT

Professor: D. Alverson

I P M 401, 601 Principles of Integrated Pest Management 3(3,0) Origins, theory, and practice of integrated pest management. Relationships among crop production and protection practices are explored. Economics of various control strategies are considered. Integrated pest management field projects are studied. Conventional and integrated pest management approaches are compared. Multidisciplinary plant problem analysis is introduced. Prereq: CSENV 407, ENT 301, PL PA 310, or consent of instructor.

ITALIAN

Associate Professor: B. M. Zaczek; Lecturer: J. Bridgwood

ITAL 101 Elementary Italian 4(3,1) Introductory course stressing grammar, pronunciation, oral practice, and reading skills. A two-year program is given to practical everyday living as well as cultural considerations.

ITAL 102 Elementary Italian 4(3,1) Continuation of ITAL 101. Prereq: ITAL 101 or consent of instructor.

ITAL 201, H 201 Intermediate Italian 3(3,1) Intermediate course to build on the foundation of previous language courses, with practice in listening, speaking, reading, and writing. Introduction to cultural perspectives through readings of literary prose selections. Prereq: ITAL 102.

ITAL 202, H 202 Intermediate Italian 3(3,1) Increasingly difficult readings in Italian literature, supplemented with classroom discussions and compositions. Prereq: ITAL 201.

ITAL 301 Introduction to Italian Literature 3(3,0) Study of selected texts of Italian literature in their artistic, cultural, and social context. May include themes and genre studies. Prereq: ITAL 202 or consent of department chair.

ITAL 302 Modern Italian Literature 3(3,0) Study of selected works from major 19th and 20th century Italian authors, including Manzoni, Verga, Svevo, M. Oravia, G. Ingiburg. Prereq: ITAL 202 or consent of department chair.

ITAL 305 Intermediate Italian Conversation and Composition 3(3,0) Practice in the written and spoken language with emphasis on vocabulary, pronunciation, and comprehension. Prereq: ITAL 202 or consent of department chair.

ITAL 307 Italian Civilization and Culture 3(3,0) Study of the significant aspects of Italian civilization and culture through analysis of literary texts, paintings, films, and magazine articles. Prereq: ITAL 202 or consent of department chair.
ITAL 398 Directed Reading 1-3(1-3,0) Directed study of selected topics in Italian literature, language, and culture. May be repeated for a maximum of six credits. Preq: Consent of department chair.

ITAL 400 Image of an Italian City 3(3,0) Study of historical, social, and architectural images of Italian cities through analysis of literary texts and films. Preq: ITAL 202 or consent of instructor.

ITAL 498 Selected Topics 3(3,0) Study of selected topics in Italian literature, language, and culture. Taught in Italian. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: Consent of department chair.