

Weekend Format – Planned Degree Plan – Engineering Management

Cost Per Course: \$4,170 (tuition and fees)

Credit Hours: 3 hours per course

Course Delivery Method: Classroom

Pace: Two courses each semester, starting in Fall 2011. No summer courses.

Engineering Economics and Decision Analysis

Course Number

EMIS 8361

Catalog Description

Introduction to economic analysis methodology. Topics include engineering economy and cost concepts, interest formulas and equivalence, economic analysis of alternatives, technical rate of return analysis, and economic analysis under risk and uncertainty. (Credit is not allowed for both EMIS 2360 and EMIS 8361.)

Goals

To improve financial decision making capabilities by learning concepts and techniques of analysis useful in evaluating economic alternatives.

Advising Information

Excellent business/economics elective

Prerequisites

Introductory probability

Engineering Accounting

Course Number

EMIS 8362

Catalog Description

An introduction to and overview of financial and managerial accounting for engineering management. Topics include basic accounting concepts and terminology; preparation and interpretation of financial statements; and uses of accounting information for planning, budgeting, decision-making, control, and quality improvement. The focus is on concepts and applications in industry today.

Goals

For the engineering student to:

- Become familiar with the language of business, accounting, so as to understand financial statements and the budget process used by all major organizations.
- Prepare for management duties or interactions through an understanding of the uses of accounting information for planning, controlling, and decision-making

Advising Information

Good business elective

Prerequisites

None

Management for Engineers

Course Number

EMIS 8364

Catalog Description

How to manage technology and technical functions from a pragmatic point of view. How to keep from becoming technically obsolete as an individual contributor and how to keep the corporation technically astute. This course will look at the management of technology from three distinct viewpoints: 1) the management of technology from both an individual and a corporate perspective, 2) the management of technical functions and projects, and 3) the management of technical professionals within the organization.

Goals

To learn to manage technology and technical functions from a pragmatic point of view, to keep from becoming technically obsolete as an individual contributor, and to keep the corporation technically astute.

Prerequisites

Graduate standing in engineering

Management of Information Technologies

Course Number

EMIS 7360

Catalog Description

Defines the management activities of the overall computer resources within an organization or government entity. Consists of current topics in strategic planning of computer resources, budgeting and fiscal controls, design and development of information systems, personnel management, project management, rapid prototyping, and system life cycles.

Goals

To provide a broad spectrum of knowledge of tools, approaches, and techniques that can be used to manage, evaluate and improve the Information Technology resources used by a small business, large enterprise or government entity.

Prerequisites

None

Probability and Statistics for Scientists and Engineers

Course Number

EMIS 7370

Catalog Description

Introduction to fundamentals of probability and distribution theory, statistical techniques used by engineers and physical scientists. Examples of tests of significance, operating characteristic curves, tests of hypothesis about one and two parameters, estimation, analysis of variance, and the choice of a particular experimental procedure and sample size.

Goals

To prepare students with diverse technical backgrounds and objectives with fundamental probabilistic and statistical concepts, methods, and techniques for use in continuing graduate studies and in engineering and engineering management through a balance of theory and application involving engineering decision making, including situations in which uncertainty and risk are important. Emphasis is placed on problem definition, solution and interpretation of results.

Prerequisites

MATH 2339 or equivalent

Engineering Finance

Course Number

EMIS 8363

Catalog Description

Develops an understanding of corporate financial decisions for engineers. Topics include cost of capital, capital budgeting, capital structure theory and policy, working capital management, financial analysis and planning, and multinational finance.

Goals

1) To learn how decision-makers use financial information to make better business decisions. 2) To prepare individuals with technical degrees for management duties and interactions by understanding the sources and uses of financial information for planning and controlling these financial elements of their business life. 3) To focus on the key concepts, issues and applications rather than the technical financial details. 4) To motivate students to learn the material and use it in the future by demonstrating that finance is both interesting and relevant in their business and personal lives.

Prerequisites

EMIS 8361 or knowledge of time-value of money

Operations Research Models

Course Number

EMIS 8360

Catalog Description

A survey of models and methods of operations research. Deterministic and stochastic models in a variety of areas will be covered.

Goals

To enable the student to (1) identify operations research (OR) problems in industry and government, (2) formulate an appropriate deterministic or stochastic model for their solution, (3) apply a solution methodology, and (4) interpret the results for a manager or engineer in terms of the application involved.

Advising Information

Good elective, if not required

Prerequisites

None

Systems Engineering Process

Course Number

EMIS 7301

Catalog Description

The discipline, theory, economics, and methodology of systems engineering is examined. The historical evolution of the practice of systems engineering is reviewed, as are the principles that underpin modern systems methods. The economic benefits of investment in systems engineering and the risks of failure to adhere to sound principles are emphasized. An overview perspective distinct from the traditional design- and analytical-specific disciplines is developed.

Goals

To provide students with an introduction to system engineering.

Prerequisites

None

Technical Entrepreneurship

Course Number

EMIS 8358

Catalog Description

Development of principles and practical strategies for the management and evolution of rapidly growing technical endeavors. Topics include entrepreneurship, intrapreneurship, strategic planning, finance, marketing, sales, operations, research and development, manufacturing, and management of technology-based companies. Management teams are formed, and ventures are selected and simulated over an extended period of time. Extensive student presentations and reports are required.

Goals

To prepare students for:

1. Management roles in entrepreneurial start-ups, and small to mid-sized companies
2. Technical business situations that they will face in many technology businesses, especially in today's e-business world
3. Working in teams and groups
4. On-the-job learning by developing a feasible company structure, making mistakes, developing solutions, and observing mistakes and approaches made by the other teams

Prerequisites

Graduate standing

Production Systems Engineering

Course Number

EMIS 7362

Catalog Description

A survey of models and methods for designing and implementing quality-based, integrated, production/operations systems. Topics include demand forecasting; product-mix decisions; distribution logistics; facilities location and layout; scheduling; supply-chain, inventory, and materials management; just-in-time techniques; and quality measurement and improvement methods for manufacturing and service operations.

Goals

Production is the process of converting resources into manufactured goods; operations management addresses the delivery of services to customers. The purpose of this course is to familiarize the student with a variety of methods for forecasting, planning, scheduling and controlling quality for production systems and operations. Students learn to manage processes within an organization and between members of a supply chain. Specific techniques are studied for forecasting, planning and operating production operations in today's competitive environment.

Advising Information

Good elective for all engineering programs

Prerequisites

EMIS 8360