Master of Engineering Management
Course Descriptions
39 Credit Hours

Core Requirements

MGM 5500-Managerial Accounting
This graduate course studies the financial and economic principles and techniques of decision making. The role of decision criteria based on generally accepted accounting principles is explained in detail. The student acquires the basic information needed by a manager to have control of the firm and achieve his objectives in an efficient manner. (3 credits)

MGM 5700-Probability & Statistical Methods
The course explains various probability and statistical methods to sample, measure dispersion, skewness, and probability distributions. Testing hypothesis, analysis of variance, linear regression, correlation, multivariable analysis, and time series analysis are introduced. Case studies of quality control and engineering decisions are assigned and discussed. (3 credits)

MGM 6070-Managing Human Resources
Principles and methodology to manage Human Resources in scientific and technical enterprises. Techniques for hiring, benefits, incentives, promotion, retention, development, etc. are discussed, emphasizing the human dimension. Techniques for handling complaints, insubordination, and violations of regulations are introduced. (3 credits)

MGM 6560-Management of Information Systems
Information systems designed to support management in the areas of finance, manufacturing, marketing databases, and data communication are introduced. (3 credits)

MGM 6620-Managerial Finance
Financial concepts encountered in engineering situations are introduced based on the fact that they are an integral part of planning, organizing, directing, and controlling activities. The financial cycle of budgeting, accounting, controlling and auditing is discussed. Prerequisite: MGM 5500. (3 credits)

MGM 6690-Decision Making Techniques
This is a course where the scientific management methods for making decisions and solving administrative problems are explored. Bayesian analysis, linear programming, and analysis of alternatives are discussed. Strategic analysis, projections, forecasting, PERT, CPM, and other management techniques are introduced. Prerequisite: MGM 5700. (3 credits)

Track Requirements

MEM 5600-EngineeringEconomic Analysis
This is a graduate course in engineering analysis emphasizing the planning and control of engineering economics, including manufacturing costs. Project cost evaluation, interest rates, continuous compounding, present worth and capitalization are included. Rate of return, replacement analysis, cash flow diagrams, decision trees, and value engineering techniques are included. (3 credits)

MEM 6200-Engineering Management Projects
This is a project course that provides the opportunity to apply concepts and methods studied previously to the solution of problems in engineering administration. Students work individually or in small groups on a number of projects approved by the instructor. Prerequisite: MEM 6120. (3 credits)

MEM 6110-Engineering Management I
Introduction to the elements of modern management and business practices. This course is designed to provide students with the principles used by professionally trained managers to guide the typical industrial and business enterprise. (3 credits)

MEM 6120-Engineering Management II
This course enables the students to gain an understanding of the fundamental concepts and principles of general management emphasizing their application in technological and scientific organizations. The management process is broken down into: planning, organizing, leading, and controlling. Prerequisite: MEM 6110. (3 credits)

Emphasis
(Choose One)

Construction Management

MEM 6170-Cost Estimating & Contracting
This course introduces the engineer to the fundamental principles that govern public enterprises such as government departments, state and municipal government, etc. Probability and decision theory, as well as cost-effectiveness studies are introduced. (3 credits)

MEM 6410-Construction Management
The management of construction is studied. The course addresses planning, scheduling, controlling, and following different activities such as cost estimation, insurance, accounting, labor relations, etc. The course is designed to help students gain a perspective of the construction industry. (3 credits)

MEM 6820-Business & Construction Law
Concepts of business law and construction law are discussed. Zoning, codes, and construction litigation are also discussed. (3 credits)

Environmental Management

MEM 6910 - AIR QUALITY
Three credit-hours. Two two-hour lecture periods per week. Prerequisite: None. This course will be covering several topics regarding the air quality and pollution control. Some of the topics that will be studied in this course are as follows: Indoor Air, The Atmosphere, Ozone Depleting Substances (Montreal Protocol), Aldrin Inhalation Toxicity Weight (TRI), Banned or Severely Restricted Pesticides (USEPA), Explanation of Criteria, Air Pollutant: Rank States, Particulate Size 10 microns Pollution Locator: Criteria Air Pollutants, Lead, Particulate Size 2.5 Microns, Respiratory Toxicity Health Effects, Greenhouse Gases, (Intergovernmental Panel of Climate Change), EPA'S National Ambient Air Quality Standards, The Standard Review and Re-evaluation Process, Introduction to Air-Pollution Control, Air Pollution Effect, and Environmental Preservation. (3 Credits)

MEM 6915 - WATER QUALITY
Three credit-hours. Two two-hour lecture periods per week. Prerequisite: None. This course exposes the student to different methods of water purification for commercial and industrial use, wastewater treatment and disposal, and topics associated to water quality.
(3 Credits)

MEM 6940 – Introduction to Pollution Protection of the Earth System
Three credit-hours. Two two-hour lecture periods per week. Prerequisite: None. The course presents the concept of the earth as an integrated system, where human activity, based on the use of the natural resources for material development, generates impacts on the environment, interfering with ecology, and creating scenarios that present challenges related to human health and a balanced environmental. (3 Credits)

General Engineering

This emphasis allows the students to design their own program by selecting courses from any of the other nine emphasis, to match their particular interests. A total of 9 credits must be taken.

Manufacturing Management

MEM 6420-Maintenance Management
This course is designed to help students gain a perspective regarding the maintenance of buildings, industries, and facilities management. Administrative tools and methodology specific to maintenance activities are introduced. Students learn how to manage money, equipment, materials, and personnel to carry out maintenance functions. (3 credits)

MEM 6610-Productivity Management
This course introduces the engineer to the different approaches to Total Quality Management. Throughout the course, various techniques are discussed, such as TQM, Crosby, Juran, and Deming philosophies. The concepts of quality circles, zero defect, corrective action, Pareto analysis, and others are also discussed. (3 credits)

MBA 6830-Operations Management
This is a graduate course in manufacturing techniques. In this course, the student will become familiar with the tools, techniques, and types of manufacturing processes and with production planning, scheduling, and control. Topics such as Inventory Control, Just-In-Time, TQM, and World Class Manufacturing will be discussed. Also, introduction to manufacturing systems such as factory layout, robotics, and manufacturing cells will be included. (3 credits)

Project Management

PJM 6500- Project Mgmt.: Initiation, Implementation and Termination
This course introduces project management fundamentals and principles from the perspective of a manager, who must organize, plan, implement and control non-routine activities to achieve schedule, budget and performance objectives. Topics include project selection, organization and charters, planning, conflict and negotiation, budgeting, cost estimation, scheduling, monitoring, controlling, auditing, and termination. (3 credits)

PJM 6600-Project Risk Management
This course addresses the important elements of risk management. The coursework also explores the risk management processes outlined in the Project Management Body of Knowledge (PMBOK) Guide. Topics include risk management planning, risk identification, risk analysis, development of appropriate responses, and risk monitoring and control. (3 credits)

PJM 6800-Project Procurement & Solicitation
This course presents the major processes through which goods and services are acquired in the project management environment. Topics include planning, solicitation, source selection, contract administration, and contract closeout. (3 credits)