POLYTECHNIC UNIVERSITY
SAN JUAN • ORLANDO • MIAMI

Graduate School
Master of Engineering Management Program **(MEM)**
39 credit hours

Core Requirements
18 Credit Hours
MGM 6070 - Human Resource Management
MGM 6560 - Management of Information Systems
MGM 5500 - Managerial Accounting
MGM 6620 - Managerial Finance
MGM 5700 - Probability and Statistical Methods
MGM 6690 - Decision Making Techniques

Track Requirements
12 credit hours
MEM 5600 - Engineering Economic Analysis
MEM 6110 - Engineering Management I
MEM 6120 - Engineering Management II
MEM 6200 - Engineering Management Project

Concentrations – Choose one
9 Credit Hours

Construction Management
MEM 6410 - Construction Management
MEM 6170 - Cost Estimating & Contracting
MEM 6820 - Business & Construction Law

Environmental Management
EPM 6910 - Introduction to Environmental Regulations
MEM 6920 - Environmental Engineering
MEM 6930 - Energy & the Environment

Manufacturing Management
MEM 6420 - Maintenance Management
MEM 6610 - Productivity Management
MBA 6830 - Operations Management

Project Management
PJM 6500 - Initiation Implementation and Termination
PJM 6600 - Project Risk Management
PJM 6800 - Project Procurement & Solicitation

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-Human Resources Management
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 Project
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)

Concentration
(Choose One)

Construction Management

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 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 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

EPM 6910-Introduction to Environmental Regulations
Discusses the technical, economic, political, administrative and social forces that influence the environmental quality regulations and the use of natural resources. Review of federal and state regulations and programs to minimize air, land, and water pollution. Prerequisite: MEM 6110, MEM 6120. (3 credits)

MEM 6920-Environmental Engineering
This course introduces the student to the different methods of water purification for industrial use, waste, water treatment and disposal, air pollution control, and toxic waste management and disposal. (3 credits)

MEM 6930-Energy & the Environment
Introduction to the supply and demand of energy resources, including petroleum, natural gas, coal, nuclear power, solar, wind, and ocean energy sources. Conservation and efficient use of energy in different engineering activities are introduced. (3 credits)

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)