MASTER OF ENGINEERING MANAGEMENT

— SCHOOL OF ENGINEERING —

ADMINISTRATION

DR. SIRIPONG MALASRI, *Dean*

DR. NEAL JACKSON, *Director of Engineering Management*

FACULTY

NEAL JACKSON, *Professor, Engineering Management*
B.S., Memphis State University, M.S., University of Arkansas;
Ph.D., University of Mississippi

PETER F. LIMPER, *Professor, Religion and Philosophy*
B.A., M.A., Ph.D., Yale University

HOWARD J. LAWRENCE, *Professor, Accountancy*
B.S., Christian Brothers College; M.B.A. Memphis State University;
Ph.D., University of Mississippi; C.P.A.; C.M.A

SIRIPONG MALASRI, *Professor, Civil Engineering*
B.E., Chulalongkorn University; M.Engr., Asian Institute of Technology (Thailand);
Ph.D., Texas A&M University, P.E.

MARGARET A. MILLER, *Professor, Behavioral Science*
B.A., Carlow College; M.Ed., Ph.D., University of Pittsburgh

JUAN CARLOS OLABE-BASOGAIN, *Professor, Electrical Engineering*
M.S., Ph.D., Universidad Politecnica de Madrid (Spain); I.T.

JUDY A. RAMAGE, *Professor, Accountancy*
B.B.A., Memphis State University; M.S., University of Arkansas;
D.B.A., Nova Southeastern University; C.P.A.

L. MICHAEL SANTI, *Professor, Mechanical Engineering*
B.S., Christian Brothers College; M.S., University of Tennessee;
Ph.D., Vanderbilt University

ERIC B. WELCH, *Associate Professor, Electrical Engineering*
B.S., M.S., Ph.D., Mississippi State University

MISSION

THE MASTER OF ENGINEERING MANAGEMENT builds upon the bachelor's degree preparation in several engineering disciplines, other technical programs such as physics and chemistry, and quantitative management. The purpose of this degree program is to prepare individuals to successfully address supervisory and managerial needs in a technical environment. This program was developed for the engineer or technically prepared individual who has professional industrial experience and who expects to move up the management ladder to

take an increasingly active role in his or her organization's decision-making process. Students will take courses in technical fields, finance and accounting for technical managers, computer applications for management, and systems simulation. They will also select several courses to build directly upon a technical area. The capstone of the program will be the completion of the Engineering Management Project. The Master of Engineering Management degree consists of thirty-three semester hours of academic work, which consists of eight core courses including the Engineering Management Project which should be the last course taken and three elective courses.

REQUIRED COURSES:

MEM 601. Engineering Management
MEM 602. Engineering Accounting
MEM 603. Engineering Finance
MEM 604. Social Legal, and Ethical Considerations for Engineering
MEM 605. Quality Assurance
MEM 606. Computer Applications
MEM 607. Operations Research
MEM 690. Engineering Management Project

ELECTIVE COURSES:

MEM 621. Engineering Law
MEM 624. Knowledge Engineering
MEM 636. Computer Networks
MEM 637. File Organization and Database Management
MEM 661. Project Organization and Planning
MEM 662. Project Tracking and Control
MEM 663. Project Risk Management, Contracting, and Negotiation
MEM 664. Project Management Communications, Human Resources, and Globalization
MEM 691, 692, 693. Special Topics
MEM 698. Professional Seminar
MEM 699. Research

ship Program. *Three credits*

Religious Education (RLED)

RLED 620. PASTORAL FOUNDATIONS OF CATHOLIC EDUCATION
Students examine key dimensions of Catholic theology as a support for understanding the role and mission of Catholic education and to understand their responsibilities as leaders and teachers in Catholic schools. *Three credits*

RLED 625. CATHOLIC EDUCATION AND THE LASALLIAN TRADITION
Students explore the foundations of education from a Catholic perspective and in relation to the Lasallian tradition and mission. *Three credits*

RLED 630. CURRENT ISSUES IN CATHOLIC EDUCATION
Students analyze contemporary concerns in the Catholic school environment from historical, theological, and educational perspectives. *Three credits*

RLED 640. THE CATHOLIC TEACHER
Students examine the unique position of the Catholic school teacher as role model, catechist, inspiring intellectual, and spiritual mentor. *One credit*

RLED 645. THE CATHOLIC SCHOOL LEADER
Students examine the unique position of the Catholic school leader in its spiritual, instructional, community-building, and managerial dimensions. *One credit*

RLED 650. SPIRITUALITY AND EDUCATION
Students consider the spiritual dimensions of teaching and learning, the role of spiritual development in the life of the teacher and the community life of the school, and the curriculum and co-curriculum of the school. *Three credits*

RLED 651. CURRICULUM AND METHODS IN RELIGIOUS EDUCATION, K-6
Students explore appropriate curriculum and instruction for religious education programs and courses in the elementary school or at the elementary level. *Three credits*

RLED 652. CURRICULUM AND METHODS IN RELIGIOUS EDUCATION, 7-12
Students explore appropriate curriculum and instruction for religious education programs and courses in the secondary school or at the secondary level. *Three credits*

RLED 660. LASALLIAN STUDIES FOR EDUCATORS
Students study key documents from the Lasallian tradition of education and analyze the scope and substance of the Lasallian educational mission worldwide. *Three credits*

RLED 680-690. SPECIAL TOPICS IN RELIGIOUS EDUCATION
Special topic courses or directed studies in religious education or Catholic education approved by the Chair of the Department of Education and the Director of the Graduate Education Program. *Three credits*

ENGINEERING MANAGEMENT

MEM 601. ENGINEERING MANAGEMENT
Engineering's role in the firm; organization and structure; leadership and motivation; project management; concepts, methodologies, and procedures for engineering management. *Three credits*

MEM 602. ENGINEERING ACCOUNTING
Uses and limitations of accounting information; measurements, recording of economic events;

analysis, control, reporting of financial events; interpretation and application. *Three credits*

MEM 603. ENGINEERING FINANCE
Understanding of financial decisions by corporations. Topics include return on investment; return on assets; asset management; capital planning; budgets, controls, taxes, profit centers; financial and risk analysis. *Three credits*

MEM 604. SOCIAL, LEGAL AND ETHICAL CONSIDERATIONS FOR ENGINEERING MANAGERS
Advanced seminar on impact of technology and engineering processes on social, business and government institutions; issues of the engineer and scientist and their roles as catalyst for societal change. *Three credits*

MEM 605. QUALITY ASSURANCE
Statistical quality control methods for products and services; design of quality control systems; control of quality control inputs. Lecture and problem solving. *Three credits*

MEM 606. COMPUTER APPLICATIONS
Computer-aided design and manufacturing; business applications; personal computers information storage; networks; computer graphics; future applications; management systems. *Three credits*

MEM 607. OPERATIONS RESEARCH
Models and methods of operations research in solving engineering and management problems. Includes linear models, linear programming, duality, post optimality and network analysis. *Three credits*

MEM 621. ENGINEERING LAW
Legal principles and procedures; contracts and patents; liability, product liability, computer and environmental law; government regulation. *Three credits*

MEM 624. KNOWLEDGE ENGINEERING
Concepts and applications of Artifical Intelligence, Expert Systems, Artificial Neural Networks, Genetic Algorithms, and Software Agents. *Three credits*

MEM 636. COMPUTER NETWORKS
Fundamentals of computer networks. Introduction to computer networking elements, architectures and protocols. Design and analysis of networks: topology, physical and logical communication and applications. *Three credits*

MEM 637. FILE ORGANIZATION AND DATA BASE MANAGEMENT
Survey of current database approaches and systems. Topics include DBMS types; architecture; introduction to SQL; query optimization. DB management project required. *Three credits*

MEM 661. PROJECT ORGANIZATION AND PLANNING
This course examines the processes involved with project planning in a number of the PMI knowledge areas including: Scope, Time, Cost, and Quality. A study of computer methods and software for project planning is included. Also covered is a detailed study of the organizational, management, and reporting aspects. (Same as MMGT 661) Prerequisites: PMP Certification or significant Project Management Experience. *Three credits*

MEM 662. PROJECT TRACKING AND CONTROL
This course provides a detailed study of the processes for obtaining and tracking project costs, times and schedule, scope, quality, and other relevant metrics. Methods and procedures for controlling these metrics are also studied. The course includes both traditional budget and

progress tracking as well as earned value approaches. Computer methods relevant to efficient project tracking and control will be studied. (Same as MMGT 662) Prerequisites: PMP Certification or significant Project Management Experience. *Three credits*

MEM 663. PROJECT RISK MANAGEMENT, CONTRACTING, AND NEGOTIATION

This course covers the PMI knowledge areas of Risk and Procurement for all the process groups (Initiation, Planning, Execution, Controlling, and Closing). Procurements documents, legal aspects, bidding, source selection, and negotiations are studied. An introduction to government contracting is also included. (Same as MMGT 663) Prerequisites: MEM 661 or MMGT 661 and PMP Certification or significant Project Management Experience. *Three credits*

MEM 664. PROJECT MANAGEMENT COMMUNICATIONS, HUMAN RESOURCES, AND GLOBALIZATION

This course covers the PMI knowledge of Communications and Human Resources for all the process groups (Initiation, Planning, Execution, Controlling, and Closing). This course will also investigate the special issues involved with international projects. (Same as MMGT 664) Prerequisites: MEM 661 or MMGT 661 and PMP Certification or significant Project Management Experience. *Three credits*

MEM 690. ENGINEERING MANAGEMENT MASTER PROJECT

Technical project complete with written report or thesis. This will be a publishable and significant report on an investigation into a scientific and/or engineering management topic which has been approved by the School of Engineering. *Three credits*

MEM 691, 692, 693. SPECIAL TOPICS

One to Three credits

MEM 698. PROFESSIONAL SEMINAR

One to Three credits

MEM 699. RESEARCH

One to Three credits