ENGINEERING SYSTEMS MANAGEMENT (M.S.)

Academic Year

2011-2012

School

Graduate School School Web site

School Dean

Henry Flores, Ph.D. hflores@stmarytx.edu

Department

Engineering

Program Director

Rafael Moras, Ph.D., P.E. rmoras@stmarytx.edu

Admission Requirements

To be considered for admission into St. Mary's University Graduate School, you will need to submit the following (along with application):

- (2) Letters of Recommendation
- (2) Official Transcripts reflecting your degree earned.
- Official GRE/GMAT/MAT
- Official TOEFL (80 Computer based) (international students only)
- Financial Guarantee (international students only)

Program Specific Admission Requirements

Admission is granted only to those with high promise for success in graduate study. Applicants demonstrate this potential through previous academic records and testing. To be considered for admission to the MS ESM program, an applicant must fulfill the following:

1. Have a Bachelor of Science (BS) degree in engineering, the physical sciences or mathematics. Students with a degree in other disciplines may be admitted on a contingency basis provided they complete prerequisite courses including engineering calculus I and II, probability and statistics, and engineering programming.
2. Have
    1. a minimum grade point average (GPA) of 3.00 (A=4.00) in their BS degree; and
    2. a minimum quantitative GRE score of 600;
    3. Applicants who fail to meet any of the above standards may be admitted on a conditional basis. The graduate programs director evaluates these cases on an individual basis.

3. International students must submit minimum TOEFL scores of 213 on the computer-based test, 550 on the paper-based test, or 79 on the Internet-based test. Alternative, they must score at least 6.5 on the IELSE test.
4. Submit a completed application form, a written statement of purpose indicating the applicant's interests and objectives, two letters of recommendation, and official transcripts of all college level work. Admission is granted only to those with high promise for success in graduate study. Applicants demonstrate this potential through pervious schooling and testing.

Degree Requirements

Engineering Systems Management (30hrs)
Project Option

Course #	Course Title	Hours
EG6303	Lean production	3
EG7306	Six Sigma Quality	3
EG6341	Supply Chain Management	3
Financial Management Elective (choose three hours from EG6305 Engineering Economic Analysis/Decision Making, EG7350 Financial Aspects of Supply Chains, EG 7354 Engr. Cost Analysis)		
EG7351	Systems Engineering	3
EG8300	Engineering Systems Management	3
EG/BA 7353	Project Management	3
EG7356	Engineering Leadership and Ethics	3
ESM elective (EG 7155, 7255, 7355 Internship or an ESM or BA course, with Program Director approval)		
EG/PS 6309	Human Factors and Ergonomics	3
EG8396	Capstone project	3
	Total hours	**36**

Engineering Systems Management (30hrs)
Thesis Option

Course #	Course Title	Hours
Required: 30 hours		
EG6303	Lean Production*	3

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Course #	Course Title	Hours
EG7306	Six Sigma Quality*	3
EG6341	Supply Chain Management*	3
EG7351	Systems Engineering	3
EG8300	Engineering Systems Management	3
EG/BA 7353	Project Management	3
Elective: EG7155, 7255, 7355	Internship or EG7356 Engineering Management Leadership and Ethics	3
Financial Management Elective: (EG6305 Engineering Economic Analysis/Decision Making, EG7350 Financial Aspects of Supply Chains, EG6338 Topics: Financial Aspects of Engineering Projects, EG6338 Topics: Engineering Cost Accounting)		
EG8390	Thesis I	3
EG8391	Thesis II	3
	Total hours	**30**

Department Courses and Descriptions

BA 7311 **Managing Business Projects or EG 7353 Project Management** (3)
This course provides a management perspective on managing projects. It examines the basic nature of managing business, public, engineering and information systems projects, including the specific insights and techniques required. Issues such as the selection and management of the project team, project initiation, implementation and termination are addressed. This course is cross-listed with BA 7353. Students who have previously received credit for BA 7311 may not enroll in this course.

EC 6381 **Cost Benefit Analysis** (3)
This course studies the theory and the application of cost benefit analysis to the evaluation of investment projects.

EC 6382 **Corporate Economics** (3)
A study of the economic decisions faced by the modern corporation and Chief Financial Officer, this course covers topics such as working capital management, financing, cost of capital, dividend policy, and risk management. Practical application is emphasized.

EG 6303 **Lean Production Systems** (3)
This course covers forecasting, inventory planning and control, aggregate planning, deterministic and stochastic inventory models, master scheduling, just-in-time and lean, theory of constraints, sequencing and scheduling, and assembly line balancing.

EG 6338 **Lean Supply Chain Management** (3)
Supply chain systems. Lean. Logistics.

EG 6354 **Computer Sys. Management or BA 7325 Management of Information Technology** (3)
This course examines a broad range of topics in the management of technology, information systems and organizational issues in exploiting new technology. The course explores concepts of applying computer information systems and communications technology to provide an effective frame work for managing competitiveness in an environment of rapid global change. Managing R&D, systems acquisition, decision-making, and links to other functional areas in the corporation are emphasized.

EG 7306 **Six Sigma Quality** (3)
This course provides the student with (1) an awareness of the history and evolution of the Quality Management philosophy and its principles and methodologies, (2) a thorough knowledge of the quality design and planning process, (3) the ability to deploy basic and advanced quality methods and functions in various organizational settings, and (4) the skills to analyze and develop strategies using relevant case studies and ways to transition organizations to the quality.

EG 7351 **Systems Engineering** (3)
This course deals with systems analysis, engineering economics, and systems engineering and their impact on decision making.

EG 8300 **Engineering Systems Management** (3)
This is a comprehensive course for the Engineering Systems Management graduate program. It incorporates case studies to permit integration of the functional areas studied in the program and engineering ethics. Class activities typically focus on practical applications of engineering systems management (systems of systems) concepts.

PS 6309 **Human Factors and Ergonomics** (3)
This course is a comprehensive and practical review of basic concepts in the integration of the human component into the design, development and evaluation of man-machine systems and sub-systems. It emphasizes the data and practices of human engineering (same as EG 6309).

Department Faculty

Engineering Systems Management (M.S.) Faculty Website

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