

MS in Engineering Management (MSEM)

The MS in Engineering Management is designed for the working professional and provides the opportunity for graduates of BS programs in engineering to prepare themselves for careers as managers. The curriculum consists of further technical training in two concentrations, transportation and manufacturing, as well as basic management instruction. With the cooperation of the Fogelman College of Business and Economics, the degree will be awarded by the Herff College of Engineering and is intended to offer flexibility with fully online course offerings.

## Curriculum

### Program Requirements and Current Courses

The MS requires a minimum of 33 student credit hours beyond a Bachelor’s Degree.

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| Curriculum Component | Hours Required |
| Core | 15 |
| Concentration | 12 |
| Electives | 6 |
| **Total** | **33** |

### Program Outcomes:

The program outcomes are as follows. The core courses that support each program outcome are identified. Graduates of the Masters of Science in Engineering Management program will be able to:

1. Manage the cost, schedule, risk, and technical aspects of a project (TECH 7105, FIR 7155).
2. Manage teams and individuals by using basic management, leadership, communication, and interpersonal skills (MGMT 7135).
3. Use financial information to make decisions (ACCT 7080).

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1. Apply advanced engineering and management knowledge in a relevant area (Concentration areas supported by optional core and concentration courses. **Transportation:** SCMS 7313, MGMT 7160; **Manufacturing**: TECH 7401).

### Core (15 hours):

### Required (12 hours)

1. **TECH 7105: Project Plan & Scheduling (3)**: Contemporary methods used in project planning and scheduling; emphasis on critical path method (CPM) with computer application; solution of actual problems stressed. NOTE: Due to reasons beyond our control, the RODP version of this course offered Summer 2011 and Fall 2011 (R50 Section) is not acceptable for this requirement.
2. **FIR 7155 - Global Financial Mgmt (3)** Theory and practice of modern financial theory as currently practiced in an interdependent global economy by corporate financial managers, financial consultants, and managers of financial institutions.
3. **ACCT 7080: Financial and Managerial Accounting for Managers. (3).** Use of accounting information by an organization's investors, creditors, regulatory authorities and managers; develop financial and credit analysis skills that are useful in business decision making. Analysis of accounting information that can be used by management to monitor the efficiency, quality, and timeliness of its operations; pricing and costing of products and services, planning, and performance measurement.
4. **MGMT 7135 – Seminar in Leadership** (2) Theoretical and practical consideration of leadership in high performing business organizations; detailed analysis of relevant organizational behavior concepts; particular focus on theories of motivation, styles of leadership, and emotional intelligence. **(This course will be expanded to 3 hours with additional content to include managing people and organizations and an overview of organizational cultures.)**

### Core choose one (3 hours)

1. **SCMS 7313: Global Operations Management. (3).** A comprehensive course that addresses the acquisition, transformation and distribution of goods and services within the global supply chain. The course will present concepts, tools and strategies used to design and manage operations. Topics covered in the course include, but are not limited to: strategic implications, performance measurement, process management, sourcing, operations design, quality, inventory, logistics, enabling information systems and technology, and global issues.
2. **MGMT 7160 - Global Strategic Mgmt (3)** Decisions and actions for the development and implementation of long-term plans that determine organizational performance; role of top management decision making in establishing the firm’s mission; focus on strategic analysis of alternative actions; evaluation of environmental conditions, industry characteristics, and organizational capabilities in determining strategy in a global context.
3. **TECH 7401: Lean Fundamentals (3)**: Basic concepts and terminology of Lean, including review of published seminal works and case studies. Concepts covered include: kanban, visual factory & 5S, kaizen, standard work, take time, flow, poke-yoke, PDCA, SMED and other tools & techniques of Lean. PREREQUISITE: TECH 4/6460 or equivalent, or permission of instructor. Course prerequisites for TECH 7401 will be waived for students who have demonstrated relevant work experience.

### Concentration (12 hours):

#### Transportation

1. CIVL 7360 - Transp Econ & Decision Making
2. CIVL 7012 - Prob Meth In Engr
3. CIVL 7263 - Intro. to Num. Opt. for Eng.
4. CIVL 7269 - Quantitative Approaches to Engineering Decision Making

#### Manufacturing

1. TECH 7015 - App Stat Meth Industry
2. TECH 7402 - Adv Quality Control
3. TECH 7404 - Wrld/Clas Manfct Concpt
4. TECH 7414 - Manuf Strat/Syst Design

### Electives (6 hours)

Graduate electives in Engineering to be chosen by the student in consultation with advisor.