

# ENGINEERING MANAGEMENT, M.S.

## Learning Outcomes

1. Graduates will demonstrate the expertise to supervise and lead teams of engineers and other technical personnel, to perform to meet project objectives and to lead the negotiation teams.
2. Graduates will demonstrate the expertise to analyze risk in engineering projects .

## Degree Requirements

Students may follow one of the following three tracks: General, Cyber Security, and Energy. For the M.S. degree, 30 credit hours are required. At least 15 course credit hours must be 700-level or higher. A non-thesis option is available for the General track only.

### General Track Program of Study

#### Required Courses (12 Hours)

Course	Title	Credits
ECIV 707	Management of Engineering Projects	3
ECIV 708	Engineering Risk and Reliability	3
LAWS 702	Legal Aspects of Engineering	3
JOUR 703	Corporate Communication	3
<b>Total Credit Hours</b>		<b>12</b>

#### Business Electives (9 Hours)

Course	Title	Credits
Select three of the following:		9
ACCT 728	Financial Accounting	
IBUS 734	International Business Negotiations	
MGMT 718	Management of Human Resources	
MGMT 770	Competing Through People	
MKTG 701	Marketing Management	
<b>Total Credit Hours</b>		<b>9</b>

#### Engineering and Computing Elective (3 Hours)

Course	Title	Credits
Select one of the following technical courses or an approved 500-level or above course:		3
CSCE 522	Information Security Principles	
CSCE 715	Network Systems Security	
CSCE 727	Information Warfare	
CSCE 790	Topics in Information Technology	
ECHE 573	Next Energy	
ECHE 789	Selected Topics in Chemical Engineering	
ECIV 790	Selected Topics in Civil Engineering	
ELCT 510	Photovoltaic Materials and Devices	
ELCT 891	Selected Topics in Electrical Engineering	
EMCH 529	Sustainable Design and Development	
EMCH 791	Selected Topics in Thermal Systems	
<b>Total Credit Hours</b>		<b>3</b>

### Thesis Preparation or Non-Thesis Option (6 Hours)

The General track has two options: Thesis and Non-thesis. The Thesis Option includes 6 credit hours of Thesis Preparation. The course number for the thesis will be specific to the department in which the research is conducted (CSCE 799, ECIV 799, ELCT 799, or EMCH 799). The Non-Thesis Option includes 6 additional credit hours of Engineering and Computing Electives, of which a maximum of 3 credit hours may be a special topic/directed studies course for a project.

### Cyber Security Track Program of Study

#### Required Courses (9 Hours)

Course	Title	Credits
ECIV 707	Management of Engineering Projects	3
or ECIV 708	Engineering Risk and Reliability	
LAWS 702	Legal Aspects of Engineering	3
JOUR 703	Corporate Communication	3
<b>Total Credit Hours</b>		<b>9</b>

#### Business Electives (9 Hours)

Course	Title	Credits
Select three of the following:		3
ACCT 728	Financial Accounting	
IBUS 734	International Business Negotiations	
MGMT 718	Management of Human Resources	
MGMT 770	Competing Through People	
MKTG 701	Marketing Management	
<b>Total Credit Hours</b>		<b>3</b>

#### Cyber Security Elective Courses (6 Hours)

Course	Title	Credits
Select two of the following:		6
CSCE 522	Information Security Principles	
CSCE 715	Network Systems Security	
CSCE 727	Information Warfare	
<b>Total Credit Hours</b>		<b>6</b>

#### Thesis Preparation (6 Hours)

The Cyber Security Track requires a thesis related to cyber security. The course number for the thesis will be specific to the department in which the research is conducted (CSCE 799, ECIV 799, ELCT 799, or EMCH 799).

### Energy Track Program of Study

#### Required Courses (9 Hours)

Course	Title	Credits
ECIV 707	Management of Engineering Projects	3
or ECIV 708	Engineering Risk and Reliability	
LAWS 702	Legal Aspects of Engineering	3
JOUR 703	Corporate Communication	3
<b>Total Credit Hours</b>		<b>9</b>

#### Business Electives (9 Hours)

Course	Title	Credits
Select three of the following:		9
ACCT 728	Financial Accounting	
IBUS 734	International Business Negotiations	
MGMT 718	Management of Human Resources	

MGMT 770	Competing Through People	
MKTG 701	Marketing Management	
<b>Total Credit Hours</b>		<b>9</b>

### Energy Elective Courses (6 Hours)

Course	Title	Credits
Select two of the following:		6
EMCH 791	Selected Topics in Thermal Systems	
ECHE 573	Next Energy	
ELCT 510	Photovoltaic Materials and Devices	
<b>Total Credit Hours</b>		<b>6</b>

### Thesis Preparation (6 Hours)

The Energy Track requires a thesis related to energy. The course number for the thesis will be specific to the department in which the research is conducted (CSCE 799, ECIV 799, ELCT 799, or EMCH 799).

### Comprehensive Exam

All candidates for a degree in the MS in Engineering Management graduate program must complete a comprehensive assessment that is distinct from program course requirements. A comprehensive assessment requires the student to synthesize and integrate knowledge acquired in coursework and other learning experiences and to apply theory and principles in a situation that approximates some aspect of professional practice or research in the discipline. It must be used as a means by which faculty judge whether the student has mastered the body of knowledge and can demonstrate proficiency in the required competencies. Students in the MS in Engineering Management graduate program will fulfill the comprehensive assessment requirement by successful completion and defense of the thesis. For students completing the Non-thesis Option, the comprehensive exam will be administered by the student's advisor.

### International Concentration

For the International concentration, the student will have preliminary knowledge of a foreign language. Students will complete three credit hours for language instruction and six credit hours for professional experience in an internship program in a foreign country. The internship program must be approved by the College of Engineering and Computing prior to the student's departure to the foreign site.