

# ENGINEERING MANAGEMENT, M.S.

## 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

**Total Credit Hours****6****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.