

## Master of Science in Engineering

**Degree Codes:** ES MSE ENGR

**Concentration:** Industrial Engineering

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Overall requirements for the specific options are as follows:

### Requirements for all degree types

| Course Category | Number   | Course Name  |   | SCH     |
|-----------------|----------|--|---|---------|
| Core Courses    | ENGR 510 | Introduction to Engineering and Science Research Methods | 2 | 5       |
|                 | ENGR 592 | Engineering Computational Methods                        | 3 |         |
|                 |          |  |   | Total 5 |

### Thesis Option (in addition to the courses above)

| Course Category       | Number  | Course Name   |   | SCH      |
|-----------------------|---|---|---|----------|
| Core Courses          | ENGR 511  | Engineering and Science Research Proposal Development   | 1 | 1        |
| Concentration Courses | Three courses (9 semester hours) chosen from the concentration list*                            |   |   | 9        |
| Electives**           | Three courses (9 semester hours) from electives list or others approved by advisory committee** |   |   | 9        |
| Thesis                | INEN 551  | Research & Thesis (6 SCH are required with at least 3 SCH taken in the quarter the thesis is reviewed and approved) |   | 6        |
|                       |   |   |   | Total 30 |

### Practicum Option (in addition to the courses above)

| Course Category       | Number  | Course Name   |   | SCH      |
|-----------------------|---|---|---|----------|
| Core Courses          | ENGR 511  | Engineering and Science Research Proposal Development | 1 | 1        |
| Concentration Courses | All six courses (18 semester hours) from the concentration list*                                |   |   | 18       |
| Electives**           | Three courses (9 semester hours) from electives list or others approved by advisory committee** |   |   | 9        |
| Practicum             | INEN 555  | Practicum   |   | 3        |
|                       |   |   |   | Total 36 |

### Coursework Only Option (in addition to the courses above)

| Course Category       | Number  | Course Name                      |   | SCH      |
|-----------------------|---|----------------------------------|---|----------|
| Core Courses          | ENGR 589A   | Professional Development Seminar | 1 | 1        |
| Concentration Courses | All six courses (18 semester hours) from the concentration list*                                |                                  |   | 18       |
| Electives**           | Four courses (12 semester hours) from electives list or others approved by advisory committee** |                                  |   | 12       |
|                       |   |                                  |   | Total 36 |

\*The concentration courses for the concentration in Industrial Engineering.

### Approved Concentration Courses

|          |                                       |   |          |                                    |   |
|----------|---------------------------------------|---|----------|------------------------------------|---|
| INEN 566 | Six Sigma and Quality Control         | 3 | INEN 509 | Economics and Decision Making      | 3 |
| INEN 502 | Operations Research                   | 3 | INEN 511 | Facilities Planning                | 3 |
| INEN 505 | Manufacturing and Operations Analysis | 3 | INEN 514 | Statistical Analysis for Six Sigma | 3 |

\*\*The maximum number of variable credit Directed Study courses that can be applied towards the degree is 6 SCH.

**Suggested Electives**

| Industrial Engineering |                              |   | Statistics |                                       |   |
|------------------------|------------------------------|---|------------|---------------------------------------|---|
| INEN 504               | Simulation                   | 3 | STAT 506   | Regression Analysis                   | 3 |
| INEN 507               | Engineering Administration   | 3 | STAT 507   | Design and Analysis of Experiments    | 3 |
| INEN 512               | Reliability Engineering      | 3 | STAT 510   | Advance Stats for Quality Improvement | 3 |
| INEN 515               | Logistics Planning           | 3 | STAT 520   | Theory of Probability                 | 3 |
| INEN 518               | Project Management           | 3 | STAT 521   | Theory of Statistics                  | 3 |
| INEN 557               | Six Sigma Black Belt Project | 3 | INEN 530   | Advanced Topics in Manufacturing      | 3 |

**Plan of Study Important Information:** When entering information in the plan of study, it is important to note that only core courses and all core courses need to be put in section 1.1, while all others are put in section 1.2 (i.e. special topics, seminar, and research courses).

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