

# Master's Program Requirements

## Industrial & Systems Engineering at Texas A&M University

Starting Fall 2014.

# Overview

- Three programs:
  - Master of Engineering in Industrial Engineering (ME IE)
  - Master of Science in Engineering Systems Management (ENSM)
  - Master of Science in Industrial Engineering (MS IE)
- For cost of tuition and fees, please visit [https://financialaid.tamu.edu/Cost/COA\\_Grad.aspx](https://financialaid.tamu.edu/Cost/COA_Grad.aspx).
- For cost of living, visit <http://bush.tamu.edu/financialaid/detailedcostestimates/>

# Program orientations

- Master of Engineering in Industrial Engineering (ME IE) and Master of Science in Engineering Systems Management (ENSM) are designed to train students to be industrial professionals, and is suitable for students who want to enter industry or are already in industry. The courses in those programs are application oriented.

ME IE is a 30-hour degree, while ENSM is a 36-hour M.S. degree.

- Master of Science in Industrial Engineering (MS IE) are designed to prepare students for a Ph.D. program. The courses are theory and methodology oriented and many of the required courses are also Ph.D. qualifying exam courses.
- When you are admitted to one of the our master's programs, you can change your program among the three master's program options once you arrive at TAMU, subject to the approval of the Director of Graduate Programs.

# Expected duration of study

- **Master of Engineering in Industrial Engineering (ME IE)** requires 30 credit hours, or equivalently, 10 courses. This program typically takes **18 months** (or three regular semesters). A faster possibility is 12 months, which requires students to take courses in a summer.
- **Master of Science degrees, both ENSM and MS IE non-thesis option**, requires 36-credit hours, or equivalently, 12 courses. This program typically takes **2 years** (or four regular semesters). A faster possibility is 18 months, which again requires students to take courses in a summer.
- **MS IE thesis option** requires 32-credit hours, or roughly, 11 courses. Because this degree option requires students to write a thesis, finishing it generally takes **2 years**.

# Master of Engineering in Industrial Engineering (ME IE)

- A program of 30 credit hours, or equivalently, 10 courses.
- Course requirements in three blocks:

Block A: four courses covering the breadth of industrial engineering

1. ISEN 601 or ISEN 615 (logistics and inventory control)
2. ISEN 614 (quality engineering)
3. ISEN 630 or ISEN 631 (human factors)
4. ISEN 667 (engineering economy)

Block B: three courses covering common modeling techniques and tools

1. ISEN 613 (data analytics models and tools)\*
2. ISEN 620 (optimization models and tools)
3. ISEN 625 (simulation models and tools)

Block C: Three elective courses (can be either ISEN courses or non-ISEN courses).

\*ISEN 609 can be used in place of ISEN 613

# Master of Science in Engineering Systems Management (ENSM)

- A program of 36 credit hours, or equivalently, 12 courses.

- Course requirements in three blocks:

Block A: four courses covering systems engineering

1. ISEN 613 (data analytics)
2. ISEN 625 (simulation)
3. ISEN 640 (system thinking)
4. ISEN 641 (system engineering methods)

Block B: four courses offering engineering management

1. ISEN 608 (project analytics)
2. ISEN 663 or ISEN 689 (engineering management)
3. ISEN 667 (engineering economy)
4. ISEN 669 (engineering decision tools)

Block C: Four elective courses to form a concentration area (almost any graduate courses, either ISEN courses or non-ISEN courses).

# Master of Science in Engineering Systems Management (ENSM) - continued

- One option of Block C is the four courses that also earn you a Certificate in Business, visit <http://mays.tamu.edu/degrees-and-majors/certificate-programs/certificate-in-business/>

ACCT640 (accounting), FINC635 (finance),  
MGMT655 (management), MKTG621 (marketing).

- In fact, there are other four-courses certificate choices you can select as the Block C courses within the ENSM program.
  - Certificate in Applied Statistics, please visit [http://www.stat.tamu.edu/dist/content\\_link.php?page=Certificates](http://www.stat.tamu.edu/dist/content_link.php?page=Certificates)
  - Certificate in Quality Engineering for Regulated Medical Technologies, please visit <http://engineering.tamu.edu/academics/certificates/quality-engineering-for-regulated-medical-technologies>
  - Certificate in Nonprofit Management, please visit <http://bush.tamu.edu/certificate/cnpm/>

# Master of Science in Industrial Engineering non-thesis option (MS IE non-thesis)

- A program of 36 credit hours, or equivalently, 12 courses.

- Required courses -- 12 hours or 4 courses:

Either ISEN 602 or ISEN 609 (probability and stochastic processes);  
ISEN 622 (linear programming);  
ISEN 623 (nonlinear programming);  
STAT 610 (mathematical statistics).

- Elective courses – 24 hours or 8 courses:

Students can take almost any graduate level courses but a maximal three of the elective courses (9 hours) can be from outside ISEN, or, equivalently, at least 5 of the 8 elective courses need to be from ISEN (15 out of the 24 hours).



# Master of Science in Industrial Engineering thesis option (MS IE thesis)

- A program of 32 credit hours, or roughly, 11 courses.

- Required courses -- 14 hours or 5 courses:

Either ISEN 602 or ISEN 609 (probability and stochastic processes);

ISEN 622 (linear programming);

ISEN 623 (nonlinear programming);

STAT 610 (mathematical statistics).

ISEN 691 (thesis research, minimum 2 hours).

- Elective courses – 18 hours or 6 courses:

Students can take almost any graduate level courses but a maximal three of the elective courses (9 hours) can be from outside ISEN, or equivalently, at least 3 of the 6 elective courses need to be from ISEN (9 out of the 18 hours).

- A written thesis.