Master’s Program Requirements
Industrial & Systems Engineering at Texas A&M University

Since 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 http://financialaid.tamu.edu/Graduate/Cost-of-Attendance#0-GraduateStudents.

• For cost of living, visit http://bush.tamu.edu/financialaid/detailedcostestimates/
Program orientations

• Master of Engineering in Industrial Engineering (ME IE) is 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 the program are application oriented.

• Master of Science in Engineering Systems Management (ENSM) serves the dual purposes of (a) training industrial professionals; (b) preparing students to enter ISEN Ph.D. program in the areas of systems engineering, human factor, and manufacturing.

• Master of Science in Industrial Engineering (MS IE) is designed to prepare students for ISEN Ph.D. program in the areas of operations research, system informatics, and manufacturing. The courses are quantitative and math intense. Previous MS IE students also went to industry after their graduation.

• When you are admitted to one of 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 tools)

  **Block B:** four courses offering engineering management
  
  1. ISEN 608 (project management)
  2. ISEN 663 or ISEN 665 (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).
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 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.
Substitute Courses

- For ME IE and ENSM degree programs, the following courses can be used as a substitute for degree requirement purposes:

  - ISEN 616 for ISEN 614;
  - ISEN 605 for either ISEN 601 or ISEN 615;
  - ISEN 635 for either ISEN 630 or ISEN 631;
Typical offering sequence of required courses in ISEN master’s program

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- These are required ISEN courses for the master’s programs and Ph.D. program.

- The blue highlights are the courses to be offered every semester.

- The green highlights are the courses that have a substitute in the other semester.