**Master’s Programs in Industrial and Systems Engineering**

**Department of Industrial and Systems Engineering**

**Master of Science**

The minimum program for the Master of Science (M.S.) degree in ISE consists of 24 credit hours of approved courses and completion of a satisfactory 6 credit thesis. Courses from outside the ISE department usually include other engineering disciplines, mathematics, computer science, and business and economics.

***Master of Engineering***

The minimum program for the Master of Engineering (M.Eng.) degree in ISE consists of 27 credit hours of approved courses and completion of a satisfactory 3 credit project or, optionally, 30 credits of approved courses. This program of study is for those students whose interests are geared toward engineering design rather than research.

***Minimum Degree Requirements***

* + 30 semester hours of graduate work - NO audit credits
  + 30 hours of 300 and 400 level courses
  + at least 18 hours at the 400 level
  + at least 15 hours at the 400 level in ISE or MSE
  + Maximum of 9 hours at 300 or 400 level from outside the department

**Course Requirements**

All graduate students in the M.S. or M.Eng. in Industrial and Systems Engineering degree programs are required to select at least 12 credits of courses from the set of *ISE Core Courses*. Prerequisites may be satisfied by (1) previous course work, (2) completing the prerequisite course without graduate credit, or (3) passing the final examination of the prerequisite course with a grade of B or better.

***Rules for course selection*** ***from the set of ISE Core Courses***

Select at least 4 courses from the set of *ISE Core Courses:*

* + - select at least one of the following courses: ISE 362 and ISE 426
      * if equivalent courses taken previously, select a course from the set of *ISE Core Courses*
    - select at least one of the following courses: ISE 404 and ISE 429
      * if equivalent courses taken previously, select a course from the set of *ISE Core Courses*
    - select any remaining courses from the set of *ISE Core Courses*:

**ISE Core Courses**

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| ● ISE 319 Material Handling and Facility Planning (3) |
| • ISE 332 Product Quality (3) |
| • ISE 340 Production Engineering (3) |
| • ISE 362 Logistics and Supply Chain Management (3) |
| • ISE 404 Simulation (3) |
| • ISE 419 Sequencing and Scheduling (3) |
| • ISE 426 Optimization Models and Applications |
| • ISE 429 Stochastic Models and Applications (3) |
| • MATH 311 Graph Theory (3) |
| • MATH 312 Statistical Computing and Application (3) |
| • MATH 338 Linear Models in Statistics with Applications (3) |

*Areas of Concentration*

Each student may elect to concentrate course work in specific areas, but there is no requirement to do so. A set of recommended courses in each of eight areas are given below:

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| Areas of Concentration | A recommended course set |
| **Operations Research** | **ISE** 406, 411, 412, 414, 416, 417, 418, 419, 425, 439, 455.  **ECO** 402, 412. **MATH** 312, 338, 340 |
| **Decision and Risk Analysis** | **ISE** 358,458, 409, 410, 416, 419, 439, 442, 446  **MATH** 312, 338 |
| **Economics and Cost Analysis** | **ISE** 358, 458,413. **GBUS** 414, 419, 420, 422. **MATH** 467, 468 |
| **Production and Operations Management** | **ISE** 319, 324, 332, 340, 410, 412, 419, 424, 442, 443, 445, 448, 449. **GBUS** 432, 450, 453, 456,  **ECO** 447. **MSE** 438, 446 |
| Logistics and Supply Chain Management | **ISE** 319, 341, 358, 362, 408, 409, 412, 414, 416, 419, 438, 442, 443, 458, **GBUS** 432, 450, 453, 456. **ECO** 447 |
| **Information Economics** | **ISE** 334, 442, **BIS** 311, 342. **ECO** 412, 413, 415, 447 |
| **Information Technology and Applications** | **ISE** 324, 332, 341, 345, 404, 408, 424, 437, 438, 443, 449, 451. **CSE** 313, 340, 403, 411, 432. **ECE** 401, 404 |
| **Quality Engineering** | **ISE** 332, 409, 410, 422, 442 |

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