

Rochester INSTITUTE OF TECHNOLOGY

Minor Program proposal form

Kate gleason college of Engineering

**Industrial and Systems Engineering Department**

**Name of Minor:** Industrial Engineering

**Brief description of the minor to be used in university publications**

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| A minor in industrial engineering focuses on the design, improvement, and installation of integrated systems of people, material, equipment and energy – utilizing skills in statistics, ergonomics, operations research and manufacturing. This minor provides students with a background in areas commonly used in this field. |

**1.0 Minor Program Approvals**

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| --- | --- | --- |
|  | Approval request date: | Approval granted date: |
| Academic Unit Curriculum Committee | 01/25/13 | 01/25/13 |
| College Curriculum Committee | 02/19/13 | 02/19/13 |
| Inter-College Curriculum Committee | 03/06/13 | 03/22/13 |

**2.0 Rationale:**

A minor at RIT is a related set of academic courses consisting of no fewer than 15 semester credit hours leading to a formal designation on a student's baccalaureate transcript

How is this set of academic courses related?

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| This set of courses provides a foundation in industrial engineering and reflects the basics tools, techniques, and methodologies utilized in application. |

**3.0 Multidisciplinary involvement:**

If this is a multidisciplinary minor spanning two or more academic units, list the units and their role in offering and managing this minor.

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| N/A |

**4.0 Students ineligible to pursue this minor:**

The purpose of the minor is both to broaden a student's college education and deepen it in an area outside the student’s major program. A minor may be related to and complement a student’s major, or it may be in a completely different academic/professional area.   It is the responsibility of the academic unit proposing a minor and the unit’s curriculum committee to indicate any home programs for which the minor is not a broadening experience.

Please list below any home programs whose students will not be allowed to pursue this minor, provide the reasoning, and indicate if this exclusion has been discussed with the affected programs:

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| All matriculated undergraduates in engineering and engineering-related programs (i.e., consistent with math/science requirements) are eligible, except industrial engineering students. |

**5.0 Minor Program Structure, Sequence and Course Offering Schedule:**

Describe the structure of the proposed minor and list all courses, their anticipated offering schedule, and any prerequisites.

* All minors must contain at least fifteen semester credit hours;
* Minors may be discipline-based or interdisciplinary;
* In most cases, minors shall consist of a minimum of two upper division courses (300 or above) to provide reasonable breadth and depth within the minor;
* As per New York State requirements, courses within the minor must be offered with sufficient frequency to allow students to complete the minor within the same time frame allowed for the completion of the baccalaureate degree;
* Provide a program mask showing how students will complete the minor.

Narrative of Minor Program Structure:

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| The Industrial Engineering minor will consist of 15 credit hours, at least three core courses and no more than two elective courses. |

As an example, students may complete the minor by following the sequence below. However, given the flexible structure of the course, multiple program masks exist.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Course Number & Title | SCH | Required | Optional | Fall | Spring | Biennial? | | Prerequisites\* |
| Core Course (choose at least three) | | | | | | | | |
| ISEE-250 Engineering Economy | 3 |  | Y |  | Y |  | | None |
| ISEE-301 Operations Research | 4 |  | Y | Y | Y |  | | MATH 233 |
| ISEE-323 Facilities Planning | 3 |  | Y |  | Y |  | | ISEE 301 (co) |
| ISEE-330 Ergonomics/ Human Factors | 4 |  | Y |  | Y |  | | CQAS 252 |
| ISEE-410 Simulation | 3 |  | Y | Y |  |  | | ISEE 200  ISEE 301  CQAS 252 (co) |
| ISEE-420 Production Control | 3 |  | Y | Y |  |  | | ISEE 301  CQAS 251 |
| ISEE-421 Design and Analysis of Production Systems | 3 |  | Y | Y |  |  | | ISEE 420 (co) |
| ISEE-460 Applied Statistical Quality Control | 3 |  | Y | Y |  |  | | CQAS 251  CQAS 252 (co) |
| Elective Courses (choose no more than two) | | | | | | | | |
| ISEE-350 Engineering Management | 3 |  | Y |  | Y |  | None | |
| ISEE-626 Contemporary Production Systems | 3 |  | Y | Y |  |  | Background in Production Systems | |
| ISEE-703 Supply Chain Management | 3 |  | Y | Y |  |  | Background in Supply Chain | |
| ISEE-704 Logistics Management | 3 |  | Y |  | Y |  | ISEE 420 or ISEE720 | |
| ISEE-711Advanced Simulation | 3 |  | Y |  | Y |  | ISEE 410 or ISEE 710 | |
| ISEE-728 Production Systems Management | 3 |  | Y |  | Y |  | ISEE 421 or ISEE 626 | |
| ISEE-730 Biomechanics | 3 |  | Y | Y |  | Y | MECE 200 | |
| ISEE-731 Advanced Topics in Ergonomics and Human Factors | 3 |  | Y |  | Y | Y | ISEE 330 | |
| ISEE-732 Systems Safety Engineering | 3 |  | Y |  | Y |  | 4th Year Standing | |
| ISEE-741 Rapid Prototyping and Manufacturing | 3 |  | Y |  | Y |  | ISEE 140 or MECE 305 | |
| ISEE-745 Manufacturing Systems | 3 |  | Y | Y |  |  | 4th Year Standing | |
| ISEE-760 Design of Experiments | 3 |  | Y |  | Y |  | CQAS 252 | |
| Total credit hours: | | | 15 | | | | | |

**\*in most cases, pre-requisites may be satisfied by equivalent courses or instructor permission**

**Minor Course Conversion Table: Quarter Calendar and Semester Calendar Comparison**

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| **Directions: The tables on this page will be used by the registrar’s office to aid student’s transitioning from the quarter calendar to the semester calendar.**  **If this minor existed in the quarter calendar and is being converted to the semester calendar please complete the following tables.**  **If this is a new minor that did not exist under the quarter calendar do not complete the following tables.**  Use the following tables to show minor course comparison in quarter and semester calendar formats. Use courses in the (2011-12) minor mask for this table. Display all required and elective minor courses. If necessary clarify how course sequences in the quarter calendar convert to semesters by either bracketing or using some other notation. |

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| --- | --- |
| Name of Minor in Semester Calendar: | Industrial Engineering |
| Name of Minor in Quarter Calendar: | Industrial Engineering |
| Name of Certifying Academic Unit: | Industrial and Systems Engineering |

| **QUARTER: Current Program Courses** | | | **SEMESTER: Converted Program Courses** | | |
| --- | --- | --- | --- | --- | --- |
| Course # | Course Title | QCH | Course # | Course Title | SCH |
| 0303-520 | Engineering Economy | 4 | ISEE-250 | Engineering Economy | 3 |
| 0303-401 | Operations Research | 4 | ISEE-301 | Operations Research | 4 |
| 0303-422 | Facilities Planning | 4 | ISEE-323 | Facilities Planning | 3 |
| 0303-415 | Ergonomics | 4 | ISEE-330 | Ergonomics and Human Factors | 4 |
| 0303-503 | Simulation | 4 | ISEE-410 | Simulation | 3 |
| 0303-402 | Production Control | 4 | ISEE-420 | Production Control | 3 |
| 0303-526 | D/A of Production Systems | 4 | ISEE-421 | D/A of Production Systems | 3 |
| 0303-510 | Statistical Quality Control | 4 | ISEE-460 | Statistical Quality Control | 3 |
| 0303-481 | Engineering Management | 4 | ISEE-350 | Engineering Management | 3 |
| 0303-626 | Contemporary Production Systems | 4 | ISEE-626 | Contemporary Production Systems | 3 |
| 0303-703 | Supply Chain Management | 4 | ISEE-703 | Supply Chain Management | 3 |
| 0303-704 | Logistics Management | 4 | ISEE-704 | Logistics Management | 3 |
| 0303-710 | Systems Simulation | 4 | ISEE-710 | Systems Simulation | 3 |
| 0303-711 | Advanced Simulation | 4 | ISEE-711 | Advanced Simulation | 3 |
| 0303-728 | Production Systems Management | 4 | ISEE-728 | Production Systems Management | 3 |
| 0303-732 | Biomechanics | 4 | ISEE-730 | Biomechanics | 3 |
| 0303-731 | Advanced Topics Ergo/Human Factors | 4 | ISEE-731 | Advanced Topics in Ergonomics and Human Factors | 3 |
| 0303-734 | Systems Safety Engineering | 4 | ISEE-732 | Systems Safety Engineering | 3 |
| 0303-761 | Rapid Prototyping | 4 | ISEE-741 | Rapid Prototyping and Manufacturing | 3 |
| 0303-766 | Manufacturing Systems | 4 | ISEE-745 | Manufacturing Systems | 3 |
| 0303-758 | Design of Experiments | 4 | ISEE-760 | Design of Experiments | 3 |

Policy Name: **D1.1 MINORS POLICY**

 1. Definition

A minor at RIT is a related set of academic courses consisting of no fewer than 15 semester credit hours leading to a formal designation on a student's baccalaureate transcript.

The purpose of the minor is both to broaden a student's college education and deepen it in an area outside the student’s major program. A minor may be related to and complement a student’s major, or it may be in a completely different academic/professional area.   It is the responsibility of the academic unit proposing a minor and the unit’s curriculum committee to indicate any home programs for which the minor is not a broadening experience.

In most cases, minors shall consist of a minimum of two upper division courses to provide reasonable breadth and depth within the minor.

2. Institutional parameters

1. Minors may be discipline-based or interdisciplinary;
2. Only matriculated students may enroll in a minor;
3. At least nine semester credit hours of the minor must consist of courses not required by the student's home program;
4. Students may pursue multiple minors.  A minimum of nine semester credit hours must be designated towards each minor; these courses may not be counted towards other minors;
5. The residency requirement for a minor is a minimum of nine semester credit hours consisting of RIT courses (excluding "X" graded courses);
6. Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in each of the minor courses;
7. Minors may not be added to the student's academic record after the granting of the bachelor's degree.

3. Development/approval/administration processes

* 1. Minors may be developed by faculty at the departmental, inter-departmental, college, or inter-college level. As part of the minor development process:
     1. students ineligible for the proposed minor will be identified;
     2. prerequisites, if any, will be identified;
  2. Minor proposals must be approved by the appropriate academic unit(s) curriculum committee, and college curriculum committee(s), before being sent to the Inter-College Curriculum Committee (ICC) for final consideration and approval.
  3. The academic unit offering the minor (in the case of interdisciplinary minors, the designated college/department) is responsible for the following:
     1. enrolling students in the minor (as space permits);
     2. monitoring students progress toward completion of the minor;
     3. authorizing the recording of the minor's completion on student's academic records;
     4. granting of transfer credit, credit by exam, credit by experience, course substitutions, and advanced placement;
     5. responding to student requests for removal from the minor.
  4. As per New York State requirements, courses within the minor must be offered with sufficient frequency to allow students to complete the minor within the same time frame allowed for the completion of the baccalaureate degree.

4. Procedures for Minor revision

It is the duty of the college curriculum committee(s) involved with a minor to maintain the program’s structure and coherence.  Once a minor is approved by the ICC, changes to the minor that do not have a significant effect on its focus may be completed with the approval of the involved academic unit(s) and the college curriculum committee(s).  Significant changes in the focus of the minor must be approved by the appropriate academic unit(s) curriculum committee(s), the college curriculum committee(s) and be resubmitted to the ICC for final consideration and approval.