

Rochester INSTITUTE OF TECHNOLOGY

Minor Program proposal form

Kate Gleason College of EngiNEEring

**Department of Electrical and Microelectronic Engineering**

**Name of Minor:** **Electrical Engineering**

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

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| Electrical engineering encompasses disciplines such as electronics, communication, control, digital systems, and signal/image processing. A minor in electrical engineering provides a foundation to explore specialized material in electrical engineering. The minor is designed to provide students from other engineering or non-engineering disciplines an introduction to the wide-ranging content of the electrical engineering major. *The minor is closed to students majoring in computer engineering technology, electrical engineering, or electrical engineering technology.* |

**1.0 Minor Program Approvals**

|  |  |  |
| --- | --- | --- |
|  | Approval request date: | Approval granted date: |
| Academic Unit Curriculum Committee | 1/10/2012 | 1/18/2012 |
| College Curriculum Committee | 5/5/17 (revision) | 5/12/17 |
| Inter-College Curriculum Committee |  |  |

**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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| The minor in EE consists of two required and three elective courses. The two required courses provide a foundation for all EE disciplines. The three elective courses allow the student to specialize in a chosen EE discipline. |

**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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| --- |
| NA |

**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:

|  |
| --- |
| 1. KGCOE EEEE (Electrical Engineering). Part of major program. 2. CAST EEET (Electrical Engineering Technology). Minor in EE is a repetition rather than broadening students’ educational experience. 3. CAST CPET (Computer Engineering Technology). Minor in EE is a repetition rather than broadening students’ educational experience. |

**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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| **Program:** The Electrical Engineering minor is designed to provide students from other engineering or non engineering disciplines an introduction to the wide-ranging content of the electrical engineering major. The minor consists of a minimum of five Electrical Engineering courses resulting in a minimum of 15 credits. There are two required courses and three elective courses.  **Prerequisites:**   1. MATH-182   Project-Based Calculus II 2. PHYS-212   University Physics II   Additional prerequisites, depending on choice of electrical engineering elective courses,  may include:  CMPR-271 Computational Problem Solving  MATH-221 Multivariable and Vector Calculus  MATH-231 Differential Equations  MATH-251 Probability and Statistics I  MATH-381 Complex Variables  Required and elective (optional) courses for EE minor with the required prerequisites are shown in the following Table. |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Course Number & Title | SCH | Required | Optional\* | Fall | Spring | Annual/Biennial | Prerequisites |
| EEEE-281 Circuits I | 3 | **YES** |  | X | X | Annual | MATH-173 or MATH-182 or MATH-182A |
| EEEE-282 Circuits II | 3 | **YES** |  | X | X | Annual | EEEE-281 |
| EEEE-120   Digital Sys I | 3 |  | YES | X | X | Annual | EEEE-105 or MCEE-101 or EGEN-100 |
| EEEE-220   Digital Sys II | 3 |  | YES | X | X | Annual | EEEE-120 and CMPR-271 |
| EEEE-420   Embedded Systems Design | 3 |  | YES | X | X | Annual | EEEE-220 or equivalent course |
| EEEE-353   Linear Systems | 4 |  | YES | X | X | Annual | **EEEE-282 and MATH-231 and CMPR-271** |
| EEEE-374   EM Fields & Transmission Lines | 4 |  | YES | X | X | Annual | PHYS-212 and  MATH-231 or PHYS-208 and PHYS-209 |
| EEEE-380  Digital Electronics I | 3 |  | YES | X | X | Annual | EEEE-281 |
| EEEE-480 Analog Electronics II | 4 |  | YES | X | X | Annual | EEEE-281; co-req: EEEE-282 |
| EEEE-414   Classical Control | 3 |  | YES | X | X | Annual | EEEE-353 |
| EEEE-483   Mechatronics | 3 |  | YES | X | X | Annual | EEEE-414  and EEEE-374 |
| EEEE-484   Communications Systems | 3 |  | YES | X | X | Annual | EEEE-353   and  MATH-251 |

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| --- | --- |
| Total credit hours: 15 |  |

\* **Of the three elective courses, two have to be 300 or 400 level courses.**

1. **Typical Program Mask for ME Majors**

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| --- | --- | --- | --- | --- | --- |
| **Third Year** | | **Fourth Year** | | **Fifth Year** | |
| Fall | Spring | Fall | Spring | Fall | Spring |
| EEEE-120 Digital Sys I (3) | EEEE-281 Circuits I  (3) | EEEE-282 Circuits II (3) |  | EEEE-381   Electronics I (3) | EEEE-482   Electronics II (4) |
| **Total Credit Hours:** | | | | **16** | |

1. **Typical Program Mask for CE Majors:**

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| --- | --- | --- | --- | --- | --- |
| **Third Year** | | **Fourth Year** | | **Fifth Year** | |
| Fall | Spring | Fall | Spring | Fall | Spring |
| EEEE-281 Circuits I  (3) | EEEE-282 Circuits II (3) | EEEE-353   Linear Systems  (4) |  | EEEE-374 EM Fields & Transmission Lines  (4) | EEEE-484   Communication Systems  (3) |
| **Total Credit Hours:** | | | | **17** | |

1. **Typical Program Mask for Physics Majors:**

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| --- | --- | --- | --- | --- | --- |
| **Third Year** | | **Fourth Year** | | **Fifth Year** | |
| Fall | Spring | Fall | Spring | Fall | Spring |
| EEEE-120 Digital Sys I (3) | EEEE-281 Circuits I  (3) | EEEE-282 Circuits II (3) | EEEE-381   Electronics I (3) | EEEE-353   Linear Systems  (4) |  |
| **Total Credit Hours:** | | | | **16** | |

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.