NOTE: Changes to programs may require course changes, which must be processed electronically. Any questions should be directed to Associate Provost David Reinhold at 7-4564 or david.reinhold@wmich.edu

DEPARTMENT: Electrical and Computer Engineering
PROPOSED EFFECTIVE FALL YEAR: Fall 2020

PROPOSED IMPROVEMENTS: Academic Program Proposed Improvements
☐ New degree*
☐ New major*
☐ New curriculum*
☐ New concentration*
☐ New certificate
☐ Revised major
☐ New minor
☐ Revised minor
☐ Admission requirements
☐ Graduation requirements
☐ Deletion (required by others)
☐ Deletion (not required by others)
☐ Change in Title
☐ Transfer

☐ Other (explain**)
** Other:

Title of degree, curriculum, major, minor, concentration, or certificate:
Master of Science in Electrical Engineering (EENM)

Chair, Department Curriculum Committee: [Signature] Date 10/3/19

CHECKLIST FOR DEPARTMENT CHAIRS/DIRECTORS
☐ For new programs and other changes that have resource implications, the dean has been consulted.
☐ When appropriate, letters of support from department faculty are attached.
☐ When appropriate, letters of support from other departments in the same college are attached.
☐ When appropriate, letters of support from other college deans, whose programs/courses may be affected by the change, are attached.
☐ The proposal has been reviewed by HIGE for possible implications for international student enrollment.
☐ The proposal is consistent with the departmental assessment plan, and identifies measurable learning outcomes for assessment.
☐ Detailed resource plan is attached where appropriate.
☐ All questions attached have been completed and supporting documents are attached.
☐ The proposal is written and complete as outlined in the Faculty Senate guidelines and the curriculum change guides.

Chair/Director: [Signature] Date 10/9/19

CHECKLIST FOR COLLEGE CURRICULUM COMMITTEE
☐ The academic quality of the proposal and the faculty involved has been reviewed.
☐ Detailed resource plan is attached where appropriate.
☐ Consistency between the proposal and the relevant catalog language has been confirmed.
☐ The proposal has been reviewed for effect on students transferring from Michigan community colleges. Detailed information on transfer articulation must be included with undergraduate proposals.
☐ Consistency between the proposal and the College and department assessment plans has been confirmed.
☐ Consistency between the proposal and the College and department strategic plans has been confirmed.
☐ All questions attached have been completed and supporting documents are attached.
☐ The proposal is written and complete as outlined in the Faculty Senate guidelines and the curriculum change guides.

Revised March 2018. All previous forms are obsolete and should not be used.
CHECKLIST FOR COLLEGE DEANS

☐ For new programs and proposed program deletions, the provost has been consulted.

☐ For new programs, letter of support from University Libraries Dean indicating library resource requirements have been met.

☐ When appropriate, letters of support from other college faculty and/or chairs are attached.

☐ When appropriate, letters of support from other college deans, whose programs/courses may be affected by the change, are attached.

☐ The proposal has been reviewed for implications for accreditation, certification, or licensure.

☐ Detailed resource plan is attached where appropriate.

☐ All questions attached have been completed and supporting documents are attached.

☐ The proposal is written and complete as outlined in the Faculty Senate guidelines and the curriculum change guides.

| Dean: | Date |

FOR PROPOSALS REQUIRING REVIEW BY:
GSC/USC; EPGC, GRADUATE COLLEGE, and/or FACULTY SENATE EXECUTIVE BOARD

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| Approve | Disapprove | Provost: | Date |

Revised March 2018. All previous forms are obsolete and should not be used.
1. Explain briefly and clearly the proposed improvement:
   Clarification of the graduation requirements regarding the Graduate Catalog language that at least one half of course credits earned should be at the 6000-level, or higher. In case of the course work option (33 credits) at least 17 credits must be taken at the 6000-level. In case of the thesis option (30 credits) at least 15 credits must be taken at the 6000, or higher level.

2. Rationale. Give your reason(s) for the proposed improvement.
   The current catalog language for the EENM program says "In either case, at least 15 hours must be taken at the 6000-level" which doesn't comply with the university graduation requirements in case of the course work option.

3. Effect on other colleges, departments, or programs. If consultation with others is required, attach evidence of consultation and support. If objections have been raised, document the resolution. Demonstrate that the program you propose is not a duplication of an existing one.
   N/A

4. Effect on your department's programs. Show how the proposed change fits with other departmental offerings.
   The ECE Department should attempt to offer more 6000-level courses.

5. Alignment with college's and department's strategic plan, mission, and vision.
   No change in alignment.

6. Effects on enrolled students: Are program conflicts avoided? Will your proposal make it easier or harder for students to meet graduation requirements? Can students complete the program in a reasonable time? Show that you have considered scheduling needs and demands on students' time.
   Students have been and will be advised that they need six 6000-level courses in the course work option to graduate.

7. Student or external market demand. What is your anticipated student audience? What evidence of student or market demand or need exists? What is the estimated enrollment? What other factors make your proposal beneficial to students?
   N/A

8. Effects on resources. Explain how your proposal would affect department and University resources, including faculty, equipment, space, technology, and library holdings. If proposing a new program, include a letter and/or email of support from the university libraries affirming that the library resource issues have been reviewed. Tell how you will staff additions to the program. If more advising will be needed, how will you provide for it? What will be the initial one-time costs and the ongoing base-funding costs for the proposed program? (Attach additional pages, as necessary.)
   It will strain further the current ECE faculty to offer more 6000-level courses. The ECE department should be given additional faculty and/or faculty specialist positions to cope with the increasing teaching load.

9. List the learning outcomes for the revised or proposed major, minor, or concentration. The department will use these outcomes for future assessments of the program.
   N/A

10. Describe how this change is a response to assessment outcomes that are part of a department or college assessment plan or informal assessment activities.
    N/A

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11. (Undergraduate proposals only) Describe in detail how this change affects transfer articulation for Michigan community colleges. For new majors or minors, describe transfer guidelines to be developed with Michigan community colleges. For revisions to majors or minors, describe necessary revisions to Michigan community college guidelines. Department chairs should seek assistance from college advising directors or from the admissions office in completing this section.

N/A

12. Please offer both "Current Catalog Language" and "Proposed Catalog Language" if there is to be a change in the catalog description for a given program. For the "current" language, please copy and paste relevant language from the most current catalog and for the "proposed" language, please share the exact proposed new catalog language. As possible, bold or otherwise note the key changes in the new proposed catalog language.

**Current Catalog Language:**

**Course Work Option**

The program (course work option) consists of thirty-three (33) credit hours:

1. At least three hours selected from Electrical Engineering Foundation courses.

2. At least three hours selected from Elective Concentration Areas Foundation courses.

3. A minimum of 12 hours of courses (inclusive of foundation courses and with at least 6 hours at the 6000-level) selected from one of the three concentration areas:
   
   - Communications and Signal Processing
   - Control Systems
   - Electronics and Power Systems

4. A minimum of nine hours of courses selected from one of the other available concentration areas including the area Computer Architecture and Digital Design.

5. Foundation courses may be counted toward the 12 hours and the 9 hours requirement, respectively.

6. The remaining elective hours of additional graduate courses may be selected from any listed ECE courses, or from the list of graduate courses approved by the department from the following disciplines: computer, electrical, other engineering disciplines, computer science, mathematics, or physics.

**Thesis Option**

The program (thesis option) consists of thirty (30) credit hours:

1. At least three hours selected from Electrical Engineering Core Foundation courses.

2. At least three hours selected from Elective Concentration Areas Foundation courses.

3. A minimum of 12 hours of courses (inclusive of foundation courses and with at least 6 hours at the 6000-level) selected from one of the following concentration areas:

   - Communications and Signal Processing
   - Control Systems
   - Electronics and Power Systems

4. The remaining elective hours of additional graduate courses may be selected from any listed ECE courses, or from the list of graduate courses approved by the department from the following disciplines: computer, electrical, other engineering disciplines, computer science, mathematics, or physics.

5. Six hours of ECE 7000: Master's Thesis

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Proposed Catalog language:

Course Work Option

The program (course work option) consists of thirty-three (33) credit hours:

1. At least three hours selected from Electrical Engineering Foundation Courses.
2. At least three hours selected from Elective Concentration Areas Foundation Courses.
3. A minimum of 12 hours of courses (inclusive of foundation courses and with at least 6 hours at the 6000-level) selected from one of the following concentration areas:
   o Communications and Signal Processing
   o Control Systems
   o Electronics and Power Systems
4. A minimum of nine hours of courses selected from one of the other available concentration areas including the area Computer Architecture and Digital Design.
5. Foundation courses may be counted toward the 12 hours and the 9 hours requirement, respectively.
6. The remaining elective hours of additional graduate courses may be selected from any listed ECE courses, or from the list of graduate courses approved by the department from the following disciplines: computer, electrical, other engineering disciplines, computer science, mathematics, or physics.
7. The master's degree requirement is 33 graduate credit hours with the course work option. For the course work option, at least 17 credits (minimum of 50%) must be taken at the 6000-level.

Thesis Option

The program (thesis option) consists of thirty (30) credit hours:

1. At least three hours selected from Electrical Engineering Foundation Courses.
2. At least three hours selected from Elective Concentration Areas Foundation Courses.
3. A minimum of 12 hours of courses (inclusive of foundation courses and with at least 6 hours at the 6000-level) selected from one of the following concentration areas:
   o Communications and Signal Processing
   o Control Systems
   o Electronics and Power Systems
4. Foundation courses may be counted toward the 12 hours requirement.
5. Six hours of ECE 7000: Master's Thesis
6. The remaining elective hours of additional graduate courses may be selected from any listed ECE courses, or from the list of graduate courses approved by the department from the following disciplines: computer, electrical, other engineering disciplines, computer science, mathematics, or physics.
7. The master's degree requirement is 30 hours with the thesis option. For the thesis option, at least 15 credits (minimum of 50%) must be taken at the 6000, or higher level.