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: ECE
PROPOSED EFFECTIVE FALL YEAR: 2019

COLLEGE: CEAS

PROPOSED IMPROVEMENTS: Academic Program Proposed Improvements

- New degree
- New major
- New curriculum
- New concentration
- New certificate
- Revised major
- Revised minor
- Admission requirements
- Graduation requirements
- Deletion (required by others)
- Deletion (not required by others)
- Change in Title
- Transfer

Other (explain**): Update courses in concentration areas

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

Chair, Department Curriculum Committee:

Date

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:

Date

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

☐ Return to Dean
☐ Forward to: Curriculum Manager: ___________________________ Date: ______________________________________

☐ Approve ☐ Disapprove Chair, GSC/USC: ___________________________ Date: ______________________

☐ Approve ☐ Disapprove Chair, EPGC: ___________________________ Date: ______________________

☐ Approve ☐ Disapprove Graduate College Dean: ___________________________ Date: ______________________

☐ Approve ☐ Disapprove Faculty Senate President: ___________________________ Date: ______________________

☐ Approve ☐ Disapprove Provost: ___________________________ Date: ______________________

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1. Explain briefly and clearly the proposed improvement:

There are four concentration areas for the degree. Students select courses from one or more concentration areas dependent on whether the thesis or non-thesis option is selected. This request updates the courses within each concentration area.

2. Rationale. Give your reason(s) for the proposed improvement.

This request updates concentration areas to reflect changes in course offerings.

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.

N/A

5. Alignment with college's and department's strategic plan, mission, and vision.

N/A

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.

No effect as this change simply updates the courses in each concentration area to reflect current practice. Note that the catalog allows courses to be added to this list with departmental approval thus the list is not exhaustive.

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.)

N/A

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

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

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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**

Concentration Areas

Computer Architecture and Digital Design

Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computing Engineering advisor and the department chair.

- ECE 5510 - Application Specific Integrated Circuit Design Credits: 3 hours
- ECE 5530 - Microcontroller Applications Credits: 3 hours
- ECE 5570 - Design of Reconfigurable Digital Machines Credits: 3 hours
- ECE 6050 - Advanced Microprocessor Applications Credits: 3 hours
- ECE 6500 - Advanced Computer Architecture Credits: 3 hours
- ECE 6720 - Fuzzy Control Systems Credits: 3 hours

Communications and Signal Processing

Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computing Engineering advisor and the department chair.

- ECE 5550 - Digital Signal Processing Credits: 3 hours
- ECE 5640 - Communication Systems Credits: 3 hours
- ECE 6550 - Digital Image Processing Credits: 3 hours
- ECE 6640 - Digital Communications Credits: 3 hours
- ECE 6650 - Medical Imaging Systems and Analysis Credits: 3 hours

Control Systems

Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computing Engineering advisor and the department chair.

- ECE 5710 - State Space Control Systems Credits: 3 hours
- ECE 5800 - System Modeling and Simulation Credits: 3 hours
- ECE 5850 - Mechatronics Credits: 3 hours
- ECE 6700 - Modern Control Theory Credits: 3 hours
- ECE 6710 - Optimal Control Systems Credits: 3 hours
- ECE 6740 - Nonlinear Control Systems Credits: 3 hours

Electronics and Power Systems

Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computing Engineering advisor and the department chair.

- ECE 5200 - Power Electronics Credits: 3 hours
- ECE 5410 - Electronic Instrumentation Credits: 3 hours
- ECE 5450 - Micro Electro Mechanical Systems Credits: 3 hours
- ECE 6300 - Transmission Systems Control Credits: 3 hours
- ECE 6410 - Advanced Electronic Instrumentation Credits: 3 hours
- ECE 6450 - Advanced Micro Electro Mechanical Systems Credits: 3 hours

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PROPOSED CATALOG

Concentration Areas

Computer Architecture and Digital Design

Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computing Engineering advisor and the department chair.

ECE 5510 - Application Specific Integrated Circuit Design Credits: 3 hours
ECE 5525 - Digital Design Credits: 3 hours
ECE 5530 - Microcontroller Applications Credits: 3 hours
ECE 5570 - Design of Reconfigurable Digital Machines Credits: 3 hours
ECE 5580 - Computer Architecture Credits: 3 hours
ECE 6050 - Advanced Microprocessor Applications Credits: 3 hours
ECE 6500 - Advanced Computer Architecture Credits: 3 hours
ECE 6720 - Fuzzy Control Systems Credits: 3 hours

Communications and Signal Processing

Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computing Engineering advisor and the department chair.

ECE 5550 - Digital Signal Processing Credits: 3 hours
ECE 5640 - Communication Systems Credits: 3 hours
ECE 5730 - Foundations of Neural Networks Credits: 3 hours
ECE 6550 - Digital Image Processing Credits: 3 hours
ECE 6570 - Biomedical Signal Processing: 3 hours
ECE 6640 - Digital Communications Credits: 3 hours
ECE 6650 - Medical Imaging Systems and Analysis Credits: 3 hours

Control Systems

Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computing Engineering advisor and the department chair.

ECE 5710 - State Space Control Systems Credits: 3 hours
ECE 5800 - System Modeling and Simulation Credits: 3 hours
ECE 5850 - Mechatronics Credits: 3 hours
ECE 6700 - Modern Control Theory Credits: 3 hours
ECE 6710 - Optimal Control Systems Credits: 3 hours
ECE 6740 - Nonlinear Control Systems Credits: 3 hours

Electronics and Power Systems

Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computing Engineering advisor and the department chair.

ECE 5200 - Power Electronics Credits: 3 hours
ECE 5410 - Electronic Instrumentation Credits: 3 hours
ECE 5450 - Micro Electro Mechanical Systems Credits: 3 hours
ECE 6300 - Transmission Systems Control Credits: 3 hours
ECE 6305 - Modeling of Power Equipment for Electromagnetic Transients Credits: 3 hours

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ECE 6410 - Advanced Electronic Instrumentation Credits: 3 hours
ECE 6450 - Advanced Micro Electro Mechanical Systems Credits: 3 hours