REQUEST TO COLLEGE CURRICULUM COMMITTEE FOR CURRICULAR IMPROVEMENTS

DEPARTMENT: Electrical and Computer Engineering  PROPOSED EFFECTIVE SEMESTER: Fall 2019  COLLEGE: CEAS

PROPOSED IMPROVEMENTS

Academic Program
- New degree*
- New major*
- New curriculum*
- New concentration*
- New certificate
- New minor
- Revised major
- Revised minor
- Admission requirements
- Graduation requirements
- Deletion
- Transfer
- Other (explain**)

Substantive Course Changes
- New course
- Pre or Co-requisites
- Deletion (required by others)
- Course #, different level
- Credit hours
- Enrollment restriction
- Course-level restriction
- Prefix
- Title and description
- General education (select one)
- Not Applicable
- Other (explain**)

Misc. Course Changes
- Title
- Description (attach current & proposed)
- Deletion (not required by others)
- Course #, same level
- Variable credit
- Credit/no credit
- Cross-listing
- COGE reapproval
- Other (explain**)

** Other:

Title of degree, curriculum, major, minor, concentration, or certificate: N/A

Existing course prefix and #: ECE 6720  Proposed course prefix and #: ECE 6720  Credit hours: 3

Existing course title: Fuzzy Control Systems

Proposed course title: Fuzzy Control Systems

Existing course prerequisite & co-requisite(s): ECE 5510 or ECE 5570 or equivalent and ECE 5710 or ECE 5705, or equivalent

Proposed course prerequisite(s) ECE 5510, or ECE 5525, or ECE 5570, or equivalent and ECE 5710, or ECE 5705, or equivalent

If there are multiple prerequisites, connect with "and" or "or". To remove prerequisites, enter "none."

Proposed course co-requisite(s) None

If there are multiple corequisites, they are always joined by "and."

Proposed course prerequisite(s) that can also be taken concurrently:

Is there a minimum grade for the prerequisites or corequisites?

The default grades are D for undergraduates and C for graduates.

Major/minor or classification restrictions: EENM, CENM, ECLD

List the Banner 4 character codes and whether they should be included or excluded:

For 5000 level prerequisites & corequisites: Do these apply to: (circle one) undergraduates graduates both

Specifications for University Schedule of Classes:

- Course title (maximum of 30 spaces):
- Multi-topic course: ☐ No ☑ Yes
- Repeatable for credit: ☐ No ☑ Yes
- Mandatory credit/no credit: ☐ No ☑ Yes
- Type of class and contact hours per week (check type and indicate hours as appropriate)
  1. ☑ Lecture 3 hours
  2. ☐ Lab or discussion
  3. ☐ Lecture/lab/discussion
  4. ☐ Seminar or ☐ studio
  5. ☐ Independent study
  6. ☐ Supervision or practicums

CIP Code (Registrar's use only):

Chair/Director

Date

Chair, College Curriculum Committee

Date

Dean

Date: Graduate Dean:

Date

Curriculum Manager: Return to dean ☐ Date Forward to:

Date

Chair, COGE/ PEB / FS President

Date

FOR PROPOSALS REQUIRING GSC/USC REVIEW:

☐ Approve ☐ Disapprove  Chair, GSC/USC

Date

Revised May 2007. All previous forms are obsolete and should not be used.
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1. Explain briefly and clearly the proposed improvement.

A revised set of prerequisites are proposed.

2. Rationale. Give your reason(s) for the proposed improvement. (If your proposal includes prerequisites, justify those, too.)

The extended list of prerequisites will offer more course options for students to prepare for the challenges in ECE 6720. It also reflects the offering of the new ECE 5526 course in the EENM, CENM and ELCD programs, respectively.

ECE 5510, ECE 5526 and ECE 5570 cover digital system design topics using VHDL, or Verilog and FPGA-based implementations. One of the design projects in ECE 6720 requires this sort of knowledge.

In ECE 5710 and ECE 5705 students study classical control systems topics. ECE 6720 also builds upon those prerequisites. The "or equivalent" clause allows the course instructor to accept comparable courses from other CEAS graduate programs, or from graduate programs at other universities as substitutes for the ECE prerequisites.

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.

No other CEAS department has a comparable course, there is no effect.

4. Effect on your department’s programs. Show how the proposed change fits with other departmental offerings.

The proposed extended list of prerequisites will provide more prerequisite options for students to take ECE 6720.

5. 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. If a required course will be offered during summer only, provide a rationale.

The proposed changes will make it easier for students to take this 6000-level course, and hence, to graduate.

6. 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?

The application of intelligent systems (which includes fuzzy logic) has been an emerging trend from embedded systems to the controls of large scale technological processes. It is expected that the course will attract more graduate students because it will be easier for them to fit into their program of study. During the past three years the enrollment has varied between 5 and 10 students.

7. Effects on resources. Explain how your proposal would affect department and University resources, including faculty, equipment, space, technology, and library holdings. Tell how you will staff additions to the program. If more advising will be needed, how will you provide for it? How often will course(s) be offered? What will be the initial one-time costs and the ongoing base-funding costs for the proposed program? (Attach additional pages, as necessary.)

No additional department resources will be required.

8. General education criteria. For a general education course, indicate how this course will meet the criteria for the area or proficiency. (See the General Education Policy for descriptions of each area and proficiency and the criteria. Attach additional pages as necessary. Attach a syllabus if (a) proposing a new course, (b) requesting certification for baccalaureate-level writing, or (c) requesting reapproval of an existing course.) N/A

9. List the learning outcomes for the proposed course or the revised or proposed major, minor, or concentration. These are the outcomes that the department will use for future assessments of the course or program.

Graduate Outcome iii (Professional-level communications).

10. Describe how this curriculum change is a response to assessment outcomes that are part of a departmental or college assessment plan or informal assessment activities. The curriculum change is a response to the recent Graduate Program Review. It will contribute to the ECE Department’s efforts to increase graduation rates.
11. (Undergraduate proposals only) Describe, in detail, how this curriculum change affects transfer articulation for Michigan community colleges. For course changes, include detail on necessary changes to transfer articulation from Michigan community college courses. 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.