

From: [Bradley J Bazuin](#)
To: [Decker Bradley Hains](#)
Cc: [Holly Blanks](#)
Subject: Curriculum Course Request Change Course ECE 3300 - A-2020-ECE-21; effective term: 202140
Date: Wednesday, October 14, 2020 4:59:23 PM

Please verify your data for New Curriculum Course Request for department: ECE; college: A.
Go to the following URL to complete your worklist items: <https://bwfp1.cc.wmich.edu:7102/wfbprod>

Date of request: 14-OCT-2020

Request ID: A-2020-ECE-21

College: A

Department: ECE

Initiator name: Johnson Asumadu

Initiator email: johnson.asumadu@wmich.edu

Proposed effective term: 202140

Does course need General Education approval?: N

Will course be used in teacher education?: N

If 5000 level course, prerequisites apply to: U

Proposed course data:

Change Course ECE 3300

Specific Course Change type selected: Pre or Co-requisites

1. Existing course prefix and number:
ECE 3300

2. Existing course prerequisites:
Prerequisites and Restrictions:
(ECE 3100 Minimum Grade of C OR
ECE 310 Minimum Grade of C) AND

(ECE 3610 Minimum Grade of C OR
ECE 361 Minimum Grade of C)

3. Proposed course prerequisites:
ECE 2210 Minimum Grade of C AND ECE 3610 Minimum Grade of C

4. Existing course corequisites:
No Corequisites exist for ECE 3300 in term 202140.

5. Proposed course corequisites:

None

6. Proposed course prerequisites that may be taken concurrently (before or at the same time):

None

7. Minimum grade for prerequisites (default grades are D for Undergrad and C for Grad):

C

8. Do prerequisites and corequisites for 5000-level courses apply to undergraduates, graduates, or both?

Not Applicable

9. If this change applies to multiple courses, please list them below.

Not Applicable

A. Please choose Yes or No to indicate if this class is a Teacher Education class:

No

B. Please choose the applicable class level:

Undergraduate

C. Please respond Yes if this is a current general education course and/or a course being submitted for the new WMU Essential Studies program. Please respond No if it is neither.

No

D. Explain briefly and clearly the proposed improvement.

Remove prerequisite ECE 3100: Has the following topics - Transfer functions, Laplace transforms, Fourier series and transforms, and 2-port network. These topics are irrelevant and not needed as preparation for this course. Removing this prerequisite will enable students to graduate faster, may use their credits freed from this prerequisite for other courses, and also enable more students from other Michigan community colleges to enroll in ECE 3300.

Add prerequisite ECE 2210: Topics are junction theory, semiconductor diode and models, bipolar transistors and models, field-effect transistors and models. Semiconductor circuits, biasing, and stabilization. Computer-aided design of single- and two-stage amplifiers. Principles and basic technology of MOS and bipolar digital and linear integrated circuits

This course is taken by all ECE students. It is important to still emphasize that this course is required for ECE 3300. Most students from Michigan community colleges take some form or equivalent course to ECE 2210.

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

ECE 3100: This prerequisite is being removed because it will not affect the preparedness of students wishing to take this course. The removal will not delay the requirements for graduating.

ECE2210: This prerequisite is being added. It is required to be taken by all ECE students and all WMU students who take ECE 3300 had already taken this course. All students from Michigan community colleges who take ECE 3300 had already taken some form or equivalent course to ECE 2210. The addition will not delay the requirements for graduating.

F. List the student 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.

1. Ability to analyze, construct, and test steady-state AC single and three-phase circuits. Compare predicted vs. measured values of voltages, currents, and power and determine measurement uncertainties.
2. Ability to analyze, test, and develop a steady-state AC model for magnetic hysteresis and eddy current effects.
3. To use nameplate data, determine and apply necessary tests, and use test data to develop a 60 Hz circuit model for a commercial power transformer.
4. To analyze, design, and test a bank of single-phase transformers to supply an unbalanced three-phase load.
5. To analyze, test and develop a coupled circuits model for a transformer.

6. To design, test and analyze data for a single-phase transformer.
7. To test, analyze data and develop non-linear models for DC machines.
8. To test a three-phase squirrel cage induction motor and use data to develop a classical circuit model. Use the model and MATHCAD to predict motor performance for speeds from zero to synchronous.
9. To test a synchronous generator and use the data to develop a linear and non-linear circuit model.

G. Describe how this curriculum change is a response to student learning assessment outcomes that are part of a departmental or college assessment plan or informal assessment activities.

The students apply knowledge in class and attend different laboratory sections to enable the students compare theoretical and practical outcomes. Removing the prerequisite ECE 3100 and adding ECE 2210 as prerequisite will not affect the process.

H. 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.

There is no change

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

There is no change

J. 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.

There is no change

K. 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?

There is no change

L. 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.)

There is no change

M. With the change from General Education to WMU Essential Studies, this question is no longer used.

For courses requesting approval as a WMU Essential Studies course, a syllabus identifying the student learning outcomes and an action plan for assessing the student learning outcomes must be attached in the Banner Workflow system.

Not Applicable

N. (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.

Removal of prerequisite ECE 3100: Will enable more students from other Michigan community colleges to take ECE 3300. The department had in previous years rejected students from Michigan community colleges because they have not taken prerequisite ECE 3100 now being removed

Addition of prerequisite ECE 2210: Minimal effect because most students from Michigan community colleges take some form or equivalent course to ECE 2210.

O. Current catalog copy:

Three-phase analysis. Analysis and design of transformers, electromechanical devices, and machines.

Prerequisites & Corequisites: Prerequisites: ECE 3100 and ECE 3610; with a grade of 'C' or better in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

P. Proposed catalog copy:

Three-phase analysis. Analysis and design of transformers, electromechanical devices, and machines.

Prerequisites & Corequisites: Prerequisites: ECE 2210 and ECE 3610; with a grade of 'C' or better in all prerequisites.

Credits: 4 hours

Lecture Hours - Laboratory Hours: (3 - 3)

Department Curriculum Chair approver: Damon Miller

Department Curriculum Chair comment:

Date: 14-OCT-2020

Department approver: Bradley Bazuin

Chair comment:

Date: 14-OCT-2020