

B - Course Revision Form V. 7.2022 : Entry # 3313**DEAN Decision**

Approved

Today's Date

27/24/03

DEAN Comments

This is a 2 credit course. If a 4 credit course is necessary for gen ed courses, they Senior Design I and Senior Design II could be considered together to satisfy the gen ed. Students must complete both senior design courses in order to graduate in engineering.

EPC Decision

Approved

Today's Date

09/17/2024

GEC Decision

Approved

Today's Date

10/25/2024

APIRC Decision

Approved

Today's Date

11/15/2024

Begin Form**Today's Date**

03/26/2024

Your Name

Claire McCullough

Your Email:cmccullo@highpoint.edu**Are you a Department Chair?**

Yes

By checking below, I certify that my department chair has seen and approved the course revisions that are in this proposal

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Yes

Please select the appropriate school overseeing this proposal:

Engineering

When should this proposal take effect?

Spring 2026

Are you submitting multiple courses for revision from the same department?

No, just one

Please list all of the courses that you are submitting revisions for:

Course Prefix	Course Number	Course Title
ECE	4910	Engineering Senior Design Project II

What would you like to revise?

- Learning Outcomes

Gen Ed & Academic Program Information**Is this a revision to meet new Gen Ed requirements?**

Yes

Is this course part of an academic program?

- This course does not currently fulfill academic program requirements

Does this course, as revised, include any community engagement?

No

Is this course part of GoGlobal?

No

Does this course count towards a major or a minor?

Yes

Please list the course(s) and whether they are required or electives for the major/minor.

Course Prefix/Number	Name of Major and/or Minor?	Required or Elective?
ECE 4910	Electrical Engineering major and Computer Engineering major	required

Is this course cross listed?

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No

Choose the department designator for your course from the list below.

ECE

Current course number

4910

Current course title

Engineering Senior Design Project II

Curriculum Review Information**Please list all revised student learning outcomes, including Gen Ed outcomes, for this course in the box below.****OVERALL COURSE OUTCOMES**

1. Design, simulate, build, and test engineering solutions to complex real-world problems.
2. Use modern engineering hardware and software tools.
3. Prototype and evaluate an engineering solution to meet given specifications with multiple realistic, potentially conflicting, constraints.
4. Write technical documents and give oral presentations related to design project results.

ABET Outcomes: By the end of the course, the students will demonstrate:

- ability to apply appropriate mathematical, scientific and engineering principles to the capstone design problem formulated in ECE 4900
- ability to generate effective solution(s) to the capstone design problem formulated in ECE 4900
- ability to demonstrate that solution(s) to the capstone design problem, formulated in ECE 4900, include identified constraints
- awareness of the impact of their design projects in relevant contexts.
- the ability to work effectively in teams to complete tasks, and accomplish a common goal
- a collaborative and inclusive environment in teams
- the ability to execute the test plan, and evaluate data using engineering judgment to assure that the capstone design meets constraints

This course meets the objectives of the Gen Ed Experiential category.

Please list any revisions to units or content areas that will be required for all sections of this course in the box below.

NA

If you have Gen Ed learning outcomes, please address the kinds of assessments you may use for each area that you are proposing the course be designated (i.e., Arts, Humanities, Diversity, etc.)

This class is designed to meet the Gen Ed Experiential Learning category.

ECE 4900/4910 is a two course sequence that meets the ABET accreditation requirements for engineering programs:

“a culminating design experience that

1. incorporates appropriate engineering standards and multiple constraints and
2. is based on the knowledge and skills acquired in earlier coursework.”

ABET expects that students will draw from the entire spectrum of their engineering curriculum, including supporting courses such

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as mathematics and sciences. The 4900-4910 sequence is meant to be the culmination of the engineering curriculum at HPU, and in the two-course sequence, students develop ideas, make a formal project proposal, and complete a capstone design project.

We request the experiential designation for 4910, the second course in the sequence, because it is in this semester that students design, build, and test their design and demonstrate a fully functional prototype. In addition to requiring materials learned in the entire spectrum of engineering courses for the design, the class also incorporates budget, dealing with the customer, writing a professional-level design report, and doing a final presentation and demonstration of their project to an audience including the Industrial Advisory Board for the department of Electrical and Computer Engineering. In this class, the professors do not lecture, but serve as coaches and subject matter resources as the students develop, construct, and test their product.

The class is two credit hours, but four contact hours, all of which is experiential, so this course definitely exceeds the requirement of one credit hour of experiential work.

While the class has only been taught twice, examples of group projects are a smart walker, which can determine whether the user has fallen and summon help if necessary, and a robotic system capable of playing a complete game of chess against a human opponent (in progress).

Please list any revisions to course policies that will be required for all sections of this course.

NA

If you would like to specify any revisions to requirements for how contact hours must be met for all sections of this course, please indicate below (e.g., if any experiential learning activities will replace seat time)

NA

If this course proposal affects any other departments, please describe the consultation and approval that you've received and from whom in the box below.

NA

Is there any additional information that you would like to provide for this proposal?

In this course, students apply all the the knowledge and skills they have acquired in their major programs, general education, and supporting courses in creating, documenting, and presenting something new. In this class, students experience all aspects of an actual engineering design project, preparing them for entry into the world of professional engineering.

Additional Files

- [ECE_4910_01_2024SP0_McCullough_Johnson-for-Gen-Ed-EXP-proposal.pdf](#)