**MEMORANDUM**

**TO:** UUPC

**From:** P. Edgar An, Department of Ocean and Mechanical Engineering

**Subject:** Proposed Ocean Engineering Curricular Changes

**DATE:** November 16, 2016

This memo is to explain the proposed curricular changes in the Ocean Engineering Program. Overall, three courses are removed and four existing courses are modified, and two new courses are created.

**Courses to be Removed**

1. EEL 2161 (C for Engineers, 3 credit hours)
2. EGM 4045 (Electro-Mechanical Devices, 3 credit hours)
3. CDA 3201C (Intro to Logic Design, 4 credit hours)

**New Courses to be Created**

1. EGN 4377C (Innovative Sensing and Actuation Technologies, 3 credit hours, elective)
2. EOC 4612C (Intro to Electronics & Programming, 3 credit hours, required)

**Existing Courses to be Added**

1. COP 2220 (Intro to Programming in C, 3 credit hours)
2. Finite Element Analysis (EGM 4350, 3 credit hours)

**Senior Technical Elective Courses to be Modified**

1. EOC 4201C (Marine Materials and Corrosion, 4 credit hours)
2. EOC 4124 (Ship Hydrodynamics, 4 credit hours)
3. EOC 4307C (Underwater Acoustics, 4 credit hours)
4. EOC 4412 (Ocean Structures, 4 credit hours)

**Junior Technical Elective Course to be Added**

1. EGN 4377C (Innovative Sensing and Actuation Technologies, 3 credit hours, elective)
2. Finite Element Analysis (EGM 4350, 3 credit hours, elective)

**Rationale for the Changes**

EEL 2161 has been offered by the CEECS in the past, and is no longer offered. This course will be replaced by COP 2220 (Intro to Programming in C) offered by the CEECS.

EGM 4045 (Electro-Mechanical Devices) has been offered by the Mechanical Engineering Program. This course was created originally to introduce basic electric circuit knowledge. Since the OE students are required to take Circuits 1 (EEL 3300), EGM 4045 contains quite a bit of overlap in circuits content, thus making this course a bit redundant. The proposed new course EOC 4612C (Intro to Electronics and Programming) assumes prior basic circuits background, and focuses more on electronics and C programming. This course will be very useful for the OE students in preparing them for their senior capstone design project courses.

The credit hours for the existing four senior technical elective courses (EOC 4201C, EOC 4124, EOC 4307C, and EOC 4412) are changed from four to three. The OE faculty felt that these courses are too intensive for students to take in the last year of study while actively working on their senior design projects. By changing the credit hours from four to three and that the OE students are only required to take two out of these senior electives, there will be a net saving of 2 credit hours with this change.

CDA 3201C (Intro to Logic Design) has been offered by the CEECS in the past. This course focuses on sequential logic circuit design only. The OE program faculty met and felt that this course content is a bit outdated and is not as useful. Instead, the faculty recommended the OE students take EGN 2213 (Computer Applications for ME 1) that covers Matlab programming. Many OE courses require the OE students to be knowledgeable in Matlab programming. With this proposed change, there will be a net saving of 1 credit hour.

With the senior elective course changes and the removal of CDA 3201C, there will be a net saving of 3 credit hours. The OE faculty felt that there is a need to create a junior elective that provides the OE students with applied skills. Particularly, the students can either take EGN 4377C (newly created elective course) or EGM 4350 (existing ME course). These courses cover knowledge that is very useful for the students to work on their senior design projects.