**PROGRAM CHANGES**

WEBER STATE UNIVERSITY

**Submission Date: November 21, 2013**

**Submitter Name: Fon Brown**

**College: COAST**

**Department**: Engineering

**Program Title:** Electrical Engineering

Check all that apply:

\_\_\_\_New course(s) required for major, minor, emphasis, or concentration.

\_\_\_\_Modified course(s) required for major, minor, emphasis, or concentration.

\_\_\_\_Credit hour change(s) required for major, minor, emphasis, or concentration.

\_\_\_\_Credit hour change(s) for a course which is required for the major, minor, emphasis, or concentration.

\_\_\_\_Attribute change(s) for any course.

\_\_\_\_Program name change.

\_\_\_\_Deletion of required course(s).

\_\_\_\_Program mode of delivery/format change (Graduate Programs ONLY)

X Other changes (specify) New Elective Course Offerings

**JUSTIFICATION:**

The Electrical Engineering Program requires 2 electives for graduation. There are currently three electives offered in the catalog, but there are other areas of study that the faculty has the expertise to teach and would be advantageous for students in their effort to gain employment. These courses have already been or will (in Spring Semester) be taught under the course number EE 4900 – special topics. The faculty would like to establish these two courses as regular electives and assign them their own course numbers and descriptions for the catalog.

Copy the present program from the current catalog and add the required changes (exactly as you wish them to appear in the catalog). Use strikeout (~~strikeout~~) when deleting items in the program and highlight (highlight) when adding items. If multiple changes are being proposed, please provide a summary.

***Program Description***

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| Electrical Engineering (BS)  --------------------------------------------------------------------------------  •Program Prerequisite: Not required.  •Minor: Not required.  •Grade Requirements: A grade of “C” or better in all EE and support courses is required for this major (a grade of “C-” is not acceptable). Students must have an overall GPA of 2.5 or higher to graduate.  •Credit Hour Requirements: A total of 125 credit hours is required for graduation.  Electrical Engineering is the branch of engineering that deals with the design and development of electrical devices and systems such as computers, telecommunications and controls. The Electrical Engineering Program offers courses in basic analog and digital circuits, microelectronic systems, electromagnetics, embedded systems, and signal processing. An internship, which gives students engineering work experience, is also part of the program. In the senior year, students complete a two-semester capstone project that integrates their course work. The program prepares graduates to enter engineering industry or pursue advanced studies in the discipline.  Program Educational Objectives  Educational objectives are the career and life accomplishments that the program prepares graduates  to achieve within a few years after graduation. The educational objectives of the WSU Electrical  Engineering Program are to produce graduates that are able to:  •Design and develop electrical systems.  •Effectively communicate technical information and participate in a team environment.  •Engage in life-long learning through continuing education and industrial practice.  •Demonstrate professional ethics and social awareness.  Accreditation  The Weber State University Electrical Engineering program is accredited by the Engineering Accreditation Commission (EAC) of ABET.  Advisement  All Electrical Engineering students are required to meet with their faculty advisor at least annually for course and program advisement. Please call the department secretary at 801-626-6898 for the name of your advisor and to schedule an appointment. Individual student records are accessible through the WSU Home Page.  Admission Requirements  See the faculty advisor or department secretary to declare your program of study (major).  General Education  Refer to Degree and General Education Requirements for Bachelor of Science degrees. Consult with your advisor and refer to the major requirements below for specific general education courses required.    Major Course Requirements for EE BS Degree  --------------------------------------------------------------------------------  Electrical Engineering Required Courses (49 credit hours)  --------------------------------------------------------------------------------  •EE 1000 - Introduction to Electrical Engineering (2) or  •ENGR 1000 - Introduction to Engineering (2)  •EE 1270 - Introduction to Electrical Circuits (4)  •EE 2260 - Fundamentals of Electrical Circuits (4)  •EE 2700 - Digital Circuits (4)  •EE 3000 - Engineering Seminar (1)  •EE 3110 - Microelectronics I (4)  •EE 3120 - Microelectronics II (4)  •EE 3210 - Signals and Systems (4)  •EE 3310 - Electromagnetics I (4)  •EE 3610 - Digital Systems (4)  •EE 3710 - Embedded Systems (4)  •EE 3890 - Internship (2)  •EE 4010 - Senior Project I (2)  •EE 4020 - Senior Project II (2)  •EE 4100 - Control Systems (4)  Electrical Engineering Elective Courses (6 credit hours)  --------------------------------------------------------------------------------  Select 6 credit hours from the following 4000 level courses.  •EE 4210 - Digital Signal Processing (3)  •EE 4310 - Electromagnetics II (3)  •EE 4410 - Communication Circuits and Systems (3)  •EE 4510 - Power Systems (4)  •EE 4710 - Real-Time Embedded Systems (4)  •EE 4800 - Individual Studies (1-4)  •EE 4900 - Special Topics (1-4)  Support Courses Required (minimum of 27 credit hours)  --------------------------------------------------------------------------------  •CS 2250 - Structured Computing in a Selected Language (4)  or both  •CS 1400 - Fundamentals of Programming (4) and  •CS 1410 - Object-Oriented Programming (4)  •ENGL 3100 - Professional and Technical Writing (3) or  •NTM 3250 - Business Communication (3)  •MATH 1220 - Calculus II (4)  •MATH 2210 - Calculus III (4)  •MATH 2250 - Linear Algebra and Differential Equations (4)  *or both*  •MATH 2270 - Elementary Linear Algebra (3) *and*  •MATH 2280 - Ordinary Differential Equations (3)  •MATH 3410 - Probability and Statistics I (3)  •PHYS 2220 - Physics for Scientists and Engineers II (5)  General Education Courses Required (40-43 credit hours)  --------------------------------------------------------------------------------  •ENGL 2010 EN - Intermediate College Writing (3)  prerequisite is ENGL 1010 Introductory College Writing (3) or equivalent  •American Institutions (AI) (3)  •MATH 1210 - Calculus I (4)  •Computer & Information Literacy (2)  •COMM 2110 HU - Interpersonal & Small Group Communication (3)  •Humanities and Creative Arts (HU/CA) (6)  •ECON 2010 SS - Principles of Microeconomics (3)  •Social Science and Diversity (SS/DV) (3)  •CHEM 1210 PS - Principles of Chemistry I (5)  •PHYS 2210 PS - Physics for Scientists and Engineers I (5)  •Life Science (LS) (3)  Course Requirements for EE Major Second BS Degree  --------------------------------------------------------------------------------  Students that have completed a BS EET from a TAC ABET accredited program are required to take the following courses to obtain a BS in Electrical Engineering.  •MATH 3410 - Probability and Statistics I (3)  •EE 3110 - Microelectronics I (4)  •EE 3120 - Microelectronics II (4)  •EE 3210 - Signals and Systems (4)  •EE 3310 - Electromagnetics I (4)  •EE 3610 - Digital Systems (4)  Note:  --------------------------------------------------------------------------------  This assumes all prerequisite and University residency hours have been met. Refer to Second Bachelor’s Degree under Graduation in the Academic Information section of this catalog.  ***Course Descriptions***  **EE 4510 – Power Systems**  **Credits:** **(4)**  **Typically taught:** **Spring [Full Sem]**  A study of AC and DC power systems and machines, including single and 3-phase power, power factor and correction, transformers, synchronous and induction machines, DC motors, power transmission lines, and analysis of power flow and faults. Lecture and Lab combination. Prerequisite: EE 2260. Prerequisite or Co-requisite EE 3310.  **EE 4710 – Real-Time Embedded Systems**  **Credits:** **(4)**  **Typically taught:** **Fall [Full Sem]**  An advanced course on real-time embedded system design. Topics include task concurrency, scheduling paradigms, synchronization, resource access control and inter-process communication. Lecture and Lab combination. Prerequisite: EE 3710. |

After the appropriate Approvals, **Email the electronic file (Microsoft Word .docx) to** bstockberger @weber.edu You may scan the Approval Page with the Signatures and email it, send a hard copy to MC 1033 through campus mail or bring to the Faculty Senate Office MA210J. Send all supporting documents pertaining to your proposal.

**INFORMATION PAGE**

Did this program change receive unanimous approval within the Department? yes If not, what are the major concerns raised by the opponents?

N/A

Explain any effects this program change will have on program requirements or enrollments in other departments including the Bachelor of Integrated Studies Program. In the case of similar offerings or affected programs, **you should include letters from the departments in question stating their support or opposition to the proposed program**.

*The progam change will not effect program requirements or enrollments in other departments, including the BIS Program*. *Rick Orr raised a concern about laboratory resources but that issue has been resolved. E-mail correspondence on this subject is included as Appendix A.*

Indicate the number of credit hoursfor course work within the program. (Do not include credit hours for General Education, Diversity, or other courses unless those courses fulfill requirements within the proposed program.)

125

*No increase in credit hours is required of the students, however if a student chooses to enroll in one or both of the new, 4-credit electives, the number of credits carried by the student would increase by 1 or 2.*

Indicate the number of credit hours for course work within the current program. (Do not include credit hours for General Education, Diversity, or other courses unless those courses fulfill requirements within the current program.) 125

**Graduate Programs only**: Describe any proposed changes in the instructional mode of delivery or course format that are program-wide in nature or that affect more than one-third of the course taught in the program (e. g. changing from in-class to online instruction).

N/A