Code # EN23 (2014) Rev2 with corrected formatting 042415

**Bulletin Change Transmittal Form**

**Undergraduate Curriculum Council** - Print 1 copy for signatures and save 1 electronic copy.

**Graduate Council** - Print 1 copy for signatures and send 1 electronic copy to [pheath@astate.edu](mailto:pheath@astate.edu)

|  |
| --- |
| **Bulletin Change** Please attach a copy of all catalogue pages requiring editorial changes. |

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| --- | --- |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **COPE Chair (if applicable)** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **Department Chair:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **General Education Committee Chair (If applicable)** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Undergraduate Curriculum Council Chair** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **College Dean** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Graduate Curriculum Committee Chair** |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Vice Chancellor for Academic Affairs** |

**1.Contact Person** (Name, Email Address, Phone Number)

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**2.Proposed Change**

Change Engineering Core Course Credits in the BSEE Degree Plan from 34 to 27.

**3.Effective Date**

Fall 2015

**4.Justification**

As per the advisory council and faculty recommendations, the BSEE degree plan needs to provide more electrical engineering foundation courses. It was proposed to substitute the following engineering core courses namely; ENGR 2413 Mechanics of materials, ENGR 2411 Mechanics of Materials I lab, and ENGR 3423 Dynamics with electrical engineering foundation courses.

**From the most current electronic version of the bulletin, copy all bulletin pages that this proposal affects and paste it to the end of this proposal.**

**To copy from the bulletin:**

1. Minimize this form.
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|  |  |
| --- | --- |
| **College of Engineering Core Courses:**  Grade of “C” or better required. | **Sem. Hrs.** |
| ENGR 1402, Concepts of Engineering | 2 |
| ENGR 1412, Software Applications for Engineers | 2 |
| ENGR 2401, Applied Engineering Statistics | 1 |
| ENGR 2403, Statics | 3 |
| ~~ENGR 2413 AND ENGR 2411, Mechanics of Materials and Laboratory~~ | ~~. 4 .~~ |
| ENGR 2423 **AND** ENGR 2421, Electric Circuits I and Laboratory | 4 |
| ~~ENGR 3423, Dynamics~~ | ~~. 3 .~~ |
| ENGR 3433, Engineering Economics | 3 |
| ENGR 3443, Engineering Thermodynamics I | 3 |
| ENGR 4401, Senior Seminar | 1 |
| ENGR 4453, Numerical Methods for Engineers | 3 |
| ENGR 4463, Senior Design I | 3 |
| ENGR 4482, Senior Design II | 2 |
| **Total:** | ~~. 34~~ 27 |

|  |  |
| --- | --- |
| **Additional Support Courses:**  The additional support courses listed below are required for all engineering  baccalaureate degrees. | **Sem. Hrs.** |
| MATH 4403, Differential Equations | 3 |
| Science Elective | 4 |
| **Total:** | **7** |

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**Major in Engineering**

**Bachelor of Science in Engineering**

A complete 8-semester degree plan is available at http://registrar.astate.edu/.

|  |  |
| --- | --- |
| **University Requirements:** | |
| See University General Requirements for Baccalaureate degrees (p. 41) | |
| **First Year Making Connections Course:** | **Sem. Hrs.** |
| ENGR 1402, Concepts of Engineering (See College of Engineering Core Courses) | **-** |
| **General Education Requirements:** | **Sem. Hrs.** |
| See General Education Curriculum for College of Engineering | **38** |
| **Additional Support Courses:** | **Sem. Hrs.** |
| Refer to Additional Support Courses for College of Engineering | **7** |
| **College of Engineering Core Courses:** | **Sem. Hrs.** |
| Refer to College of Engineering Core Courses | ~~34~~ 27 |
| **Areas of Concentration:**  In addition to the University requirements for all Baccalaureate Degrees, a Bachelor of Science in Engineering requires that one of the two following conditions be met:  1. “C” or better in each course in the ~~46~~53-hour concentration area; **OR**  2. 2.5 (or greater) grade point average in the 46-hour concentration areas listed below. | **Sem. Hrs.** |
| **Students must select an area of concentration from one of the three following areas (see below for detailed area of concentration course lists):**  Civil Engineering  Mechanical Engineering  Electrical Engineering | ~~46~~53 |
| **Total Required Hours:** | **125** |

**Area of Concentration: Civil Engineering**

|  |  |
| --- | --- |
| **Civil Engineering:** | **Sem. Hrs.** |
| BIOL 1063, People and the Environment | 3 |
| CE 2202, Civil Engineering Presentations | 2 |
| CE 2223, Plane Surveying | 3 |
| CE 3213, Structural Analysis I | 3 |
| CE 3223, Civil Engineering Materials | 3 |
| CE 3233, Structural Analysis II **OR**  CE 4263, Water and Waste Treatment | 3 |
| CE 3253, Engineering Hydrology | 3 |
| CE 3263, Introduction to Environmental Engineering | 3 |
| CE 3273, Water and Waste Systems | 3 |
| CE 4203, Transportation Engineering I | 3 |
| CE 4233, Foundation Engineering | 3 |
| CE 4243, Reinforced Concrete Design | 3 |
| CE 4253, Soil Mechanics | 3 |
| CE 4251, Soil Mechanics Laboratory | 1 |
| CE 4283, Structural Steel Design | 3 |
| ENGR 2411, Mechanics of Materials Laboratory | 1 |
| ENGR 2413, Mechanics of Materials | 3 |
| ENGR 3423, Dynamics | 3 |
| ENGR 3471, Fluid Mechanics Laboratory | 1 |
| ENGR 3473, Fluid Mechanics | 3 |
| **Total Required Hours:** | ~~. 46~~ 53 |

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**Area of Concentration: Electrical Engineering**

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| --- | --- |
| **Electrical Engineering:**  Electives denoted with an asterisk (\*) may be selected from any courses within the desig­nated elective group; subject to a program advisor’s approval. They must make a rational contribution to the student’s personal and professional education goals. | **Sem. Hrs.** |
| ~~CHEM 1023, General Chemistry II~~ | ~~3~~ |
| CS 2114, Structured Programming | 4 |
| EE 2322, Electrical Workshop | 2 |
| EE 3313, Electric Circuits II | 3 |
| EE 3331, Digital Electronics I Lab | 1 |
| EE 3333, Digital Electronics I | 3 |
| EE 3343, Engineering Fields and Waves I | 3 |
| EE 3353, ~~Continuous and Analog Systems~~ Signals and Systems | 3 |
| EE 3363, Semiconductor Matl and Devices I | 3 |
| EE 3383, Principles and Practices in Electrical Engineering | 3 |
| EE 3393, Probability and Random Signals | 3 |
| EE 3401, Electronics I Laboratory | 1 |
| EE 3403, Electronics I | 3 |
| EE 4313, Control Systems | 3 |
| ~~EE 4323, Electrical Machinery OR~~  EE 4353, Power Systems | 3 |
| EE 4373, Electronics II ~~OR~~  ~~EE 3363, Semiconductor Matl and Devices I~~ | 3 |
| EE 4773, ~~Intermediate Electrical Engineering~~ Electronics II Laboratory ~~OR~~  ~~EE 3303, Semiconductor and Optoelectronic Materials and Devices I Laboratory~~ | 3 |
| ~~EE 4383, Digital Electronics II OR~~  ~~EE 4313, Control Systems~~ | ~~3~~ |
| ~~ENGR 4413, Engineering Problem Solving~~ | ~~3~~ |
| \* Electrical Engineering Electives | ~~. 2~~  6-8 |
| \*Approved Technical Electives | 3 |
| **Total Required Hours:** | ~~. 46~~  53-55 |

Area of Concentration: Mechanical Engineering

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| --- | --- |
| Mechanical Engineering:  Electives denoted with an asterisk (\*) may be selected from any courses within the desig­nated elective group; subject to a program advisor’s approval. They must make a rational contribution to the student’s personal and professional education goals. | **Sem. Hrs.** |
| CHEM 1023, General Chemistry II | 3 |
| ENGR 2411, Mechanics of Materials Laboratory | 1 |
| ENGR 2413, Mechanics of Materials | 3 |
| ENGR 3423, Dynamics | 3 |
| ENGR 3471, Fluid Mechanics Laboratory | 1 |
| ENGR 3473, Fluid Mechanics | 3 |
| ME 2502, Solid Modeling for Mechanical Engineers | 2 |
| ME 3504, Process Monitoring and Control | 4 |
| ME 3513, Mechanical Vibrations | 3 |
| ME 3533, Engineering Thermodynamics II | 3 |
| ME 4503, Fluid and Thermal Energy Systems | 3 |
| ME 4543, Machine Design | 3 |
| ME 4553, Heat Transfer | 3 |
| ME 4563, Introduction to Manufacturing Processes | 3 |
| ME 4573, Mechanical System Design | 3 |
| \*Mechanical Engineering Electives | 9 |
| \*Approved Electives | 3 |
| **Total Required Hours:** | ~~. 46~~  53 |

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**Major in Civil Engineering**

**Bachelor of Science in Civil Engineering**

A complete 8-semester degree plan is available at http://registrar.astate.edu/.

|  |  |
| --- | --- |
| **University Requirements:** | |
| See University General Requirements for Baccalaureate degrees (p. 41) | |
| **First Year Making Connections Course:** | **Sem. Hrs.** |
| ENGR 1402, Concepts of Engineering (See College of Engineering Core Courses) | **-** |
| **General Education Requirements:** | **Sem. Hrs.** |
| See General Education Curriculum for College of Engineering | **38** |
| **Additional Support Courses:** | **Sem. Hrs.** |
| Refer to Additional Support Courses for College of Engineering | **7** |
| **College of Engineering Core Courses:** | **Sem. Hrs.** |
| Refer to College of Engineering Core Courses | ~~34~~ 27 |
| **Major Requirements:**  In addition to the University requirements for all Baccalaureate Degrees, a Bachelor of Science in Civil Engineering requires that one of the two following conditions be met:  1. “C” or better in each course in the ~~49~~56-hour major courses; **OR**  2. 2.5 (or greater) grade point average in the ~~49~~56-hour major courses listed below. | **Sem. Hrs.** |
| BIOL 1063, People and the Environment | 3 |
| CE 2202, Civil Engineering Presentations | 2 |
| CE 2223, Plane Surveying | 3 |
| CE 3213, Structural Analysis I | 3 |
| CE 3223, Civil Engineering Materials | 3 |
| CE 3233, Structural Analysis II **OR**  CE 4263, Water and Waste Treatment | 3 |
| CE 3253, Engineering Hydrology | 3 |
| CE 3263, Introduction to Environmental Engineering | 3 |
| CE 3273, Water and Waste Systems | 3 |
| CE 4203, Transportation Engineering I | 3 |
| CE 4223, Transportation Engineering II | 3 |
| CE 4233, Foundation Engineering | 3 |
| CE 4243, Reinforced Concrete Design | 3 |
| CE 4253, Soil Mechanics | 3 |
| CE 4251, Soil Mechanics Laboratory | 1 |
| CE 4283, Structural Steel Design | 3 |
| ENGR 2411, Mechanics of Materials Laboratory | 1 |
| ENGR 2413, Mechanics of Materials | 3 |
| ENGR 3423, Dynamics | 3 |
| ENGR 3471, Fluid Mechanics Laboratory | 1 |
| ENGR 3473, Fluid Mechanics | 3 |
| **Sub-total** | ~~49~~ 56 |
| **Total Required Hours:** | **128** |

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**Major in Electrical Engineering**

**Bachelor of Science in Electrical Engineering**

A complete 8-semester degree plan is available at http://registrar.astate.edu/.

|  |  |
| --- | --- |
| **University Requirements:** | |
| See University General Requirements for Baccalaureate degrees (p. 41) | |
| **First Year Making Connections Course:** | **Sem. Hrs.** |
| ENGR 1402, Concepts of Engineering (See College of Engineering Core Courses) | **-** |
| **General Education Requirements:** | **Sem. Hrs.** |
| See General Education Curriculum for College of Engineering | **38** |
| **Additional Support Courses:** | **Sem. Hrs.** |
| Refer to Additional Support Courses for College of Engineering | **7** |
| **College of Engineering Core Courses:** | **Sem. Hrs.** |
| Refer to College of Engineering Core Courses | ~~34~~ 27 |
| **Major Requirements:**  Electives denoted with an asterisk (\*) may be selected from any courses within the desig­nated elective group; subject to a program advisor’s approval. They must make a rational contribution to the student’s personal and professional education goals.  In addition to the University requirements for all Baccalaureate Degrees, a Bachelor of Science in Electrical Engineering requires that one of the two following conditions be met:  1. “C” or better in each course in the ~~49~~56-58-hour major courses; **OR**  2. 2.5 (or greater) grade point average in the ~~49~~56-58-hour major courses listed below. | **Sem. Hrs.** |
| ~~CHEM 1023, General Chemistry II~~ | ~~3~~ |
| CS 2114, Structured Programming | 4 |
| EE 2322, Electrical Workshop | 2 |
| EE 3313, Electric Circuits II | 3 |
| EE 3331, Digital Electronics I Lab | 1 |
| EE 3333, Digital Electronics I | 3 |
| EE 3343, Engineering Fields and Waves ~~. I .~~ | 3 |
| EE 3353, ~~Continuous and Analog Systems~~ Signals and Systems | 3 |
| EE 3363, Semiconductor Materials and Devices ~~. I .~~ | 3 |
| EE 3383, Principles and Practices in Electrical Engineering | 3 |
| EE 3393, Probability and Random Signals | 3 |
| EE 3401, Electronics I Laboratory | 1 |
| EE 3403, Electronics I | 3 |
| ~~EE 3313, Electric Circuits II~~ | ~~3~~ |
| ~~EE 3333, Digital Electronics I~~ | ~~3~~ |
| ~~EE 3343, Engineering Fields and Waves I~~ | ~~3~~ |
| ~~EE 3353, Continuous and Analog Systems~~ | ~~3~~ |
| ~~EE 3383, Principles and Practices in Electrical Engineering~~ | ~~3~~ |
| EE 4313, Control Systems | 3 |
| ~~EE 4323, Electrical Machinery OR~~  EE 4353, Power Systems | 3 |
| EE 4333, Communications Theory | 3 |
| EE 4373, Electronics II ~~OR~~  ~~EE 3363, Semiconductor Materials and Devices I~~ | 3 |
| EE 4773, ~~Intermediate EE~~ Electronics II Laboratory ~~OR~~  ~~EE 3303, Semiconductor and Optoelectronics Matl and Devices I Lab~~ | 3 |
| ~~EE 4383, Digital Electronics II OR~~  ~~EE 4313, Control Systems~~ | ~~3~~ |
| ~~ENGR 4413, Engineering Problem Solving~~ | ~~3~~ |
| \* Electrical Engineering Electives | ~~2~~6-8 |
| \*Approved Technical Electives | 3 |
| **Sub-total** | ~~49~~56-58 |
| **Total Required Hours:** | 128-130 |

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**Major in Mechanical Engineering**

**Bachelor of Science in Mechanical Engineering**

A complete 8-semester degree plan is available at http://registrar.astate.edu/.

|  |  |
| --- | --- |
| **University Requirements:** | |
| See University General Requirements for Baccalaureate degrees (p. 41) | |
| **First Year Making Connections Course:** | **Sem. Hrs.** |
| ENGR 1402, Concepts of Engineering (See College of Engineering Core Courses) | **-** |
| **General Education Requirements:** | **Sem. Hrs.** |
| See General Education Curriculum for College of Engineering | **38** |
| **Additional Support Courses:** | **Sem. Hrs.** |
| Refer to Additional Support Courses for College of Engineering | **7** |
| **College of Engineering Core Courses:** | **Sem. Hrs.** |
| Refer to College of Engineering Core Courses | ~~34~~ 27 |
| **Major Requirements:**  Electives denoted by an asterisk (\*) must be chosen from a list of approved electives, which is available from Mechanical Engineering advisors and through the department office. All students must complete at least one thermal/fluid systems stem elective and one mechanical systems stem elective.  In addition to the University requirements for all Baccalaureate Degrees, a Bachelor of Sci­ence in Mechanical Engineering requires that one of the two following conditions be met:  1. “C” or better in each course in the ~~49~~56-hour major courses; **OR**  2. 2.5 (or greater) grade point average in the ~~49~~56-hour major courses listed below. | **Sem. Hrs.** |
| CHEM 1023, General Chemistry II | 3 |
| ENGR 2411, Mechanics of Materials Laboratory | 1 |
| ENGR 2413, Mechanics of Materials | 3 |
| ENGR 3423, Dynamics | 3 |
| ENGR 3471, Fluid Mechanics Laboratory | 1 |
| ENGR 3473, Fluid Mechanics | 3 |
| ME 2502, Solid Modeling for Mechanical Engineers | 2 |
| ME 3504, Process Monitoring and Control | 4 |
| ME 3513, Mechanical Vibrations | 3 |
| ME 3533, Engineering Thermodynamics II | 3 |
| ME 3613, Control Systems for Mechanical Engineers | 3 |
| ME 4503, Fluid and Thermal Energy Systems | 3 |
| ME 4543, Machine Design | 3 |
| ME 4553, Heat Transfer | 3 |
| ME 4563, Introduction to Manufacturing Processes | 3 |
| ME 4573, Mechanical System Design | 3 |
| ME 4613 Introduction to Mechatronics | 3 |
| \*ME Elective, Thermal Systems | 3 |
| \*ME Electives | 3 |
| Professional Development Elective  *This elective may be selected outside the College of Engineering, subject only to advisor’s approval. It must make a rational contribution to the student’s personal and professional education goals.* | 3 |
| **Sub-total** | ~~49~~ 56 |
| **Total Required Hours:** | **128** |