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| For Academic Affairs and Research Use Only |
| Proposal Number | ECS01 |
| CIP Code:  |  |
| Degree Code: |  |

**Program Modification Form**

**[X] Undergraduate Curriculum Council**

**[ ] Graduate Council**

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| **Modification Type: [ ]Admissions, [ ]Curricular Sequence, or [X]Other**  |

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

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| Dr. Shubhalaxmi Kher | 12/7/2022 |

**Department Curriculum Committee Chair** |

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**COPE Chair (if applicable)** |
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| Dr. Shubhalaxmi Kher | 12/7/2022 |

**Department Chair**  |

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**Head of Unit (if applicable)**   |
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| Jason Stewart | 2/10/2023 |

**College Curriculum Committee Chair** |

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**Undergraduate Curriculum Council Chair** |
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**Director of Assessment** *(only for changes impacting assessment)* |

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**Graduate Curriculum Committee Chair** |
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| Dr. Abhijit Bhattacharyya | 2/10/2023 |

**College Dean** |

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| Len Frey | 2/22/2023 |

**Vice Chancellor for Academic Affairs** |
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| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |

**General Education Committee Chair (if applicable)**   |  |

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

Dr. Paul Minor

sminor@astate.edu

(870) 972-3228

1. **Proposed Change** (for undergraduate curricular changes please provide an 8-semester plan (appendix A), if applicable)

As part of the degree plan for a Bachelor of Science in Electrical Engineering, students are required to take two electrical engineering electives. These electives have been limited to upper-level electrical engineering or computer science courses. The proposed change will be to expand the available courses which would count as an electrical engineering elective. In addition, the technical elective required of electrical engineering students will also be better defined as to which courses may be used to satisfy this requirement.

1. **Effective Date**

8/15/2023

1. **Justification –** *Please provide details as to why this change is necessary.*

The current course offerings for EE students looking to fulfill the EE elective requirement are too limited. Upper-level computer science courses require pre-requisites that most EE students do not have. This requires EE students to take additional courses in order to fulfill their EE elective with an upper-level computer science course. Electrical engineering students are therefore required to take the upper-level electrical engineering courses that are offered when 1) they have completed the necessary prerequisites, and/or 2) their schedule allows for the addition of the “elective” course. The addition of the mechanical engineering and physics courses will allow the students more freedom in tailoring their education while aligning with the Program’s Educational Objectives

**Bulletin Changes**

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| **Instructions**  |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Please include a before (with changed areas highlighted) and after of all affected sections.** **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.**  |

The **current** wording on the 2022-23 BSEE 8 Semester Degree Plan:

List of Technical Electives: +Upper level engineering, math, or science course. Advisor approval required.

List of Approved EE electives: ++Upper level electrical engineering or computer science courses

The **proposed** wording on the 2023-24 BSEE 8 Semester Degree Plan:

+ List of approved Technical Electives: MATH 3243 Linear Algebra, MATH 3273 Applied Complex Analysis, MATH 3303 Modern Algebra I, MATH 3323 Mathematical Modeling, MATH 4513 Applied Mathematics, MATH 4533 Introduction to Numerical Analysis, MATH 4553 Advanced Calculus I, ENG 3043 Technical Writing, or any Upper-Level Engineering Course

++ List of approved EE electives: Upper-level electrical engineering or computer sciences courses, ME 3523 Introduction to Robotics Laboratory, ME 4504 Process Monitoring and Control, ME 4603 Control Systems for Mechanical Engineering, ME 4613 Introduction to Mechatronics, PHYS 3303 Modern Physics, or PHYS 4553 Principles of Quantum Mechanics.

**Current Undergraduate Bulletin Listing**

## 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 major courses; **OR**
2. 2.5 (or greater) grade point average in the major courses listed below.
* [CS 2114 - Structured Programming](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **4**
* [EE 2322 - Electrical Workshop](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **2**
* [EE 3313 - Electric Circuits II](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3331 - Digital Electronics I Laboratory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **1**
* [EE 3333 - Digital Electronics I](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3343 - Engineering Fields and Waves](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3353 - Signals and Systems](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3363 - Semiconductor Materials and Devices](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3383 - Principles and Practices in Electrical Engineering](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3393 - Probability and Random Signals](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3401 - Electronics I Laboratory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **1**
* [EE 3403 - Electronics I](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 4313 - Control Systems Theory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 4353 - Power Systems](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 4333 - Communications Theory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 4373 - Electronics II](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 4773 - Electronics II Laboratory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* ~~Electrical Engineering Electives~~ **~~Sem. Hrs: 6~~** ~~\*~~
* [ENGR 2423 - Electric Circuits I](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [ENGR 2421 - Electric Circuits I Laboratory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **1**
* [ENGR 3443 - Engineering Thermodynamics I](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* ~~Approved Technical Electives~~ **~~Sem. Hrs: 3~~** ~~\*~~
* [PHYS 2044 - University Physics II](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **4**

### Sub-total: 67

**Proposed** **Undergraduate Bulletin Listing**

## 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.

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 major courses; **OR**
2. 2.5 (or greater) grade point average in the major courses listed below.
* [CS 2114 - Structured Programming](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **4**
* [EE 2322 - Electrical Workshop](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **2**
* [EE 3313 - Electric Circuits II](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3331 - Digital Electronics I Laboratory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **1**
* [EE 3333 - Digital Electronics I](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3343 - Engineering Fields and Waves](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3353 - Signals and Systems](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3363 - Semiconductor Materials and Devices](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3383 - Principles and Practices in Electrical Engineering](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3393 - Probability and Random Signals](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 3401 - Electronics I Laboratory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **1**
* [EE 3403 - Electronics I](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 4313 - Control Systems Theory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 4353 - Power Systems](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 4333 - Communications Theory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 4373 - Electronics II](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [EE 4773 - Electronics II Laboratory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [ENGR 2423 - Electric Circuits I](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [ENGR 2421 - Electric Circuits I Laboratory](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **1**
* [ENGR 3443 - Engineering Thermodynamics I](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **3**
* [PHYS 2044 - University Physics II](https://catalog.astate.edu/preview_program.php?catoid=3&poid=545&returnto=77) **Sem. Hrs:** **4**

### Upper-Level Engineering/Science Electives:

*\*(Students must select at least six (6) credit hours from the following approved courses)*

* ME 3523 – Introduction to Robotics Laboratory **Sem. Hrs:** **3**
* ME 4504 – Process Monitoring and Control **Sem. Hrs: 4**
* ME 4603 – Control Systems for Mechanical Engineering **Sem. Hrs:** **3**
* ME 4613 – Introduction to Mechatronics **Sem. Hrs:** **3**
* PHYS 3303 – Modern Physics **Sem. Hrs:** **3**
* PHYS 4553 – Principles of Quantum Mechanics **Sem. Hrs:** **3**
* Upper-level Electrical Engineering **Sem. Hrs:** **3**
* Upper-level Computer Science **Sem. Hrs:** **3**

### Technical Elective:

*\*(Students must select three (3) credit hours) This elective is intended to make a rational contribution to the student’s personal and professional education goals. It may be selected outside the Engineering Programs, subject only to the following list or advisor’s approval. Pre-approved Technical Electives:*

* [MATH 3243 - Linear Algebra](https://catalog.astate.edu/preview_program.php?catoid=3&poid=546&returnto=77) **Sem. Hrs:** **3**

 [MATH 3273 - Applied Complex Analysis](https://catalog.astate.edu/preview_program.php?catoid=3&poid=546&returnto=77) **Sem. Hrs:** **3**

 [MATH 3303 - Modern Algebra I](https://catalog.astate.edu/preview_program.php?catoid=3&poid=546&returnto=77) **Sem. Hrs:** **3**

 [MATH 3323 - Mathematical Modeling](https://catalog.astate.edu/preview_program.php?catoid=3&poid=546&returnto=77) **Sem. Hrs:** **3**

 [MATH 4513 - Applied Mathematics](https://catalog.astate.edu/preview_program.php?catoid=3&poid=546&returnto=77) **Sem. Hrs:** **3**

 [MATH 4533 - Introduction to Numerical Analysis](https://catalog.astate.edu/preview_program.php?catoid=3&poid=546&returnto=77) **Sem. Hrs:** **3**

 [MATH 4553 - Advanced Calculus I](https://catalog.astate.edu/preview_program.php?catoid=3&poid=546&returnto=77) **Sem. Hrs:** **3**

* **ENG 3043 – Technical Writing Sem. Hrs: 3**
* **ENGR 349V – Engineering Internship Sem. Hrs: 3**
* **Upper-level Engineering Course Sem. Hrs: 3**

### Sub-total: 67

**Appendix A, 8-Semester Plan**

(**Referenced in #2** - **Undergraduate Proposals Only)**

*Instructions: Please identify new courses in italics*.

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| **Arkansas State University-Jonesboro****Degree:****Major:****Year:** |
| Students requiring developmental course work based on low entrance exam scores (ACT, SAT, ASSET, COMPASS) may not be able to complete this program of study in eight (8) semesters. Developmental courses do not count toward total degree hours. **Students having completed college level courses prior to enrollment will be assisted by their advisor in making appropriate substitutions. In most cases, general education courses may be interchanged between semesters.** A minimum of 45 hours of upper division credit (3000-4000 level) is required for this degree. |
| **Year 1** |  | **Year 1** |
| **Fall Semester** |  | **Spring Semester** |
| **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |  | **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |
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| **Year 2** |  | **Year 2** |
| **Fall Semester** |  | **Spring Semester** |
| **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |  | **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |
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| **Year 3** |  | **Year 3** |
| **Fall Semester** |  | **Spring Semester** |
| **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |  | **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |
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| **Total Hours** |  |  |  |  | **Total Hours** |  |  |  |
| **Year 4** |  | **Year 4** |
| **Fall Semester** |  | **Spring Semester** |
| **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |  | **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |
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| **Total Hours** |  |  |  |  | **Total Hours** |  |  |  |
| **Total Jr/Sr Hours \_\_\_ Total Degree Hours \_\_\_** |
| **Graduation Requirements:** |