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| **Catalog Year 2022-2023**BS, Electrical Engineering | ***(For internal use only)***[x]  *No change*[ ]  *UCC proposal* |

A Major Academic Plan (MAP) is one way to complete a degree in a set number of semesters. The *example* below is an efficient strategy only. Actual plans for individual students will vary based on advisor recommendations and academic needs. Official Program Requirements including Major, General Education, Elective, and university requirements (see pg.2) are based on Catalog Year.

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| **Course Subject and Title** | **Cr.**  | **Min.** **Grade** | **\*GE,** **UU or UM** | **\*\*Sem. Offered** | **Prerequisite** | **Co Requisite** |
| Semester One |
| GE Objective 1: ENGL 1101 Writing and Rhetoric I | 3 |  | GE | F, S, Su | Appropriate placement score |  |
| GE Objective 3: MATH 1170 Calculus I | 4 | C- | GE | F, S, Su | MATH 1147 or 1144 or appropriate placement score |  |
| ECE 1100 Found of Electrical and Computer Eng | 1 |  |  | F |  |  |
| GE Objective 7/8: CS/INFO 1181 | 3 |  | GE | F, S | MATH 1143 or 1147 |  |
| GE Objective 4 | 3 |  |  |  |  |  |
| Total | 14 |  |  |  |  |  |
| Semester Two |
| GE Objective 1: ENGL 1102 Writing and Rhetoric II | 3 | C- | GE | F, S, Su | ENGL 1101 or equivalent |  |
| MATH 1175 Calculus II | 4 | C- |  | F, S, Su | MATH 1170 |  |
| MATH 2240 Linear Algebra | 3 |  |  | F, S, Su | MATH 1170 |  |
| GE Objective 5: CHEM 1111 & 1111L Gen. Chemistry I & Lab | 5 |  | GE | F,S, Su | MATH 1143 or 1147 or equivalent |  |
| Total | 15 |  |  |  |  |  |
| Semester Three |
| MATH 2275 Calculus III | 4 |  |  | F, S | MATH 1175 |  |
| GE Objective 5: PHYS 2211 Engineering Physics I | 4 |  | GE | F, S, Su | MATH 1175 | MATH 1175 |
| ECE 2250 Introduction to Digital Systems | 3 |  |  | F | ECE 1100, ECE 2250L | ECE 2250L |
| ECE 2250L Introductions to Digital Systems Lab | 1 |  |  | F | ECE 2250 | ECE 2250 |
| ECE 2200 Electrical Circuits I | 3 |  |  | F | MATH 1170, MATH 2240 |  |
| ECE 2200L Electrical Circuits I Lab | 1 |  |  | F | ECE 2200 | ECE 2200 |
|  Total | 16 |  |  |  |  |  |
| Semester Four |  |  |  |  |  |  |
| GE Objective 2: COMM 1101 Principles of Speech | 3 |  | GE | F, S |  |  |
| PHYS 2212 Engineering Physics II | 4 |  |  | F, S | PHYS 2211 |  |
| ECE 3300 Electrical Circuits II | 3 |  | UM | S | ECE 2200, MATH 1175, MATH 2240, ECE 3300L | ECE 3300 L, MATH 1175 |
| ECE 3300L Electrical Circuits II Lab | 1 |  | UM | S | ECE 3300 | ECE 3300 |
| GE Objective 6 | 3 |  | GE | F, S, Su |  |  |
| GE Objective 6 | 3 |  | GE | F, S, Su |  |  |
| Total | 17 |  |  |  |  |  |
| Semester Five |  |  |  |  |  |  |
| MATH 3360 Differential Equations | 3 |  | UM | F, S | MATH 1175; MATH 2240 or MATH 2275 recommended |  |
| ECE 3360 Software Methodology and Tools for EE | 3 |  | UM | F | CS/INFO 1181 |  |
| ECE 3340 Electromagnetics | 3 |  | UM | F | ECE 3300, MATH 2275, PHYS 2212; MATH 3360 recommended |  |
| ECE 3310 Signals & Systems | 3 |  | UM | F | ECE 3300, MATH 3360 | MATH 3360 |
| ENGL 3307 Professional & Technical Writing | 3 |  | UM | F, S | ENGL 1102 |  |
| Total  | 15 |  |  |  |  |  |
| Semester Six |  |  |  |  |  |  |
| ECE 3320 Introduction to Electronics | 3 |  | UM | S | ECE 3300, CHEM 1111 | ECE 3300 |
| ECE 4411 Applied Engineering Methods | 3 |  | UM | S | MATH 1175 |  |
| GE Objective 4 | 3 |  | GE | F, S, Su |  |  |
| GE Objective 9 | 3 |  | GE | F, S, Su |  |  |
| Total | 12 |  |  |  |  |  |
| Semester Seven |  |  |  |  |  |  |
| ECE 4420 Advanced Electronics  | 3 |  | UM | F | ECE 3320, ECE 4420L | ECE 4420L |
| ECE 4420L Advanced Electronics Lab | 1 |  | UM | F | ECE 4420 | ECE 4420 |
| ECE 4440 Electrical Machines & Power | 3 |  | UM | F | ECE 3300, ECE 3300L, ECE 3340 | ECE 4440L |
| ECE 4440L Electrical Machines & Power Lab | 1 |  | UM | F | ECE 4440 | ECE 4440 |
| ECE 4495 Senior Seminar | 3 |  | UM | F | Permission of instructor & compl. of all ECE and CS courses numbered less than 4000 and ENGL3307 |
| ECE 4460 Advanced Computer Architecture | 3 |  | UM | F | ECE 2250, ECE 2250L and ECE 3360 or CS 1337 |
| Total | 14 |  |  |  |  |  |
| Semester Eight |  |  |  |  |  |  |
| ECE 4412 Communication Systems | 3 |  | UM | S | ECE 3310, ECE 3320, and ECE 4411 |  |
| ECE 4451 Embedded Systems Engineering | 2 |  | UM | S | ECE 4460 or CS 1337 | ECE 4451L |
| ECE 4451L Embedded Systems Engineering Lab | 1 |  | UM | S | ECE 4460 or CS 1337 | ECE 4451 |
| ECE 4410 Automatic Control Systems | 3 |  | UM | S | MATH 3360 and ECE 3310 or ME 4405 |  |
| ECE 4470 Digital Signal Processing | 3 |  | UM | S | MATH 3360 and ECE 3310 |  |
| ECE 4496 Project Design | 3 |  | UM | S | ECE 4495 |  |
| ECE Elective from list (See catalog) | 3 |  | UM | F, S | See catalog |  |
|  Total | 18 |  |  |  |  |  |
| \*GE=General Education Objective, UU=Upper Division University, UM= Upper Division Major\*\*See Course Schedule section of Course Policies page in the e-catalog (or input F, S, Su, etc.)  |

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| BS, Electrical Engineering |
| **2022-2023 Major Requirements** | **CR** | **GENERAL EDUCATION OBJECTIVES****Satisfy Objectives 1,2,3,4,5,6 (7 or 8) and 9** | **36 cr. min** |
| **MAJOR REQUIREMENTS** | **81** | 1. Written English (6 cr. min) ENGL 1101 | 3 |
| CHEM 1111 & 1111L Gen Chemistry I & Lab (included in Gen Ed Obj. 5) | ENGL 1102  | 3 |
| CS 1181 Computer Science and Programing (included in Gen Ed Obj. 7) | 2. Oral Communication (3 cr. min) COMM 1101 | 3 |
| ENGL 3307 Professional and Technical Writing | 3 | 3. Mathematics (3 cr. min) MATH 1170 | 4 |
| MATH 1170 Calculus I (included in Gen Ed Obj. 3) | 4. Humanities, Fine Arts, Foreign Lang. **(2 courses; 2 categories; 6 cr. min)** |
| MATH 1175 Calculus II | 4 |  |  |
| MATH 2275 Calculus III | 4 |  |  |
| MATH 2240 Linear Algebra | 3 | 5. Natural Sciences **(2 lectures-different course prefixes, 1 lab; 7 cr. min)** |
| MATH 3360 Differential Equations | 3 | CHEM 1111 General Chemistry | 4 |
| PHYS 2211 Engineering Physics (included in Gen Ed Obj. 5) | CHEM 1111L General Chemistry Lab | 1 |
| PHYS 2212 Engineering Physics II | 4 | PHYS 2211 Engineering Physics I  | 4 |
| ECE 1100 Foundations of Electrical Engineering and Computer Engineering | 1 | 6. Behavioral and Social Science **(2 courses-different prefixes; 6 cr. min)** |
| ECE 2200 Electrical Circuits I | 3 |  |  |
| ECE 2200L Electrical Circuits I Lab | 1 |  |  |
| ECE 2250 Introduction to Digital Systems | 3 | One Course from EITHER Objective 7 OR 8 **(1course; 3 cr. min)** |
| ECE 2250L Introduction to Digital Systems Lab | 1 | 7. Critical Thinking | INFO/CS 1181 | 3 |
| ECE 3340 Electromagnetics | 3 | 8. Information Literacy  |
| ECE 3320 Introduction to Electronics | 3 | 9. Cultural Diversity **(1 course; 3 cr. min)** |
| ECE 3360 Software Methodology and Tools for EE | 3 |  |  |
| ECE 3300 Electrical Circuits II | 3 | General Education Elective to reach 36 cr. min. **(if necessary)** |
| ECE 3300L Electrical Circuits II Lab | 1 |   |  |
| ECE 3310 Signals and Systems | 3 |  |  |
| ECE 4411 Applied Engineering Methods | 3 |  Total GE | 40 |
| ECE 4412 Communication Systems | 3 | Undergraduate Catalog and GE Objectives by [Catalog Year](https://www.isu.edu/advising/academic-support/general-education/)  *http://coursecat.isu.edu/undergraduate/programs/* |
| ECE 4460 Advanced Computer Architecture | 3 |
| ECE 4451 Embedded Systems Engineering | 2 |  |  |
| ECE 4451L Embedded Systems Engineering Lab | 1 | **MAP Credit Summary** | **CR** |
| ECE 4420 Advanced Electronics | 3 | Major  | 81 |
| ECE 4420L Advanced Electronics Lab | 1 | General Education  | 40 |
| ECE 4440 Electrical Machines and Power | 3 | Free Electives to reach 120 credits | 0 |
| ECE 4440L Electrical Machines and Power Lab | 1 |  TOTAL | 121 |
| ECE 4410 Automatic Control Systems | 3 |  |
| ECE 4470 Digital Signal Processing | 3 | **Graduation Requirement Minimum Credit Checklist** | **Confirmed** |
| ECE 4495 Senior Seminar | 3 | Minimum 36 cr. General Education Objectives (15 cr. AAS) | x |
| ECE 4496 Project Design | 3 | Minimum 15 cr. Upper Division in Major (0 cr. Associate) | x |
| Electrical Engineering Elective  | 3 | Minimum 36 cr. Upper Division Overall (0 cr. Associate) |  | x |
|  |  | Minimum of 120 cr. Total (60 cr. Associate) |  | x |
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|  |  | ***MAP Completion Status (for internal use only)*** |
| **Advising Notes** |  | *Date* |
| Consult faculty advisor for selection of upper division Technical and EE electives. |  |  |
| *OAA or COT:* |  |
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|  | **Complete College American Momentum Year****Math and English course in first year-Specific GE MATH course identified****9 credits in the Major area in first year****15 credits each semester (or 30 in academic year)****Milestone courses** |
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 Form Revised 9.10.2019