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| **Catalog Year 2023-2024**B.S., Computer Engineering | ***(For internal use only)***[ ]  *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 | C- | GE | F, S, Su | Appropriate placement score |  |
| GE Objective 3: MATH 1170 Calculus I | 4 | C- | GE | F, S, Su | MATH 1144 or 1147 or appropriate test score |  |
| ECE 1100 Found of Electrical and Computer Engineering | 1 | C- |  | F |  |  |
| GE Objective 7/8: CS/INFO 1181 | 3 | C- | GE | F, S | MATH 1143 or 1147 | MATH 1143 or 1147 |
| GE Objective 4 | 3 |  | GE | F, S, Su |  |  |
|  Total | 14 |  |  |  |  |  |
| Semester Two |
| GE Objective 1: ENGL 1102 Writing and Rhetoric II | 3 | C- | GE | F, S, Su | ENGL 1101 or equivalent |  |
| GE Objective 5: CHEM 1111 & 1111L General Chem I & Lab | 5 | C- | GE | F, S, Su | MATH 1143 or 1147 or equivalent |  |
| CS/MATH 1187 Applied Discrete Structures | 3 | C- |  | S | CS 1181/INFO 1181 |  |
| MATH 2240 Linear Algebra | 3 | C- |  |  F, S, Su | MATH 1170 |  |
| MATH 1175 Calculus II | 4 | C- |  |  F, S, Su | MATH 1170 |  |
|  Total | 18 |  |  |  |  |  |
| Semester Three |
| GE Objective 2: COMM 1101 Principles of Speech | 3 |  | GE | F, S |  |  |
| CS 2235 Data Structures and Algorithms | 3 | C- |  | F, S | CS 1181/INFO 1181 |  |
| ECE 2250 Introduction to Digital Systems | 3 | C- |  | F | ECE 1100, ECE 2250L | ECE 2250L |
| ECE 2250L Introductions to Digital Systems Lab | 1 | C- |  | F | ECE 2250 | ECE 2250 |
| CS 1337 Systems Programming and Assembly | 3 | C- |  | F, S | CS 1181/INFO 1181 |  |
| ECE 2200 Electrical Circuits I | 3 | C- |  | F | MATH 1170, MATH 2240 |  |
| ECE 2200L Electrical Circuits I Lab | 1 | C- |  | F | ECE 2200 | ECE 2200 |
|  Total | 17 |  |  |  |  |  |
| Semester Four |  |  |  |  |  |  |
| CS 2263 Advanced Object-Oriented Programming | 3 | C- |  | S | CS 2235  |  |
| ECE 3320 Introduction to Electronics | 3 | C- | UM | S | ECE 3300, CHEM 1111 | ECE 3300 |
| ECE 3300 Electrical Circuits II | 3 | C- | UM | S | ECE 2200, MATH 1175, MATH 2240 | ECE 3300 L, MATH 1175 |
| ECE 3300L Electrical Circuits II Lab | 1 | C- | UM | S | ECE 3300 | ECE 3300 |
| GE Objective 5: PHYS 2211 Engineering Physics I | 4 | C- | GE | F, S, Su | MATH 1175 | MATH 1175 |
| GE Objective 6 | 3 |  | GE | F, S, Su |  |  |
|  Total | 17 |  |  |  |  |  |
| Semester Five |  |  |  |  |  |  |
| ENGL 3307 Professional & Technical Writing | 3 | C- | UM | F, S | ENGL 1102 |  |
| MATH 3360 Differential Equations | 3 | C- | UM | F, S | MATH 1175; MATH 2240 or MATH 2275 recommended |  |
| ECE 3310 Signals & Systems | 3 | C- | UM | F | ECE 3300, MATH 3360 | MATH 3360 |
| ECE 4460 Advanced Computer Architecture | 3 | C- | UM | F | ECE 2250, ECE 2250L and ECE 3360 or CS 1337 |  |
| ECE 4460L Advanced Computer Architecture Laboratory | 1 | C- | UM | F |  | ECE 4460 |
| CS 3337 Advanced Systems Programming | 3 | C- | UM | F, S | CS 1337 |  |
|  Total | 16 |  |  |  |  |  |
| Semester Six |  |  |  |  |  |  |
| ECE 4450 Advanced Digital Logic Design | 3 | C- | UM | S | ECE 2250 and ECE 2250L |  |
| ECE 4451 Embedded Systems Engineering | 2 | C- | UM | S | ECE 4460 or CS 1337 | ECE 4451L |
| ECE 4451L Embedded Systems Engineering Lab | 1 | C- | UM | S | ECE 4460 or CS 1337 | ECE 4451 |
| ECE 4411 Applied Engineering Methods | 3 | C- | UM | S | MATH 1175 |  |
| GE Objective 6 | 3 |  | GE | F, S, Su |  |  |
|  Total | 12 |  |  |  |  |  |
| Semester Seven |  |  |  |  |  |  |
| ECE 4420 Advanced Electronics  | 3 | C- | UM | F | ECE 3320, ECE 4420L | ECE 4420L |
| ECE 4420L Advanced Electronics Lab | 1 |  C- | UM | F | ECE 4420 | ECE 4420 |
| ECE 4495 Capstone Design Project I | 3 | C- | UM | F | Permission of instructor & compl. of all ECE and CS courses #’d less than 4000 and ENGL 3307 |
| PHYS 2212 Engineering Physics II | 4 | C- |  | F, S | PHYS 2211 |  |
| GE Objective 9 | 3 |  | GE | F, S, Su |  |  |
|  Total | 14 |  |  |  |  |  |
| Semester Eight |  |  |  |  |  |  |
| ECE 4470 Digital Signal Processing | 3 | C- | UM | S | MATH 3360 and ECE 3310 |
| ECE 4496 Capstone Design Project II | 3 | C- | UM | S | ECE 4495 |  |
| CS 4461 Secure Operating Systems | 3 | C- |  UM | S | CS 2263, CS 1337 |  |
| GE Objective 4 | 3 |  | GE | F, S, Su |  |  |
|  Total | 12 |  |  |  |  |  |
| \*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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| B.S., Computer Engineering page 2 |
| **2023-2024 Major Requirements** | **CR** | **GENERAL EDUCATION OBJECTIVES****Satisfy Objectives 1,2,3,4,5,6 (7 or 8) and 9** | **36 cr. min** |
| **MAJOR REQUIREMENTS** | **80** | 1. Written English (6 cr. min) ENGL 1101 | 3 |
| **Math and Science Core Requirements** |  ENGL 1102 | 3 |
| CHEM 1111 & 1111L Gen Chemistry I & Lab (included in Gen Ed Obj. 5) | 2. Oral Communication (3 cr. min) COMM 1101 | 3 |
| MATH 1170 Calculus I (included in Gen Ed Obj. 3) | 3. Mathematics (3 cr. min) MATH 1170 | 4 |
| MATH 1175 Calculus II | 4 | 4. Humanities, Fine Arts, Foreign Lang. **(2 courses; 2 categories; 6 cr. min)** |
| MATH 2240 Linear Algebra | 3 |  |  6 |
| MATH 3360 Differential Equations | 3 |  |  |
| PHYS 2211 Engineering Physics (included in Gen Ed Obj. 5) | 5. Natural Sciences **(2 lectures-different course prefixes, 1 lab; 7 cr. min)** |
| PHYS 2212 Engineering Physics II | 4 | CHEM 1111 & 1111L General Chemistry I & Lab  | 5 |
| **Technical Communication Courses** |  | PHYS 2211 Engineering Physics 1 | 4 |
| ENGL 3307 Professional and Technical Writing | 3 |  |  |
| **Required Computer Science Courses** |  | 6. Behavioral and Social Science **(2 courses-different prefixes; 6 cr. min)** |
| CS 1181 Computer Science and Programing (included in Gen Ed Obj. 7) |  |  |  6 |
| CS 1187/MATH 1187 Applied Discrete Structures | 3 |  |  |
| CS 1337 Systems Programming and Assembly | 3 | One Course from EITHER Objective 7 OR 8 **(1course; 3 cr. min)** |
| CS 2235 Data Structures and Algorithms | 3 | 7. Critical Thinking | CS/INFO 1181 | 3 |
| CS 2263 Advanced Object-Oriented Programming | 3 | 8. Information Literacy  |
| CS 3337 Advanced Systems Programming | 3 | 9. Cultural Diversity **(1 course; 3 cr. min)** |
| CS 4461 Secure Operating Systems | 3 |  |
| **Required Electrical Engineering Courses** |  |  |  3 |
| ECE 1100 Foundations of Electrical and Computer Engineering | 1 |  |  |
| ECE 2200 Electrical Circuits I | 3 | General Education Elective to reach 36 cr. min. **(if necessary)** |
| ECE 2200L Electrical Circuits I Lab | 1 |   |  |
| ECE 2250 Introduction to Digital Systems | 3 |  |  |
| ECE 2250L Introduction to Digital Systems Lab | 1 |  Total GE | 40 |
| ECE 3300 Electrical Circuits II | 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 3300L Electrical Circuits II Lab |  1 |
| ECE 3310 Signals and Systems | 3 |  |  |
| ECE 3320 Introduction to Electronics | 3 | **MAP Credit Summary** | **CR** |
| ECE 4411 Applied Engineering Methods | 3 | Major  | 80 |
| ECE 4420 Advanced Electronics | 3 | General Education  | 40 |
| ECE 4420L Advanced Electronics Lab | 1 | Upper Division Free Electives to reach 36 credits | 0 |
| ECE 4450 Advanced Digital Logic Design | 3 | Free Electives to reach 120 credits | 0 |
| ECE 4451 Embedded Systems Engineering |  2 |  TOTAL | 120 |
| ECE 4451L Embedded Systems Engineering Lab | 1 |  |
| ECE 4460 Advanced Computer Architecture | 3 | **Graduation Requirement Minimum Credit Checklist** | **Confirmed** |
| ECE 4460L Advanced Computer Architecture Lab | 1 | Minimum 36 cr. General Education Objectives (15 cr. AAS) | x |
| ECE 4470 Digital Signal Processing | 3 | Minimum 15 cr. Upper Division in Major (0 cr. Associate) | x |
| ECE 4495 Capstone Design Project I | 3 | Minimum 36 cr. Upper Division Overall (0 cr. Associate) |  | x |
| ECE 4496 Capstone Design Project II | 3 | Minimum of 120 cr. Total (60 cr. Associate) |  | x |
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|  |  | ***MAP Completion Status (for internal use only)*** |
| **Advising Notes** |  | *Date* |
| **All major courses must be passed with a C- or better.** | *Department:*  |  |
|  | *CAA or COT:* |  |
|  | *Registrar:*  |  |
|  | **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 5.23.2023