

|  |  |
| --- | --- |
| **Catalog Year 2022-2023**BS, Nuclear 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.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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 1144 or 1147 or appropriate placement score |  |
| GE Objective 5: Chemistry 1111 & 1111L General Chemistry I | 5 |  | GE | F, S | MATH 1143 or 1147 or appropriate test score |  |
| NE 1120 Introduction to Nuclear Engineering | 1 |  |  | F, S |  |  |
| GE Objective 4 | 3 |  | GE | F, S, Su |  |  |
|  Total | 16 |  |  |  |  |  |
| Semester Two |
| GE Objective 1: ENGL 1102 Writing and Rhetoric II | 3 | C- | GE | F, S, Su | ENGL 1101 or equivalent |  |
| GE Objective 7: CS 1181 Computer Science &Programming I | 3 |  | GE | F, S | MATH 1143 or 1147 or equivalent |
| MATH 1175 Calculus II | 4 | C- |  | F, S ,Su | MATH 1170 |  |
| GE Objective 5: PHYS 2211 Engineering Physics I | 4 |  | GE | F, S |  | MATH 1175 |
| ME/CE 1105 Engineering Graphics | 2 |  |  | F, S | MATH 1147 or equivalent |  |
|  Total | 16 |  |  |  |  |  |
| Semester Three |
| GE Objective 2: COMM 1101 Principles of Speech | 3 |  | GE | F, S, Su |  |
| ME/CE 2210 Engineering Statics | 3 |  |  | F, S | MATH 1175, ME/CE 1105, PHYS 2211 |
| MATH 2275 Calculus III | 4 |  |  | F, S | MATH 1175 |  |
| MATH 2240 Linear Algebra | 3 |  |  | F, S | MATH 1170 |  |
| PHYS 2212 Engineering Physics II | 4 |  |  | F, S | PHYS 2211 |  |
|  Total | 17 |  |  |  |  |  |
| Semester Four |  |  |  |  |  |  |
| ME/CE 2220 Engineering Dynamics | 3 |  |  | F, S | ME/CE 2210, MATH 1175, PHYS 2211, ME/CE 1105 |  |
| ME 3350 Mechanics of Materials | 3 |  | UM | F, S | ME/CE 2210, MATH 1175, PHYS 2211, ME/CE 1105 |  |
| MATH 3360 Differential Equations | 3 |  | UM | F, S | MATH 1175; MATH 2240 or MATH 2275 recommended |  |
| NE 3301 Nuclear Engineering I | 3 |  | UM | S | MATH 1170 | PHYS 2212 |
| ME 3322 Mechanical Engineering Materials | 3 |  | UM | F, S | ME/CE 2210, MATH 1175, CHEM 1111 & Lab, ME/CE 3350 | ME/CE 3350 |
|  Total | 15 |  |  |  |  |  |
| Semester Five |  |  |  |  |  |  |
| ME 3307 Thermodynamics | 3 |  | UM | F, S | ME 2220, MATH 2275 | MATH 2275 |
| MATH 4421 Advanced Engineering Math I | 3 |  | UM | F | MATH 3360 |  |
| CE 3361 Engineering Economics & Management | 3 |  | UM | F, S | ME/CE 2210 |  |
| NE 3302 Nuclear Engineering II | 3 |  | UM | F | NE 3301 | MATH 3360 |
| GE Objective 4 | 3 |  | GE | F, S, Su |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Six |  |  |  |  |  |  |
| ME/CE 3341 Fluid Mechanics | 3 |  | UM | S | ME/CE 2220, MATH 3360 |  |
| NE 4445 Reactor Physics | 3 |  | UM | S | NE 3302, MATH 4421 | MATH 4421 |
| ME 4476 Heat Transfer | 3 |  | UM | S | ME 3307, ME/CE 3341 | ME/CE 3341 |
| HPHY 4416 Intro to Nuclear Measurement | 3 |  | UM | S | CHEM 1111, PHYS 1111/1113 or PHYS 2211 or permission |  |
| GE Objective 6 | 3 |  | GE | F, S, Su |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Seven |  |  |  |  |  |  |
| ECE 2205 Introduction to Electrical Circuits | 3 |  |  | F | MATH 1175, PHYS 2212 | MATH 1175, PHYS 2212 |
| ME 4443 Thermal Fluids Lab | 1 |  | UM | F | ME 3307, ME 4476, ME/CE 3341 |  |
| NE 4419 Energy Systems & Nuclear Power | 3 |  | UM | F | ME 3307, MATH 3360 | MATH 3360 |
| NE 4496 A Project Design I | 1 |  | UM | F | Approval of application for course |  |
| Nuclear Engineering Electives | 3 |  | UM | F, S |  |  |
| GE Objective 6 | 3 |  | GE | F, S, Su |  |  |
|  Total | 14 |  |  |  |  |  |
| Semester Eight |  |  |  |  |  |  |
| NE 4447 Nuclear Systems Laboratory | 1 |  | UM | S | NE 4445, HYPH 4416 |  |
| NE 4478 Reliability and Risk Assessment | 3 |  | UM | S | MATH 3360, ECE 4411 |  |
| NE 4446 Nuclear Fuel Cycle Systems | 3 |  | UM | S | NE 3301,NE 3302 or equivalent |  |
| NE 4451 Nuclear Seminar | 1 |  | UM | F, S | Senior standing or permission of instructor; Graded S/U |  |
| NE 4496 B Project Design II | 3 |  | UM | S | NE 4496A |  |
| Engineering Electives | 3 |  | UM |  |  |  |
| GE Objective 9 | 3 |  | GE | F, S, Su |  |  |
|  Total | 17 |  |  |  |  |  |
| \*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.)  |

|  |
| --- |
| BS, Nuclear Engineering Page 2 |
| **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** |  | 1. Written English (6 cr. min) ENGL 1101 | 3 |
| CE 1105 Engineering Graphics | 2 |  ENGL 1102 | 3 |
| ME/CE 2210 Engineering Statics | 3 | 2. Oral Communication (3 cr. min) COMM 1101 | 3 |
| ME/CE 2220 Engineering Dynamics | 3 | 3. Mathematics (3 cr. min) MATH 1170 | 4 |
| ME/CE 3350 Mechanics of Materials | 3 | 4. Humanities, Fine Arts, Foreign Lang. **(2 courses; 2 categories; 6 cr. min)** |
| ME/CE 3341 Fluid Mechanics | 3 |  |  |
| CE 3361 Engineering Economics & Management | 3 |  |  |
| CHEM 1111 & 1111L General Chemistry I & Lab (included in Gen Ed Obj. 5) | 5. Natural Sciences **(2 lectures-different course prefixes, 1 lab; 7 cr. min)** |
| COMM 1101 Principles of Speech (included in Gen Ed Obj. 2) | CHEM 1111 General Chemistry | 4 |
| CS 1181 Computer Science and Programming I (included in Gen Ed Obj. 7) | CHEM 1111L General Chemistry Lab | 1 |
| ECE 2205 Principles of Electrical Circuits  | 3 | PHYS 2211 Engineering Physics I  | 4 |
| ENGL 1102 Critical Reading & Writing (included in Gen Ed Obj. 1) | 3 | 6. Behavioral and Social Science **(2 courses-different prefixes; 6 cr. min)** |
| HPHY 4416 Introduction to Nuclear Measurement  | 3 |  |  |
| MATH 1170 Calculus I (included in Gen Ed Obj. 3) | 4 |  |  |
| MATH 1175 Calculus II  | 4 | One Course from EITHER Objective 7 OR 8 **(1course; 3 cr. min)** |
| MATH 2240 Linear Algebra | 3 | 7. Critical Thinking | INFO/CS 1181 | 3 |
| MATH 2275 Calculus III | 4 | 8. Information Literacy  |
| MATH 3360 Differential Equations | 3 | 9. Cultural Diversity **(1 course; 3 cr. min)** |
| MATH 4421 Advanced Engineering Math I | 3 |  |  |
| ME 3307 Thermodynamics | 3 | General Education Elective to reach 36 cr. min. **(if necessary)** |
| ME 3322 Mechanical Engineering Materials | 3 |   |  |
| ME 4443 Thermal Fluids Lab | 1 |  |  |
| ME 4476 Heat Transfer | 3 |  Total GE | 40 |
| NE 1120 Introduction to Nuclear Engineering | 1 | Undergraduate Catalog and GE Objectives by [Catalog Year](https://www.isu.edu/advising/academic-support/general-education/)  *http://coursecat.isu.edu/undergraduate/programs/* |
| NE 3301 Nuclear Engineering I | 3 |
| NE 3302 Nuclear Engineering II | 3 |  |  |
| NE 4419 Energy Systems & Nuclear Power | 3 | **MAP Credit Summary** | **CR** |
| NE 4445 Reactor Physics | 3 | Major  | 85 |
| NE 4446 Nuclear Fuel Cycle Systems | 3 | General Education  | 37 |
| NE 4447 Nuclear Systems Laboratory | 1 | Free Electives to reach 120 credits | 0 |
| NE 4451 Nuclear Seminar | 1 |  TOTAL | 122 |
| Ne 4478 Reliability and Risk Assessment | 3 |  |  |
| NE 4496A Project Design I | 1 |  |
| NE 4496B Project Design II | 3 | **Graduation Requirement Minimum Credit Checklist** | **Confirmed** |
| PHYS 2211 Engineering Physics I (included in Gen Ed Obj. 5) | 4 | Minimum 36 cr. General Education Objectives (15 cr. AAS) | x |
| PHYS 2212 Engineering Physics II | 4 | Minimum 15 cr. Upper Division in Major (0 cr. Associate) | x |
| Engineering Electives | 3 | Minimum 36 cr. Upper Division Overall (0 cr. Associate) |  | x |
| Nuclear Engineering Elective | 3 | Minimum of 120 cr. Total (60 cr. Associate) |  | x |
|  |  |  |
|  |  | ***MAP Completion Status (for internal use only)*** |
| **Advising Notes** |  | *Date* |
| See list in Degree Works for approved Engineering Electives. |  |  |
| Consult with faculty advisor on selecting Nuclear Engineering Electives. | *CAA or COT:* |  |
|  |  |
|  | **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** |
|  |
|  |
|  |
|  |

 Form Revised 9.10.2019