

**Catalog Year 2018-2019**

B.S., Nuclear Engineering

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 English Composition | 3 | C- | GE | F,S, Su | Appropriate placement score |  |
| GE Objective 3: MATH 1170 Calculus I | 4 |  | 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 Critical Reading and Writing | 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 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 | MATH1175,ME/CE1105, PHYS 2211 | MATH1175,CE/ME1105, PHYS 2211 |
| MATH 2275 Calculus III | 4 |  |  | F,S | MATH 1175 |  |
| MATH 2240 Linear Algebra | 3 |  |  | F,S | MATH 1170 |  |
| 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 2211 | 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 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 |  |  |  |  |  |  |
| EE 2240 Introduction to Electrical Circuits | 3 |  |  | F | MATH 1170 |  |
| 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 |  |  |
| GE Objective 9 | 3 |  | GE | F,S, Su |  |  |
|  Total  | 17 |  |  |  |  |  |
| Semester Eight |   |  |  |  |  |  |
| EE 4416 Applied Engineering Methods | 3 |  | UM | S | MATH 1175 |  |
| NE 4447 Nuclear Systems Laboratory | 1 |  | UM | S | NE 4445, HYPH 4416 |  |
| 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 4496 A |  |
| Engineering Electives | 3 |  | UM |  |  |  |
|  Total  | 14 |  |  |  |  |  |
| \*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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| **2018-2019 Major Requirements** | **CR** | **GENERAL EDUCATION OBJECTIVES****Satisfy Objectives 1,2,3,4,5,6 (7 or 8) and 9** | **36 cr. min** |
| **MAJOR REQUIREMENTS** | **85** | 1. Written English (6 cr. min) ENGL 1101 | 3 |
| CE 1105 Engineering Graphics | 2 |  ENGL 1102 | 3 |
| ME/CE 2210 Engineering Statics | 3 | 2. Spoken English (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 (5 cr counted in Obj.5) | 5. Natural Sciences **(2 lectures-different course prefixes, 1 lab; 7 cr. min)** |
| COMM 1101 Principles of Speech (3 cr counted in Objective 2) | CHEM 1111 & CHEM 1111L | 5 |
| CS 1181 Computer Science and Programming I (3cr counted in Obj. 7) | PHYS 2212 | 4 |
| EE 2240 Introduction to Electrical Circuits | 3 |  |  |
| EE 4416 Applied Engineering Methods | 3 | 6. Behavioral and Social Science **(2 courses-different prefixes; 6 cr. min)** |
| ENGL 1102 Critical Reading & Writing (3 cr counted in Obj.1) |  |  |
| HPHY 4416 Introduction to Nuclear Measurement  | 3 |  |  |
| MATH 1170 Calculus I (4 cr counted in Objective 3) | One Course from EITHER Objective 7 OR 8 **(1course; 3 cr. min)** |
| MATH 1175 Calculus II  | 4 | 7. Critical Thinking |  |
| MATH 2240 Linear Algebra | 3 | 8. Information Literacy CS 1181 |
| MATH 2275 Calculus III | 4 | 9. Cultural Diversity **(1 course; 3 cr. min)** |
| MATH 3360 Differential Equations | 3 |  |  |
| MATH 4421 Advanced Engineering Math I | 3 | General Education Elective to reach 36 cr. min. **(if necessary)** |
| ME 3307 Thermodynamics | 3 |   |  |
| ME 3322 Mechanical Engineering Materials | 3 |  Total GE | 40 |
| ME 4443 Thermal Fluids Lab | 1 | Undergraduate Catalog and GE Objectives by [Catalog Year](https://www.isu.edu/advising/academic-support/general-education/)  |
| ME 4476 Heat Transfer | 3 |
| NE 1120 Introduction to Nuclear Engineering | 1 |  |  |
| NE 3301 Nuclear Engineering I | 3 | **MAP Credit Summary** | **CR** |
| NE 3302 Nuclear Engineering II | 3 | Major  | 85 |
| NE 4419 Energy Systems & Nuclear Power | 3 | General Education  | 40 |
| NE 4445 Reactor Physics | 3 | Free Electives to reach 120 credits |  |
| NE 4446 Nuclear Fuel Cycle Systems | 3 |  TOTAL | 125 |
| NE 4447 Nuclear Systems Laboratory | 1 |  |
| NE 4451 Nuclear Seminar | 1 |
| NE 4496 A Project Design I | 1 | **Graduation Requirement Minimum Credit Checklist** | **Confirmed** |
| NE 4496 B Project Design II | 3 | Minimum 36 cr. General Education Objectives (15 cr. AAS) |  Yes |
| PHYS 2211 Engineering Physics I | 4 | Minimum 16 cr. Upper Division in Major (0 cr. Associate) |   | Yes |
| PHYS 2212 Engineering Physics II (4 cr counted in Obj.5) | Minimum 36 cr. Upper Division Overall (0 cr. Associate) |  | Yes |
| Engineering Electives | 3 | Minimum of 120 cr. Total (60 cr. Associate) |  | Yes |
| Nuclear Engineering Elective | 3 |  |  |
| **Advising Notes** | ***MAP Completion Status (for internal use only)*** |
| See list in Degree Works for approved Engineering Electives. |  | *Date* |
| Consult with faculty advisor on selecting Nuclear Engineering  | *Department:*  |  |
| Electives. | *CAA or COT:* | 3.12.2017 SF |
|  | *Registrar:*  |  |
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 Form Revised 1.24.2018