

**Catalog Year 2018-2019**

B.S., Mechanical 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 test score |  |
| GE Objective 5: CHEM 1111 & 1111L Gen Chemistry I & Lab |  | 5 |  | GE | F,S, Su | MATH 1143 or 1147 or appropriate test score |  |
| GE Objective 4 |  | 3 |  | GE | F,S, Su |  |  |
|  Total |  | 15 |  |  |  |  |  |
| Semester Two |
| GE Objective 1: ENGL 1102 Critical Reading and Writing |  | 3 | C- | GE | F,S, Su | ENGL 1101 or equivalent |  |
| MATH 1175 Calculus II |  | 4 | C- |  | F,S, Su | MATH 1170 |  |
| PHYS 2211 Engineering Physics I  |  | 4 |  |  | F,S |  | MATH 1175 |
| EE 2240 Introduction to Electrical Circuits |  | 3 |  |  | F,S | MATH 1170 |  |
| ME 1105 Introduction to Solid Modeling |  | 2 | C- |  | F,S | MATH 1147 (or 1143 & 1144) |  |
|  Total |  | 16 |  |  |  |  |  |
| Semester Three |
| MATH 2275 Calculus III |  | 4 |  |  | F,S | MATH 1175 |  |
| PHYS 2212 Engineering Physics II |  | 4 |  |  | F, S | PHYS 2211 |  |
| ME/CE 2210 Statics |  | 3 |  |  | F,S | ME/CE 1105, PHYS 2211, MATH 1175 | (ME/CE 1105, PHYS 2211, MATH 1175) |
| ME 1165 Structured Programming |  | 2 | C- |  | F,S | MATH 1170 |  |
| GE Objective 2: COMM 1101 Principles of Speech |  | 3 |  | GE | F,S, Su |  |  |
|  Total |  | 16 |  |  |  |  |  |
| Semester Four |  |  |  |  |  |  |  |
| MATH 3360 Differential Equations |  | 3 |  | UM | F,S | MATH 1175; MATH 2240 or MATH 2275 recommended |  |
| MATH 2240 Linear Algebra |  | 3 |  |  | F,S, Su | MATH 1170 |  |
| ME 2266 Symbolic Programming |  | 1 |  |  | S | MATH 1175 ,ME 1165, MATH 2240 | ME 1165, MATH 2240 |
| ME/CE 3350 Mechanics of Materials |  | 3 |  | UM | F,S | ME/CE 2210,PHYS 2211, ME/CE 1105,MATH 1175 |  |
| ME 2220 Engineering Dynamics |  | 3 |  |  | F,S | ME/CE 2210,PHYS 2211, ME/CE 1105,MATH 1175 |  |
| GE Objective 4 |  | 3 |  | GE | F,S, Su |  |  |
|  Total |  | 16 |  |  |  |  |  |
| Semester Five |  |  |  |  |  |  |  |
| ME 3307 Thermodynamics |  | 3 |  | UM | F,S | ME 2220, MATH 2275 | MATH 2275 |
| ME 3320 Kinematics |  | 3 |  | UM | F | ME 1165, ME 2220, ME 2266, MATH 2275, 2240 | MATH 2275 |
| ME 3323 Machine Design |  | 3 |  | UM | F | ME/CE 3350, ME 3320, ME 3322 | ME 3320, ME 3322 |
| ME 3322 Mechanical Engineering Materials |  | 3 |  | UM | F,S | ME/CE 3350, ME/CE 2210, MATH 1170, CHEM 1111/&L | ME/CE 3350 |
| GE Objective 7 or 8 |  | 3 |  | GE | F,S, Su |  |  |
|  Total |  | 15 |  |  |  |  |  |
| Semester Six |  |  |  |  |  |  |  |
| ME/CE 3341 Fluid Mechanics |  | 3 |  | UM | S | ME 2220, MATH 3360 |  |
| CE 3360 Engineering Economics (or CE 3361 (3cr)) |  | 2 |  | UM | F,S | ME/CE 2210 or permission of instructor |  |
| ME 4476 Heat Transfer |  | 3 |  | UM | S | ME 3307, ME/CE 3341 | ME/CE 3341 |
| ME 3325 Advanced Machine Design |  | 3 |  | UM | S | ME 3320, ME 3323 |  |
| GE Objective 6 |  | 3 |  | GE | F,S, Su |  |  |
|  Total |  | 14 |  |  |  |  |  |
| Semester Seven |  |  |  |  |  |  |  |
| ME 4465 Thermal Fluid Systems Design |  | 3 |  | UM | F | ME 3307, ME/CE 3341, ME 4476 |  |
| ME 4443 Thermal Fluids Lab |  | 1 |  | UM | F | ME 3307**,** ME/CE 3341, ME 4476 |  |
| ME 4496 A Project Design I |  | 3 |  | UM | F | CE 3360 or CE 3361 | CE 3360 or CE 3361 |
| ME 4440 Mechanical Vibrations |  | 3 |  | UM | F | MATH 2275, MATH 3360,ME 3325 | ME 3325 |
| ME Elective (consult with faculty advisor) |  | 3 |  |  | F,S |  |  |
| GE Objective 6 |  | 3 |  | GE | F,S, Su |  |  |
|  Total  |  | 16 |  |  |  |  |  |
| Semester Eight |  |   |  |  |  |  |  |
| ME 4496 B Project Design B |  | 3 |  | UM | S | ME 4496A |  |
| ME 4406 Measurement System Lab |  | 1 |  | UM | S | MATH 3360, EE 2240 |  |
| ME 4463 Mechanical Systems Design |  | 3 |  | UM | S | ME 3320, ME 3323, ME 3325, ME 4440 |  |
| ME Elective (consult with faculty advisor) |  | 3 |  |  |  |  |  |
| ME 4473 Mechanical Engineering Controls |  | 3 |  | UM | S | EE 2240, ME 2220, ME 4440, PHYS 2212, MATH 3360 |  |
| GE Objective 9 |  | 3 |  | GE | F,S, Su |  |  |
|  Total  |  | 16 |  |  |  |  |  |
| \*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** |  | 1. Written English (6 cr. min) ENGL 1101 | 3 |
| **Mathematics and Science Course Requirements** | 18 |  ENGL 1102 | 3 |
| MATH 1170 Calculus I (4cr counted in Objective 3) | 2. Spoken English (3 cr. min) COMM 1101 | 3 |
| MATH 1175 Calculus II | 4 | 3. Mathematics (3 cr. min) MATH 1170 | 4 |
| MATH 2275 Calculus III | 4 | 4. Humanities, Fine Arts, Foreign Lang. **(2 courses; 2 categories; 6 cr. min)** |
| MATH 2240 Linear Algebra | 3 |  |  |
| MATH 3360 Differential Equations | 3 |  |  |
| CHEM 1111 & 1111L General Chemistry I & Lab (5cr counted in Objective 5) | 5. Natural Sciences **(2 lectures-different course prefixes, 1 lab; 7 cr. min)** |
| PHYS 2211 Engineering Physics I (4cr counted in Objective 5) | CHEM 1111 & 1111L General Chemistry I & Lab | 5 |
| PHYS 2212 Engineering Physics II | 4 | PHYS 2211 Engineering Physics I | 4 |
| **Mechanical Engineering Major Requirements** | 66 or 67 |  |  |
| EE 2240 Introduction to Electrical Circuits | 3 | 6. Behavioral and Social Science **(2 courses-different prefixes; 6 cr. min)** |
| ME 1105 Introduction to Solid Modeling | 2 |  |  |
| ME/CE 2210 Statics | 3 |  |  |
| ME 1165 Structured Programming | 2 | One Course from EITHER Objective 7 OR 8 **(1course; 3 cr. min)** |
| ME 2220 Engineering Dynamics | 3 | 7. Critical Thinking |  |
| ME 2266 Symbolic Programming | 1 | 8. Information Literacy  |  |
| ME 3307 Thermodynamics | 3 |  |
| ME 3320 Kinematics | 3 | 9. Cultural Diversity (**1 course; 3cr. min)** |
| ME 3322 Mechanical Engineering Materials | 3 | General Education Electives to reach 36 cr min (**if necessary**) |
| ME 3323 Machine Design | 3 |  |
| ME 3325 Advanced Machine Design | 3 |  Total GE 40 |
| ME/CE 3341 Fluid Mechanics | 3 | Undergraduate Catalog and GE Objectives by [Catalog Year](https://www.isu.edu/advising/academic-support/general-education/) |
| ME/CE 3350 Mechanics of Materials | 3 |  |
| CE 3360 Engineering Economics or CE 3361 EngineeringEcon&Mgt. | 2 or 3 |  |
| ME 4406 Measurement System Lab | 1 | **MAP Credit Summary** | **CR** |
| ME 4440 Mechanical Vibrations | 3 | Major | 84 or 85 |
| ME 4465 Thermal Fluid Systems Design | 3 | General Education | 40 |
| ME 4473 Mechanical Engineering Controls | 3 | Free Electives to reach 120 | 0 |
| ME 4476 Heat Transfer | 3 |  Total | 124 or 125 |
| ME 4443 Thermal Fluids Lab | 1 |  |
| ME 4496 A Project Design I | 3 |  |
| ME 4463 Mechanical Systems Design | 3 |
| ME 4496 B Project Design B | 3 | **Graduation Requirement Minimum Credit Checklist** | **Confirmed** |
| ME Electives (consult with faculty advisor) | 6 | Minimum 36 cr. General Education Objectives (15 cr. AAS) |  |  Yes |
|  |  | Minimum 16 cr. Upper Division in Major (0 cr. Associate) |  | Yes |
|  |  | Minimum 36 cr .Upper Division Overall (0 cr AS) |  |  Yes |
|  |  | Minimum of 120 cr. Total (60 cr. Associate) |  Yes |
| **Advising Notes** | ***MAP Completion Status (for internal use only)*** |
| **See catalog for elective suggestions in biomedical, systems, thermal/fluids, robotics/mechanics, and energy areas. Consult with faculty advisor.** |  | *Date* |
|  | *Department:*  | 3.26.2018 sf jh |
|  | *CAA or COT:* | 3.26.2018 sf jh |
|  | *Registrar:*  |  |
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 Form Revised 1.24.2018