DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

BACHELOR OF SCIENCE IN ENGINEERING DEGREE

Major in Aerospace Engineering

Freshman Year Class-Lab-Credit Hours

Fall
CHEM 111 Principles of Chemistry for Engineers (4-0-4)
MATH 121 Calculus for Science and Engineering I (4-0-4)
PHYS 121 General Physics I (4-0-4)
ENGR 131 Elementary Computer Programming (2-2-3)
FSCC 100 First Seminar (4-0-4)
PHED 101 Physical Education Activities (0-3-0)
Total (18-5-19)

Spring
MATH 122 Calculus for Science and Engineering II (4-0-4)
PHYS 122 General Physics II (4-0-4)
ENGR 145 Chemistry of Materials (4-0-4)
University Seminar (3-0-3)
PHED 102 Physical Education Activities (0-3-0)
Total (15-3-15)

Sophomore Year Class-Lab-Credit Hours

Fall
EMAE 160 Mechanical Manufacturing (3-3-3)
EMAE 181 Dynamics (3-0-3)
ENGR 200 Statics and Strength of Material (3-0-3)
MATH 223 Calculus for Science and Engineering III (3-0-3)
EMAE 250 Computers in Mechanical Engineering (2-2-3)
Total (14-5-15)

Spring
University Seminar (3-0-3)
ENGR 210 Electronic Circuits (3-2-4)
PHYS 221 General Physics III (3-0-3)
MATH 224 Elementary Differential Equations (3-0-3)
ENGR 225 Introduction to Fluid and Thermal Engineering (4-0-4)
Total (16-2-17)
**Junior Year** Class-Lab-Credit Hours

**Fall**
- Humanities or Social Science Elective (3-0-3)
- EMAE 325 Fluid and Thermal Engineering II (4-0-4)
- EMAE 285 Mechanical Engineering Measurements Lab. (2-2-4)\[d\]
- ECIV 310 Strength of Materials (3-0-3)\[d\]
- EMAE 350 Mechanical Engineering Analysis (3-0-3)
- **Total (15-2-17)**

**Spring**
- Humanities or Social Science Elective (3-0-3)
- EMAE 359 Aero/Gas Dynamics (3-0-3)
- EMAE 376 Aerostructures (3-0-3)
- Open Elective (3-0-3)\[d\]
- Technical Elective (3-0-3)\[d\]
- **Total (15-0-15)**

**Senior Year** Class-Lab-Credit Hours

**Fall**
- Humanities or Social Science Elective (3-0-3)
- EECS 246 Signals and Systems (3-2-4)
- EMAE 383 Flight Mechanics (3-0-3)
- EMAE 384 Orbital Dynamics (3-0-3)
- EMAE 355 Design of Fluid and Thermal Elements (3-0-3)\[d\]
- **Total (15-2-16)**

**Spring**
- Humanities or Social Science Elective (3-0-3)
- EMAE 356 Aerospace Design (3-0-3)
- EMAE 382 Propulsion (3-0-3)
- EMAE 398 Senior Project (1-6-3)\[d\]
- ENGL 398N/ENGR398 Professional Communication (2-1-3) (Dept. Seminar)\[d\]
- **Total (12-7-15)**

Hours required for graduation: 129

b. Engineering Core Course

d. May be taken fall or spring semester
# Bachelor of Science in Engineering Degree

## Major in Mechanical Engineering

### Freshman Year  Class-Lab-Credit Hours

#### Fall

- **CHEM 111** Principles of Chemistry for Engineers (4-0-4)
- **MATH 121** Calculus for Science and Engineering I (4-0-4)  
  
- **PHYS 121** General Physics I (4-0-4)
- **ENGR 131** Elementary Computer Programming (2-2-3)  
  
- **FSCC 100** First Seminar (4-0-4)
- **PHED 101** Physical Education Activities (0-3-0)

Total (18-5-19)

#### Spring

- **MATH 122** Calculus for Science and Engineering II (4-0-4)
- **PHYS 122** General Physics II (4-0-4)
- **ENGR 145** The Chemistry of Materials (4-0-4)
- **University Seminar** (3-0-3)
- **PHED 102** Physical Education Activities (0-3-0)

Total (15-3-15)

### Sophomore Year  Class-Lab-Credit Hours

#### Fall

- **University Seminar** (3-0-3)
- **ENGR 200** Statics and Strength of Material (3-0-3)
- **EMAE 160** Mechanical Manufacturing (3-3-3)
- **MATH 223** Calculus for Science and Engineering III (3-0-3)
- **EMAE 250** Computers in Mechanical Engineering (2-2-3)

Total (14-5-15)

#### Spring

- **EMAE 260** Design and Manufacturing I (3-0-3)
- **EMAE 181** Dynamics (3-0-3)
- **MATH 224** Elementary Differential Equations (3-0-3)
- **ENGR 225** Introduction to Fluid and Thermal Engineering (4-0-4)
- **Science elective** (3-0-3)

Total (16-0-16)

### Junior Year  Class-Lab-Credit Hours

#### Fall

- **Humanities or Social Science elective** (3-0-3)
- **EMAE 325** Fluid and Thermal Engineering II (4-0-4)
- **EMAE 285** Mechanical Engineering Measurements Lab (2-2-4)
- **ECIV 310** Strength of Materials (3-0-3)
- **EMAE 350** Mechanical Engineering Analysis (3-0-3)

Total (15-2-17)

#### Spring

- **Humanities or Social Science elective** (3-0-3)
- **ENGR 210** Electronic Circuits (3-2-4)
Technical Elective (3-0-3)
EMAE 370 Design of Mechanical Elements (3-0-3)
Technical Elective (3-0-3)
Total (15-2-16)

**Senior Year** Class-Lab-Credit Hours

Fall
Humanities or Social Science Elective (3-0-3)
EECS 246 Signals and Systems (3-2-4)
EMAE 355 Design of Fluid and Thermal Elements (3-0-3)
EMAE 360 Design and Manufacturing II (3-0-3)
Open Elective (3-0-3)
Total (15-2-16)

Spring
Humanities or Social Science Elective (3-0-3)
Technical Elective (3-0-3)
EMAE 398 Senior Project (1-6-3)
ENGL 398N Professional Communication (2-1-3) (Dept. Seminar)
Technical elective (3-0-3)
Total (12-7-15)

Hours required for graduation: 129
b. Engineering Core Course
d. May be taken fall or spring semester
BACHELOR OF SCIENCE IN ENGINEERING DEGREE

DOUBLE MAJOR in MECHANICAL ENGINEERING and AEROSPACE ENGINEERING

Freshman Year Class-Lab-Credit Hours
Fall
CHEM 111 Principles of Chemistry for Engineers (4-0-4)
MATH 121 Calculus for Science and Engineering I (4-0-4)\textsuperscript{d}
PHYS 121 General Physics I (4-0-4)\textsuperscript{d}
ENGR 131 Elementary Computer Programming (2-2-3)\textsuperscript{bd}
FSCC 100 First Seminar (4-0-4)
PHED 101 Physical Education Activities (0-3-0)
Total (18-5-19)

Spring
MATH 122 Calculus for Science and Engineering II (4-0-4)\textsuperscript{d}
PHYS 122 General Physics II (4-0-4)\textsuperscript{d}
ENGR 145 Chemistry of Materials (4-0-4)\textsuperscript{bd}
University Seminar (3-0-3)\textsuperscript{d}
PHED 102 Physical Education Activities (0-3-0)
Total (15-3-15)

Sophomore Year Class-Lab-Credit Hours
Fall
EMAE 160 Mechanical Manufacturing (3-3-3)\textsuperscript{d}
EMAE 181 Dynamics (3-0-3)\textsuperscript{d}
ENGR 200 Statics and Strength of Material (3-0-3)\textsuperscript{bd}
MATH 223 Calculus for Science and Engineering III (3-0-3)\textsuperscript{d}
EMAE 250 Computers in Mechanical Engineering (2-2-3)\textsuperscript{d}
Total (14-5-15)

Spring
University Seminar (3-0-3)
ENGR 210 Electronic Circuits (3-2-4)\textsuperscript{bd}
PHYS 221 General Physics III (3-0-3)\textsuperscript{d}
MATH 224 Elementary Differential Equations (3-0-3)\textsuperscript{bd}
ENGR 225 Introduction to Fluid and Thermal Engineering (4-0-4)\textsuperscript{bd}
Total (16-2-17)

Junior Year Class-Lab-Credit Hours
Fall
Humanities or Social Science Elective (3-0-3)
EMAE 325 Fluid and Thermal Engineering II (4-0-4)
EMAE 285 Mechanical Engineering Measurements Lab (2-2-4)\textsuperscript{d}
ECIV 310 Strength of Materials (3-0-3)\textsuperscript{d}
EMAE 350 Mechanical Engineering Analysis (3-0-3)
Total (15-2-17)

Spring
Humanities or Social Science Elective (3-0-3)
EMAE 359 Aero/Gas Dynamics (3-0-3)
EMAE 376 Aerostructures (3-0-3)
EMAE 260 Design and Manufacturing I (3-0-3)d
EMAE 370 Design of Mechanical Elements (3-0-3)d
Total (15-0-15)

**Senior Year Class-Lab-Credit Hours**

**Fall**
EECS 246 Signals and Systems (3-2-4)
EMAE 383 Flight Mechanics (3-0-3)
EMAE 384 Orbital Dynamics (3-0-3)
EMAE 355 Design of Fluid and Thermal Elements (3-0-3)d
EMAE 360 Design and Manufacturing II (3-0-3)
Total (15-2-16)

**Spring**
Humanities or Social Science Elective (3-0-3)
Humanities or Social Science Elective (3-0-3)
EMAE 356 Aerospace Design (3-0-3)
EMAE 382 Propulsion (3-0-3)
EMAE 398 Senior Project (1-6-3)bd
ENGL 398N/ENGR398 Professional Communication (2-1-3) (Dept. Seminar)d
Total (15-7-18)

Hours required for graduation: 132
b. Engineering Core Course
d. May be taken fall or spring semester.
TECHNICAL ELECTIVES

All 200, 300, and 400 level courses from the following areas:
(EMAE ALL, EMAE CROSS LISTED, EBME ALL, EBME CROSS LISTED, ECIV ALL, EECS ALL, EECS CROSS LISTED, EMAC ALL)

ALL 300 and 400 level courses in ECHE and EMSE areas.
ALL 300 level MATH and STAT courses with the concurrence of the advisor.

[We are not accepting EMSE201 as a technical elective.]

SCIENCE ELECTIVES for MECHANICAL ENGINEERING MAJORS

SIS is currently setup to accept PHYS221, PHYS223, or STAT312 as a science elective. Other courses for individual students can be selected with the approval of the student’s advisor and the chair using an Academic Advisement Requirement Form (available from Undergraduate Studies web site).

HUMANITIES AND SOCIAL SCIENCES REQUIREMENTS

Please consult your student handbook for the selection of these courses.