BIOSYSTEMS ENGINEERING

MACHINE SYSTEMS & AGRICULTURAL ENGINEERING OPTION

Course Plan
2024-2025
124 Hours

Year 1

16 Credit Hours

BAE 1011
Intro to Biosystems
1 Hour

UNIV 1111
First Yr. Seminar
1 Hour

Prerequisites: C or better in one of the following- MATH 1613, MATH 1715, MATH 1813

MATH 2144
Calculus 1
4 Hours
Note 1
→ MATH 2153, PHYS 2014, ENSC 2113, ENSC 2213

CHEM 1414
Gen Chemistry
4 Hours
→ ENSC 2213, ENSC 3313

HIST 1103
American Hist
3 Hours
Note 2

ENGL 1113
Engl Comp 1
3 Hours
Note 3, 4
→ ENGL 1213

14 Credit Hours

BAE 1022
Exper Methods
2 Hours

MATH 2144 →
PHYS 2014
Gen. Physics I
4 Hours
→ BAE 3033, ENSC 2213, ENSC 2113

MATH 2144 →
MATH 2153
Calculus II
3 Hours
→ MATH 2163, MATH 2233, IEM 3503, ENSC 2613

ENGR 1332
Engr Design
2 Hours

ENGL 1113 →
ENGL 1213
Engl Comp II
3 Hours
Note 5

Year 2

16 Credit Hours

BAE 2013
Comp Methods
3 Hours

MATH 2144, PHYS 2014, CHEM 1414 →
ENSC 2213
Thermodynamics
3 Hours
→ BAE 3213

MATH 2153 →
MATH 2163
Calculus III
3 Hours
→ STAT 4033 or STAT 4073

MATH 2144, PHYS 2014 →
ENSC 2113
Statics
3 Hours
→ ENSC 2123, ENSC 2143, ENSC 3233

BIOL 1113 & BIOL 1111 or BIOL 1114 or PBIO 1404
4 Hours
→ BAE 3033

16 Credit Hours

BIOL 1113 & BIOL 1111 or BIOL 1114 or PBIO 1404, MATH 2144, PHYS 2014 →
BAE 3033
Biomaterials
3 Hours

MATH 2153, ENSC 2113 →
ENSC 3233
Fluid Mech
3 Hours
→ BAE 3013, BAE 3213, BAE 3223

MATH 2153 →
MATH 2233
Diff Equations
3 Hours
→ BAE 3013, BAE 3023

ENSC 2113 →
ENSC 2143
Strength of Mat'l
3 Hours
→ BAE 4012, BAE 4224

Concurrent Enrollment in ENSC 2143 →
ENSC 2141
Strength's Lab
1 Hour

Humanities Course (H)
3 Hours
Note 8

Other Requirements:

- A minimum 2.0 Technical GPA. The Technical GPA is calculated from all BAE prefixes or substitutions to BAE courses.
- Students are required to complete the Fundamentals of Engineering (FE) exam prior to graduation.
- A minimum of 40 semester credit hours and 100 grade points must be earned in courses numbered 3000 or above.
- A 2.00 GPA or higher in upper-division hours.

Patterned = General Education Course

Shaded = Course requires a grade of C or above

Prerequisites → **Course No.** Course Name, # of Hours, See Note # → Subsequent Courses

NOTES: (F)-offered in Fall, (SP)-offered in Spring

1) The prerequisite for MATH 2144 is to score a minimum of 75 on the Math Placement Test or by earning a minimum grade of "C" in MATH 1813 or MATH 1715 or MATH 1613.
2) HIST 1103 can be replaced with HIST 1483 (H) or HIST 1493 (DH).
3) See Academic Regulation 3.5 (http://catalog.okstate.edu/university-academic-regulations/#english-composition).
4) ENGL 1113 can be replaced with ENGL 1313 (F) (Critical Analysis and Writing I).
5) ENGL 1213 can be replaced with ENGL 1413 or ENGL 3323.
6) If necessary, ENSC 2123 (F,SP) can be taken in a later semester.
7)Any engineering and/or science elective to be selected from an approved list and approved by advisor.
8) At least 6 hours designated "H," 3 hours designated "S," and 3 hours designated "A," "H," "N" or "S" for a total of 12 hours. Additionally, at least one "D" course and at least one "I" course must be completed.
9) BAE 4001 and BAE 4012 are to be taken concurrently.
10) Select one of the following: PLNT 4443 (F), HORT 4963 (F), ENVR 4033 (SP), NREM 3013 (F), MICR 2123 (F, SP), BIOL 3204 (F, SP). Some courses may require specific pre-requisites.
11) Select one of the following labs: ENSC 2411 (F,SP), ENSC 2611 (F,SP), ENSC 3231 (F,SP), ENSC 3431 (F,SP), ENGR 2421 (F,SP)

BIOSYSTEMS ENGINEERING

MACHINE SYSTEMS & AGRICULTURAL ENGINEERING OPTION

Course Plan
2024-2025
124 Hours

Year 3

16 Credit Hours

Completion or Concurrent Enrollment ENSC 2613 ENSC 3233 SOIL 2124

BAE 3223
Ag & Off Road
3 Hours

MATH 2153

ENSC 2613
Intro Elec. Sci
3 Hours

BAE 3023
BAE 3213
BAE 3223

ENSC 2113

ENSC 2123
Dynamics
3 Hours
Note 6

CHEM 1414

SOIL 2124
Soil Science
4 Hours

Advanced Biology Elective
3 Hours
Note 10

14 Credit Hours

MATH 2233
ENSC 3233

BAE 3013
Heat/Mass Trans
3 Hours

BAE 4012

MATH 2233
ENSC 2613

BAE 3023
Inst. & Ctrls
3 Hours

BAE 4012

ENSC 2213
ENSC 2613
ENSC 3233

BAE 3213
Energy & Power
3 Hours

BAE 4012

CHEM 1414

ENSC 3313
Mat'ls Science
3 Hours

Concurrent Enrollment in ENSC 3313

ENSC 3311
Mat'ls Science Lab
1 Hour

Select 1 ENSC LAB
1 Hour
Note 11

Patterned = General Education Course

Shaded = Course requires a grade of C or above

Prerequisites — **Course No.** Course Name, # of Hours, See Note # — Subsequent Courses

Year 4

16 Credit Hours

BAE 4001
Prof. Practice
1 Hour
Note 9

BAE 4023

Completion or Concurrent Enrollment in ENSC 2143 BAE 3013 BAE 3023 BAE 3213 BAE 4001

BAE 4012
Sr Design I
2 Hours
Note 9

BAE 4023

ENSC 2143

BAE 4224
Machinery
4 Hours

MATH 2163

STAT 4033 or STAT 4073
Engr Statistics
3 Hours

MATH 2153

IEM 3503
Engr Econ
3 Hours

Humanities Course (H)
3 Hours
Note 8

International Dimension Course (I)
Note 8

16 Credit Hours

BAE 4001
BAE 4012

BAE 4023
Sr Design II
3 Hours

ENGR OR SCI ELECTIVE
4 Hours
Note 7

POLS 1113
American Gov't
3 Hours

"A," "H," "N" or "S" Course
3 Hours
Note 8

Social and Behavioral Sciences Course (S)
3 Hours
Note 8

Diversity Course (D)
Note 8

Additional State/OSU Requirements:

- At least: 60 hours at a four-year institution; 30 hours completed at OSU; 15 of the final 30 or 50% of the upper-division hours in the major field completed at OSU.
- Limit of: one-half of major course requirements as transfer work; one fourth of hours earned by correspondence; 8 transfer correspondence hours.
- Students will be held responsible for degree requirements in effect at the time of matriculation and any changes that are made, so long as these changes do not result in semester credit hours being added or do not delay graduation.
- Degrees that follow this plan must be completed by the end of Summer 2030.