



COLLEGE OF  
ENGINEERING, ARCHITECTURE  
AND TECHNOLOGY

# BAE BIOSYSTEMS ENGINEERING



## WHAT IS BIOSYSTEMS ENGINEERING?

The study of biosystems engineering merges engineering and agricultural science to improve our quality of life while maintaining the environment and preserving our natural resources.

## WHY BIOSYSTEMS ENGINEERING AT OSU?

The focus of Biosystems Engineering is to enhance the production and profitability of agricultural and biological products. Biosystems engineers work at the interface of biology and technology to address problems and opportunities related to food, water, energy and the environment – all of which are critical to the future.

## HIGHLIGHTS

- Students nearing completion of their undergraduate work participate in a design course spanning two semesters. The outcome of this course is a finished design that is presented in a professional manner to their corporate sponsor.
- The bachelor of science degree in biosystems engineering is accredited, along with the other engineering programs in the College of Engineering, Architecture and Technology (CEAT), through the Engineering Accreditation Commission of ABET.
- The biosystems engineering degree program is jointly administered by the College of Agricultural Sciences and Natural Resources (CASNR) and the College of Engineering, Architecture and Technology (CEAT). This relationship means biosystems engineering students benefit from the strengths of both academic colleges. Students receive communication from both academic colleges and are able to take advantage of the services, scholarships and award recognition programs available in both.

## CAREER INDUSTRIES & FOCUS AREAS

### OPTIONS

- Bioprocessing and Food Processing
- Environment and Natural Resources
- Machine Systems and Agricultural Engineering
- Pre-Medical

### CAREER OPPORTUNITIES

- Combustion engineer
- Consultant engineer
- Design and application engineer
- Development engineer
- Environmental agency engineer
- Field test engineer
- Food processing consultant
- Machine systems design engineer
- Manufacturing engineer
- Pipeline integrity engineer
- Processing plant manager
- Water resources engineer



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BACHELOR OF SCIENCE  
**BIOSYSTEMS ENGINEERING**

# Typical Four-Year Curriculum

## FIRST YEAR

### Fall Semester

BAE	1012	Intro Biosystems
MATH	2144	Calculus I
BIOL	1114	Intro Biology
HIST	1103	American Hist
ENGL	1113	Engl Comp I

### Spring Semester

BAE	1022	Exper Methods
MATH	2153	Calculus II
CHEM	1414	Gen Chemistry
PHYS	2014	Gen Physics
ENGR	1332	Engr Design
ENGL	1213	Engl Comp II

## SECOND YEAR

### Fall Semester

BAE	2013	Modeling
MATH	2163	Calculus III
PHYS	2114	Gen Physics
ENSC	2213	Thermodynamics
ENSC	2113	Statics

### Spring Semester

BAE	3033	Mat'l Sci of Biomat'ls
MATH	2233	Diff Equations
ENSC	3233	Fluid Mech
ENSC	2143	Strength Mat'ls
POLS	1113	American Gov't

## THIRD YEAR

BAE	3213	Energy & Power
ENSC	2613	Intro Elec Sci
STAT	4073	Engr Statistics
BAE	3013	Heat/Mass Trans
BAE	3023	Inst & Ctrl

## FOURTH YEAR

BAE	4001	Prof Practice
BAE	4012	Engr Design I
IEM	3503	Engr Econ
BAE	4023	Engr Design II
Gen Ed		
Gen Ed		

## ADDITIONAL COURSES BASED ON OPTION

### Machine Systems & Agri Engr - 124 Hours

BAE	4224	Machinery for Prod
BAE	3223	Off Road Machinery
ENSC	2123	Dynamics
ENSC	3313	Mat'ls Science
SOIL	2124	Soil Science
Add'l 6 credit hours of electives		

### Environment & Natural Resources - 123 Hours

BAE	4313	Hydrology
BAE	4324	Water Quality
SOIL	2124	Soil Science
GEOL	1114	Physical Geology
NREM	3013	Applied Ecology
CIVE	3833	Applied Hydraulics

### Bioprocessing & Food Processing - 124 Hours

BAE	4283	Bioprocess Engr
BAE	4413	Food Engr
MICR	2123	Microbiology
MICR	2132	Microbiology Lab
BIOC	2344	App'ls of Biomolecules
Add'l 8 credit hours of electives		

### Pre-Medical - 125 Hours

CHEM	1515	instead of CHEM 1414
CHEM	3053	Organic Chem
CHEM	3153	Organic Chem II
CHEM	3112	Organic Chem Lab
MICR	2123	Intro to Microbiology
BIOL	1604	Animal Biology
MICR	3033	Cell & Molecular Biology
Any 4000 Level BAE class (5 hrs req)		

### General Degree (No Option) - 121 Credit Hours

BAE	3223	Off Road Machinery
BAE	4224	Machinery for Prod
BAE	4314	Hydrology
BAE	4283	Bioprocessing
BAE	4413	Food Engineering
ENSC	2123	Dynamics

# TOTAL HOURS: 121-125

Accredited by the Engineering  
Accreditation Commission of ABET,  
<http://www.abet.org>.



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This course plan is for general guidance only. An official course plan will be provided upon enrollment.

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