BIOSYSTEMS ENGINEERING: EXAMPLE OF AN 8-TERM PROGRAM

*Pre- and co-requisites for Biosystems Engineering Science and Design Electives are dependent on course selection

**See Design Elective Information Sheet for listing of all Design Electives offered

NOTE 1: Choose 2 courses
(specific courses are to be taken if completing a specialization)

- AGEC 2370 Principles of Ecology or BIOL 2300 Principles of Ecology
- ANSC 3530 The Animal and Its Environment
- BIOE 2600 Plant and Animal Physiology for Engineers
- BIOL 1410 Anatomy of the Human Body
- BIOL 1412 Physiology of the Human Body
- PLNT 2510 Fundamentals of Horticulture
- SOIL 4060 Physical Properties of Soil

NOTE 2: Course is to be selected from a specified list if completing a specialization

*BIODE 4900 & 4950 must be taken in the same academic year

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Term 1

- Fall
  - PHYS 1050(3)
  - Written English Requirement
  - Applied Calculus 1
    - MATH 1510(3)
    - Computer Program for Sci & Eng
      - COMP 1012(3)
  - Computer Program for Sci & Eng
    - COMP 1012(3)
    - Critical Thinking recommended
  - Bio Eng Design 1
    - BIODE 2900(4)
  - Bio Eng Design 1
    - BIODE 2900(4)

Term 2

- Winter
  - Kinematics & Dynamics
    - MECH 3482(4)
  - Eng Prop Biological Materials
    - BIODE 3320(4)

Term 3

- Fall
  - Intro to Statics
    - ENG 1440(3)
  - Design in Engineering
    - EN 1430(3)
  - Applied Calculus 2
    - MATH 1710(3)

Term 4

- Winter
  - Fluid Mechanics
    - BIODE 2790(4)
  - Numerical Methods
    - MECH 2150(4)

Term 5

- Fall
  - Mechanics of Bio Materials
    - BIODE 3590(4)
  - Design of Struct Comp in Machines
    - BIODE 3400(4)

Term 6

- Winter
  - Bio Eng Design Elective**
    - BIODE 3270(4)

Term 7

- Fall
  - Tech & Society
    - ANTH 2430(3)
    - ENG 3020(3)

Term 8

- Winter
  - Bio Eng Design Elective**
    - BIODE 4950(4)

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Graduation Project (offered in both terms)

NOTE: BIODE 4900 & 4950 must be taken in the same academic year

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NOTE 2: Course is to be selected from a specified list if completing a specialization

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Revised: June 17, 2022

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September 2018 Admits
DEPARTMENT OF BIOSYSTEMS ENGINEERING

4 YEAR MODEL PROGRAM

For students starting second year Fall 2018

Students are expected to follow either the 4 year or the 5 year model program. This will ensure prerequisite and timetable requirements are met.

PRELIMINARY ENGINEERING PROGRAM: The following 12 courses must be completed by all engineering students.

<table>
<thead>
<tr>
<th>2017</th>
<th>cr hr</th>
<th>Pre- (p) or Co- (c) Requisites</th>
<th>cr hr</th>
<th>Pre- (p) or Co- (c) Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>3</td>
<td>ENG 1430 Engineering Design</td>
<td>3</td>
<td>MATH 1150 Intro to Eng Design</td>
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<tr>
<td>CHEM 1300</td>
<td>Chemistry</td>
<td>3</td>
<td>ENG 1440 Engineering Statics</td>
<td>3</td>
</tr>
<tr>
<td>COMP 1012</td>
<td>Comp Prog Eng</td>
<td>3</td>
<td>ENG 1450 Intro Elec &amp; Comp Eng</td>
<td>3</td>
</tr>
<tr>
<td>ENG 1480</td>
<td>Thermal Sciences</td>
<td>3</td>
<td>Written English Requirement</td>
<td>3</td>
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<tr>
<td>MATH 1510</td>
<td>Applied Calculus 1</td>
<td>3</td>
<td>MATH 1210 C/L Algebra</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 1050</td>
<td>Physics</td>
<td>3</td>
<td>MATH 1500/1510 (p or c)</td>
<td>3</td>
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</tbody>
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ADMISSION TO BIOSYSTEMS ENGINEERING PROGRAM: Any Preliminary Engineering courses not yet completed should be taken in Second Year if possible.

SECOND YEAR 2018

<table>
<thead>
<tr>
<th>FALL TERM (September)</th>
<th>WINTER TERM (January)</th>
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</thead>
<tbody>
<tr>
<td>Pre- (p) or Co- (c) Requisites</td>
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</tr>
<tr>
<td>BIOE 2110 Transport Phenomenon 3</td>
<td>BIOE 2480 Impact of Eng on Enviro 3</td>
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<tr>
<td>BIOE 2590 Biology for Engineers 3</td>
<td>BIOE 2800 Solid Mechanics 4</td>
</tr>
<tr>
<td>BIOE 2900 Design 1 4</td>
<td>ENG 1440 (p), MATH 1710/1700 (p)</td>
</tr>
<tr>
<td>BIOE 2790 Fluid Mechanics 4</td>
<td>MATH 2130 Math Analysis 1 3</td>
</tr>
<tr>
<td>CHEM 1310 Chem 2 (CHEM 1110 &amp; 1126) 3</td>
<td>MATH 2130 (p), ENG 1440 (p), COMP 1012 (p), MATH 1710 (p)</td>
</tr>
</tbody>
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THIRD YEAR 2019

<table>
<thead>
<tr>
<th>Pre- (p) or Co- (c) Requisites</th>
<th>Pre- (p) or Co- (c) Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 3400 Des of Struc Comp Mac 4</td>
<td>BIOE 3270 Instrumentation for Bios 4</td>
</tr>
<tr>
<td>BIOE 3590 Mechanics of Biomater 4</td>
<td>BIOE 3320 Eng Prop of Biolog Mate 4</td>
</tr>
<tr>
<td>BIOE 3900 Design 2 4</td>
<td>MECH 3482 Kinematics &amp; Dynamics 4</td>
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<tr>
<td>MBIO 1220 Essentials of Microbiol 3</td>
<td>STAT 2220 Statistics for Engineers 3</td>
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</tbody>
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FOURTH YEAR 2020

<table>
<thead>
<tr>
<th>Pre- (p) or Co- (c) Requisites</th>
<th>Pre- (p) or Co- (c) Requisites</th>
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</thead>
<tbody>
<tr>
<td>BIOE 4900** Design 3 4</td>
<td>BIOE 4950** Design 4 4</td>
</tr>
<tr>
<td>BIOE 4240* Graduation Project 3</td>
<td>BIOE 4240* Graduation Project 3</td>
</tr>
<tr>
<td>BIOE Design Elective slot (see Note 2) 4</td>
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Note 1: Must choose two science electives, two complementary studies electives, and two free electives.

Note 2: Three BIOE design electives are required (out of the four slots shown). Choose from specified lists if a Specialization is desired.

Biomedical Specialization:
Students in the Biomedical Specialization should take BIOL 1410 (Fall) and BIOL 1412 (Winter) in the elective slots of third year.

Bioresource Specialization:
Students in the Bioresource Specialization should take BIOE 2600 (alternatively ANSC 3530 in the Winter of second year or PLNT 2510 in the Fall of third year) and SOIL 4060 in the Winter of third year.

Environmental Specialization:
Students in the Environmental Specialization should take BIOE 2600 (alternatively BIOL 2300 in the Winter of second year or AGEC 2370 in the Fall of third year) and SOIL 4060 in the Winter of third year.

1. PLNT 2510 is only offered in the fall every two years.