BS AGRICULTURAL SYSTEMS MANAGEMENT

Program Learning Objectives

1. An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
2. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;
3. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
4. An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives;
5. An ability to function effectively as a member or leader on a technical team;
6. An ability to identify, analyze, and solve broadly-defined engineering technology problems;
7. An ability to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
8. An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives;
9. An ability to function effectively as a member or leader on a technical team;
10. An understanding of the need for and an ability to engage in self-directed continuing professional development;
11. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
12. A knowledge of the impact of engineering technology solutions in a societal and global context; and
13. A commitment to quality, timeliness, and continuous improvement.

Degree Requirements and Curriculum

In addition to the program requirements listed on this page, students must also satisfy requirements outlined in more detail in the Minimum Requirements for Graduation (http://catalog.calpoly.edu/generalrequirementsbachelorsdegree/#generaleducationtext) section of this catalog, including:

- 60 units of upper division courses
- Graduation Writing Requirement (GWR)
- 2.0 GPA
- U.S. Cultural Pluralism (USCP)

Note: No major or support courses may be selected as credit/no credit.

MAJOR COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRAE 128</td>
<td>Careers in Bioresource and Agricultural Engineering</td>
<td>2</td>
</tr>
<tr>
<td>BRAE 129</td>
<td>Laboratory Skills and Safety</td>
<td>1</td>
</tr>
<tr>
<td>BRAE 133</td>
<td>Introduction to Engineering Design Graphics</td>
<td>1</td>
</tr>
<tr>
<td>BRAE 142</td>
<td>Agricultural Power and Machinery Management</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 151</td>
<td>CAD for Agricultural Engineering</td>
<td>1</td>
</tr>
<tr>
<td>BRAE 152</td>
<td>3-D Solids Modeling</td>
<td>1</td>
</tr>
</tbody>
</table>

SUPPORT COURSES

- AGB 212 Agricultural Economics 4
- AGB 301 Food and Fiber Marketing 4
- AGB 310 Agribusiness Credit and Finance 4
- AGB 369 Agricultural Personnel Management 4
- BUS 212 Financial Accounting for Nonbusiness Majors 4
- or AGB 214 Agribusiness Financial Accounting 4
- CHEM 110 World of Chemistry (B3&B4) 4
- or CHEM 127 General Chemistry for Agriculture and Life Science I 4
- ENGL/COMS 145 Reasoning, Argumentation, and Writing (A3) 4
- or ENGL 148 Reasoning, Argumentation and Professional Writing 4

Select from the following:

- MATH 119 Precalculus Trigonometry (B1) 4
- STAT 217 Introduction to Statistical Concepts and Methods
- or STAT 218 Applied Statistics for the Life Sciences 4
- MATH 221 Calculus for Business and Economics (B1) 4
- PHYS 121 College Physics I 4
- SS 121 Introductory Soil Science 4

Any AEPS, ASCI, DSCI course except for internship or enterprise courses.

GENERAL EDUCATION (GE)

(See GE program requirements below.) 52

FREE ELECTIVES
BS Agricultural Systems Management

Free Electives

Total units 0

Total units 180-182

Approved Electives

Minimum of 6 units must be upper division

No more than 4 units of internship or enterprise may be used

Select from the following:

- Any AGB course eligible for the Agribusiness minor
- AGED 102 Introduction to Agricultural Education
- BRAE 200 Special Problems for Undergraduates (4 units maximum)
- BRAE 236 Principles of Irrigation
- BRAE 302 Servo Hydraulics
- BRAE 331 Irrigation Theory
- BRAE 335 Internal Combustion Engines
- BRAE 337 Landscape Irrigation
- BRAE 344 Fabrication Systems
- BRAE 345 Aerial Photogrammetry and Remote Sensing
- BRAE 400 Special Problems (4 units maximum)
- BRAE 405 Chemigation
- BRAE/EE 434 Automotive Engineering for a Sustainable Future
- BRAE 435 Drainage
- BRAE 438 Drip/Micro Irrigation
  or BRAE 440 Agricultural Irrigation Systems
- BRAE 447 Advanced Surveying with GIS Applications
- BRAE 448 Bioconversion
- BRAE 450 Solar Photovoltaic System Engineering
- BRAE 532 Water Wells and Pumps
- CHEM 212 Introduction to Organic Chemistry
- FSN 125 Introduction to Food Science
- FSN 204 Food Processing Operations
- FSN 230 Elements of Food Processing
- FSN 275 Elements of Food Safety
- FSN 330 Introduction to Principles of Food Engineering
- FSN 334 Food Packaging
- FSN 341 Fermented Foods
- FSN 354 Packaging Function in Food Processing
- FSN 370 Food Plant Sanitation and Prerequisite Programs
- FSN 375 Food Safety
- FSN 444 Food Engineering
- IME 141 Manufacturing Processes: Net Shape
- IME 142 Manufacturing Processes: Materials Joining
- IME 143 Manufacturing Processes: Material Removal
- IME 144 Introduction to Design and Manufacturing
- IME 157 Electronics Manufacturing
- IME 319 Human Factors Engineering
- IME 320 Human Factors and Technology
- ITP 330 Packaging Fundamentals
- ITP 341 Packaging Polymers and Processing
- NR/LA 218 Introduction to Geographic Information Systems (GIS)
- NR 306 Natural Resource Ecology and Habitat Management
- NR/CRP 408 Water Resource Law and Policy
- NR 416 Environmental Impact Analysis and Management
- SS 221 Soil Health and Plant Nutrition

Plant or Animal Production Course

Any AEPS, ASCI, DSCI course except for internship or enterprise courses

Total units 14

\[1\] Required in Major or Support; also satisfies GE.

\[2\] Consultation with advisor is recommended prior to selecting approved electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

General Education (GE) Requirements

- 72 units required, 20 of which are specified in Major and/or Support.
- See the complete GE course listing (http://catalog.calpoly.edu/generalrequirementsbachelorsdegree/#generaleducationtext).
- Minimum of 12 units required at the 300 level.

Area A Communication

<table>
<thead>
<tr>
<th>Area</th>
<th>Requirement</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Expository Writing</td>
<td>4</td>
</tr>
<tr>
<td>A2</td>
<td>Oral Communication</td>
<td>4</td>
</tr>
<tr>
<td>A3</td>
<td>Reasoning, Argumentation and Writing (4 units in Support)</td>
<td>0</td>
</tr>
</tbody>
</table>

Area B Science and Mathematics

<table>
<thead>
<tr>
<th>Area</th>
<th>Requirement</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Mathematics/Statistics (8 units in Support)</td>
<td>0</td>
</tr>
<tr>
<td>B2</td>
<td>Life Science</td>
<td>4</td>
</tr>
<tr>
<td>B3</td>
<td>Physical Science (4 units in Support)</td>
<td>0</td>
</tr>
<tr>
<td>B4</td>
<td>One lab taken with either a B2 or B3 course</td>
<td></td>
</tr>
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Area C Arts and Humanities

<table>
<thead>
<tr>
<th>Area</th>
<th>Requirement</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Literature</td>
<td>4</td>
</tr>
<tr>
<td>C2</td>
<td>Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>C3</td>
<td>Fine/Performing Arts</td>
<td>4</td>
</tr>
<tr>
<td>C4</td>
<td>Upper-division elective</td>
<td>4</td>
</tr>
<tr>
<td>C5</td>
<td>(Choose one course from C1-C5)</td>
<td>4</td>
</tr>
</tbody>
</table>

Area D/E Society and the Individual

<table>
<thead>
<tr>
<th>Area</th>
<th>Requirement</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>The American Experience (Title 5, Section 40404 requirement)</td>
<td>4</td>
</tr>
<tr>
<td>D2</td>
<td>Political Economy</td>
<td>4</td>
</tr>
<tr>
<td>D3</td>
<td>Comparative Social Institutions</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Course Description</td>
<td>Units</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>D4</td>
<td>Self Development (CSU Area E)</td>
<td>4</td>
</tr>
<tr>
<td>D5</td>
<td>Upper-division elective</td>
<td>4</td>
</tr>
<tr>
<td>F</td>
<td>Upper-division elective (4 units in Major)</td>
<td>0</td>
</tr>
</tbody>
</table>

**Area F  Technology**

Total units 52

1 Required in Major or Support; also satisfies GE.