

# Bachelor of Science in Mechanical Engineering

## Sample Plan

The academic plan below is one pathway through the degree/certificate. It includes all requirements, taking into account recommendations from program faculty. Each student's plan may vary according to their initial course placement (<http://catalog.uaa.alaska.edu/academicpoliciesprocesses/academicstandardsregulations/courseplacement/>), intended course load, additional majors and/or minors, and their placement into required prerequisite courses. Any change in the plan below can have an unforeseen impact on the rest of the plan. **Therefore, it is very important to meet with your academic advisor to verify your personal academic plan.**

**Please review the following terms, definitions, and resources associated with the sample academic plan below.**

- Each course in the far left column links to a pop-up bubble with a course description, prerequisite requirements, and associations with university requirements. For example, if a course fulfills a general education requirement, you will see that in the pop-up bubble.
- **GER:** indicates a General Education Requirement (<http://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/gers/>). GERs that also count toward degree/certificate requirements appear as a specific course in the plan. For these courses, "GER" is not indicated explicitly in the table, but if you click on the course, you will see the course's GER status in the pop-up bubble.
- **Program Elective:** indicates a specific course selection determined by program faculty to fulfill a degree/certificate requirement. Students should seek assistance from their academic advisor.
- **Elective:** indicates an open selection of 100-400 level university courses to fulfill elective credits needed to meet the minimum total credits toward the degree/certificate.
- **Upper Division Program Elective:** indicates a specific 300-400 level course selection determined by the program faculty to fulfill a degree/certificate requirement. Students should seek assistance from their academic advisor.
- **Upper Division Elective:** indicates an open selection of 300-400 level courses to fulfill elective credits needed to meet the minimum total credits toward the degree/certificate. These courses must be upper division in order to meet General University Requirements for the particular degree/certificate type.

### First Year

Fall		Credits
CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
ENGR A151	Introduction to Engineering	1
MATH A251	Calculus I	4-6
or	or F.A.T. Calculus I	
MATH A251F		

WRTG A111	Writing Across Contexts	3
GER Oral Communication Skills		3
<b>Credits</b>		<b>15-17</b>

### Spring

ES A106	Engineering Graphics	2
MATH A252	Calculus II	4-6
or	or F.A.T. Calculus II	
MATH A252F		
PHYS A211	General Physics I <sup>1</sup>	3
PHYS A211L	General Physics I Laboratory	1
GER Humanities <sup>2</sup>		3
GER Written Communication Skills (200-level)		3
<b>Credits</b>		<b>16-18</b>

### Second Year

#### Fall

ES A209	Statics	3
ES A261	Introduction to Engineering Computation	3
MATH A253	Calculus III	4
PHYS A212	General Physics II	3
PHYS A212L	General Physics II Laboratory	1
GER Social Sciences		3
<b>Credits</b>		<b>17</b>

#### Spring

ES A210	Dynamics	3
ES A331	Mechanics of Materials	3
ES A346	Introduction to Thermodynamics	3
MATH A302	Ordinary Differential Equations	3
ME A203	Machine Design I	3
<b>Credits</b>		<b>15</b>

### Third Year

#### Fall

EE A203	Fundamentals of Electrical Engineering I	3
ME A303	Machine Design II	3
ME A306	Dynamics of Systems	3
ME A334	Materials Science	3
ME A334L	Materials Science Laboratory	1
STAT A307	Probability and Statistics	4
<b>Credits</b>		<b>17</b>

#### Spring

ES A341	Fluid Mechanics	3
ME A308	Instrumentation and Measurement	3
ME A341L	Fluid Mechanics Lab	1
ME A403	Machine Design III	3
GER Humanities <sup>2</sup>		3
<b>Credits</b>		<b>13</b>

### Fourth Year

#### Fall

ME A414	Thermal System Design	3
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ME A414L	Thermal System Design Lab	1
ME A441	Heat and Mass Transfer	3
GER Social Sciences		3
Program Elective (Advanced Engineering)		3
Program Elective (Advanced Engineering)		3
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
ESM A450 or BA A300	Economic Analysis and Operations or Organizational Theory and Behavior	3
ME A438	Design of Mechanical Engineering Systems	3
GER Fine Arts		3
Program Elective (Advanced Engineering)		3
Program Elective (Advanced Engineering)		3
<b>Credits</b>		<b>15</b>
<b>Total Credits</b>		<b>124-128</b>

<sup>1</sup> In addition to mathematics prerequisites, this course requires completion of either *PHYS A130* or a minimum score of 18 on UAA's *Physics Placement Exam*. Students who have had physics in high school should consider the *Physics Placement Exam*, and can get more information from an advisor.

<sup>2</sup> Choose a course that also fulfills the *Alaska Native-Themed GER* or *Diversity & Inclusion GER*.