

Course Sequence for the Bachelor of Science in Engineering (BSE) with Specialty in Mechanical Engineering

Freshman Year Fall Semester		Lecture	Lab	Credit Hrs.
CHEM A105	General Chemistry I	3		3
CHEM A105L	General Chemistry I Lab		1	1
ENGL A111	Methods of Written Comm.	3		3
ENGR A151	Engineering Practices I	3		3
ENGR A192	Engineering Seminar I	1		1
MATH A200	Calculus I	4		4
Soc Sci/Hum/Fine Arts		3		3
Semester Total				18

Freshman Year Spring Semester		Lecture	Lab	Credit Hrs.
CHEM A106	General Chemistry II	3		3
CHEM A106L	General Chemistry II Lab		1	1
ENGL A212	Technical Writing	3		3
ENGR 105A, B, C	Computer Aided Design I, II, II	1	2	3
ENGR A161	Engineering Practices II	3		3
MATH A201	Calculus II	4		4
Semester Total				17

Sophomore Year Fall Semester		Lecture	Lab	Credit Hrs.
COMM A111	Fund. Oral Comm.	3		3
ENGR A251	Engineering Practices III	3		3
ENGR A292	Engineering Seminar II	1		1
MATH A202	Calculus III	4		4
PHYS A211	General Physics I	3		3
PHYS A211L	General Physics I Lab		1	1
Soc Sci/Hum/Fine Arts		3		3
Semester Total				18

Sophomore Year Spring Semester		Lecture	Lab	Credit Hrs.
ES A208	Mechanics (Statics & Dynamics)	4		4
ES A302	Engineering Data Analysis	3		3
MATH A302	Ordinary Differential Equations	3		3
PHYS A212	General Physics II	3		3
PHYS A212L	General Physics II Lab		1	1
ES A346	Basic Thermodynamics	3		3
Semester Total				17

Junior Year Fall Semester		Lecture	Lab	Credit Hrs.
ES A309	Elements of Electrical Engr.	3		3
ES A331	Mechanics of Materials	3		3
ES A341	Fluid Mechanics	3	1	4
MATH	Advanced Math Elective	3		3
ME A302	Machine Design I	3	1	4
Semester Total				17

Junior Year Spring Semester		Lecture	Lab	Credit Hrs.
ME A308	Instrumentation & Meas.	3		3
ME A313	Mechanical Engr. Thermodynamics.	3		3
ME A334	Elements of Material Science	3		3
Soc Sci/Hum/Fine Arts		3		3
Soc Sci/Hum/Fine Arts		3		3
Semester Total				15

Senior Year Fall Semester		Lecture	Lab	Credit Hrs.
ME A403	Mechanical Design II	3		3
ME A414	Thermal Systems Design	3		3
ME A441	Heat & Mass Transfer	3		3
	Advanced Engineering/Science Elective	3		3
	Advanced Engineering/Science Elective	3		3
Semester Total				15

Senior Year Spring Semester		Lecture	Lab	Credit Hrs.
ME A438	Design of Electrical Engr. Systems	3		3
ESM A450	Economic Analysis & Operation	3		3
	Advanced Engineering/Science Elective	3		3
	Advanced Engineering/Science Elective	3		3
	Soc Sci/Hum/Fine Arts	3		3
	FE Exam (recommended)	0		0
Semester Total				15

Credit Summary

Total for Freshman & Sophomore Years	70
Total for Junior & Senior Years	62
Total Credits for Degree	132

Advanced Mathematics Electives (3 credits)

BSE students are required to take one course from the following list of advanced mathematical elective courses.

<u>Course Number</u>	<u>Description</u>	<u>Credit</u>
MATH A310	Numerical Methods	3
MATH A314	Linear Algebra	3
MATH A321	Analysis of Several Variables	3
MATH A371	Stochastic Processes	3
MATH A407	Mathematical Statistics I	3
MATH A410	Introduction to Complex Analysis	3
MATH A422	Partial Differential Equations	3
MATH A423	Advanced Mathematics for Engineers	3

Mechanical Engineering Emphasis Electives

Mechanical Engineering specialty students are required to take 12 credits from the following list of elective courses.

<u>Course Number</u>	<u>Description</u>	<u>Credit</u>
AEST A608	Fundamentals of Air Pollution	3
CE A441	Water & Waste Systems Engineering	3
CE A442	Environmental Systems Design	3
CE A600	Fundamentals of Environ. Sci. & Engr.	3
CE A603	Arctic Engineering	3
***ES A411 Northern Design or CE A403/CE A603 Arctic Engineering		3
ME/EE A408	Dynamics of Systems	3
ME/EE A471	Automatic Control	3
ME A664	Corrosion Processes & Engineering	3
ME A685	Arctic Heat & Mass Transfer	3
ME A687	Arctic Materials Engineering	3

***Note: Only one of the following courses may count towards the BSE degree: ES A411, CE A403, or CE A603. Each of these courses satisfies the Arctic engineering course requirement for professional registration by the State of Alaska.