

# B.S. IN AEROSPACE ENGINEERING AND B.S. IN MECHANICAL ENGINEERING DUAL DEGREE

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## Curriculum Requirements

Code	Title	Credit Hours
<b>Engineering Courses</b>		
CAE 210	Mechanics of Solids I	3
ECE 205	Principles of Electrical Engineering-I	3
ISE 311	Applied Probability and Statistics	3
MAE 112	Introduction to Engineering II	2
MAE 202	Dynamics	3
EGN 123	Computing and Digital Solutions for the future	3
or EGN 114	Global Challenges Addressed by Engineering and Technology	
or EGN 110	Innovation and Entrepreneurship in Engineering	
MAE 207	Mechanics of Solids II	3
MAE 241	Measurements Laboratory	3
MAE 301	Engineering Materials Science	3
MAE 302	Mechanical Behavior of Materials	3
MAE 303	Thermodynamics	3
MAE 309	Fluid Mechanics	3
MAE 310	Heat Transfer	3
MAE 341	Mechanical Design I	3
MAE 342	Mechanical Design II	3
MAE 351	Mechanics Laboratory	2.00
MAE 362	Computer Analysis of Mechanical and Aerospace Engineering Problems	3
MAE 371	Aerodynamics	3
MAE 404	Experimental Engineering Laboratory	2.00
MAE 412	System Dynamics	3
MAE 415	Automatic Control	3
MAE 441	Design of Fluid and Thermal Systems	3
MAE 444	Capstone Aerospace Design Project-I	3
MAE 445	Capstone Aerospace Design Project-II	3
MAE 446	Aircraft Design	3
MAE 470	Introduction to Aerospace Structures	3
MAE 471	Flight Dynamics	3
MAE 472	Design of Aerospace Structures	3
MAE Technical Elective		9
MAE 473	Aerospace Propulsion	3
Technical Elective		3
<b>Math and Science Courses</b>		
MTH 151	Calculus I for Engineers	5
MTH 162	Calculus II	4
MTH 211	Calculus III	3
MTH 311	Introduction to Ordinary Differential Equations	3
CHM 151	Chemistry for Engineers	3
CHM 153	Chemistry Laboratory for Engineers	1
PHY 221	University Physics I	3

PHY 222	University Physics II	3
PHY 223	University Physics III	3
PHY 224	University Physics II Lab	1
PHY 225	University Physics III Lab	1
<b>General Education Requirements</b>		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 107	First-Year Writing II: STEM	3
Quantitative Skills:		
MTH 151	Calculus I for Engineers (fulfilled through the major)	
Areas of Knowledge:		
Arts and Humanities Cognate		9
People and Society Cognate		9
STEM Cognate (9 credits) (fulfilled through either major)		
<b>Total Credit Hours</b>		<b>150</b>

## Plan of Study

<b>Freshman Year</b>		
<b>Fall</b>		<b>Credit Hours</b>
WRS 105	First-Year Writing I	3
EGN 123, 114, or 110	Computing and Digital Solutions for the future or Global Challenges Addressed by Engineering and Technology or Innovation and Entrepreneurship in Engineering	3
MTH 151	Calculus I for Engineers	5
PHY 221	University Physics I	3
<b>Credit Hours</b>		<b>14</b>
<b>Spring</b>		
MAE 112	Introduction to Engineering II	2
CAE 210	Mechanics of Solids I	3
WRS 107	First-Year Writing II: STEM	3
MTH 162	Calculus II	4
PHY 222	University Physics II	3
PHY 224	University Physics II Lab	1
<b>Credit Hours</b>		<b>16</b>
<b>Sophomore Year</b>		
<b>Fall</b>		
MAE 207	Mechanics of Solids II	3
ISE 311	Applied Probability and Statistics	3
MTH 211	Calculus III	3
PHY 223	University Physics III	3
PHY 225	University Physics III Lab	1
PS Cognate (PS Elective) <sup>1</sup>		3
<b>Credit Hours</b>		<b>16</b>
<b>Spring</b>		
MAE 202	Dynamics	3
MAE 241	Measurements Laboratory	3
CHM 151	Chemistry for Engineers	3
CHM 153	Chemistry Laboratory for Engineers	1
ECE 205	Principles of Electrical Engineering-I	3
HA Cognate (HA Elective) <sup>1</sup>		3
<b>Credit Hours</b>		<b>16</b>

<b>Junior Year</b>		
<b>Fall</b>		
MAE 302	Mechanical Behavior of Materials	3
MAE 303	Thermodynamics	3
MAE 309	Fluid Mechanics	3
MAE 341	Mechanical Design I	3
MTH 311	Introduction to Ordinary Differential Equations	3
PS Cognate (HA Elective) <sup>1</sup>		3
<b>Credit Hours</b>		<b>18</b>
<b>Spring</b>		
MAE 301	Engineering Materials Science	3
MAE 310	Heat Transfer	3
MAE 351	Mechanics Laboratory	2
MAE 371	Aerodynamics	3
MAE 362	Computer Analysis of Mechanical and Aerospace Engineering Problems	3
MAE 470	Introduction to Aerospace Structures	3
<b>Credit Hours</b>		<b>17</b>
<b>Senior Year</b>		
<b>Fall</b>		
MAE 404	Experimental Engineering Laboratory	2
MAE 444	Capstone Aerospace Design Project-I	3
MAE 446	Aircraft Design	3
MAE 471	Flight Dynamics	3
MAE 472	Design of Aerospace Structures	3
MAE 473	Aerospace Propulsion	3
<b>Credit Hours</b>		<b>17</b>
<b>Spring</b>		
MAE 415	Automatic Control	3
MAE 445	Capstone Aerospace Design Project-II	3
MAE Technical Elective <sup>2</sup>		3
MAE 342	Mechanical Design II	3
MAE Technical Elective <sup>2</sup>		3
HA Cognate (HA Elective) <sup>1</sup>		3
<b>Credit Hours</b>		<b>18</b>
<b>Fifth Year</b>		
<b>Fall</b>		
MAE 441	Design of Fluid and Thermal Systems	3
MAE 412	System Dynamics	3
MAE Technical Elective <sup>2</sup>		3
Technical Elective <sup>2</sup>		3
PS Cognate (Adv. PS Elective) <sup>1</sup>		3
HA Cognate (Adv. HA Elective) <sup>1</sup>		3
<b>Credit Hours</b>		<b>18</b>
<b>Total Credit Hours</b>		<b>150</b>

<sup>1</sup> You must complete a minimum of 1 PS cognate and 1 HA cognate to be selected from the list of available cognates. Each cognate should be a minimum of three courses (9 credit hours).

<sup>2</sup> Technical Electives are advanced courses in mathematics, science or engineering, approved by the Faculty Advisor, as appropriate for individual objectives.