

B.S. in Mechanical Engineering

General Education Requirements

For a full description of Embry-Riddle General Education guidelines, please see the General Education section of this catalog. These minimum requirements are applicable to all degree programs.

Communication Theory & Skills (COM 122, COM 219, COM 221)	9
Lower-Level Humanities	3
Lower-Level Social Sciences (EC 225 required)	3
Lower or Upper-Level Humanities or Social Sciences	3
Upper-Level Humanities or Social Sciences	3
Computer Science (EGR 115)	3
Mathematics (MA 241 & MA 242)	8
Physical and Life Sciences - (PS 150, PS 160 & PS 253)	7

Total Credits **39**

UNIV 101	College Success	1
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Mathematics

MA 243	Calculus and Analytical Geometry III	4
MA 345	Differential Equations and Matrix Methods	4

Physical Science

CHM 110	General Chemistry I	3
CHM 110L	General Chemistry I Laboratory	1
PS 250	Physics for Engineers III	3

Engineering Sciences Core

EE 327	Electrical Engineering Fundamentals	3
EGR 101	Introduction to Engineering	2
EGR 120	Graphical Communications	3
ES 201	Statics	3
ES 202	Solid Mechanics	3
ES 204	Dynamics	3
ES 305	Thermodynamics	3
ES 309	Fluid Dynamics	3
ES 320	Engineering Materials Science	2
ES 321	Engineering Materials Science Laboratory	1
ES 403	Heat Transfer	3

Mechanical Engineering Core

ME 208	Manufacturing Laboratory	1
ME 325	Modeling and Simulation of Complex Engineering Problems	2
ME 326	Modeling and Simulation of Complex Engineering Problems Lab	1
ME 304	Introduction to Machine Design	3
ME 313	Instrumentation and Data Acquisition	2
ME 314	Instrumentation and Data Acquisition Laboratory	1
ME 400	Mechanical Vibrations	3
ME 436	Advanced Machine Design	3
ME 438	Model-Based Control System Design	2
ME 438L	Model-Based Control System Design Laboratory	1

Professional Development Elective *	3
Technical Electives **	6

Total Credits **73**

* CEME 396 or AF 402/MSL 402/NSC 402 or ME 540 will satisfy this requirement.

** There are a number of 300-500 level courses from other departments that are equivalent to existing required courses in the BSME curriculum and therefore cannot be used as Technical Electives. Please consult with the BSME Program Coordinator or Academic Advisor before enrolling in any Technical Elective course to make sure it will apply to your BSME program of study.

Biomedical Systems Track Courses*

ME 320	Fundamentals of Biomechanics	3
ME 442	Biofluid Mechanics	3
ME 460	Biosolid Mechanics	3
ME 448	Preliminary Design in Biomedical Systems	4
ME 458	Senior Design in Biomedical Systems	4

Total Credits **17**

* Students may also select from the following courses as upper level technical electives: CHM 310/CHM 310L, HF 312, HF 326, HF 440, BIO 305/BIO 305L, BIO 306/BIO 306L, BIO 405/405L, or BIO 440

Energy Systems Track Courses

ME 316	Thermodynamics II	3
ME 443	Heating, Ventilation, and Air-Conditioning	3
ME 445	Sustainable Design	3
ME 414	Preliminary Design for Energy Systems	4
ME 434	Senior Design for Energy Systems	4

Total Credits **17**

High Performance Vehicles Track Courses

ME 303	Longitudinal and Vertical Vehicle Dynamics	3
ME 409	Vehicle Aerodynamics	3
ME 439	Combined Vehicle Dynamics	3
ME 413	Preliminary Design for High Performance Vehicles with Laboratory	4
ME 433	Senior Design for High Performance Vehicles with Laboratory	4

Total Credits **17**

Robotics and Autonomous Systems Track Courses

ME 311	Robotics Technologies for Unmanned Systems	3
ME 402	Robotic Arms	3
ME 404	Mechatronics	3
ME 407	Preliminary Design for Robotic Systems with Laboratory	4
ME 437	Senior Design for Robotic Systems with Laboratory	4

Total Credits **17**

Total Degree Credits **129**