



### Mechatronics Engineering Bachelor of Science (83 credit hours)

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Mechatronics Engineering is the multidisciplinary union of mechanical, electrical, and computer engineering with application towards the design and control of electromechanical systems. Students pursuing a degree in mechatronics engineering will be exposed to topics from each of these disciplines, capped off by a course in Mechatronics System Design.

#### **21 credit hours from the Common Engineering Core:**

- CPSC 2320: C++ Programming, 1 credit hour<sup>1</sup>
- ENGR 2001: Introduction to Engineering, 1 credit hour
- ENGR 2002: Introduction to Mechanical Laboratory, 1 credit hour
- ENGR 2003: Introduction to Electrical and Computer Laboratory, 1 credit hour
- ENGR 2010: Statics, 2 credit hours
- ENGR 2030: Circuit Analysis, 3 credit hours
- ENGR 2090: Systems Engineering, 3 credit hours<sup>2</sup>
- ENGR 2110: Dynamics, 2 credit hours
- ENGR 2310: Computational Problem Solving, 3 credit hours
- ENGR 4950: Senior Design I, 2 credit hours<sup>3</sup>
- ENGR 4960: Senior Design II, 2 credit hours<sup>4</sup>

#### **31 credit hours of Mathematics and Basic Sciences:**

- CHEM 2110: General Chemistry I, 4 credit hours<sup>5</sup>
- MATH 2010: Calculus I, 4 credit hours<sup>6</sup>
- MATH 2020: Calculus II, 4 credit hours
- MATH 3010: Linear Algebra with Differential Equations, 4 credit hours
- MATH 3100: Differential Equations, 3 credit hours
- MATH 4010: Mathematical Statistics, 4 credit hours  
OR MATH 3020: Calculus III, 4 credit hours  
OR CPSC 2250: Discrete Mathematics, 4 credit hours
- PHYS 2240: General Physics I, 4 credit hours
- PHYS 2250: General Physics, II, 4 credit hours

#### **31 credit hours of major specific requirements:**

- ENGR 3030: Signals and Controls, 3 credit hours
- ENGR 3110: Kinematics and Robotics, 4 credit hours
- ENGR 3220: Electronics, 3 credit hours
- ENGR 3280: Microcontrollers, 3 credit hours
- ENGR 3510: Solid Mechanics, 4 credit hours
- ENGR 4020: Mechatronics System Design, 4 credit hours
- Minimum of 3 hours from
  - ENGR 3160: Vibrations (2 credit hours)
  - ENGR 4030: Advanced Control (3 credit hours)
  - ENGR 4110: Machine Design (3 credit hours)

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<sup>1</sup> May also be fulfilled with CPSC 2500.

<sup>2</sup> This course fulfills the Global/Intercultural Ways of Knowing requirement in the Liberal Arts Program

<sup>3</sup> This is a Writing Intensive course in the Liberal Arts Program.

<sup>4</sup> This is both a Writing and Speaking Intensive course in the Liberal Arts Program.

<sup>5</sup> This course fulfills the Scientific Ways of Knowing requirement in the Liberal Arts Program.

<sup>6</sup> This course fulfills the Quantitative Ways of Knowing Requirement in the Liberal Arts Program.

Questions? Please contact the [Department of Physical Sciences & Engineering](#).

- ENGR 4130: Fluid Mechanics (4 credit hours)
- Approved 3000 or 4000 level engineering elective
- Remaining hours from 3000 level and above courses in CPSC, ENGR, MATH, or PHYS

**NOTE:** All students must complete 120 total credit hours to graduate from Anderson University.

Proposed Course Sequence:

Freshman:	MATH 2010, CHEM 2110, ENGR 2001, 2002, 2003; MATH 2020, PHYS 2240, ENGR 2310
Sophomore:	MATH 3010, PHYS 2250, ENGR 2010, 2110, CPSC 2320; MATH 3100, ENGR 2030, 2090
Junior:	ENGR 3030, 3110, 3220; ENGR 3510, MxE Electives
Senior:	ENGR 3280, 4950, MATH 4010; ENGR 4020, 4960, MxE Electives

Common Engineering Core Suggested Course Sequence

SEMESTER 1		SEMESTER 2	
MATH 2010	4 Hours	MATH 2020	4 Hours
CHEM 2110	4 Hours	PHYS 2240	4 Hours
ENGR 2001, 2002, 2003	3 Hours	ENGR 2310	3 Hours
ENGL 1100/ENGL 1110	3-4 Hours	ENGL 1120	3 Hours
LART 1050	1 Hour	Personal Wellness	2 Hours

SEMESTER 3		SEMESTER 4	
MATH 3010	4 Hours	MATH 3100	3 Hours
PHYS 2250	4 Hours	ENGR 2030	3 Hours
ENGR 2010/2110	2+2 Hours	ENGR 2090 (Global/Intercultural Ways of Knowing)	3 Hours
CPSC 2320	1 Hour	Foreign Language	4 Hours
COMM 1000	3 Hours		

Mechatronics Engineering Major Suggested Course Sequence

SEMESTER 5		SEMESTER 6	
ENGR 3220	3 Hours	ENGR 3510	4 Hours
ENGR 3110	4 Hours	Christian Ways of Knowing	3 Hours
ENGR 3030	3 Hours	Aesthetic Ways of Knowing	3 Hours
BIBL 2000	3 Hours	MxE Electives	
Critical Reasoning	2 Hours	MxE Electives	

SEMESTER 7		SEMESTER 8	
ENGR 3280	3 Hours	ENGR 4020	4 Hours
MATH 4010	4 Hours	ENGR 4960	2 Hours
ENGR 4950	2 Hours	MxE Electives	
Social/Behavioral Ways of Knowing	3 Hours	MxE Electives	
Civic Ways of Knowing	3 Hours		

Questions? Please contact the [Department of Physical Sciences & Engineering](#).