

# Mechatronics, BS

The Bachelor of Science in Mechatronics is designed to provide students with an interdisciplinary set of skills that will enable them to successfully compete in today's fast-changing manufacturing environment. The program is designed to equip students with the knowledge and relevant experience in the four major areas that compose mechatronics and to help students play key roles in the Fourth Industrial Revolution—mechanical systems, electrical systems, control systems, and computer engineering. Successful graduates will understand in-depth the engineering fundamentals, the related technologies, and their integration in robotic and mechatronic devices and automation systems.

## Program Requirements

- Concentrations and course offerings may vary by campus and/or by program modality. Please consult with your advisor or admissions coach for the course availability each term at your campus or within your program modality.
- Certain options within the program may be *required* at certain campuses or for certain program modalities. Please consult with your advisor or admissions coach for requirements at your campus or for your program modality.

Complete all courses listed below unless otherwise indicated.

### Universitywide Requirement

Minimum 120 total semester hours required.

Minimum 2.000 GPA required.

Students must earn a minimum of 60 Northeastern University semester hours in order to receive a bachelor's degree.

*Note:* Individual program requirements may exceed the above minima.

### NUpath Requirements

All undergraduate students are required to complete the NUpath requirements (<https://catalog.northeastern.edu/professional-studies/university-academics/nupath/>).

### General Education Courses

21 semester hours required

Code	Title	Hours
CMN 1100	Organizational Communication	3
ECN 1200	Principles of Macroeconomics	3
ENG 1105 and ENG 1106	College Writing 1 and Lab for ENG 1105	4
ENG 1107 and ENG 1108	College Writing 2 and Lab for ENG 1107	4
ENG 3105 and ENG 3106	Writing for the Professions: Science and Engineering and Lab for ENG 3105	4
ITC 3620	Legal and Ethical Issues in Cybersecurity	3

### Engineering Education Courses

22 semester hours required

Code	Title	Hours
GET 1150	Foundations of Engineering Graphics and Design	3
GET 2100	Computer Engineering Programming and Analysis	3
MET 3300	Engineering Materials Science	3
MTH 2100	Calculus 1	3
MTH 2105	Calculus 2	3
MTH 3300	Applied Probability and Statistics	3
PHY 1200 and PHY 1201	Physics 1 and Lab for PHY 1200	4

**Fundamental Mechatronics Courses**

36 semester hours required

Code	Title	Hours
CET 2100	Essentials of Computer Organization	3
CET 2200	Data Structures and Algorithms	3
CET 2210	Industrial Robotics	3
CET 3100	Computer Networking and Communications Technology	3
EET 2005 and EET 2006	Circuits AC/DC and Lab for EET 2005	5
EET 3100 and EET 3101	Electronics 1 and Lab for EET 3100	5
EET 3200 and EET 3201	Electronics 2 and Lab for EET 3200	5
MET 2100	Mechanics 1: Statics	3
MET 2200	Mechanics 2: Dynamics (Linear Systems)	3
MET 4100	Mechanical Engineering Systems Design	3

**Advanced Mechatronics Courses**

21 semester hours required

Code	Title	Hours
AVM 4100	Mechatronics	3
AVM 4150	Automation 1	3
AVM 4160	Automation 2	3
AVM 4250	Hydraulics and Pneumatics	3
CET 4210	Robotics	3
EET 3300	Digital Logic	3
MET 2000	Engineering Computer-Aided Design and Tolerance Analysis	3

**Capstone Project**

6 semester hours required

Code	Title	Hours
GET 4840	Engineering Technology Capstone Project Preparation and Proposal	2
GET 4850	Engineering Technology Capstone Project Execution	4

**Electives**

Code	Title	Hours
Complete electives to meet total program required hours. Suggested electives are:		
AVM 3500	Business Operations and Supply Chain	
AVM 4300	Advanced Manufacturing and Additive Processes	
CHM 1100	General Chemistry 1	
EET 3750	Linear Systems	
EET 3800	Control Systems	
ITC 1200	Operating Systems Concepts	

**Plan of Study****Sample Plan of Study**

Term 1	Hours
CET 2100	3
ENG 1105 and ENG 1106	4
GET 1150	3
MTH 2100	3

PHY 1200 and PHY 1201		4
		<b>17</b>
<b>Term 2</b>	<b>Hours</b>	
EET 2005 and EET 2006		5
EET 3300		3
GET 2100		3
MET 2000		3
MTH 2105		3
		<b>17</b>
<b>Term 3</b>	<b>Hours</b>	
CET 2200		3
CET 2210		3
ENG 1107 and ENG 1108		4
MET 2100		3
MTH 3300		3
		<b>16</b>
<b>Term 4</b>	<b>Hours</b>	
CET 3100		3
EET 3100 and EET 3101		5
Elective		3
MET 2200		3
MET 3300		3
		<b>17</b>
<b>Term 5</b>	<b>Hours</b>	
AVM 4250		3
CET 4210		3
EET 3200 and EET 3201		5
Elective		3
MET 4100		3
		<b>17</b>
<b>Term 6</b>	<b>Hours</b>	
CMN 1100		3
ECN 1200		3
Elective		3
ENG 3105 and ENG 3106		4
		<b>13</b>
<b>Term 7</b>	<b>Hours</b>	
AVM 4100		3
AVM 4150		3
Elective		3
GET 4840		2
ITC 3620		3
		<b>14</b>
<b>Term 8</b>	<b>Hours</b>	
AVM 4160		3
Elective		3

4 Mechatronics, BS

GET 4850

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**Total Hours: 121**