

# Plan of Study

## Joint NC State – UNC Asheville

### Bachelor of Science in Engineering Curriculum

### Mechatronics Concentration (JEM198)

Effective for students entering August 1, 2022

#### FALL SEMESTER

#### SPRING SEMESTER

##### Freshman Year

MATH 191	Calculus I	4#	MATH 192	Calculus II	4#
LANG 120	Academic Writing & Crit Inquiry	4^	PHYS 221	Physics I	4#
CHEM 132	General Chemistry	3#	ECE 109	<i>Intro to Computer Systems</i>	3^
CHEM 111	General Chemistry Lab	1#	JEM 180	<i>Intro to Mechatronics Lab</i>	2
E 101	<i>Intro to Engineering &amp; Prob Solving</i>	1	HUM 124	The Ancient World	4
JEM 123	<i>Intro to CAD for Mechatronics Engr</i>	1			17
FYS 178	First-Year Seminar	3 <sup>a</sup>			
		17			

##### Sophomore Year

MATH 291	Calculus III	4	ECE 211	<i>Electric Circuits</i>	4^
PHYS 222	Physics II	4	ECE 212	<i>Fundamentals of Logic Design</i>	3^
ECE 200	<i>Intro to Signals, Circ &amp; Systems</i>	4^	ECE 220	<i>Analytical Foundations of ECE</i>	3^
ECE 209	<i>Computer System Programming</i>	3^	MAE 208	<i>Engineering Dynamics</i>	3^
MAE 206	<i>Engineering Statics</i>	3^	ECON 104	Microecon. Princip. for Engineers	3
		18			16

##### Junior Year

ECE 306	<i>Intro to Embedded Systems</i>	3	ECE 310	<i>Design of Complex Digital Sys</i>	3
JEM 420	<i>Mechatronics Systems Modeling</i>	3	JEM 360	<i>Adv Mechatronics Design Lab</i>	2
MAE 201	<i>Engineering Thermodynamics I</i>	3^	MAE 214	<i>Solid Mechanics</i>	3^
MAE 315	<i>Dynamics of Machines</i>	3	MAE 435	<i>Principles of Automatic Control</i>	3
	Course designated ARTS and DI	3 <sup>b</sup>	HUM 214	Medieval and Renaissance World	4
		15			15

##### Senior Year

JEM 484	<i>Senior Design Mechatronic Engr I</i>	3	JEM 485	<i>Senior Design Mechatronic Engr II</i>	3
MAE 308	<i>Fluid Mechanics</i>	3	MAE 316	<i>Strength of Mechanical Components</i>	3
MAE 310	<i>Heat Transfer Fundamentals</i>	3	LA 478	Cultivating Global Citizenship	4 <sup>d</sup>
	<i>Approved Advised Elective</i>	3 <sup>c</sup>	STAT 225	Intro to Calc-Based Statistics	4
LA 378	Race, Identity, Belonging, and Cultures in the Americas	4			14
		16			

Credit Hours Required: 128

*Italics indicates NC State Engineering course. Engineering courses are offered in the semester as shown.*

<sup>a</sup> FYS 178 is not required for students with college credit that was earned after high school graduation.

<sup>b</sup> Can be separated into one ARTS-designated course and one Diversity Intensive (DI)-designated course.

<sup>c</sup> JEM 455, MSE 201 or *Advised Elective* approved by Director.

<sup>d</sup> or HUM 414 (4).

Students must satisfy UNC Asheville foreign language proficiency requirement via testing or credit courses.

# Grade of C or better required.

^ Grade of C- or better required.

2/9/2022