

# Mechanical Engineering

2023-2024 Bachelor of Science Requirements – 140 Credit Hours

## Freshman Year

Fall Semester		Credits	Spring Semester		Credits
XXXX 193	First Year Seminar	3	MENG 291	Intro to Mech Engr Design	2
CHEM 101	General Chemistry	3	MENG 291L	Intro to Mech Engr Design Lab	1
CHEM 101L	General Chemistry Lab	1	MATH 258	Calculus & Analytical Geometry II	4
MATH 157	Calculus & Analytical Geometry I	4	PHYS 121	Physics I	4
PHIL 101	Reasoning	3	PHYS 121L	Physics I Lab	1
COMM 100	Communication & Speech	3	PHIL 201	Human Nature	3
<b>Total Credits</b>		<b>17</b>	ENGL 101	Writing (WE)	3
			<b>Total Credits</b>		<b>18</b>

## Sophomore Year

Fall Semester		Credits	Spring Semester		Credits
MENG 221	Materials Engineering	3	ENSC 244	Computer Methods for Engr	3
ENSC 205	Statics	3	ENSC 306	Dynamics	3
MATH 259	Calculus & Analytical Geometry III	4	MATH 260	Ordinary Differential Equations	3
PHYS 122	Physics II	4	MATH 321	Statistics for Experimentalists	3
PHYS 122L	Physics II Lab	1	RELI XXX	World/Comparative Religion (GS)	3
ENSC 201	Programming for Engineers	3	PHIL 301	Ethics or RELI 330 Christian Moral	3
<b>Total Credits</b>		<b>18</b>	<b>Total Credits</b>		<b>18</b>

## Junior Year

Fall Semester		Credits	Spring Semester		Credits
MENG 321	Thermodynamics I	3	MENG 322	Thermodynamics II	3
MENG 301	Manufacturing Processes	2	MENG 330	Machine Design	3
MENG 301L	Manufacturing Processes Lab	1	MENG 341	Heat Transfer	3
ENSC 301	Mechanics of Materials I	3	ENSC 300	Engineering Economics	2
ENSC 371	Advanced Engr Mathematics	3	EENG 201	Circuit Analysis I	3
ENSC 352	Fluid Mechanics	3	EENG 201L	Circuit Analysis I Lab	1
RELI XXX	Christianity & Catholic Traditions	3	XXXX 1 <sup>st</sup>	Broadening CORE Requirement <sup>1</sup>	3
<b>Total Credits</b>		<b>18</b>	<b>Total Credits</b>		<b>18</b>

## Senior Year

Fall Semester		Credits	Spring Semester		Credits
ENSC 491	Senior Design Project I	2	MENG 412	Mech Measurements	2
MENG 411	Instrumentation Systems	3	MENG 412L	Mech Measurements Lab	1
MENG 411L	Instrumentation Systems Lab	1	ENSC 492	Senior Design Project II (WE, FA)	3
MENG 434	Vibration Engineering	3	XXXX	Technical Elective <sup>2</sup>	3
MENG 461	System Dynamics and Control	3	XXXX	Technical Elective <sup>2</sup>	3
XXXX	Technical Elective <sup>2</sup>	3	ENSC 400	Fundamentals of Eng. Exam	0
XXXX 2 <sup>nd</sup>	Broadening CORE Requirement <sup>1</sup>	3	XXXX 432	CORE Integration Seminar	3
<b>Total Credits</b>		<b>18</b>	<b>Total Credits</b>		<b>15</b>

<sup>1</sup> Select two broadening courses from History, Literature, or Social & Behavioral Science, with no more than one course per topic.

<sup>2</sup> See back for approved technical electives.

## Approved Technical Electives for Mechanical Engineering

- CENG 301 Structural Analysis I
- CENG 422 Structural Analysis II
- EENG 412 Digital Control Systems
- MENG 435 Applications in Vibrations
- MENG 442 Advanced Heat Transfer
- MENG 443 Combustion
- MENG 445 Heating, Ventilating, and Air Conditioning
- MENG 446 Energy Auditing
- MENG 447 Advanced Energy Systems
- MENG 451 Computational Dynamics
- MENG 456 Design for Manufacturing
- MENG 465 Introduction to Finite Elements
- MENG 467 Designing with Polymers and Composites
- MENG 468 Biomaterials & Biomechanical Engineering
- MENG 477 Material Selection for Design
- MENG 478 Vehicle Dynamics
- MENG 479 Tribology
- PHYS 307 Optics
- PHYS 402 Advanced Mechanics
- PHYS 412 Biophysical Systems & Modeling
- PHYS 450 Statistical Physics