

# **BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING**

## *2022-2023 Degree Requirements*

**TOTAL CREDITS FOR DEGREE: 134**

**Name:** \_\_\_\_\_

**ID Number:** \_\_\_\_\_

### **UNIVERSITY CORE CURRICULUM: 43 cr.**

#### ***Required Fundamental Courses:***

COMM 101	Oral Comm. & Pres.	3 credits
ENGL 101	College Composition	3 credits
UNIV 101	City-University Life	3 credits
Senior Capstone	<b>EGR 402</b>	3 credits

#### ***Choose Thematic Core courses in the following:***

Explore the World - Choice 1		3 credits
Explore the World - Choice 2		3 credits
Investigate Science	<b>CHEM 101</b>	3 credits
Investigate Mathematics	<b>MATH 190</b>	4 credits
Interpret Creative Works		3 credits
Understand People - Choice 1		3 credits
Understand People - Choice 2		3 credits
Succeed in Business		3 credits
Appreciate & Apply the Arts		3 credits
Discover Technology	<b>EGR 101</b>	3 credits

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### **MAJOR REQUIREMENTS: 90 cr.**

CHEM 102	General Chemistry II	3	EE 101	Circuit Analysis I	3
CHEM 103	General Chemistry Lab I	1	EE 102	Circuit Analysis II	3
CHEM 104	General Chemistry Lab II	1	EE 103	Circuit Analysis Laboratory I	1
MATH 210	Calculus II	4	EE 104	Circuit Analysis Laboratory II	1
MATH 230	Linear Algebra	3	ME 101	Statics	3
MATH 300	Calculus III	4	ME 102	Dynamics	3
MATH 310	Differential Equations	3	ME 212	Properties of Materials	3
MATH 330	Mathematical Statistics	3	ME 213	Strength of Materials	3
PHYS 201	Fundamentals of Physics I	3	ME 214	Strength of Materials Lab	1
PHYS 202	Fundamentals of Physics II	3	ME 215	Thermodynamics II	3
PHYS 103	Physics Laboratory I	1	ME 315	Thermodynamics I	3
PHYS 104	Physics Laboratory II	1	ME 320	Kinematics of Machine Elem.	4
EGR 401	Engineering Design I	3	ME 331	Engineering Des Pro/Eng	3
ET 204	Programming for Eng Tech	3	ME 405	Heat Transfer	3
ET 405	Fund. Of Engineering Exam I	0	ME 406	Heat Transfer Lab	1
ET 406	Fund. Of Engineering Exam II	0	ME 411	Fluid Mechanics	3
			ME 412	Fluid Mechanics Lab	1
			ME 416	Mechanical Vibrations	3
			ME 421	Machine Des Theory & Proj	4
			ME 424	Finite Element Analysis	3
			ME 425	FEA with ANSYS	2

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### **STUDENT OUTCOMES**

**Upon successful completion of this program:**

- 1) An ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics;
- 2) An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors;
- 3) An ability to communicate effectively with a range of audiences
- 4) An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental and societal factors;
- 5) An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives;
- 6) An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions; and
- 7) An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.