BACHELOR OF SCIENCE: ENGINEERING

MAJOR: BSE WITH CONCENTRATION IN BIO-MEDICAL PRODUCT DESIGN

Four-Year Planning Guide ■ Catalog Year 2023-2024

Cornerstone UNIVERSITY®

FALL	SPRING	SUMMER

FRESHMAN (2023) — FALL

MAT	131	Calculus I*	5
PHY	221	Physics I*	5
CHM	111	Principles of General Chemistry*	4
CSU	107	Academic Foundations	3
			17

FRESHMAN (2022) — SPRING

MAT	132	Calculus II	5
PHY	222	Physics II*	5
EGR	100	Intro to Eng *	1
EGR	111	Intro to Eng Graphics *	1
EGR	112	Intro to Programming *	2
REL	104	Old Testament - J	3
			17

(2024) — SUMMER

COM	112	Communication in Culture**	3
ENG	212	Writing in Culture*, **	3
			6

SOPHOMORE (2024) — FALL

MAT	234	Multivariate Calculus*	3
EGR	113	Intro to CAD/CAM *	1
EGR	209	Mechanics and Machines *	4
EGR	220	Data Analysis*	1
EGR	185	First Year Engineering Design *	2
MAT	251	Probability & Stats*	3
PHI	211	Philosophy in Culture	3
			17

SOPHOMORE (2025) — SPRING

MAT	235	Diff Eq & Linear Algebra*	3
EGR	250	Materials * + Lab	4
EGR	214	Circuit Analysis* + Lab	4
EGR	309	Machine Design I * + Lab	4
REL	204	New Testament - J	3
			18

(2025) — SUMMER

EGR	380	Internship I	3
			3

JUNIOR (2025) — FALL

EGR	226	Digital Systems* + Lab	4
EGR	362	Thermal & Fluid Sys. Or EGR 360	4
EGR	301	Product Design	4
BIO	241	Anatomy and physiology I	4
			16

JUNIOR (2026) — SPRING

HUM	311	Imagination in Culture - J	3
EGR	345	Dyna. Sys. Modeling or EGR 312	4
EGR	367	Manufacturing Process + Lab	4
CHM	212	Organic & Bio Chemistry	4
CRI	205	Thought & Design I	3
			18

(2026) — SUMMER

EGR	380	Internship II	3
			3

SENIOR (2026) — FALL

REL	102	Christian Worldview	3
EGR	485	Capstone Project & Ethics	1
HIS	114	Making Modern World 1500-Present	3
GEGR	453	Bio Medical Materials (GV)	3
CRI	313	Thought & Design II	3
		Social Science Course ***	3
			16

SENIOR (2027) — SPRING

EGR	486	Capstone Project II	2
GEGR	403	Med Device Design (GV)	3
REL	352	Christian Beliefs & History - J	3
GEGR	435	Math Modeling Physio. Sys. (GV)	3
CRI	413	Thought & Design III	3
		Global Studies Requirement	3
			17

TOTAL CREDITS   148

****See General Education Core handout for required courses

*Engineering Foundations Track (course required prior to secondary admission into Engineering Degree Program)

**Course offered online at CU over summer

***Choose One: PSY 111, SOC 111, ECN 231, ECN 232, CMI 223, SSC 161, SSC 211, SSC 262

GV- Courses taken at Grand Valley State University

J- Course offered during J-term

REQUIRED ENGINEERING CORE CLASSES

			CREDITS
CHM	111	Principles of General Chemistry	4
EGR	100	Introduction to Engineering	1
EGR	111	Introduction to Engineering Graphics	1
EGR	112	Introduction to Programming	2
EGR	113	Introduction to CAD/CAM	1
EGR	185	First Year Engineering Design	2
EGR	209	Mechanics and Machines	4
EGR	214	Circuit Analysis I + lab	4
EGR	220	Measurement & Data Analysis + lab	1
EGR	226	Introduction to Digital Systems + lab	4
EGR	250	Material Science and Engineering + lab	4
EGR	309	Machine Design I + lab	4
EGR	345	Dynamics Systems & Modeling or EGR 312 Dynamics at 3 credits	4
EGR	362	Thermal & Fluid Systems or EGR 360 Thermodynamics	4
EGR	380	Internship I	3
EGR	380	Internship II	3
EGR	485	Capstone Project & Ethics	1
EGR	486	Capstone Project II	2
MAT	131	Calculus I	5
MAT	132	Calculus II	5
MAT	234	Multivariate Calculus	3
MAT	235	Diff Eq. and Linear Algebra	3
MAT	251	Probability and Statistics	3
PHY	221	Physics for Scientists & Engineers I	5
PHY	222	Physics for Scientists & Engineers II	5
		Total	**78**

REQUIRED ENGINEERING MAJOR COURSES

			CREDITS
EGR	301	Analytical Tools for Product Design	4
EGR	367	Manufacturing Processes + lab	4
GEGR	403	Medical Device Design (GV)	3
GEGR	435	Mathematical Modeling of Physiologic Systems (GV)	3
GEGR	453	Biomedical Materials (GV)	3
BIO	241	Anatomy & Physiology I	4
CRI	205	Strategies for Innovative Thought and Design I	3
CRI	313	Strategies for Innovative Thought and Design II	3
CRI	413	Strategies for Innovative Thought and Desig	3
CHM	212	Principles of Organic & Biochemistry	4
		Total	**34**
		CUMULATIVE TOTAL	*112*