



BACHELOR OF SCIENCE: ENGINEERING

MAJOR: BSE WITH CONCENTRATION IN DESIGN AND INNOVATION

Four-Year Planning Guide ■ Catalog Year 2021-2022

FALL

FRESHMAN (2021)

MAT 131	Calculus I*	5
PHY 221	Physics I*	5
CHM 111	Principles of General ChemistryI*	4
IDS 107	Academic Foundations	2
IDS 108	Service Foundations	0
KIN 100	Total Fitness and Wellness	2
		18

SOPHOMORE (2022)

MAT 234	Multivariate Calculus*	3
GEGR 113	Intro to CAD/CAM (GV)*	1
EGR 209	Mechanics*	4
EGR 220	Data Analysis*	1
GEGR 185	First Year Engineering Design (GV)*	2
MAT 251	Probability & Stats*	3
		14

JUNIOR (2023)

GEGR 345	System Modeling (GV)	4
EGR 362	Thermo Fluids	4
GEGR 301	Product Design (GV)	4
IDS 202	Creativity in Conceptual Age	4
IDS 307	Core Junior	2
		18

SENIOR (2024)

EGR 485	Capstone Project & Ethics	1
IDS 312	Human Innovation	3
IDS 313	Thought & Design II	3
HUM 311	Imagination in Culture	3
Social Science Course ***		3
		13

SPRING

FRESHMAN (2022)

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

SOPHOMORE (2023)

MAT 235	Diff Eq & Linear Algebra*	3
EGR 250	Materials *	4
EGR 214	Circuit Analysis*	4
GEGR 309	Machine Design I (GV)*	4
IDS 207	Core Sophomore	2
		17

JUNIOR (2024)

REL 204	New Testament - J	3
PHI 211	Philosophy in Culture	3
GEGR 367	Manufacturing Process (GV)	4
EGR 336	Project Management	3
IDS 205	Thought & Design I	3
		16

SENIOR (2025)

EGR 486	Capstone Project II	2
REL 352	Christian Beliefs & History - J	3
HIS 114	Making Modern World 1500-Pr	3
IDS 413	Thought & Design III	3
Global Studies Requirement		3
		14

SUMMER

(2022)

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

(2023)

EGR 380	Internship I	3
EGR 226	Digital Systems*	4
		7

(2024)

EGR 380	Internship II	3
		3

TOTAL CREDITS

143

****See General Education Core handout for required courses	**Course offered online at CU over summer
*Engineering Foundations Track (course required prior to secondary admission into Engineering Degree Program)	
***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
GEGR 100 Introduction to Engineering (GV)	1
GEGR 111 Introduction to Engineering Graphics (GV)	1
GEGR 112 Introduction to Programming (GV)	2
GEGR 113 Introduction to CAD/CAM (GV)	1
GEGR 185 First Year Engineering Design (GV)	2
EGR 209 Mechanics and Machines	4
EGR 214 Circuit Analysis I	4
EGR 220 Measurement & Data Analysis	1
EGR 226 Introduction to Digital Systems	4
EGR 250 Material Science and Engineering	4
GEGR 309 Machine Design I (GV)	4
GEGR 345 Dynamics Systems & Modeling (GV) or GEGR 312 (GV) Dynamics at 3 credits	4
EGR 362 Thermal & Fluid Systems or GEGR 360 (GV) Thermodynamics at 4 credits	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
GEGR 301 Analytical Tools for Product Design (GV)	4
EGR 336 Project Management	3
GEGR 367 Manufacturing Processes (GV)	4
IDS 312 Science of Human Innovation	3
IDS 202 Creativity in the Conceptual Age	4
IDS 205 Strategies for Innovative Thought and Design I	3
IDS 313 Strategies for Innovative Thought and Design II	3
IDS 413 Strategies for Innovative Thought and Design III	3
Total	27

CUMULATIVE TOTAL **105**