Grand Valley State University
Seymour and Esther Padnos College of Engineering and Computing

Bachelor of Science in Engineering (B.S.E.)

Interdisciplinary Engineering

Renewable Energy Emphasis- Wind Turbine/Alternative Cars Track

MTH 122 Start, 5 Year Plan

Secondary Admission Required

2022 – 2023 Catalog Year

1st Year

Fall		Winter		Spring/Summer	
MTH 122: College Algebra	3	MTH 123: Trigonometry	3		
*WRT 150: Strategies in Writing or WRT 120 and WRT 130	4	*CHM 115: Chemistry I	4		
General Education (Select 2)	6	*EGR 100: Intro to EGR	1		
		*EGR 111: Intro to EGR Graphics	1		
		*EGR 104: Applied Programming II	2		
		ECO 210 or 211: Economics	3		
Total	**13**	**Total**	**12**		

2nd Year

Fall		Winter		Spring/Summer	
*MTH 201: Calculus 1	4	*MTH 202: Calculus 2	4		
*EGR 108: Applied Programming II	2	*PHY 230: Physics 1	5		
*EGR 113: Intro to CAD/CAM	1	*EGR 185: First-Year EGR Design	2		
BIO 105: Environmental Science	3	*STA 220: Stat Modeling for EGR	2		
General Education	3	*EGR 220: EGR Measure & Data	1		
Total	**13**	**Total**	**14**		

3rd Year

Fall		Winter		Spring/Summer	
*MTH 203: Calculus 3	4	*MTH 302: Linear Algebra/Diff Eq	4	EGR 290: Engineering Co-op 1	3
*PHY 234 or 231 Physics 2	4/5	*EGR 309: Machine Design I	3	*EGR 226: Microcontroller Program	3
*EGR 209: Mechanics and Machines	4	*EGR 310: Machine Design I Lab	1	*EGR 227: Microcontroller Prog. Lab	1
*EGR 214: Circuit Analysis 1	3	*EGR 250: Materials Science & EGR	3		
*EGR 215: Circuit Analysis 1 Lab	1	*EGR 251: Materials Science & EGR Lab	1		
*EGR 289: EGR Professionalism	1	EGR 312: Dynamics	3		
Total	**17/18**	**Total**	**15**	**Total**	**7**

4th Year ~ Admission Required

Fall		Winter		Spring/Summer	
EGR 360 or IE Track Elec. (See Chart)	3/4	EGR 390: Engineering Co-op 2	3	EGR 362 or IE Track Elec. (See Chart)	3/4
EGR 345 or 346: Dyna. Sys./Mech. Sys.	4	IE Track Elec. (EGR 450 Recommended)	3/4	EGR 365 or IE Track Elec. (See Chart)	3/4
IE Track Elec. (EGR 352 Recommended)	3/4			General Education (Select 2)	6
Total	**10/12**	**Total**	**6/7**	**Total**	**12/14**

5th Year ~ Admission Required

Fall		Winter		Spring/Summer	
EGR 490: Engineering Co-op 3	3	EGR 485: Senior EGR Project 1	1	EGR 486: Senior EGR Project 2	2
EGR 463: Alt Energy Sys & Appl.	4	EGR 406: Renewable Energy Sys.	3	IE Track Elec. (EGR 405 Recommended)	3-4
		EGR 413: Mater. Energy Storage	3	General Education	3
		IE Track Elec. (EGR 465 Recommended)	3/4		
		GEO 360: Earth Res. Transition	3		
Total	**7**	**Total**	**13 -14**	**Total**	**8/9**

- This is a suggested curriculum guide that might not be applicable to every student
- Foundation courses are required for secondary admission and are designated by an asterisk (*) on this guide
- Student must have a **minimum of 120 credits** to graduate, with **58 of the 120 credits** being from a senior level institution and the **final 30 of the 120 credits** completed at GVSU

Padnos College of Engineering and Computing ~ Student Services Office
B-3-241 Mackinac Hall and 101 Eberhard Center
(616) 331-6025 or online at www.gvsu.edu/pcec/advising

√	IE-Renewable Energy Foundation Requirements	√	General Education Requirements
	MTH 201		WRT 150: Strategies in Writing (grade of "C" or higher required) **or** WRT 120 and WRT 130
	MTH 202		Life Sciences (consider BIO 105)
	MTH 203		Physical Sciences (CHM 115)
	MTH 302		Philosophy and Literature (consider PHI 102)
	CHM 115		Arts
	PHY 230		Mathematical Sciences (MTH 201)
	PHY 234 or 231		Social Behavioral Sciences (ECO 210 or 211)
	WRT 150		Social Behavioral Sciences
	EGR 100		Historical Analysis (consider HSC 202)
	EGR 111		U.S. Diversity
	EGR 112 or EGR 104 + EGR 108		Global Perspectives
	EGR 113		2 Supplemental Writing Skills Courses (prerequisite: WRT 130 or 150)
	EGR 185		2 Issues Courses (must have 55+ credits)
	EGR 289		
	EGR 220+STA 220		
	EGR 214+215		
	EGR 226+227		
	EGR 209		
	EGR 309 + 310		
	EGR 250 + 251		

Secondary Admission Requirements:

Detailed application and admission requirements available at https://www.gvsu.edu/engineering/secondary-admission-to-engineering-majors-44.htm

- ✓ A GPA of 2.7 or above in Engineering Foundation courses. Foundation courses are designated by an asterisk (*) on this guide.
- ✓ Completion of each course in the Engineering Foundation with a grade of C (2.0) or above, with no more than one repeat.
- ✓ Completion of preparation for placement in the cooperative engineering education course, EGR 289.

Major Notes:

1) An emphasis area is required for the Interdisciplinary Engineering major. Emphasis areas include: Data Science, Design & Innovation, Engineering Management, Environmental Engineering, Mechatronics and Renewable Energy.
    a. To declare this emphasis, login to MyBanner, select "Student Records" and then "Change Major."
    b. Click on "Change Major 1" and select ***Interdisciplinary Engineering – Renewable Energy Emphasis***.
    c. Click "Submit" and then "Change to New Program."
    d. EGR 224, EGR 330 and EGR 323 are prerequisite courses for selected upper-level electives. Students are required to take **four** IE Track electives. **Please plan ahead!** Course descriptions are listed in the GVSU Academic Catalog.
2) Students must complete **EITHER** EGR 360 **OR** 362. A track elective should be taken in the other semester.

Recommendations:

It is strongly encouraged that students do not begin or break curriculum thread by taking courses at other institutions.

For example:

Taking MTH 201 equivalent elsewhere, then return to Grand Valley and continuing in the math thread with MTH 202.

Electives	Credits	Title	Semester	Course Prerequisites	Energy Focus
EGR 352	4	Kinematics and Dynamics	Fall	EGR 312	Wind Turbine, Alternative Cars
EGR 405	3	Materials Failure Analysis	Summer	EGR 250/251	Wind Turbine, Alternative Cars
EGR 435	3	Mathematical Modeling of Physiologic Systems	Winter	MTH 302	All
EGR 450	4	Manufacturing Control Systems	Winter	EGR 345 or 346	Wind Turbine
EGR 465	4	Computational Fluid Dynamics	Winter	EGR 365	Wind Turbine