

# Interdisciplinary Engineering

Renewable Energy Emphasis- Wind Turbine/Alternative Cars Track

**Honors College: MTH 201 Start, 5 Year Plan**

Secondary Admission Required

1st Year					
Fall		Winter		Spring/Summer	
*MTH 201: Calculus 1	4	*MTH 202: Calculus 2	4		
*EGR 100: Intro to EGR	1	*EGR 113: Intro to CAD/CAM	1		
*EGR 111: Intro to EGR Graphics	1	*EGR 108: Applied Programming 2	2		
*EGR 104: Applied Programming 1	2	HNR 153: Interdisciplinary Seq. 3	3		
HNR 151: Interdisciplinary Seq. 1	3	HNR 154: Interdisciplinary Seq. 4	3		
HNR 152: Interdisciplinary Seq. 2	3				
<b>Total</b>	<b>14</b>	<b>Total</b>	<b>13</b>		
2nd Year					
Fall		Winter		Spring/Summer	
*MTH 203: Calculus 3	4	*MTH 302: Linear Algebra/Diff Eq	4		
* STA 220: Stat Modeling for EGR	2	*PHY 230: Physics 1	5		
*EGR 220: EGR Measure & Data	1	*EGR 226: Microcontroller Program	3		
*CHM 115: Chemistry 1	4	*EGR 227: Microcontroller Program Lab	1		
*EGR 185: First-Year EGR Design	2				
ECO 210 or 211: Economics	3				
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>13</b>		
3rd Year					
Fall		Winter		Spring/Summer	
*PHY 234 or 231 Physics 2	4/5	*EGR 309: Machine Design 1	3	EGR 290: Engineering Co-op 1	3
*EGR 209: Mechanics and Machines	4	*EGR 310: Machine Design 1 Lab	1		
*EGR 214: Circuit Analysis 1	3	*EGR 250: Materials Science & EGR			
*EGR 215: Circuit Analysis 1 Lab	1	*EGR 251: Materials Science & EGR Lab			
*EGR 289: EGR Professionalism	1	EGR 312: Dynamics			
		HNR 201: Live. Learn. Lead.			
<b>Total</b>	<b>13-14</b>	<b>Total</b>	<b>14</b>	<b>Total</b>	<b>3</b>
4 <sup>th</sup> 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			Supplemental Writing Skill	3
BIO 105: Environmental Science	3			HNR 350: Integrative Seminar	3
<b>Total</b>	<b>13-15</b>	<b>Total</b>	<b>6-7</b>	<b>Total</b>	<b>12-14</b>
5 <sup>th</sup> 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		
		IE Track Elec. (EGR 465 Recommended)	3/4		
		GEO 360: Earth Res. Transition	3		
<b>Total</b>	<b>7</b>	<b>Total</b>	<b>13 -14</b>	<b>Total</b>	<b>5-6</b>

- 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

√	IE-Renewable Energy Foundation Requirements	√	Honors Requirements
	MTH 201		HNR 151
	MTH 202		HNR 152
	MTH 203		HNR 153
	MTH 302		HNR 154
	CHM 115		HNR 300 (fulfilled by EGR 290, EGR 390, and EGR 490)
	PHY 230		HNR 201
	PHY 234 or 231		HNR 251 (fulfilled by EGR 100 + EGR 185)
	WRT 150		HNR 350
	EGR 100		HNR 401/499 (fulfilled by EGR 485 + EGR 486)
	EGR 111		
	EGR 112 (EGR 104+108)		
	EGR 113		
	EGR 185		
	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.

#### Honors:

The Frederik Meijer Honors College and the School of Engineering have approved the following substitutions for the honors curriculum:

- 1) Together, EGR 100 and EGR 185 fulfill the HNR 251 requirement.
- 2) EGR 290, EGR 390, and EGR 490 fulfill the HNR 300 requirement. Students are encouraged to plan ahead and submit a [proposal form](#) for the HNR 300 substitution.
- 3) EGR 485 fulfills the HNR 401 requirement.
- 4) EGR 486 fulfills the HNR 499 requirement.
- 5) The completion of the honors curriculum will fulfill the engineering ethics requirement.
- 6) All GVSU students must earn credit for two Supplemental Writing Skills (SWS) courses. Honors students can earn credit for one SWS course by completing HNR 154 (the winter semester of a first-year sequence) with a grade of C or better. They must earn their second SWS course credit outside of the Honors requirements.

#### 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