

# Interdisciplinary Engineering (Renewable Energy Emphasis – Wind Turbine/Alternative Cars Track)

## Grand Valley State University 2021-22 Catalog

### MTH 110 Placement – 5 year program

#### Secondary Admission Criteria

1) A GPA of 2.7 or above in the Engineering Foundation courses. Engineering Foundation courses are designated by an asterisk (\*) on this guide.

2) Completion of each course in the Engineering Foundation with a grade of C (2.0) or above, with no more than one repeat.

3) Completion of preparation for placement in the cooperative engineering education course, EGR 289.

#### 1st Semester Fall: 14 credits

MTH 110	College Algebra	4 credits
*WRT 150	Writing Strategies	4 credits
<b>OR</b> WRT 120/WRT 130 (may change timeline)		
General Education Courses (Select 2)		6 credits

#### 2nd Semester Winter: 14 credits

MTH 124	Precalculus: F & M	5 credits
*CHM 115	Chemistry I	4 credits
*EGR 100	Intro to EGR	1 credit
*EGR 111	Intro to EGR Graphics	1 credit
ECO 210 <b>OR</b> 211	Economics	3 credits

#### 3rd Semester Fall: 13 credits

*MTH 201	Calculus 1	4 credits
*EGR 112	Appl Program for EGR	2 credits
*EGR 113	Intro to CAD/CAM	1 credit
BIO 105	Environmental Science	3 credits
General Education Course		3 credits

#### 4th Semester Winter: 14 credits

*MTH 202	Calculus 2	4 credits
*PHY 230	Physics 1	5 credits
*EGR 185	First-Year EGR Design	2 credits
*STA 220	Stat Modeling for EGR	2 credits
*EGR 220	EGR Measure & Data	1 credit

#### 5th Semester Fall: 17-18 credits

*MTH 203	Calculus 3	4 credits
*PHY 234 or 231	Physics 2	4-5 credits
*EGR 209	Mechanics and Machines	4 credits
*EGR 214	Circuit Analysis 1	3 credits
*EGR 215	Circuit Analysis 1 Lab	1 credit
*EGR 289	EGR Professionalism	1 credit

#### 6th Semester Winter: 15 credits

*MTH 302	Linear Algebra/Diff Eq	4 credits
*EGR 309	Machine Design I	3 credits
*EGR 310	Machine Design I Lab	1 credit
*EGR 250	Materials Science & EGR	3 credits
*EGR 251	Materials Science & EGR Lab	1 credit
EGR 312	Dynamics	3 credits

#### Spring/Summer Semester: 7 credits

EGR 290	Engineering Co-op 1	3 credits
*EGR 226	Microcontroller Program	3 credits
*EGR 227	Microcontroller Program Lab	1 credit

#### 7th Semester Fall: 10-12 credits

EGR 360 <b>OR</b> IE Track Elec. (See Chart)	3-4 credits
EGR 345 <b>OR</b> 346 Dynamic Sys./Mech. Sys.	4 credits
IE Track Elec. (EGR 352 Recommended)	3-4 credits

#### Winter Semester: 6-7 credits

EGR 390	Engineering Co-op 2	3 credits
IE Track Elec.	(EGR 450 Recommended)	3-4 credits

#### 8th Semester Spring/Summer: 12-14 credits

EGR 362 or IE Track Elec. (See Chart)	3-4 credits
EGR 365 or IE Track Elec. (See Chart)	3-4 credits
General Education Courses (Select 2)	6 credits

#### Fall Semester: 7 credits

EGR 490	Engineering Co-op 3	3 credits
EGR 463	Alt Energy Sys & Appl.	4 credits

#### 9th Semester Winter: 13-14 credits

EGR 485	Senior EGR Project 1	1 credits
EGR 406	Renewable Energy Sys.	3 credits
EGR 413	Materials:Energy Storage	3 credits
GEO 360	Earth Res. Transition	3 credits
IE Track Elec.	(EGR 465 Recommended)	3-4 credits

#### 10th Semester Spring/Summer: 5-6 credits

EGR 486	Senior EGR Project 2	2 credits
IE Track Elec.	(EGR 405 Recommended)	3-4 credits

It is important to meet with a professional advisor in the PCEC Advising Center on a regular basis. The PCEC Advising Center is located in B-3-241 Mackinac Hall and 101 Eberhard Center. Please call 616-331-6025 or go online at [www.gvsu.edu/pcec/advising](http://www.gvsu.edu/pcec/advising) to schedule an appointment.

Interdisciplinary Engineering (Renewable Energy Emphasis – Wind Turbine/Alternative Cars Track)  
Grand Valley State University 2021-22 Catalog  
MTH 110 Placement – 5 year program

### Major Notes

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.

- 1) To declare this emphasis, login to MyBanner, select “Student Records” and then “Change Major.”
- 2) Click on “Change Major 1” and select **Interdisciplinary Engineering – Renewable Energy Emphasis**.
- 3) Click “Submit” and then “Change to New Program.”
- 4) EGR 312 and EGR 365 are prerequisite courses for selected upper-level IE Track electives. Students are required to take **four** IE Track electives. **Please plan ahead!** Course descriptions are listed in the [GVSU Academic Catalog](#).

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

### General Education

Category	Completed?	Category	Completed?	Category	Completed?	Category	Completed?
Physical Sciences (CHM 115)		Mathematical Sciences (MTH 124)		Global Perspectives (EGR 406)		Writing (WRT 130 or 150)	
Life Sciences (BIO 105)		Social & Behavioral Sciences (ECO 210/211)		U.S. Diversity		SWS #1	
Philosophy & Literature		Social & Behavioral Sciences		Issues (EGR 406)		SWS #2	
Arts		Historical Perspectives		Issues (GEO 360)			

- 1) Consider taking a course that fulfills the U.S. Diversity category and one non-ECO Social and Behavioral Science course.
- 2) Consider taking a course that fulfills the Global Perspectives category and one Issues course
- 3) An ethics course is required in the engineering program. It is recommended to take **ONE** of the following:
  - a. PHI 102 in the Philosophy and Literature category
  - b. BIO 328, BIO 338, COM 438, EGR 302, MGT 340, MGT 438, MKT 375, PHI 325 OR PLS 338 in the Issues category
  - c. For Honors College students, the ethics requirement is fulfilled by completion of the Honors Curriculum
- 4) ECO 210 or 211 is required for the engineering major AND fulfills one Social and Behavioral Science course.
- 5) Two Supplemental Writing Skills (SWS) courses are required for graduation. These can be fulfilled via other general education categories. **For example, EGR 302 will fulfill ONE SWS requirement, one Issues requirement AND the engineering ethics requirement.**

### PCEC Advisors

Elizabeth Brand, [brandeli@gvsu.edu](mailto:brandeli@gvsu.edu)  
Rebecca Kolodge, [kolodgre@gvsu.edu](mailto:kolodgre@gvsu.edu)  
Mary Nuznov, [nuznovma@gvsu.edu](mailto:nuznovma@gvsu.edu)

Colin DeKuiper, [dekuippec@gvsu.edu](mailto:dekuippec@gvsu.edu)  
Jessica Noble, [noblejes@gvsu.edu](mailto:noblejes@gvsu.edu)  
Audra Pretty-Smith, [prettyau@gvsu.edu](mailto:prettyau@gvsu.edu)

Sara Wheeler, [wheeleasa@gvsu.edu](mailto:wheeleasa@gvsu.edu)