

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

Grand Valley State University 2020-21 Catalog

MTH 124 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 124 Precalculus: Functions and Models
*WRT 150 Writing Strategies
OR WRT 120/WRT 130 (may change timeline)
*EGR 100 Introduction to Engineering
*EGR 111 Introduction to Engineering Graphics
General Education Course

2nd Semester Winter: 14 credits

*MTH 201 Calculus 1
*CHM 115 Chemistry 1
*EGR 112 Applied Programming for Engineers
*EGR 113 Introduction to CAD/CAM
ECO 210 OR 211 Economics

3rd Semester Fall: 12 credits

*MTH 202 Calculus 2
*EGR 185 First-Year Engineering Design
*STA 220 Statistical Modeling for Engineers
*EGR 220 Egr Measurement and Data Analysis
BIO 105 Environmental Science

4th Semester Winter: 16 credits

*MTH 203 Calculus 3
*PHY 230 Physics 1
*EGR 226 Microcontroller Program & Applications
General Education Course

5th Semester Fall: 13-14 credits

*PHY 234 or 231 Physics 2
*EGR 209 Mechanics and Machines
*EGR 214 Circuit Analysis 1
*EGR 289 Engineering Co-op Preparation

6th Semester Winter: 15 credits

*MTH 302 Linear Algebra and Differential Equations
*EGR 309 Machine Design 1
*EGR 250 Materials Science and Engineering
EGR 312 Dynamics

Spring/Summer Semester: 3 credits

EGR 290 Engineering Co-op 1

7th Semester Fall: 15 credits

EGR 360 OR IE Track Elec. (See Chart for Course Selection)
EGR 345 OR 346 Dynamic Sys./Mechatronics Sys.
IE Track Elec. (EGR 352 Recommended)
General Education Course

Winter Semester: 7 credits

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

8th Semester Spring/Summer: 14 credits

EGR 362 or IE Track Elec. (See Chart for Course Selection)
EGR 365 or IE Track Elec. (See Chart for Course Selection)
General Education Courses (Select 2)

Fall Semester: 7 credits

EGR 490 Engineering Co-op 3
EGR 463 Alternative Energy Systems and Applications

9th Semester Winter: 14 credits

EGR 485 Senior Engineering Project 1
EGR 406 Renewable Energy Systems: Structure, Policy, and Analysis
EGR 413 Materials for Energy Storage
GEO 360 Earth Resources in Transition: Conventional to Sustainable
IE Track Elec. (EGR 465 Recommended)

10th Semester Spring/Summer: 5 credits

EGR 486 Senior Engineering Project 2
IE Track Elec. (EGR 405 Recommended)

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 101 Eberhard Center. Please call 616-331-6025 or go online at www.gvsu.edu/pcec/advising to schedule an appointment.

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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](#).

<u>Electives</u>	<u>Credits</u>	<u>Title</u>	<u>Semester</u>	<u>Course Prerequisites</u>	<u>Energy Focus</u>
EGR 352	4	Kinematics and Dynamics	Fall	EGR 312	Wind Turbine, Alternative Cars
EGR 405	3	Materials Failure Analysis	Summer	EGR 250	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

<u>Category</u>	<u>Completed?</u>	<u>Category</u>	<u>Completed?</u>	<u>Category</u>	<u>Completed?</u>
Physical Sciences (CHM 115)		Mathematical Sciences (MTH 201)		Global Perspectives (EGR 406)	
Life Sciences (BIO 105)		Social & Behavioral Sciences (ECO 210/211)		U.S. Diversity	
Arts		Social & Behavioral Sciences		Issues (EGR 406)	
Philosophy & Literature		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

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