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

Grand Valley State University 2020-21 Catalog

MTH 123 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: 12 credits

MTH 123	Trigonometry
*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./Mechatronic 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.

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	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?
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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