# Interdisciplinary Engineering (Renewable Energy Emphasis – Solar/All Track)

Grand Valley State University 2020-21 Catalog

MTH 201 Placement – 4 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: 16 credits

| | |
|---|---|
| *MTH 201 | Calculus 1 |
| *WRT 150 | Writing Strategies |
| **OR** WRT 120/WRT 130 (may change timeline) | |
| *EGR 100 | Introduction to Engineering |
| *EGR 111 | Introduction to Engineering Graphics |
| *EGR 112 | Applied Programming for Engineers |
| *CHM 115 | Chemistry 1 |

## 2nd Semester Winter: 15 credits

| | |
|---|---|
| *MTH 202 | Calculus 2 |
| *PHY 230 | Physics 1 |
| *EGR 113 | Introduction to CAD/CAM |
| *EGR 185 | First-Year Engineering Design |
| *STA 220 | Statistical Modeling for Engineers |
| *EGR 220 | Egr Measurement and Data Analysis |

## 3rd Semester Fall: 17-18 credits

| | |
|---|---|
| *MTH 203 | Calculus 3 |
| *PHY 234 or 231 | Physics 2 |
| *EGR 209 | Mechanics and Machines |
| *EGR 214 | Circuit Analysis 1 |
| *EGR 289 | Engineering Co-op Preparation |

## 4th Semester Winter: 14 credits

| | |
|---|---|
| *MTH 302 | Linear Algebra and Differential Equations |
| *EGR 257 | Electronic Materials and Devices |
| EGR 224 | Introduction to Digital System Design |
| *EGR 223 | Probability and Signal Analysis |

## Spring/Summer Semester: 7 credits

| | |
|---|---|
| EGR 290 | Engineering Co-op 1 |
| EGR 226 | Microcontroller Programming & Applications |

## 5th Semester Fall: 15 credits

| | |
|---|---|
| EGR 314, 360, or 362 (EGR 314 Recommended) | |
| EGR 326, 345, or 346 (EGR 326 Recommended | |
| IE Track Elec. | (See Chart for Course Selection) |
| BIO 105 | Environmental Science |

## Winter Semester: 6 credits

| | |
|---|---|
| EGR 390 | Engineering Co-op 2 |
| GEO 360 | Earth Resources in Transition: Conventional to Sustainable |

## 6th Semester Spring/Summer: 12-13 credits

| | |
|---|---|
| EGR 330 or IE Track Elec. | (See Chart for Course Selection) |
| EGR 323 or IE Track Elec. | (See Chart for Course Selection) |
| ECO 210 **OR** 211 | Economics |
| General Education Course | |

## Fall Semester: 7 credits

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

## 7th Semester Winter: 13-14 credits

| | |
|---|---|
| EGR 485 | Senior Engineering Project 1 |
| EGR 406 | Renewable Energy Systems: Structure, Policy, and Analysis |
| EGR 413 | Materials for Energy Storage |
| IE Track Elec. | (See Chart for Course Selection) |
| General Education Course | |

## 8th Semester Spring/Summer: 14-15 credits

| | |
|---|---|
| EGR 486 | Senior Engineering Project 2 |
| IE Track Elec. | (See Chart for Course Selection) |
| General Education Courses (Select 3) | |

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.

# Interdisciplinary Engineering (Renewable Energy Emphasis – Solar/All Track)

Grand Valley State University 2020-21 Catalog

MTH 201 Placement – 4 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 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.

| Electives | Credits | Title | Semester | Course Prerequisites | Energy Focus |
|---|---|---|---|---|---|
| EGR 314 | 4 | Circuit Analysis II | Fall | Only if not taken for required course, no double dipping | Solar |
| EGR 326 | 4 | Embedded Systems | Fall | | Solar |
| EGR 315 | 4 | Electronic Circuits I | Fall | | Solar |
| EGR 430 | 4 | Electromechanics | Winter | EGR 330 | All |
| EGR 455 | 4 | Automatic Control | Summer | EGR 323 | All |
| EGR 435 | 3 | Mathematical Modeling of Physiologic Systems | Winter | MTH 302 | All |

## 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

Elizabeth Brand, brandeli@gvsu.edu
Jessica Noble, noblejes@gvsu.edu
Audra Pretty-Smith, prettyau@gvsu.edu
Colin DeKuiper, dekuipec@gvsu.edu
Mary Nuznov, nuznovma@gvsu.edu
Sara Wheeler, wheelesa@gvsu.edu