

Interdisciplinary Engineering (Renewable Energy Emphasis – Solar/All Track)  
Grand Valley State University 2021-22 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: F & M    | 5 credits |
| *WRT 150                                 | Writing Strategies    | 4 credits |
| OR WRT 120/WRT 130 (may change timeline) |                       |           |
| *EGR 100                                 | Intro to EGR          | 1 credit  |
| *EGR 111                                 | Intro to EGR Graphics | 1 credit  |
| General Education Course                 |                       | 3 credits |

**2nd Semester Winter: 14 credits**

|                          |                      |           |
|--------------------------|----------------------|-----------|
| *MTH 201                 | Calculus 1           | 4 credits |
| *CHM 115                 | Chemistry 1          | 4 credits |
| *EGR 112                 | Appl Program for EGR | 2 credits |
| *EGR 113                 | Intro to CAD/CAM     | 1 credit  |
| General Education Course |                      | 3 credits |

**3rd Semester Fall: 12 credits**

|          |                       |           |
|----------|-----------------------|-----------|
| *MTH 202 | Calculus 2            | 4 credits |
| *EGR 185 | First-Year EGR Design | 2 credits |
| *STA 220 | Stat Modeling for EGR | 2 credits |
| *EGR 220 | EGR Measure & Data    | 1 credit  |
| BIO 105  | Environmental Science | 3 credits |

**4th Semester Winter: 15 credits**

|                |                         |           |
|----------------|-------------------------|-----------|
| *MTH 203       | Calculus 3              | 4 credits |
| *PHY 230       | Physics 1               | 5 credits |
| EGR 224        | Intro to Digital System | 3 credits |
| ECO 210 OR 211 | Economics               | 3 credits |

**5th Semester Fall: 13-14 credits**

|                 |                             |             |
|-----------------|-----------------------------|-------------|
| *PHY 234 or 231 | Physics 2                   | 4-5 credits |
| *EGR 209        | Mechanics and Machines      | 4 credits   |
| *EGR 226        | Microcontroller Program     | 3 credits   |
| *EGR 227        | Microcontroller Program Lab | 1 credit    |
| *EGR 289        | EGR Professionalism         | 1 credit    |

**6th Semester Winter: 15 credits**

|          |                           |           |
|----------|---------------------------|-----------|
| *MTH 302 | Linear Algebra/Diff Eq    | 4 credits |
| *EGR 223 | Prob. & Signal Analysis   | 3 credits |
| *EGR 257 | Elec. Materials & Devices | 4 credits |
| *EGR 214 | Circuit Analysis 1        | 3 credits |
| *EGR 215 | Circuit Analysis 1 Lab    | 1 credit  |

**Spring/Summer Semester: 3 credits**

|         |                     |           |
|---------|---------------------|-----------|
| EGR 290 | Engineering Co-op 1 | 3 credits |
|---------|---------------------|-----------|

**7th Semester Fall: 14-15 credits**

|                           |                    |             |
|---------------------------|--------------------|-------------|
| EGR 314                   | Circuit Analysis 2 | 4 credits   |
| EGR 326 or 345            |                    | 4 credits   |
| EGR 360 or IE Track Elec. | (See Notes)        | 3-4 credits |
| General Education Course  |                    | 3 credits   |

**Winter Semester: 3 credits**

|         |                     |           |
|---------|---------------------|-----------|
| EGR 390 | Engineering Co-op 2 | 3 credits |
|---------|---------------------|-----------|

**8th Semester Spring/Summer: 12-15 credits**

|                           |             |             |
|---------------------------|-------------|-------------|
| EGR 330 or IE Track Elec. | (See Chart) | 3-4 credits |
| EGR 323 or IE Track Elec. | (See Chart) | 3-4 credits |
| EGR 362 or IE Track Elec. | (See Notes) | 3-4 credits |
| General Education Course  |             | 3 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   |
| IE Track Elec. | (See Chart)              | 3-4 credits |
| GEO 360        | Earth Res. Transition    | 3 credits   |

**10th Semester Spring/Summer: 8-9 credits**

|                          |                      |             |
|--------------------------|----------------------|-------------|
| EGR 486                  | Senior EGR Project 2 | 2 credits   |
| IE Track Elec.           | (See Chart)          | 3-4 credits |
| General Education Course |                      | 3 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 – Solar/All Track)

Grand Valley State University 2021-22 Catalog

MTH 124 Placement – 5 year program

## 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.

| 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? | 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

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