

Interdisciplinary Engineering

Renewable Energy Emphasis- Wind Turbine/Alternative Cars Track

MTH 123 Start, 5 Year Plan

Secondary Admission Required

| 1st Year | | | | | |
|--|-----------|---------------------------------------|------------|---------------------------------------|--------------|
| Fall | | Winter | | Spring/Summer | |
| MTH 123: Trigonometry | 3 | *MTH 201: Calculus 1 | 4 | | |
| *WRT 150: Strategies in Writing or WRT 120 and WRT 130 | 4 | *CHM 115: Chemistry I | 4 | | |
| *EGR 100: Intro to EGR | 1 | *EGR 108: Applied Programming II | 2 | | |
| *EGR 111: Intro to EGR Graphics | 1 | *EGR 113: Intro to CAD/CAM | 1 | | |
| *EGR 104: Applied Programming I | 2 | ECO 210 or 211: Economics | 3 | | |
| General Education | 3 | | | | |
| Total | 14 | Total | 14 | | |
| 2nd Year | | | | | |
| Fall | | Winter | | Spring/Summer | |
| *MTH 202: Calculus 2 | 4 | *MTH 203: Calculus 3 | 4 | | |
| *STA 220: Statistical Modeling for EGR | 2 | *PHY 230: Physics 1 | 5 | | |
| *EGR 220: EGR Measure & Data | 1 | *EGR 226: Microcontroller Program | 3 | | |
| *EGR 185: First-Year EGR Design | 2 | *EGR 227: Microcontroller Program Lab | 1 | | |
| BIO 105: Environmental Science | 3 | General Education | 3 | | |
| Total | 12 | Total | 16 | | |
| 3rd Year | | | | | |
| Fall | | Winter | | Spring/Summer | |
| *PHY 234 or 231 Physics 2 | 4/5 | *MTH 302: Linear Algebra/Diff Eq | 4 | EGR 290: Engineering Co-op 1 | 3 |
| *EGR 214: Circuit Analysis 1 | 3 | *EGR 309: Machine Design I | 3 | | |
| *EGR 215: Circuit Analysis 1 Lab | 1 | *EGR 310: Machine Design I Lab | 1 | | |
| *EGR 209: Mechanics and Machines | 4 | *EGR 250: Materials Science & EGR | 3 | | |
| *EGR 289: EGR Professionalism | 1 | *EGR 251: Materials Science & EGR Lab | 1 | | |
| | | EGR 312: Dynamics | 3 | | |
| Total 13-14 | | Total | 15 | Total | 3 |
| 4 th Year ~ Admission Required | | | | | |
| Fall | | Winter | | Spring/Summer | |
| EGR 360 or IE Track Elec. (See Chart) | 3/4 | EGR 390: Engineering Co-op 2 | 3 | EGR 362 or IE Track Elec. (See Chart) | 3/4 |
| EGR 345 or 346: Dyna. Sys./Mech. Sys. | 4 | IE Track Elec. (EGR 450 Recommended) | 3/4 | EGR 365 or IE Track Elec. (See Chart) | 3/4 |
| IE Track Elec. (EGR 352 Recommended) | 3/4 | | | General Education (Select 2) | 6 |
| General Education | 3 | | | | |
| Total 13/15 | | Total | 6/7 | Total | 12/14 |
| 5 th Year ~ Admission Required | | | | | |
| Fall | | Winter | | Spring/Summer | |
| EGR 490: Engineering Co-op 3 | 3 | EGR 485: Senior EGR Project 1 | 1 | EGR 486: Senior EGR Project 2 | 2 |
| EGR 463: Alt Energy Sys & Appl. | 4 | EGR 406: Renewable Energy Sys. | 3 | IE Track Elec. (EGR 405 Recommended) | 3-4 |
| | | EGR 413: Mater. Energy Storage | 3 | | |
| | | IE Track Elec. (EGR 465 Recommended) | 3/4 | | |
| | | GEO 360: Earth Res. Transition | 3 | | |
| Total | 7 | Total 13 -14 | | Total | 5-6 |

- This is a suggested curriculum guide that might not be applicable to every student
- Foundation courses are required for secondary admission and are designated by an asterisk (*) on this guide
- Student must have a **minimum of 120 credits** to graduate, with **58 of the 120 credits** being from a senior level institution and the **final 30 of the 120 credits** completed at GVSU

Padnos College of Engineering and Computing ~ Student Services Office

B-3-241 Mackinac Hall and 101 Eberhard Center

(616) 331-6025 or online at www.gvsu.edu/pcec/advising

| ✓ | IE-Renewable Energy Foundation Requirements | ✓ | General Education Requirements |
|---|---|---|---|
| | MTH 201 | | WRT 150: Strategies in Writing (grade of "C" or higher required) or WRT 120 and WRT 130 |
| | MTH 202 | | Life Sciences (consider BIO 105) |
| | MTH 203 | | Physical Sciences (CHM 115) |
| | MTH 302 | | Philosophy and Literature (consider PHI 102) |
| | CHM 115 | | Arts |
| | PHY 230 | | Mathematical Sciences (MTH 201) |
| | PHY 234 or 231 | | Social Behavioral Sciences (ECO 210 or 211) |
| | WRT 150 | | Social Behavioral Sciences |
| | EGR 100 | | Historical Analysis (consider HSC 202) |
| | EGR 111 | | U.S. Diversity |
| | EGR 112 or EGR 104 + EGR 108 | | Global Perspectives |
| | EGR 113 | | 2 Supplemental Writing Skills Courses (prerequisite: WRT 130 or 150) |
| | EGR 185 | | 2 Issues Courses (must have 55+ credits) |
| | EGR 289 | | |
| | EGR 220+STA 220 | | |
| | EGR 214+215 | | |
| | EGR 226+227 | | |
| | EGR 209 | | |
| | EGR 309 + 310 | | |
| | EGR 250 + 251 | | |

Secondary Admission Requirements:

Detailed application and admission requirements available at <https://www.gvsu.edu/engineering/secondary-admission-to-engineering-majors-44.htm>

- ✓ A GPA of 2.7 or above in Engineering Foundation courses. Foundation courses are designated by an asterisk (*) on this guide.
- ✓ Completion of each course in the Engineering Foundation with a grade of C (2.0) or above, with no more than one repeat.
- ✓ Completion of preparation for placement in the cooperative engineering education course, EGR 289.

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.

Recommendations:

It is strongly encouraged that students do not begin or break curriculum thread by taking courses at other institutions.

For example:

Taking MTH 201 equivalent elsewhere, then return to Grand Valley and continuing in the math thread with MTH 202.

| 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 |