

Interdisciplinary Engineering (Data Science Emphasis)

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
General Education Course

3rd Semester Fall: 12 credits

*MTH 202 Calculus 2
*EGR 185 First-Year Engineering Design
General Education Courses (Select 2)

4th Semester Winter: 15 credits

*MTH 203 Calculus 3
*STA 220 Statistical Modeling for Engineers
*EGR 220 Egr Measurement and Data Analysis
*PHY 230 Physics 1
General Education Course

5th Semester Fall: 13-14 credits

*PHY 234 or 231 Physics 2
*EGR 209 Mechanics and Machines
*EGR 226 Microcontroller Programming
*EGR 289 Engineering Co-op Preparation

6th Semester Winter: 16 credits

*MTH 302 Linear Algebra and Differential Equations
*EGR 309 Machine Design 1
*EGR 250 Materials Science and Engineering
*EGR 214 Circuit Analysis 1

Spring/Summer Semester: 6 credits

EGR 290 Engineering Co-op 1
STA 216 Intermediate Applied Statistics

7th Semester Fall: 14-15 credits

EGR 345 Dynamic System Modeling and Control
EGR 367 Manufacturing Processes
STA 321 Applied Regression Analysis
OR EGR 435 Math. Model of Phys. Sys. (Winter Only)
CIS 161 Computational Science
OR CIS 162 Computer Science 1

Winter Semester: 3 credits

EGR 390 Engineering Co-op 2

8th Semester Spring/Summer: 14 credits

EGR 362 Thermal and Fluid Systems
EGR 440 Introduction to Production
EGR 441 Egr Econ, Quality Control, & Mfg Oper.
ECO 210 OR 211 Economics

Fall Semester: 3 credits

EGR 490 Engineering Co-op 3

9th Semester Winter: 13 credits

EGR 485 Senior Engineering Project 1
CIS 335 Data Mining
CIS 360 Information Management and Science
STA 426 Multivariate Data Analysis
IE Elective or General Education Course

10th Semester Spring/Summer: 11-14 credits

EGR 486 Senior Engineering Project 2
IE Elective and/or 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.

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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 – Data Science Emphasis**.
- 3) Click “Submit” and then “Change to New Program.”
- 4) Students are required to complete one IE Elective, students may enroll in STA 314, EGR 641 or EGR 642. Please plan ahead! Course descriptions are listed in the [GVSU Academic Catalog](#).

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 | |
| Life Sciences | | Social & Behavioral Sciences (ECO 210/211) | | U.S. Diversity | |
| Arts | | Social & Behavioral Sciences | | Issues | |
| Philosophy & Literature | | Historical Perspectives | | Issues | |

- 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.**

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.

PCEC Advisors

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