Interdisciplinary Engineering (Mechatronics Emphasis)

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
*EGR 112 Applied Programming for Engineers
*EGR 113 Introduction to CAD/CAM
*CHM 115 Chemistry 1
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
General Education Course

4th Semester Winter: 15 credits

*MTH 203 Calculus 3
*PHY 230 Physics 1
General Education Courses (Select 2)

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 Winter Semester: 14-16 credits

*MTH 302 Linear Algebra and Differential Equations
*EGR 250 Materials Science and Engineering
IE Track (See Chart for Course Selection)
IE Track (See Chart for Course Selection)

Spring/Summer Semester: 6-7 credits

EGR 290 Engineering Co-op 1
IE Track (See Chart for Course Selection)

7th Fall Semester: 12 credits

EGR 314 Circuit Analysis 2
EGR 315 Electronic Circuits 1
IE Track (See Chart for Course Selection)

Winter Semester: 6 credits

EGR 390 Engineering Co-op 2
EGR 312 Dynamics (Sensor Track Only)

8th Semester Spring/Summer: 12 credits

EGR 445 Robotics Systems Engineering
EGR 455 Automatic Control
IE Track (See Chart for Course Selection)

Fall Semester: 6 credits

EGR 490 Engineering Co-op 3
EGR 352 Kinematics & Dynamics (Mech. Track Only)

9th Semester Winter: 12-15 credits

EGR 485 Senior Engineering Project 1
IE Track (See Chart for Course Selection)
IE Track Elec. (See Chart for Course Selection)
AND/OR General Education Courses (Select 3)

10th Semester Spring/Summer: 12 credits

EGR 486 Senior Engineering Project 2
IE Track Elec. (See Chart for Course Selection)
AND/OR General Education Courses (Select 2)

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 – Mechatronics Emphasis***.
3) Click "Submit" and then "Change to New Program."
4) Students are required to complete one IE Track Elective. Please plan ahead! Course descriptions are listed in the GVSU Academic Catalog.

Mechanical Track	
EGR 226	6th Semester Winter (foundation course)
EGR 309	6th Semester Winter
EGR 312	Spring/Summer Co-op
EGR 346	7th Semester Fall
EGR 409	8th Semester Spring/Summer
EGR 352	Fall Co-op
EGR 450	9th Semester Winter
Mechanical Track Electives	
EGR 224	Introduction to Digital System Design
EGR 436	Embedded Systems Interface
EGR 424	Design of Microcontroller Applications
EGR 350	Vibrations

Sensor- Controls Track	
EGR 224	6th Semester Winter
EGR 223	6th Semester Winter
EGR 226	Spring/Summer Co-op (foundation course)
EGR 326	7th Semester Fall
EGR 312	Winter Co-op
EGR 309	8th Semester Spring/Summer
EGR 436	9th Semester Winter
Sensor-Controls Track Electives	
EGR 409	Machine Design 2
EGR 450	Manufacturing Controls
EGR 352	Kinematics and Dynamics of Machinery
EGR 424	Design of Microcontroller Applications

General Education

Category	Completed?	Category	Completed?	Category	Completed?
Physical Sciences (CHM 115)		Mathematical Sciences (MTH 123)		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***.

PCEC Advisors

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