Interdisciplinary Engineering (Mechatronics Emphasis)
Grand Valley State University 2020-21 Catalog
MTH 122 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: 13 credits

MTH 122	College Algebra
*WRT 150	Writing Strategies
OR WRT 120/WRT 130 (may change timeline)	
General Education Courses (Select 2)	

2nd Semester Winter: 12 credits

MTH 123	Trigonometry
*EGR 100	Introduction to Engineering
*EGR 111	Introduction to Engineering Graphics
*CHM 115	Chemistry 1
ECO 210 **OR** 211 Economics	

3rd Semester Fall: 13 credits

*MTH 201	Calculus 1
*EGR 112	Applied Programming for Engineers
*EGR 113	Introduction to CAD/CAM
General Education Courses (Select 2)	

4th Semester Winter: 14 credits

*MTH 202	Calculus 2
*PHY 230	Physics 1
*EGR 185	First-Year Engineering Design
*STA 220	Statistical Modeling for Engineers
*EGR 220	Egr Measurement and Data Analysis

5th 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

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 122)		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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