

Interdisciplinary Engineering (Mechatronics Emphasis)

Grand Valley State University 2021-22 Catalog

MTH 110 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 110	College Algebra	4 credits
*WRT 150	Writing Strategies	4 credits
OR WRT 120/WRT 130 (may change timeline)		
General Education Courses (Select 2)		6 credits

2nd Semester Winter: 14 credits

MTH 124	Precalculus: F & M	5 credits
*CHM 115	Chemistry I	4 credits
*EGR 100	Intro to EGR	1 credit
*EGR 111	Intro to EGR Graphics	1 credit
ECO 210 OR 211	Economics	3 credits

3rd Semester Fall: 13 credits

*MTH 201	Calculus 1	4 credits
*EGR 112	Appl Program for EGR	2 credits
*EGR 113	Intro to CAD/CAM	1 credit
General Education Courses (Select 2)		6 credits

4th Semester Winter: 14 credits

*MTH 202	Calculus 2	4 credits
*PHY 230	Physics 1	5 credits
*EGR 185	First-Year EGR Design	2 credits
*STA 220	Stat Modeling for EGR	2 credits
*EGR 220	EGR Measure & Data	1 credit

5th Semester Fall: 17-18 credits

*MTH 203	Calculus 3	4 credits
*PHY 234 or 231	Physics 2	4-5 credits
*EGR 209	Mechanics and Machines	4 credits
*EGR 214	Circuit Analysis 1	3 credits
*EGR 215	Circuit Analysis 1 Lab	1 credit
*EGR 289	EGR Professionalism	1 credit

6th Winter Semester: 14-16 credits

*MTH 302	Linear Algebra/Diff Eq	4 credits
*EGR 250	Materials Science & EGR	3 credits
*EGR 251	Materials Science & EGR Lab	1 credit
IE Track	(See Chart for Courses)	3-4 credits
IE Track	(See Chart for Courses)	3-4 credits

Spring/Summer Semester: 6-7 credits

EGR 290	Engineering Co-op 1	3 credits
IE Track	(See Chart for Courses)	3-4 credits

7th Fall Semester: 12 credits

EGR 314	Circuit Analysis 2	4 credits
EGR 315	Electronic Circuits 1	4 credits
IE Track	(See Chart for Courses)	4 credits

Winter Semester: 6 credits

EGR 390	Engineering Co-op 2	3 credits
EGR 312	Dynamics (Sensor Track)	3 credits

8th Semester Spring/Summer: 12 credits

EGR 445	Robotics Systems EGR	4 credits
EGR 455	Automatic Control	4 credits
IE Track	(See Chart for Courses)	4 credits

Fall Semester: 7 credits

EGR 490	Engineering Co-op 3	3 credits
EGR 352	Kin. & Dyn. (Mech. Track)	4 credits

9th Semester Winter: 14-15 credits

EGR 485	Senior EGR Project 1	1 credit
IE Track	(See Chart for Courses)	4 credits
IE Track Elec.	(See Chart for Courses)	3-4 credits
AND/OR General Ed Courses (Select 2)		6 credits

10th Semester Spring/Summer: 14-15 credits

EGR 486	Senior EGR Project 2	2 credits
IE Track Elec.	(See Chart for Courses)	3-4 credits
AND/OR General Ed Courses (Select 3)		9 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 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 226/227	6 th Semester Winter (foundation course)
EGR 309/310	6 th Semester Winter
EGR 312	Spring/Summer Co-op
EGR 346	7 th Semester Fall
EGR 409	8 th Semester Spring/Summer
EGR 352	Fall Co-op
EGR 450	9 th 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	6 th Semester Winter
EGR 223	6 th Semester Winter
EGR 226/227	Spring/Summer Co-op (foundation course)
EGR 326	7 th Semester Fall
EGR 312	Winter Co-op
EGR 309/310	8 th Semester Spring/Summer
Sensor-Controls Track Electives	
EGR 436	9 th Semester Winter
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?	Category	Completed?
Physical Sciences (CHM 115)		Mathematical Sciences (MTH 124)		Global Perspectives		Writing (WRT 130 or 150)	
Life Sciences		Social & Behavioral Sciences (ECO 210/211)		U.S. Diversity		SWS #1	
Philosophy & Literature		Social & Behavioral Sciences		Issues		SWS #2	
Arts		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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