

Interdisciplinary Engineering (Mechatronics Emphasis)

Grand Valley State University 2020-21 Catalog

MTH 201 Placement – 4 year Honors 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 201	Calculus 1
*EGR 100	Introduction to Engineering
*EGR 111	Introduction to Engineering Graphics
*EGR 112	Applied Programming for Engineers
HNR 151	First Year Interdisciplinary Sequence 1
HNR 152	First Year Interdisciplinary Sequence 2

2nd Semester Winter: 16 credits

*MTH 202	Calculus 2
*PHY 230	Physics 1
*EGR 113	Introduction to CAD/CAM
HNR 153	First Year Interdisciplinary Sequence 3
HNR 154	First Year Interdisciplinary Sequence 4

Spring/Summer Semester: 10 credits

*MTH 203	Calculus 3
*CHM 115	Chemistry 1
*EGR 185	First-Year Engineering Design

3rd Semester Fall: 16-17 credits

*PHY 234 or 231	Physics 2
*STA 220	Statistical Modeling for Engineers
*EGR 220	Egr Measurement and Data Analysis
*EGR 209	Mechanics and Machines
*EGR 214	Circuit Analysis 1
*EGR 289	Engineering Co-op Preparation

4th Semester Winter: 14-16 credits

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

Spring/Summer Semester: 6-7 credits

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

5th Semester Fall: 15 credits

EGR 314	Circuit Analysis 2
EGR 315	Electronic Circuits 1
IE Track	(See Chart for Course Selection)
HNR 201	Live. Learn. Lead.

Winter Semester: 6 credits

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

6th Semester Spring/Summer: 15 credits

EGR 445	Robotics Systems Engineering
EGR 455	Automatic Control
IE Track	(See Chart for Course Selection)
ECO 210 OR 211	Economics

Fall Semester: 6 credits

EGR 490	Engineering Co-op 3
EGR 352	Kinematics and Dynamics of Machinery (Mechanical Track Only)

7th Semester Winter: 10-12 credits

EGR 485	Senior Engineering Project 1
IE Track	(See Chart for Course Selection)
IE Track Elec.	(See Chart for Course Selection)
HNR 200	Campus/Community Engagement

8th Semester Spring/Summer: 5 credits

EGR 486	Senior Engineering Project 2
HNR 350	Honors Integrative Seminar

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](#).

<u>Mechanical Track</u>	
EGR 226	4 th Semester Winter (foundation course)
EGR 309	4 th Semester Winter
EGR 312	Spring/Summer Co-op
EGR 346	5 th Semester Fall
EGR 409	6 th Semester Spring/Summer
EGR 352	Fall Co-op
EGR 450	7 th Semester Winter
<u>Mechanical Track Electives</u>	
EGR 224	Introduction to Digital System Design
EGR 436	Embedded Systems Interface
EGR 424	Design of Microcontroller Applications
EGR 350	Vibrations

<u>Sensor- Controls Track</u>	
EGR 224	4 th Semester Winter
EGR 223	4 th Semester Winter
EGR 226	Spring/Summer Co-op (Foundation Course)
EGR 326	5 th Semester Fall
EGR 312	Winter Co-op
EGR 309	6 th Semester Spring/Summer
EGR 436	7 th Semester Winter
<u>Sensor-Controls Track Electives</u>	
EGR 409	Machine Design 2
EGR 450	Manufacturing Controls
EGR 352	Kinematics and Dynamics of Machinery
EGR 424	Design of Microcontroller Applications

Honors

The Frederik Meijer Honors College and the School of Engineering have approved the following substitutions for the honors curriculum:

- 1) Together, EGR 100 and EGR 185 fulfill the HNR 251 requirement.
- 2) EGR 485 fulfills the HNR 401 requirement.
- 3) EGR 486 fulfills the HNR 499 requirement.
- 4) The completion of the honors curriculum will fulfill the engineering ethics requirement.

Students are encouraged to plan ahead and submit a proposal for how they plan to fulfill the HNR 200 requirement. All students must complete 3 credits of HNR 200 before graduation. It can be taken as a 1-credit, 2-credit, or 3-credit course. There are three options for fulfilling this honors requirement: **pre-approved activity**, **pre-approved course substitution**, or **an activity or course**. Please work with an honors advisor to determine the best fit for you.

PCEC Advisors

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