

Product Design and Manufacturing Engineering (Robotics and Control Emphasis)  
Grand Valley State University 2020-21 Catalog  
MTH 201 Placement – 4 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: 16 credits**

\*MTH 201      Calculus 1  
\*WRT 150      Writing Strategies  
    **OR** WRT 120/WRT 130 (may change timeline)  
\*EGR 100      Introduction to Engineering  
\*EGR 111      Introduction to Engineering Graphics  
\*EGR 112      Applied Programming for Engineers  
\*CHM 115      Chemistry 1

**2nd Semester Winter: 15 credits**

\*MTH 202      Calculus 2  
\*PHY 230      Physics 1  
\*EGR 113      Introduction to CAD/CAM  
\*EGR 185      First-Year Engineering Design  
\*STA 220      Statistical Modeling for Engineers  
\*EGR 220      Egr Measurement and Data Analysis

**3rd Semester Fall: 17/18 credits**

\*MTH 203      Calculus 3  
\*PHY 234 or 231 Physics 2  
\*EGR 209      Mechanics and Machines  
\*EGR 226      Microcontroller Programming  
\*EGR 289      Engineering Co-op Preparation

**4th 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  
General Education Course

**5th Semester Fall: 15 credits**

EGR 301      Analytical Tools for Product Design  
EGR 345      Dynamic System Modeling and Control  
EGR 367      Manufacturing Processes  
General Education Course

**Winter Semester: 6 credits**

EGR 390      Engineering Co-op 2  
General Education Course

**6th Semester Spring/Summer: 17 credits**

EGR 362      Thermal and Fluid Systems  
EGR 440      Introduction to Production  
EGR 445      Robotic Systems Engineering  
General Education Courses (Select 2)

**Fall Semester: 6 credits**

EGR 490      Engineering Co-op 3  
ECO 210 **OR** 211 Economics

**7th Semester Winter: 14/15 credits**

EGR 485      Senior Engineering Project 1  
EGR 450      Manufacturing Control Systems  
Product Design and Manufacturing Elective  
General Education Courses (Select 2)

**8th Semester Spring/Summer: 15/16 credits**

EGR 486      Senior Engineering Project 2  
EGR 409      Machine Design 2  
Product Design and Manufacturing Elective  
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](http://www.gvsu.edu/pcec/advising) to schedule an appointment.

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Major Notes

An emphasis area is required for the Product Design and Manufacturing Engineering major. Emphasis areas include: Design, General, Manufacturing Systems, and Robotics and Controls

- 1) To declare this emphasis, login to MyBanner, select “Student Records” and then “Change Major.”
- 2) Click on “Change Major 1” and select **Product Design and Manufacturing Engineering – Robotics and Control Emphasis**.
- 3) Click “Submit” and then “Change to New Program.”

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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