

# Product Design and Manufacturing Engineering (Manufacturing Systems Emphasis)

## Grand Valley State University 2020-21 Catalog

### MTH 201 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: 15 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

General Education Course

#### 2nd Semester Winter: 14 credits

\*MTH 202      Calculus 2

\*CHM 115      Chemistry 1

\*EGR 185      First-Year Engineering Design

\*EGR 113      Introduction to CAD/CAM

ECO 210 **OR** 211 Economics

#### 3rd Semester Fall: 13 credits

\*MTH 203      Calculus 3

\*STA 220      Statistical Modeling for Engineers

\*EGR 220      Egr Measurement and Data Analysis

General Education Courses (Select 2)

#### 4th Semester Winter: 15 credits

\*MTH 302      Linear Algebra and Differential Equations

\*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 226      Microcontroller Programming

\*EGR 289      Engineering Co-op Preparation

#### 6th Semester Winter: 15 credits

\*EGR 309      Machine Design 1

\*EGR 250      Materials Science and Engineering

\*EGR 214      Circuit Analysis 1

General Education Course

#### Spring/Summer Semester: 3 credits

EGR 290      Engineering Co-op 1

#### 7th 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: 3 credits

EGR 390      Engineering Co-op 2

#### 8th Semester Spring/Summer: 13 credits

EGR 362      Thermal and Fluid Systems

EGR 440      Introduction to Production

EGR 441      Engineering Economics, Quality Control,  
and Manufacturing Operations

General Education Course

#### Fall Semester: 3 credits

EGR 490      Engineering Co-op 3

#### 9th Semester Winter: 12 credits

EGR 485      Senior Engineering Project 1

EGR 404      Polymer Science and Processing

EGR 450      Manufacturing Control Systems

General Education Course

#### 10th Semester Spring/Summer: 8-10 credits

EGR 486      Senior Engineering Project 2

Product Design and Manufacturing Electives (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 – Manufacturing Systems 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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