

Bachelor of Science in Engineering (B.S.E.)
Product Design & Manufacturing Engineering

2025 – 2026
Catalog Year

MTH 201 Start, 5 Year Plan

Secondary Admission Required

The first 3 years on this plan is for all emphasis areas. After secondary admission, consult specific emphasis area plan.

1st Year				
Fall		Winter		Spring/Summer
*MTH 201: Calculus 1	4	*MTH 202: Calculus 2	4	
*WRT 150: Strategies in Writing or WRT 120 and WRT 130	4	*CHM 125 + 126: Chemistry 1	4	
*EGR 100: Intro to Engineering	1	*EGR 113: Intro to CAD/CAM	1	
*EGR 111: Intro to Engineering Graphics	1	*EGR 185: First-Year EGR Design	2	
*EGR 104: Applied Programming for EGR 1	2	*EGR 108: Applied Programming for EGR 2	2	
Total	12	Total	13	
2nd Year				
Fall		Winter		Spring/Summer
*MTH 203: Calculus 3	4	*MTH 302: Linear Algebra/Differential EQ	4	
*STA 220: Statistical Modeling for EGR	2	*PHY 230: Physics 1	5	
*EGR 220: EGR Measure & Data	1	General Education	3	
*EGR 185: First-Yr EGR Design	2	General Education	3	
General Education	3			
Total	12	Total	15	
3rd Year				
Fall		Winter		Spring/Summer
*PHY 231: Physics 2	5	*EGR 214: Circuit Analysis 1	3	EGR 290: Engineering Co-Op 1 3
*EGR 226: Microcontroller Program	3	*EGR 215: Circuit Analysis 1 Lab	1	
*EGR 227: Microcontroller Program Lab	1	*EGR 309: Machine Design 1	3	
*EGR 209: Mechanics & Machines	4	*EGR 310: Machine Design 1 Lab	1	
*EGR 289: EGR Professionalism	1	*EGR 250: Materials Science & EGR	3	
		*EGR 251: Materials Science & EGR Lab	1	
		General Education	3	
Total	14	Total	15	Total 3

GENERAL EMPHASIS:

4 th Year ~ Admission Required				
Fall		Winter		Spring/Summer
EGR 301: Analytical Tools for PDM	4	EGR 390: Engineering Co-Op 2	3	EGR 362: Thermal & Fluid Sys 4
EGR 345: Dynamic System Modeling	4			EGR 440: Intro to Production 3
EGR 367: Mfg Processes	3			PDM Elective 3-4
EGR 368: Mfg Processes Lab	1			General Education 3
ECO 210 or 211: Economics	3			
Total	15	Total	3	Total 13-14
5 th Year ~ Admission Required				
Fall		Winter		Spring/Summer
EGR 490: Engineering Co-Op 3	3	EGR 485: Senior EGR Project 1	1	EGR 486: Senior EGR Project 2 2
		EGR 401: Advanced Product Design	4	PDM Elective 3-4
		EGR 450: Mfg Control Systems	4	General Education 3
		PDM Elective	3-4	General Education 3
Total	3	Total	12-13	Total 11-12

- This is a suggested curriculum guide that might not be applicable to every student. Please consult your academic advisor.
- Foundation courses are required for secondary admission and are designated by an asterisk (*) on this guide
- Student must have a **minimum of 120 credits** to graduate, with **58 of the 120 credits** being from a senior level institution and the **final 30 of the 120 credits** completed at GVSU

The plan on page 1 is for the PDM-General Emphasis area. There are 3 other emphasis areas.
Below are the plans for post-secondary admission for each emphasis area.

DESIGN EMPHASIS:

4 th Year ~ Admission Required					
Fall		Winter		Spring/Summer	
EGR 301: Analytical Tools for PDM	4	EGR 390: Engineering Co-Op 2	3	EGR 362: Thermal & Fluid Sys	4
EGR 345: Dynamic System Modeling	4	General Education	3	EGR 329: Intro to FEA	3
EGR 367: Mfg Processes	3			EGR 405: Mat. Failure Analysis	3
EGR 368: Mfg Processes Lab	1			ECO 210 or 211: Economics	3
General Education	3			General Education	3
Total	15	Total	6	Total	16
5 th Year ~ Admission Required					
Fall		Winter		Spring/Summer	
EGR 490: Engineering Co-Op 3	3	EGR 485: Senior Project I	1	EGR 486: Senior Project 2	2
General Education	3	EGR 401: Advanced Product Design	4	EGR 440: Intro to Production	3
		PDM Elective	3-4	General Education	3
		PDM Elective	3-4	General Education	3
		General Education	3	General Education	3
Total	6	Total	14-16	Total	14

MANUFACTURING SYSTEMS EMPHASIS:

4 th Year ~ Admission Required					
Fall		Winter		Spring/Summer	
EGR 301: Analytical Tools for PDM	4	EGR 390: Engineering Co-Op 2	3	EGR 362: Thermal & Fluid Sys	4
EGR 345: Dynamic System Modeling	4	General Education	3	EGR 440: Intro to Production	3
EGR 367: Mfg Processes	3			EGR 441: EGR Economics	4
EGR 368: Mfg Processes Lab	1			General Education	3
ECO 210 or 211: Economics	3			General Education	3
Total	15	Total	6	Total	17
5 th Year ~ Admission Required					
Fall		Winter		Spring/Summer	
EGR 490: Engineering Co-Op 3	3	EGR 485: Senior Project 1	1	EGR 486: Senior Project 2	2
General Education	3	EGR 404: Polymer Science	4	PDM Elective	3-4
		EGR 450: Mfg Control Systems	4	PDM Elective	3-4
		General Education	3	General Education	3
		General Education	3	General Education	3
Total	6	Total	15	Total	14-16

ROBOTICS EMPHASIS:

4 th Year ~ Admission Required					
Fall		Winter		Spring/Summer	
EGR 301: Analytical Tools for PDM	4	EGR 390: Engineering Co-Op 2	3	EGR 362: Thermal & Fluid Sys	4
EGR 345: Dynamic System Modeling	4	General Education	3	EGR 440: Intro to Production	3
EGR 367: Mfg Processes	3			EGR 445: Robotic Systems EGR	4
EGR 368: Mfg Processes Lab	1			ECO 210 or 211: Economics	3
General Education	3			General Education	3
Total	15	Total	6	Total	17
5 th Year ~ Admission Required					
Fall		Winter		Spring/Summer	
EGR 490: Engineering Co-Op 3	3	EGR 485: Senior Project 1	1	EGR 486: Senior Project 2	2
General Education	3	EGR 450: Mfg Control Systems	4	EGR 409: Machine Design 2	4
		PDM Elective	3-4	PDM Elective	3-4
		General Education	3	General Education	3
		General Education	3	General Education	3
Total	6	Total	14-15	Total	15-16

PDM Foundation Requirements			
MTH 201	MTH 202	MTH 203	MTH 302
WRT 150 or WRT 130	CHM 125 + 126	PHY 230	PHY 231
EGR 100	EGR 111	EGR 112 (or EGR 104 + EGR 108)	EGR 113
EGR 185	EGR 289	EGR 220 + STA 220	EGR 214 + 215
EGR 226 + 227	EGR 209	EGR 309 + 310	EGR 250 + 251

General Education Requirements	
WRT 150: Strategies in Writing (grade of "C" or higher required) or WRT 120 and WRT 130 (grade of "C" or higher required in both)	Life Sciences (consider BIO 105)
Physical Sciences (CHM 125 + 126)	Philosophy and Literature
Arts	Mathematical Sciences (MTH 201)
2 Social Behavioral Sciences (one must be ECO 210 or 211)	Global Perspectives
Historical Analysis (consider HSC 202)	U.S. Diversity
2 Issues Courses (Prerequisite: must have 55+ credits. Consider EGR 302, ART 373 or ART 394)	2 Supplemental Writing Skills Courses (prerequisite: WRT 130 or WRT 150)

Secondary Admission Requirements:

Detailed application and admission requirements available at <https://www.gvsu.edu/engineering/secondary-admission-to-engineering-majors-44.htm>

- ✓ A GPA of 2.7 or above in Engineering Foundation courses. Foundation courses are designated by an asterisk (*) on this guide.
- ✓ Completion of each course in the Engineering Foundation with a grade of C (2.0) or above, with no more than one repeat.
- ✓ Completion of preparation for placement in the cooperative engineering education course, EGR 289.

Major Declaration Steps:

- ✓ An emphasis area is required for the Product Design and Manufacturing Engineering major. A list of major elective options is listed in the GVSU Academic Catalog.
- ✓ To declare this emphasis, login to MyBanner, select "Student Records" and then "Change Major."
 - Click on "Change Major 1" and select Product Design and Manufacturing - General Emphasis.
 - Click "Submit" and then "Change to New Program."

Major Emphasis Options:

There are 4 emphasis areas to choose from within the PDM major: General (see page 1), Design, Manufacturing Systems, and Robotics. See page 3 for post-secondary admission program plans for these emphasis areas.

Major Notes:

- 1) It is recommended that anyone on a 5-year EGR plan complete the EGR 104+108 stretch option in place of EGR 112. Please speak with an advisor if you have questions about which option is best for you.
- 2) In the Manufacturing Systems emphasis, EGR 450 and a PDM elective from the 4th year Summer can be taken in either semester.
- 3) In the Robotics emphasis, EGR 409 and EGR 445 can be taken in either semester.
- 4) Consider taking a course that fulfills both the U.S. Diversity category and one non-ECO Social and Behavioral Science course.
- 5) Consider taking a course that fulfills both the Global Perspectives category and one Issues course.
- 6) An ethics course is required in the engineering program. It is recommended to take **ONE** of the following:
 - a. EGR 302 (Engineering Decision-Making in Society), BIO 328, BIO 338, COM 438, MGT 340, MGT 438, MKT 375, PHI 325 or PLS 338 in the Issues category
 - b. PHI 102 in the Philosophy and Literature category
 - c. For Honors College students, the ethics requirement is fulfilled by completion of the Honors Curriculum
- 7) ECO 210 or 211 is required for the engineering major AND fulfills one Social and Behavioral Sciences course.
- 8) 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**
- 9) STA 215 may substitute for the STA 220 requirement.
- 10) MTH 302, Linear Algebra and Differential Equations = MTH 204, Linear Algebra + MTH 304, Analysis of Differential Equations
 - a. Completing the split (2 class) version can be advantageous to students completing a math minor. See your advisor for additional information.

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.