SEYMOUR AND ESTHER PADNOS COLLEGE OF ENGINEERING
GRAND VALLEY STATE UNIVERSITY

Bachelor of Science in Engineering (B.S.E.)

Product Design & Manufacturing Engineering:

Honors College: MTH 201 Start, 4 Year Plan

Secondary Admission Required

2025 – 2026 Catalog Year

The first 2 years on the plan below is for all emphasis areas. After secondary admission, see emphasis area for plan.

1st Year

Fall		Winter		Spring/Summer	
*MTH 201: Calculus 1	4	*MTH 202: Calculus 2	4	*EGR 185: First-Year EGR Design	2
*EGR 100: Intro to EGR	1	*PHY 230: Physics 1	5	*CHM 125 + 126: Chemistry 1	4
*EGR 111: Intro to EGR Graphics	1	*EGR 113: Intro to CAD/CAM	1	*MTH 203: Calculus 3	4
*EGR 112: Appl Program for EGR	2	HNR 153: Interdisciplinary Sequence 3	3		
HNR 151: Interdisciplinary Sequence 1	3	HNR 154: Interdisciplinary Sequence 4	3		
HNR 152: Interdisciplinary Sequence 2	3				
Total	**14**	**Total**	**16**	**Total**	**10**

2nd Year

Fall		Winter		Spring/Summer	
*PHY 231: Physics 2	5	*MTH 302: Linear Algebra/Diff Eq	4	EGR 290: Engineering Co-op 1	3
*STA 220: Stat Modeling for EGR	2	*EGR 214: Circuit Analysis 1	3		
*EGR 220: EGR Measurement and Data	1	*EGR 215: Circuit Analysis 1 Lab	1		
*EGR 209: Mechanics and Machines	4	*EGR 309: Machine Design 1	3		
*EGR 226: Microcontroller Program	3	*EGR 310: Machine Design 1 Lab	1		
*EGR 227: Microcontroller Program Lab	1	*EGR 250: Materials Sci & EGR	3		
*EGR 289: EGR Professionalism	1	*EGR 251: Materials Sci & EGR Lab	1		
Total	**17**	**Total**	**16**	**Total**	**3**

GENERAL EMPHASIS:

3rd 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 Model	4			EGR 440: Intro to Production	3
EGR 367: Mfg Processes	3			PDM Elective	3-4
EGR 368: Mfg Processes Lab	1			Supplemental Writing Skills	3
HNR 201: Live. Learn. Lead	3				
Total	**15**	**Total**	**3**	**Total**	**13-14**

4th 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	ECO 210 or 211: Economics	3
		PDM Elective	3-4		
		HNR 350: Integrative Seminar	3		
Total	**3**	**Total**	**15-16**	**Total**	**8-9**

- This is a suggested curriculum guide that might not be applicable to every student
- 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

Padnos College of Engineering Undergraduate Advising Center
Innovation Design Center, Suite 212
(616) 331-6025 or online at www.gvsu.edu/pce/advising

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:

3rd 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	2			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**
4th 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:

3rd 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**
4th 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:

3rd 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**
4th 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-General 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

Honors Requirements	
HNR 151	HNR 152
HNR 153	HNR 154
HNR 300 (fulfilled by EGR 290)	HNR 201
HNR 251 (fulfilled by EGR 100 + EGR 185)	HNR 350
HNR 401/499 (fulfilled by EGR 485 + EGR 486)	

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:

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

Honors:

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

1) In the Manufacturing Systems emphasis, EGR 450 and a PDM elective from the 4th year Summer can be taken interchangeably.
2) In the Robotics emphasis, EGR 409 and EGR 445 can be taken interchangeably.
3) Together, EGR 100 and EGR 185 fulfill the HNR 251 requirement.
4) EGR 290 fulfills the HNR 300 requirement.
5) EGR 485 fulfills the HNR 401 requirement.
6) EGR 486 fulfills the HNR 499 requirement.
7) The completion of the honors curriculum will fulfill the engineering ethics requirement.
8) All GVSU students must earn credit for two Supplemental Writing Skills (SWS) courses. Honors students can earn credit for one SWS course by completing HNR 154 (the winter semester of a first-year sequence) with a grade of C or better. They must earn their second SWS course credit outside of the Honors requirements.

Recommendations:

1. It is strongly encouraged that students do not begin or break curriculum thread by taking courses at other institutions.
    a. *For example*: Taking MTH 201 equivalent elsewhere, then return to Grand Valley and continuing in the math thread with MTH 202.
2. 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.