

Bachelor of Science in Engineering (B.S.E.)
Biomedical Engineering:
Product Design & Manufacturing Emphasis
MTH 201 Start, 4 Year Plan
 Secondary Admission Required

1st Year					
Fall		Winter		Spring/Summer	
*MTH 201: Calculus I	4	*MTH 202: Calculus 2	4		
*CHM 115: Chemistry I	4	*PHY 230: Physics I	5		
*WRT 150: Strategies in Writing or WRT 120 <u>and</u> WRT 130	4	*EGR 113: Intro to CAD/CAM	1		
*EGR 100: Intro to Engineering	1	*EGR 185: First-Year Engineering Design	2		
*EGR 111: Intro to Engineering Graphics	1	*EGR 220: Engineering Measure & Data	1		
*EGR 112: Applied Programming for EGR	2	*STA 220: Statistical Modeling for Engineering	2		
Total	16	Total	15		
2nd Year					
Fall		Winter		Spring/Summer	
*MTH 203: Calculus 3	4	*MTH 302: Linear Algebra/Diff Eq	4	EGR 290: EGR Co-Op I	3
*PHY 231 or 234: Physics 2	4-5	*EGR 214: Circuit Analysis I	3	General Education	3
*EGR 209: Mechanics and Machines	4	*EGR 215: Circuit Analysis I Lab	1		
*EGR 226: Microcontroller Programming	3	*EGR 309: Machine Design I	3		
*EGR 227: Microcontroller Program. Lab	1	*EGR 310: Machine Design I Lab	1		
*EGR 289: Engineering Professionalism	1	*EGR 250: Materials Science & EGR	3		
		*EGR 251: Materials Science & EGR Lab	1		
Total	17-18	Total	15	Total	6
3rd Year ~ Admission Required					
Fall		Winter		Spring/Summer	
EGR 301: Analytical Tools for PDM	3	EGR 390: Engineering Co-Op 2	3	EGR 362: Thermal & Fluid Sys	4
EGR 345: Dynamic System Modeling	1	General Education	3	CHM 230: Intro Orgo/Biochem	4
EGR 367: Mfg Processes	4			General Education	3
EGR 368: Mfg Processes Lab	4			General Education	3
BMS 202: Anatomy and Physiology	4			General Education	3
Total	16	Total	6	Total	17
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
EGR 453: Biomedical Materials	3	EGR 403: Medical Device Design	3	ECO 210 or 211: Economics	3
		EGR 435: Math Models of Physiologic Systems	3	Biomedical EGR Elective	3
		Biomedical Engineering Elective	3	General Education	3
		General Education	3	General Education	3
Total	6	Total	13	Total	14

- 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

√	BME-ME Foundation Requirements	√	General Education Requirements
	MTH 201		WRT 150: Strategies in Writing (grade of "C" or higher required) or WRT 120 and WRT 130
	MTH 202		Life Sciences (BMS 202)
	MTH 203		Physical Sciences (CHM 115)
	MTH 302		Philosophy and Literature (consider PHI 102)
	CHM 115		Arts
	PHY 230		Mathematical Sciences (MTH 201)
	PHY 231 or 234		Social Behavioral Sciences (ECO 210 or 211)
	WRT 150		Social Behavioral Sciences
	EGR 100		Historical Analysis (consider HSC 202)
	EGR 111		U.S. Diversity
	EGR 112		Global Perspectives
	EGR 113		2 Supplemental Writing Skills Courses (prerequisite: WRT 130 or 150)
	EGR 185		2 Issues Courses (must have 55+ credits)
	EGR 289		
	EGR 220+STA 220		
	EGR 214+215		
	EGR 226+227		
	EGR 209		
	EGR 309+310		
	EGR 312		

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 the Engineering Foundation courses. Engineering 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."
- 3) Click on "Change Major 1" and select Biomedical Engineering – Mechanical Emphasis.
- 4) Click "Submit" and then "Change to New Program."
- 5) Other emphasis areas within Biomedical Engineering include Electrical and Product Design and Manufacturing.

Major Notes:

- 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.