

# Biomedical Engineering (Mechanical 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: 15 credits

*MTH 302	Linear Algebra and Differential Equations
*EGR 309	Machine Design I
*EGR 312	Dynamics
*EGR 214	Circuit Analysis 1

## Spring/Summer Semester: 6 credits

EGR 290	Engineering Co-op 1
General Education Course	

## 5th Semester Fall: 16 credits

EGR 250	Materials Science and Engineering
EGR 346	Mechatronics and Control
CHM 230	Intro to Organic and Biochemistry
BMS 202	Anatomy & Physiology

## Winter Semester: 6 credits

EGR 390	Engineering Co-op 2
General Education Course	

## 6th Semester Spring/Summer: 13 credits

EGR 362	Thermal & Fluid Systems
General Education Courses (Select 4)	

## Fall Semester: 6 credits

EGR 490	Engineering Co-op 3
EGR 453	Biomedical Materials

## 7th Semester Winter: 13-14 credits

EGR 485	Senior Engineering Project 1
EGR 447	Engineering Mechanics of Human Motion
EGR 435	Mathematical Modeling of Physiologic Systems
EGR 403	Medical Device Design
Biomedical Engineering Elective	

## 8th Semester Spring/Summer: 14-15 credits

EGR 486	Senior Engineering Project 2
Biomedical Engineering Elective	
ECO 210 OR 211 Economics	
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 Biomedical Engineering major. A list of major elective options is listed in the [GVSU Academic Catalog](#).

- 1) To declare this emphasis, login to MyBanner, select “Student Records” and then “Change Major.”
- 2) Click on “Change Major 1” and select **Biomedical Engineering – Mechanical Emphasis**.
- 3) Click “Submit” and then “Change to New Program.”
- 4) Other emphasis areas within Biomedical Engineering include Electrical and Product Design and Manufacturing.

## General Education

Category	Completed?	Category	Completed?	Category	Completed?
Physical Sciences (CHM 115)		Mathematical Sciences (MTH 201)		Global Perspectives	
Life Sciences (BMS 202)		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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