

Biomedical Engineering (Electrical Emphasis)

Grand Valley State University 2020-21 Catalog

MTH 123 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: 12 credits

MTH 123 Trigonometry
*WRT 150 Writing Strategies
OR WRT 120/WRT 130 (may change timeline)
*EGR 100 Introduction to Engineering
*EGR 111 Introduction to Engineering Graphics
General Education Course

2nd Semester Winter: 14 credits

*MTH 201 Calculus 1
*CHM 115 Chemistry I
*EGR 112 Applied Programming for Engineers
*EGR 113 Introduction to CAD/CAM
General Education Course

3rd Semester Fall: 14 credits

*MTH 202 Calculus 2
*PHY 230 Physics 1
*EGR 185 First-Year Engineering Design
*STA 220 Statistical Modeling for Engineers
*EGR 220 Egr Measurement and Data Analysis

4th Semester Winter: 14/15 credits

*MTH 203 Calculus 3
*PHY 234 or 231 Physics 2
General Education Courses (Select 2)

5th Semester Fall: 12 credits

*EGR 224 Introduction to Digital System
*EGR 226 Microcontroller Programming
*EGR 214 Circuit Analysis 1
*EGR 289 Engineering Co-op Preparation

6th Semester Winter: 14 credits

*MTH 302 Linear Algebra and Differential Equations
*EGR 223 Probability & Signal Analysis
*EGR 257 Electronic Materials & Devices
ECO 210 OR 211 Economics

Spring/Summer Semester: 3 credits

EGR 290 Engineering Co-op 1

7th Semester Fall: 16 credits

EGR 314 Circuit Analysis 2
EGR 315 Electronic Circuits 1
EGR 326 Embedded System Design
CHM 230 Intro to Organic and Biochemistry

Winter Semester: 3 credits

EGR 390 Engineering Co-op 2

8th Semester Spring/Summer: 16 credits

BMS 202 Anatomy & Physiology
EGR 323 Signals & Systems Analysis
General Education Courses (Select 3)

Fall Semester: 6 credits

EGR 490 Engineering Co-op 3
EGR 434 Bioelectric Potentials

9th Semester Winter: 13-15 credits

EGR 485 Senior Engineering Project 1
EGR 403 Medical Device Design
EGR 435 Mathematical Modeling of Physiologic Systems
Biomedical Engineering Electives (Select 2)

10th Semester Spring/Summer: 5-6 credits

EGR 486 Senior Engineering Project 2
Biomedical Engineering Elective

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 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 – Electrical Emphasis**.
- 3) Click “Submit” and then “Change to New Program.”
- 4) Other emphasis areas within Biomedical Engineering include Mechanical and Product Design and Manufacturing.

General Education

Category	Completed?	Category	Completed?	Category	Completed?
Physical Sciences (CHM 115)		Mathematical Sciences (MTH 123)		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

Elizabeth Brand, brandeli@gvsu.edu

Jessica Noble, noblejes@gvsu.edu

Audra Pretty-Smith, prettyau@gvsu.edu

Colin DeKuiper, dekuippec@gvsu.edu

Mary Nuznov, nuznovma@gvsu.edu

Sara Wheeler, whelesas@gvsu.edu