



## Registration Information (SS18, F18 and W19)

### **PENDING ADMIT STUDENTS:**

You will be able to enroll in Summer 2018 classes when your enrollment period opens. However, you will not be allowed to enroll in upper division engineering courses until you have been admitted to the engineering program. If you are admitted at the end of Winter 2018, you will be able to enroll 1 – 2 days after you receive your acceptance letter in late April/early May. If you are admitted at the end of Summer 2018, you will be able to enroll 1 – 2 days after you receive your acceptance letter in early August.

### **Program notes:**

- **Computer engineering students:**
  - For pre-secondary admit students, you should take CIS 180 Intro to Java for C Programmer (1 credit) in Fall of 2018 instead of CIS 162 Computer Science I (4 credits). Please see Dr. Parikh if you feel you should take CIS 162 instead to discuss.
  - Additionally, pre-secondary students should take EGR 280 Introduction to Digital System Design (3 credits – pre-requisite of EGR 106 C or better) in the Fall of 2018.
  - CE juniors should take CIS 263, CIS 350 and CIS 241 during the summer.
- **Electrical engineering students:**
  - Pre-secondary admit students no longer take EGR 209 Mechanics and Machines (if you took or will take EGR 226 Fall 2017 or later). Instead, pre-secondary admit students are to enroll in EGR 280 Introduction to Digital System Design (3 credits – pre-requisite of EGR 106 C or better) in the Fall of 2018, normally while simultaneously being enrolled in EGR 226.
- **Mechanical engineering students:**
  - EGR 345 (Dynamic Systems Modeling and Control) has been replaced by EGR 346 in the ME curriculum. ME majors must take EGR 346: (Mechatronic Systems Dynamics and Control)
  - EGR 445 Robotics Systems and EGR 480 – 02 (Design of HVAC Systems) are ME electives, but a registration permit is required due to cap limitations.
- **Product design & manufacturing engineering students:**
  - PDM Juniors should take EGR 362 Intro to Thermo Fluid Systems in the summer instead of EGR 360 in the winter.
  - EGR 445 Robotics Systems may be selected as a PDM elective, but a registration permit is required.
- **Biomedical engineering minor students:** Please see page 7 for details (Table 6).

- **Co-op I/II/III students:**

- Co-op students should review the School of Engineering student resources at the following link to ensure that co-op planning is proactive, timely, and in accordance with the established co-op policies:

<http://www.gvsu.edu/engineering/co-op-student-resources-39.htm>

- Students should not self-advise regarding co-op rotations, as the graduation timeline may be at risk of being significantly affected. Students enrolled in a co-op course are expected to be proactive in all communications with the academic advisor, Sebastian Chair (co-op coordinator), and workplace supervisor regarding planning efforts for the three mandatory co-op rotations.
- The following individual advising sessions are available within the **Career Center** to inquire about developing a career search plan or securing employment.
  - **Securing Employment 101 (Individual Appointment)** – securing co-op employment and (or) developing a career search strategy – Contact Chris Babbitt ([babbitt1@gvsu.edu](mailto:babbitt1@gvsu.edu)) at the career center to schedule an appointment
  - **Negotiating Offers 101 (Individual Appointment)** - negotiating job offers or the terms of the employment – Contact Chris Babbitt ([babbitt1@gvsu.edu](mailto:babbitt1@gvsu.edu)) at the career center to schedule an appointment
- The following advising group sessions are available within the **School of Engineering** to inquire about co-op questions related to the required academic or professional components of the program:
  - **Wednesday, March 21 OR Thursday, March 22, 3:00PM to 3:40PM – 20 minutes session Career Exploration 101 (Group Appointment)** - advising related to engineering positions, responsibilities, and career paths (prerequisite is a first draft of the co-op student agreement).
  - **Wednesday, March 21 OR Thursday, March 22, 3:40PM to 4:20 PM – 20 minutes per session Co-op Related Academics 101 (Group Appointment)** – informational session regarding the academic component of the co-op courses, specifically for students who are unable to attend the co-op start-up meeting on Friday, April 6 (11:00 to 12:00 pm or 12:00 to 1:00 pm) in the Loosemoore Auditorium to review the course syllabus and requirements
  - **Wednesday, March 21 OR Thursday, March 22, 4:20PM to 4:40PM – 20 minutes per session Co-op Plan Development 101 (Group Appointment)** – advising related to the development of a co-op plan that meets a specified graduation timeline (prerequisite is a previous academic advisor session to discuss the development of an academic plan of study, which includes three mandatory co-op rotations).
  - **Friday, March 23, 2018, 3:00 to 5:00 PM – 15 minutes per session Co-op Advising 101 (Individual Appointment)** – advising that is specifically tailored to the needs of students that have an extenuating circumstance (cannot meet alternating semester co-op schedule, cannot meet the 500 work hours required during the co-op work semester without an early start or late departure, medical leave of absence, conflict with participation in athletic sport schedule or GVSU affiliated organization involvement, etc.) that requires individual discussion/planning. Please email [lafrenid@gvsu.edu](mailto:lafrenid@gvsu.edu) with questions regarding an extenuating circumstance.

**Summer Advising Tips for Pre-Secondary Admit Students**

Declared majors can choose to lighten the fall and winter semester course load by taking required engineering and science classes during the summer term. The classes available in summer 2018 are shown in Table 1.

**Table 1: Summer 2018 Classes of Interest to Pre-Engineering Students**

CRS	NUM	SEC	CR	Title	Days	Times		Location
EGR	106	01	3	Introduction to Engineering Design I	MW	10:00 AM	12:15 PM	KEN 244
EGR	107	01	3	Introduction to Engineering Design II	MW	4:00 PM	6:15 PM	KEN 244
EGR	214	10	4	Circuit Analysis I	TR	4:00 PM	5:30 PM	EC 612
EGR	214	901	0	Circuit Analysis I	T	6:00 PM	9:20 PM	KEN 228
EGR	214	902	0	Circuit Analysis I	W	6:00 PM	9:20 PM	KEN 236
EGR	220	901	1	Engineering Measurement and Data Analysis	T	3:00 PM	6:15 PM	KEN 322
EGR	223	01	3	Probability and Signal Analysis	MW	4:00 PM	6:15 PM	EC 612
EGR	226	10	4	Introduction to Digital Systems	MW	4:00 PM	5:30 PM	KEN 350
EGR	226	901	0	Introduction to Digital Systems	W	6:00 PM	9:20 PM	KEN 228
EGR	250	10	4	Materials Science and Engineering	TR	4:00 PM	5:30 PM	KEN 350
EGR	250	901	0	Materials Science and Engineering	T	6:00 PM	9:20 PM	KEB 203
EGR	257	10	4	Electronic Materials and Devices	TR	4:00 PM	5:30 PM	KEN 244
EGR	257	901	0	Electronic Materials and Devices	R	6:00 PM	9:20 PM	KEN 135
EGR	309	10	4	Machine Design I	TR	4:00 PM	5:30 PM	KEN 222
EGR	309	901	0	Machine Design I	T	6:00 PM	9:20 PM	KEN 258
EGR	309	902	0	Machine Design I	R	6:00 PM	9:20 PM	KEN 258
EGR	312	01	3	Dynamics	MW	4:00 PM	5:50 PM	KEN 222

Other course of interest:

- CIS 162 Computer Science I
- CIS 163 Computer Science II
- CHM 115 Principles of Chemistry I
- MTH 201 Calculus I (1<sup>st</sup> 6 Weeks)
- MTH 203 Calculus II (2<sup>nd</sup> 6 Weeks)
- PHY 230 Principles of Physics I (1<sup>st</sup> 6 Weeks)
- PHY 231 Principles of Physics II (2<sup>nd</sup> 6 Weeks)
- STA 220: Statistical Modeling for Engineers

**Special Notes:**

Above classes are subject to change.

The science and mathematics classes meet for only part of the summer and require 25-40 hours per week of meeting time and homework.

### **Advising Tips for Computer Engineering Students**

Students in the Computer Engineering (CE) major must complete three elective courses. For this major, the electives offered for 2018-2019 academic year are shown in Table 2. Please check the GVSU online schedule for any last-minute additions and changes.

**Table 2: Elective Courses for Computer Engineering Students**

Semester	Number	Title
Summer 2018	EGR 323	Signals and Systems Analysis
	EGR 424	Design of Microcontroller Applications
Fall 2018		
	CIS 451	Computer Architecture
	CIS 457	Data Communications
Winter 2019	EGR 426	Integrated Circuit Systems Design
	EGR 436	Embedded Systems Interface
	CIS 451	Computer Architecture
	CIS 457	Data Communications

#### **Biomedical Engineering Minor**

CE students pursuing the Biomedical Engineering minor may choose any two of the following:

- EGR 432 – Biomedical Imaging and Image Processing (this course is also an approved CE senior elective, offered alternate Winter semesters)
- EGR 433 – Electronic Instrumentation for Biomedical Applications (offered alternate Winter semesters)
- EGR 434 – Bioelectrical Potentials

### **Advising Tips for Electrical Engineering Students**

Students in the Electrical Engineering (EE) major must complete four elective courses. For this major, the electives offered for 2018-2019 academic year are shown in Table 3. Please check the GVSU online schedule for any last-minute additions and changes.

**Table 3: Electives for Electrical Engineering Students**

Semester	Number	Title
Summer 2018	EGR 424	Design of Microcontroller Applications
	EGR 450	Manufacturing Control Systems
	EGR 455	Automatic Control
Fall 2018	EGR 415	Communication Systems
	EGR 434	Bioelectric Potentials
	EGR 457	Fundamentals of Nanotechnology
Winter 2019	EGR 418	RF Systems
	EGR 426	Integrated Circuit Systems Design
	EGR 430	Electromechanics
	EGR 432	Biomedical Imaging and Image Processing
	EGR 436	Embedded Systems Interface
	EGR 450	Manufacturing Control Systems
	EGR 480	Electromagnetic Compatibility

#### **Biomedical Engineering Minor**

EE students pursuing the Biomedical Engineering minor may choose any two of the following:

- EGR 432 – Biomedical Imaging and Image Processing (this course is also an approved EE senior elective, offered alternate Winter semesters)
- EGR 433 – Electronic Instrumentation for Biomedical Applications (this course is also an approved EE senior elective, offered alternate Winter semesters)
- EGR 434 – Bioelectrical Potentials (this course is also an approved EE senior elective)

### Advising Tips for Mechanical Engineering Students

Students in the Mechanical Engineering (ME) major must complete three elective courses. For this major, the electives offered for 2018-2019 academic year are shown in Table 4. Please check the GVSU online schedule for any last-minute additions and changes.

**Table 4: Electives for Mechanical Engineering Students**

Semester	Number	Title
Summer 2018	EGR 350	Vibration
	EGR 405*	Materials Failure Analysis & Selection
	EGR 445	Robotics Systems Engineering
	EGR 480-02	Design of HVAC Systems
	EGR 480-03	Internal Combustion Engines
Fall 2018	EGR 352	Kinematics and Dynamics of Machinery
	EGR 367*	Manufacturing Processes
	EGR 463	Alternative Energy Systems & Applications
Winter 2019	EGR 311	Intermediate Computer Aided Design and Manufacturing
	EGR 447	Engineering Mechanics of Human Motion
	EGR 450*	Manufacturing Control Systems
	EGR 465	Computational Fluid Dynamics
	EGR 480-01	Turbomachinery

\*No more than two of these courses may be applied toward fulfilling the elective requirements of the ME major

#### Biomedical Engineering Minor

ME student pursuing the Biomedical Engineering minor may choose two of the following:

- EGR 447 - Engineering Mechanics of Human Motion.: (this course is also an approved ME senior elective)
- EGR 465 – Computational Fluid Dynamics. (this course is also an approved ME senior elective)
- EGR 453 – Biomaterials
- EGR 403 – Medical Device Design

### **Advising Tips for Product Design and Manufacturing Engineering Students**

PDM Juniors should take EGR 362 (Introduction to Thermo-Fluid Systems) in the summer instead of EGR 360 in the winter. Product Design and Manufacturing engineers taking EGR 345 (Dynamic System Modeling and Control) in Fall 2018 must take Section 10 and a lab 10x. Students in the Product Design & Manufacturing Engineering (PDM) major must complete three elective courses. For this major, the electives offered for 2018-2019 academic year are shown in Table 5. Please check the GVSU online schedule for any last-minute additions and changes.

**Table 5: Elective Courses for Product Design and Manufacturing Engineering Students**

Semester	Number	Title
Summer 2018	EGR 405	Materials Failure Analysis and Selection
	EGR 409	Machine Design II
	EGR 445	Robotics Systems Engineering
	EGR 441	Quality, Economics, and Operations
Fall 2018	EGR 453	Biomedical Materials
	EGR 463	Alternative Energy Systems & Applications
	STA 315	Design of Experiments
Winter 2019	EGR 480	Polymer Science and Processing
	EGR 413	Materials for Energy Storage
	EGR 403	Medical Device Design
	EGR 447	Engineering Mechanics of Human Motion

#### **Biomedical Engineering Minor**

PDM students pursuing the Biomedical Engineering minor may choose any two from the following:

- EGR 453 – Biomedical Materials, (this course is also an approved PDM senior elective)
- EGR 447 – Engineering Mechanics of Human Motion, (this course is also an approved PDM senior elective)
- EGR 403 – Medical Device Design (this course is also an approved PDM senior elective)

### **Advising Tips for Interdisciplinary Engineering Students**

See Dr. Reffeor, Chair, Integrated Engineering to get an approved plan of study prior to enrolling in upper division courses.

### Advising Tips for Biomedical Engineering Minor Students

Students pursuing a minor in Biomedical Engineering must complete six courses: four required courses and 2 electives. All of these courses are listed below

#### Required Courses:

- BMS 202 Anatomy and Physiology, 4 Credits, Gen Ed LS
- CHM 115 Principles of Chemistry I, 5 Credits
- CHM 230 Introduction to Organic and Biochemistry, 4 Credits
- EGR 435 Mathematical Modeling of Physiological Systems, 3 Credits

#### Elective Courses (choose any **two** courses from among the following ones):

- EGR 403 Medical Device Design, 3 Credits (PDM senior elective)
- EGR 432 Biomedical Imaging and Image Processing, 3 Credits (EE and CE senior elective)
- EGR 433 Electronic Instrumentation for Biomedical Applications, 3 Credits (EE senior elective)
- EGR 434 Bioelectric Potentials, 3 Credits (EE senior elective)
- EGR 447 Engineering Mechanics of Human Motion, 3 Credits (ME and PDM senior elective)
- EGR 453 Biomaterials, 3 Credits (PDM senior elective)
- EGR 465 Computational Fluid Dynamics, 4 credits (ME senior elective)

Students with an interest in the Biomedical Engineering minor should communicate with Dr. Samhita Rhodes, [rhodesam@gvsu.edu](mailto:rhodesam@gvsu.edu). For Spring/Summer 2018 and the 2018-2019 academic year, the offerings of courses in this minor are shown in Table 6. Besides the ones in this table, other elective courses may be offered in subsequent years since distinct electives are offered in different years.

**Table 6: Biomedical Minor Engineering Course Offerings AY 2018-2019**

Semester	Number	Title
Summer 2018	BMS 202	Anatomy and Physiology
	CHM 115	Principles of Chemistry I
Fall 2018	BMS 202	Anatomy and Physiology
	CHM 115	Principles of Chemistry I
	CHM 230	Introduction to Organic and Biochemistry
	EGR 434	Bioelectrical Potentials
	EGR 453	Biomedical Materials
Winter 2019	BMS 202	Anatomy and Physiology
	CHM 115	Principles of Chemistry I
	CHM 230	Introduction to Organic and Biochemistry
	EGR 403	Medical Device Design
	EGR 435	Mathematical Modeling of Physiologic Systems
	EGR 447	Engineering Mechanics of Human Motion
	EGR 432	Biomedical Imaging and Image Processing
EGR 465	Computational Fluid Dynamics	

### **Advising Tips about the Combined BSE / MSE Program**

The combined BSE / MSE program is an efficient course sequence that allows students to earn both a BSE and an MSE.

In this program, students enjoy many advantages:

- Time to earn an M.S.E. degree potentially reduced by 50%
- Number of required M.S.E. credits may be reduced by at least nine credits
- Opportunity for additional co-op industry assignment
- Scholarship opportunities

For more information, please see your advisor and communicate with Graduate Program Director, Dr. Shabbir Choudhuri at [choudhus@gvsu.edu](mailto:choudhus@gvsu.edu).