Bachelor of Science in Engineering (B.S.E.)
Interdisciplinary Engineering:
Mechatronics Engineering Emphasis
MTH 108 Start, 5 Year Plan
Secondary Admission Required

1st Year

Fall		Winter		Spring/Summer	
MTH 108: Stretch MTH 110 - Part 1	3	MTH 109: Stretch MTH 110 – Part 2	3	MTH 124: Precalculus: F & M	5
*WRT 150: Strategies in Writing **or** WRT 120 and WRT 130	4	*EGR 100: Intro to EGR	1		
		General Education	3		
General Education	3	General Education	3		
General Education	3	General Education	3		
Total	**13**	**Total**	**13**	**Total**	**5**

2nd Year

Fall		Winter		Spring/Summer	
*MTH 201: Calculus I	4	*MTH 202: Calculus 2	4	*EGR 185: First-Year EGR Design	2
*EGR 111: Intro to Engineering Graphics	1	*PHY 230: Physics 1	5		
*EGR 104: Appl Program for EGR 1	2	*EGR 113: Intro to CAD/CAM	1		
CHM 115: Chemistry 1	4	*EGR 108: Appl Program for EGR 2	2		
General Education	3	*STA 220: Statistical Modeling for EGR	2		
		*EGR 220: EGR Measure & Data	1		
Total	**14**	**Total**	**15**	**Total**	**2**

3rd Year

Fall		Winter		Spring/Summer	
*MTH 203: Calculus 3	4	*MTH 302: Linear Algebra/Differential EQ	4	EGR 290: Engineering Co-Op 1	3
*PHY 234 or 231: Physics 2	4-5	*EGR 250: Materials Science & EGR	3	IE Track (see chart)	3
*EGR 209: Mechanics & Machines	4	*EGR 251: Materials Science & EGR Lab	1		
*EGR 214: Circuit Analysis 1	3	IE Track (see chart)	3-4		
*EGR 215: Circuit Analysis 1 Lab	1	IE Track (see chart)	3-4		
*EGR 289: EGR Professionalism	1				
Total	**17-18**	**Total**	**14-16**	**Total**	**6**

4th Year ~ Admission Required

Fall		Winter		Spring/Summer	
EGR 314: Circuit Analysis 2	4	EGR 390: Engineering Co-Op 2	3	EGR 445: Robotics Systems EGR	4
EGR 315: Electronic Circuits 1	4	EGR 312: Dynamics (Sensor Track)	3	EGR 455: Automatic Control	4
IE Track (see chart)	4			IE Track (see chart)	4
Total	**12**	**Total**	**6**	**Total**	**12**

5th 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 352: Kin & Dynamics (Mech. Track)	4	IE Track (see chart)	4	IE Track (see chart)	3-4
		IE Track (see chart)	3-4	General Education	3
		General Education	3	General Education	3
		General Education	3	General Education	3
Total	**7**	**Total**	**14-15**	**Total**	**14-15**

- 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

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IE – Mechatronics Foundation Requirements

MTH 201	MTH 202	MTH 203	MTH 302
WRT 150 or WRT 130	CHM 115	PHY 230	PHY 234 or 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

General Education Requirements

WRT 150: Strategies in Writing (grade of "C" or higher required) **or** WRT 120 and WRT 130 (grade of "C" or higher required in both)	Life Sciences (consider BIO 105)
Physical Sciences (CHM 115)	Philosophy and Literature
Arts	Mathematical Sciences (MTH 201)
Social Behavioral Sciences (ECO 210 or 211)	Social Behavioral Sciences
Historical Analysis (consider HSC 202)	U.S. Diversity
Global Perspectives	2 Supplemental Writing Skills Courses (prerequisite: WRT 130 or WRT 150)
2 Issues Courses (prerequisite: must have 55+ credits)	

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:

An emphasis area is required for the Interdisciplinary Engineering major. Emphasis areas include: Data Science, Design & Innovation, Engineering Management, Environmental Engineering, Mechatronics and Renewable Energy.

1) To declare this emphasis, login to MyBanner, select "Student Records" and then "Change Major."
2) Click on "Change Major 1" and select *Interdisciplinary Engineering – Mechatronics Emphasis*.
3) Click "Submit" and then "Change to New Program."
4) Students are required to complete one IE Track Elective (see below). Please plan ahead! Course descriptions are listed in the GVSU Academic Catalog.

Major Notes:

1) It is recommended that anyone on a 5 year EGR plan complete the EGR 104+108 stretch option in place of EGR 112. Please speak with an advisor if you have questions about which option is best for you.
2) Consider taking a course that fulfills the U.S. Diversity category and one non-ECO Social and Behavioral Science course.
3) Consider taking a course that fulfills the Global Perspectives category and one Issues course.
4) An ethics course is required in the engineering program. It is recommended to take **ONE** of the following:
   a. EGR 302 (Engineering Decision-Making in Society), BIO 328, BIO 338, COM 438, MGT 340, MGT 438, MKT 375, PHI 325 or PLS 338 in the Issues category
   b. PHI 102 in the Philosophy and Literature category
   c. For Honors College students, the ethics requirement is fulfilled by completion of the Honors Curriculum
5) ECO 210 or 211 is required for the engineering major AND fulfills one Social and Behavioral Science course.
6) 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.

Mechanical Track	
EGR 226/227	6th Semester Winter (foundation course)
EGR 309/310	6th Semester Winter
EGR 312	Spring/Summer Co-op
EGR 346	7th Semester Fall
EGR 409	8th Semester Spring/Summer
EGR 352	Fall Co-op
EGR 450	9th Semester Winter
Mechanical Track Electives	
EGR 224	Introduction to Digital System Design
EGR 436	Embedded Systems Interface
EGR 424	Design of Microcontroller Applications
EGR 350	Vibrations

Sensor- Controls Track	
EGR 224	6th Semester Winter
EGR 223	6th Semester Winter
EGR 226/227	Spring/Summer Co-op (foundation course)
EGR 326	7th Semester Fall
EGR 312	Winter Co-op
EGR 309/310	8th Semester Spring/Summer
Sensor-Controls Track Electives	
EGR 436	9th Semester Winter
EGR 409	Machine Design 2
EGR 450	Manufacturing Controls
EGR 352	Kinematics and Dynamics of Machinery
EGR 424	Design of Microcontroller Applications