

# ENGINEERING WITH A DATA SCIENCE CONCENTRATION (BSE)

The following requirements are in addition to the Bachelor of Science in Engineering core requirements, found here (<https://catalog.cornerstone.edu/undergraduate/cornerstone-core/>).

## Required Courses Engineering Core

Code	Title	Hours
CHM-111	PRIN GENERAL CHEMISTRY <sup>1</sup>	4
MAT-131	CALCULUS I <sup>1</sup>	5
MAT-132	CALCULUS II <sup>1</sup>	5
MAT-234	MULTIVARIATE CALCULUS <sup>1</sup>	3
MAT-235	DIFFER EQUAT & LINEAR ALG - ENGINEERS <sup>1</sup>	3
MAT-251	PROBABILITY & STATISTICS <sup>1</sup>	3
PHY-221	PHYSICS FOR SCI & ENGINEERS I <sup>1</sup>	5
PHY-222	PHYSICS FOR SCI & ENGINEERS II <sup>1</sup>	5
EGR-100	INTRO TO ENGINEERING <sup>1</sup>	1
EGR-111	INTRO TO ENGINEERING GRAPHICS <sup>1</sup>	1
EGR-112	APPLIED PROGRAMMING FOR ENGINEERS <sup>1</sup>	2
EGR-113	INTRO TO CAD/CAM <sup>1</sup>	1
EGR-185	FIRST YEAR ENGINEERING DESIGN <sup>1</sup>	2
EGR-209	MECHANICS AND MACHINES <sup>1</sup>	4
EGR-214	CIRCUIT ANALYSIS I <sup>1</sup>	3
EGR-215	CIRCUITS LAB <sup>1</sup>	1
EGR-220	MEASUREMENT & DATA ANALYSIS <sup>1</sup>	1
EGR-226	INTRODUCTION TO DIGITAL SYSTEMS <sup>1</sup>	3
EGR-227	DIGITAL SYSTEMS LAB <sup>1</sup>	1
EGR-250	MATERIALS SCIENCE & ENGINEERING <sup>1</sup>	3
EGR-251	MATERIALS LAB <sup>1</sup>	1
EGR-309	MACHINE DESIGN I <sup>1</sup>	3
EGR-310	MACHINE DESIGN I LAB <sup>1</sup>	1
EGR-360	THERMODYNAMICS	4
EGR-380	INTERNSHIP (minimum two experiences)	6
EGR-485	CAPSTONE PROJ & ETHICS I	1
EGR-486	CAPSTONE PROJ & ETHICS II	2
Choose one of the following:		3-4
EGR-345	DYNAMIC SYSTEM MODELING & CONTROL	
EGR-312	DYNAMICS	
<b>Total Hours</b>		<b>77-78</b>

<sup>1</sup> Foundation course

## Data Science Courses

In addition to the General Education and Engineering Core requirements, a student must also complete the following courses for the Data Science concentration:

Code	Title	Hours
CSC-131	PROGRAMMING FUNDAMENTALS	3
CSC-216	DATABASE MGT SYSTEMS	3
GCIS-335	DATA MINING (GVSU)	3
EGR-336	PROJECT MANAGEMENT	3
EGR-367	MANUFACTURING PROCESSES	3
EGR-368	MANUFACTURING PROCESSES LAB	1
EGR-440	PRODUCTION MODELS	3
GSTA-216	INTERMEDIATE APPLIED STATISTICS (GVSU)	3
GSTA-321	APPLIED REGRESSION ANALYSIS (GVSU)	3
GSTA-426	MULTIVARIATE DATA ANALYSIS (GVSU)	3
<b>Total Hours</b>		<b>28</b>

## Additional Academic Policies

The purpose of monitoring academic status is to notify the student of his/her academic standing and provide additional support and guidance that will enable the student to improve his/her academic performance and successfully complete the BSE degree.

Upon completion of the Engineering Foundation Courses, the Engineering program requires a secondary admission application. **Admission is required prior to taking upper division courses (300 and 400 level courses).**

**Applicants must meet at least the following:**

1. Combined GPA of 2.7 or above in the Engineering Foundation Course sequence.
2. Completion of each course in the Engineering Foundation Course sequence with a grade of C (2.0) or above. Foundation courses may only be taken twice.
3. Completion of ENG-212 WRITING IN CULTURE with a C (2.0) or above.