GENERAL ENGINEERING: COMPUTER SCIENCE ENGINEERING, B.S.E. (MATHEMATICS AND COMPUTER SCIENCE)

Program Learning Outcomes

Graduates of the program will demonstrate:

- an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- an ability to communicate effectively with a range of audiences.
    - Students will effectively communicate complicated technical information in writing.
    - Students will effectively communicate complicated technical information orally.
    - Students will be able to identify, locate, evaluate, and effectively and responsibly use and cite information for the task at hand.
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Code	Title	Units
Lower-Division Requirements		
CSC 2054 and CSC 2054L	Data Structures and Algorithms and Data Structures and Algorithms Lab	4
EGR 1012 and EGR 1012	Introduction to Engineering I and Introduction to Engineering I	2
EGR 1023 and EGR 1023L	Introduction to Engineering II and Introduction to Engineering II Lab	3
EGR 1043 and EGR 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3
EGR 1054 and EGR 1054L	Objects and Elementary Data Structures and Objects and Elementary Data Structures Lab	4
EGR 2024 and EGR 2024L	Circuit Analysis and Circuit Analysis Lab	4
MTH 1064 and MTH 1064L	Calculus I (FE) and Calculus I Lab (FE)	4
MTH 1074 and MTH 1074L	Calculus II and Calculus II Lab	4
MTH 2074	Calculus III	4
PHY 2044 and PHY 2044L	University Physics I (FE) and University Physics I Lab (FE)	4
PHY 2054 and PHY 2054L	University Physics II and University Physics II Lab	4
Upper-Division Requirements		
EGR 3014	Operating Systems	4
EGR 3023	Software Engineering	3
EGR 3053 and EGR 3053L	Analog Electronics and Analog Electronics Lab	3
EGR 3073	Networking and Security	3
EGR 3093 and EGR 3093L	Digital Electronics and Digital Electronics Lab	3
EGR 4003	Information and Computer Security	3
EGR 4054	Computer Architecture and Assembly Language	4
EGR 4072	Senior Project I	2
EGR 4082	Senior Project II	2
EGR 4092	Internship in Engineering	2
EGR 4103	Electrical Signals and Systems	3
MTH 3033	Differential Equations	3
MTH 3063 or MTH 3083	Calculus Based Statistics with R or Mathematical Probability and Statistics	3
Total Units		**78**

Total: 78 Units (70 without FE)

Recommended:

Code	Title	Units
EGR 4042 and EGR 4042L	Embedded Systems and Robotics and Embedded Systems and Robotics Lab	2
MTH 3043	Discrete Mathematics	3