

See the concentration-specific Model Program Worksheets to determine which electives are required. Please note that not all courses on this list are offered every year (see the [university catalog](#) for details).

1)

- 4) The Technical Elective can be any course from the list below. Other courses of 2 SH or greater that have significant mathematical or scientific content may be considered for substitution – contact the department chair to obtain approval.

CS 112 – Intro to Data Structures (FA, SP) (except for E&C)
CS 212 – Data Structures and Algorithms (FA)
CS 214 – Programming Language Concepts (SP)
CS 232 – Operating Systems and Networking (SP)

CS 300 – Special Topics in CS (FA, SP)
CS 326 – Embedded Systems and IoT (SP, alt years)
GEO 260 – GIS and Cartography (FA, SP)

- 5) An Engineering elective course can be any course of 2 SH or greater from the appropriate concentration-specific lists below. Consult the catalog to determine any necessary prerequisites.

ENGR 220 – Introduction to Computer Architecture (FA)
ENGR 250 – Introduction to Biomedical Engineering (SP)
ENGR 302 – Engineering Electromagnetics (SP)
ENGR 303 – Chem Engr Principles and Thermodynamics (FA)
ENGR 304 – Fundamentals of Digital Systems (SP)
ENGR 307 – Electrical Signals and Systems (FA)
ENGR 311 – Electronic Devices and Circuits (FA)
ENGR 312 – Chemical Engineering Thermo (SP)
ENGR 314 – Vibration Analysis (SP)
ENGR 315 – Control Systems (FA)
ENGR 318 – Soil Mechanics and Found'n Design (SP, alt years)

~~ENGR 310 – Introduction to Thermal Sciences (FA)~~
ENGR 322 – Machine Design (SP)
ENGR 324 – Materials and Processes in Mfg (SP)
ENGR 328 – Intermediate Thermofluids (SP)
ENGR 330 – Fluid Flow and Heat Transfer (SP)
ENGR 334 – Dynamics of Machinery (SP)
ENGR 338 – Traffic Engineering (SP, alt years)
ENGR 342 – Process Dynamics, Modeling, and Control (SP)
ENGR 350 – Special Topics in Engineering (SP)
ENGR 354 – Sustainability Engineering (SP)

ENGR 250 – Introduction to Biomedical Engineering (SP)
ENGR 303 – Chem Engr Principles and Thermodynamics (FA)
ENGR 305 – Mechanics of Materials (FA)
ENGR 306 – Principles of Environmental Engineering (FA)
ENGR 314 – Vibration Analysis (SP)
ENGR 315 – Control Systems

The first engineering elective is limited to one of the following courses.

ENGR 315 – Control Systems (FA)
ENGR 314 – Vibration Analysis (SP)
ENGR 342 – Process Dynamics, Modeling, and Control (SP)

Additional engineering electives can be from any of the courses listed below.

ENGR 220 – Introduction to Computer Architecture (FA)	ENGR 315 – Control Systems (FA)
ENGR 250 – Introduction to Biomedical Engineering (SP)	ENGR 318 – Soil Mechanics and Found'n Design (SP, alt years)
ENGR 302 – Engineering Electromagnetics (SP)	ENGR 320 – Hydraulic Engineering (FA)
ENGR 303 – Chem Engr Principles and Thermodynamics (FA)	ENGR 321 – Hydraulic Engineering Design (SP)
ENGR 304 – Fundamentals of Digital Systems (SP)	ENGR 326 – Structural Analysis (SP)
ENGR 306 – Principles of Environmental Engineering (FA)	ENGR 327 – Structural Design (FA)
ENGR 307 – Electrical Signals and Systems (FA)	ENGR 330 – Fluid Flow and Heat Transfer (SP)
ENGR 308 – Environmental Engineering Design (SP)	ENGR 338 – Intro to Traffic Engineering (SP, alt years)
ENGR 311 – Electronic Devices and Circuits (FA)	ENGR 342 – Process Dynamics, Modeling, and Control (SP)
ENGR 312 – Chemical Engineering Thermo (SP)	ENGR 350 – Special Topics in Engineering (SP)
ENGR 314 – Vibration Analysis (SP)	ENGR 354 – Sustainability Engineering (SP)

ENGR 250 – Introduction to Biomedical Engineering (SP)	ENGR 320 – Hydraulic Engineering (FA)
ENGR 302 – Engineering Electromagnetics	ENGR 324 – Materials and Processes in Mfg (SP)
ENGR 303 – Chem Engr Principles and Thermodynamics (FA)	ENGR 326 – Structural Analysis (SP)
ENGR 306 – Principles of Environmental Engineering (FA)	ENGR 332 – Analog Circuits and Systems Design (SP)
ENGR 314 – Vibration Analysis (SP)	ENGR 338 – Intro to Traffic Engineering (SP, alt years)
ENGR 315 – Control Systems (FA)	ENGR 342 – Process Dynamics, Modeling, and Control (SP)
ENGR 318 – Soil Mechanics and Found'n Design (SP, alt years)	ENGR 350 – Special Topics in Engineering (SP)
ENGR 319 – Introduction to Thermal Sciences (FA)	ENGR 354 – Sustainability Engineering (SP)