Electrical Engineering: Electrical Engineering Concentration
Science/Math/Engineering (SME) Electives
Degree Total: 7 credits

Course Number	Course Title	Credits	Prerequisites	Terms
BC 351	Principles of Biochemistry	4	BZ110 or BZ120 or LIFE102; CHEM241 or CHEM245 or CHEM341 or CHEM345	F,S,SU
BIOM 200[1]	Biomedical Engineering Fundamentals	2	LIFE102 or concurent registration; MATH160	F
BIOM 350A	Study Abroad--Ecuador: Prosthetics	1-3		SU
BIOM 350C	Study Abroad--Ireland: Biomedical Engineering and Healthcare	1		S
BMS 300	Principles of Human Physiology	4	BZ101 or BZ110 or LIFE102; CHEM103 or CHEM107 or CHEM111	F,S,SU
BMS 301	Human Gross Anatomy	5	BZ110 or LIFE102	F,S,SU
BMS 325	Cellular Neurobiology	3	LIFE210	F,S
BMS 345	Functional Neuroanatomy	4	BMS300 or BMS360	F,S
BZ 310	Cell Biology	4	(BZ110 and BZ111) or LIFE102; CHEM113	F,S,SU
CBE 160	MATLAB for Chemical and Biological Engineering			F,S
CHEM 245	Fundamentals of Organic Chemistry	4	CHEM107 or CHEM113 or CHEM120	F,S,SU
CHEM 246	Fundamentals of Organic Chemistry Lab	1	CHEM108 or CHEM112 or CHEM114 or CHEM121; CHEM245 or concurrent registration	F,S,SU
CIVE 260	Engineering Mechanics – Statics	3	MATH159 or MATH160; PH141	F,S,SU
CIVE 371	Study Abroad--Peru: Grand Challenges in Engineering	3		S
CS 152[2]	Introduction to Programming - Python	2	MATH124 or MATH125 or MATH126 with a B or higher ***or*** MATH127 with a B or higher or MATH159 or MATH160 with a C or higher ***or*** CS163 ***Credit not allowed for both CS150B and CS152	F,S
CS 165	CS2--Data Structures	4	CS162 with a C or higher or CS163 with a C or higher or CS164 with a C or higher	F,S
CS 214	Software Development	3	CS165 with a C or higher	F,S
CS 220	Discrete Structures	4	CS152 with a B or higher OR CS162 or CS163 or CS164 with a C or higher; MATH159 or MATH160 or concurrent registration	F,S
CS/IDEA 310H	Design Thinking Toolbox: Mixed Reality Design	3	CS214 with a C or higher or CS253 with a C or higher or IDEA210	F, Even
CT 301	C++ Funamentals	2-4	CS162 with a C or higher or CS163 with a C or higher or CS164 with a C or higher	F,S
CT 303	Advanced Python	2	CS150B with a C or higher or CS152 with a C or higher	S
CT 307	High Performance Programming in Rust	2	CS165	S
DSCI 320	Optimization Methods in Data Science	3	CS163 or CS164 or CS165 or CS220 or DSCI235; MATH261; DSCI369 or MATH369	F
ECE 395[3]	Independent Study	1-3		F,S,SU
ENGR 300	3D Printing Lab for Engineers	1	BIOM101 or CBE101 or CIVE102 or ECE102 or ENGR101 or MECH103	F,S
ENGR 370B (382B)	Study Abroad--Netherlands: Engineering and Sustainability	3	MATH160; PH141	SU
ENGR 380A6	Sociotechnical Engineering Leadership	3	ENGR120	S
ENGR 382C	Study Abroad - Japan: Engineering and Design	3		S
ENGR 422	Technology Entrepreneurship	3	MGT340	S
ENGR 478	Applied Engineering Data Analytics	3	ECE102	S
HES 307	Biomechanical Principles of Human Movement	3	HES207 or BMS301; PH121 or PH141	F,S,SU
IDEA 310L	Design Thinking Toolbox: Creating Things that Think	2	IDEA210 or concurrent registration	As Needed
IDEA 310O	Design Thinking Toolbox: Digital Interaction and Game Design	3	IDEA210 or concurrent registration	As Needed
LIFE 103	Biology of Organisms – Animals and Plants	4		F,S,SU
MATH 151	Mathematical Algorithms in Matlab I	1	MATH160	F,S
MATH 229	Matrices & Linear Equations	2	MATH160	F,S
MATH 235	Introduction to Mathematical Reasoning	2	MATH161	S
MATH 301	Introduction to Combinatorial Theory	3	MATH161	F,S,SU
MATH 317	Advanced Calculus of One Variable	3	MATH161; CS220	F,S,SU
MATH 331	Introduction to Mathematical Modeling	3	DSCI369 or concurrent registration or MATH369 or concurrent registration; MATH161	F

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Course Number	Course Title	Credits	Prerequisites	Terms
MATH 332	Partial Differential Equations	3	MATH340 or MATH345	S
MATH 360	Mathematics of Information Security	3	MATH161; CS220	F
MATH 366	Introduction to Abstract Algebra	3	MATH161	F,S,SU
MATH 369 **or** DSCI 369	Linear Algebra I **or** Linear Algebra for Data Science	3-4	MATH161 **or** MATH159 or MATH160 or MATH161	F,S,SU **or** F,S
MATH380A2	Numerical Analysis for Linear Systems	3	CS150B or CS152 or CS162 or CS164 or CS165 or CS220; MATH261; MATH229 or MATH369	F
MECH 200A[1]	Introduction to Manufacturing Processes	2	MECH201 or MECH210	F,S
MECH 200B[1]	Introduction to Manufacturing Processes Lab	1	MECH200A or concurrent registration	F,S
MECH 201[1] **or** MECH 210[1]	Engineering Design 1 **or** Engineering Design --3D Modeling and Printing	2 2	MECH105 **or** None	F,S F,S
MECH 237 **or** MECH 339	Introduction to Thermal Science **or** Thermodynamics I for Mechanical Engineers	3-4	MATH160; PH141 **or** MATH261; PH141	F,S
MIP 300	General Microbiology	3	BZ110 or BZ120 or LIFE102; CHEM241 or concurrent restiration or CHEM245 or concurrent registration or CHEM341 or concurrent registration or CHEM345 or concurrent registration	F,S,SU
PH 314	Introduction to Modern Physics	4	PH142; MATH261 or concurrent registration	F,S
PH 341	Mechanics	4	MATH340 or MATH345; PH141	F
PH 353	Optics & Waves	4	MATH261; PH142	F
PSY 253	Human Factors & Engineering Psychology	3		SU
STAT 158	Introduction to R Programming	1		S,SU
SYSE 501	Foundations of Systems Engineering	3		F,S

[1] These courses may not be open for enrollment for students not declared in that major.

[2] Credit not allowed for both CS152 and CS150B - CS150B does not count for SME credit as it applies to AUCC and/or major requirements only.

[3] A maximum of 6 credits of Independent Study may apply towards total Electrical Engineering degree requirements. This includes credits awarded for ECE395 and ECE495 combined.

Courses used to fulfill major and concentration requirements will not be counted as Science, Math and Engineering Elective credits.