

BASc in Electrical Engineering

Electives (at least 21 credits)

A course may be applied to satisfy the requirements of at most one category.

Students must select electives according in the following categories:

- Electrical Engineering electives (at least 12 credits)
- Mathematics electives (at least 3 credits)
- Free electives (at least 6 credits)

EE Electives (at least 12 credits from the following list, with at most one course being a 300-level course)

***Only one of ELEC 421 and ELEC 422 will be given credit.**

Course /NEW# /Old#	Credit	Course Title
BMEG 310	3	Introduction to Bioinformatics (<i>4 credits of biology may be used to satisfy the BMEG 245 pre-req</i>)
ELEC 331	4	Computer Communications
ELEC 352	4	Distributed Energy Systems
ELEC 401	3	Analog CMOS Integrated Circuit Design
ELEC 402	4	Introduction to VLSI Systems
ELEC 403	3	Digital Integrated Circuit Design
ELEC 404	3	RF Electronics
ELEC 411	3	Antennas & Propagation
ELEC 412	3	Optical Waveguides & Photonics
ELEC 413	3	Semiconductor Lasers
ELEC 415	3	Semiconductor Devices: Physics, Design and Analysis
ELEC 416	3	Quantum Dots and Device Applications
ELEC 421*	3	Digital Signal Processing Systems
ELEC 422*	3	Biosignals and Systems
ELEC 431	3	Communication Systems
ELEC 432	3	Digital Communications
ELEC 433	3	Error Control Coding for Communications and Computers
ELEC 434	3	Introduction to Optical Networks
ELEC 441	3	Control Systems
ELEC 442	3	Introduction to Robotics
ELEC 451	4	Power Electronics
ELEC 452	3	Industrial Drives
ELEC 453	4	Power Systems Analysis I
ELEC 454	4	Power Systems Analysis II
ELEC 455	3	Power Systems Protection
ELEC 456	3	Decision Support Methods in Power Systems Operation
ELEC 457	3	Optimization of Power System Operation
ELEC 461	3	Nanotechnology in Electronics
ELEC 462	3	Sensors & Actuators in Microsystems
ELEC 463	3	Micro/Nano Fabrication and Instrumentation Lab
ELEC 464	3	Nanotechnology & Nature
ELEC 465	3	Microsystems Design
ELEC 471	3	Medical Imaging
ELEC 472	3	Biomechatronics
ELEC 473	3	Biological Micro-Electro-Mechanical Systems
ELEC 474	3	Biophotonics
ELEC 499	3	Undergraduate Thesis
CPEN 333	3	System Software Engineering
CPEN 411	4	Computer Architecture
CPEN 412	4	Microcomputer Systems Design
CPEN 442	4	Introduction to Computer Security
CPEN 431	4	Design of Distributed Software Applications
CPEN 432	4	Real-time System Design

ELEC/CPEN 400 courses may count as advanced electives. Please seek approval from ECE Student Services before planning your courses.

Mathematics Electives (at least 3 credits from the following list)

Course	Credits	Course Title
MATH 220	3	Mathematical Proof
MATH 300	3	Introduction to Complex Variables
MATH 301	3	Applied Analysis
MATH 303	3	Introduction to Stochastic Processes
MATH 305	3	Applied Complex Analysis
MATH 307	3	Applied Linear Algebra
MATH 320	3	Real Variables I
MATH 321	3	Real Variables II
MATH 340	3	Introduction to Linear Programming
MATH 341	3	Introduction to Discrete Mathematics
MATH 342	3	Algebra & Coding Theory
MATH 344	3	Mathematical Game Theory
MATH 345	3	Applied Nonlinear Dynamics & Chaos
MATH 361	3	Introduction to Mathematical Biology
MATH 400	3	Applied partial Differential Equations
MATH 401	3	Green's Functions and Variational Methods
MATH 402	3	Calculus of Variations
MATH 405	3	Numerical Methods for Differential Equations
MATH 415	3	Introduction to Mathematical Logic
MATH 418	3	Probability
MATH 441	3	Modeling of Discrete Optimization Problems
MATH 442	3	Optimization in Graphs and Networks
MATH 443	3	Graph Theory
MATH 445	3	Mathematical Modeling: Applications in the Natural & Social Sciences
MATH 450	3	Asymptotic and Perturbation Methods
STAT 306	3	Finding Relationships in Data
MATH/STAT 302	3	Introduction to Probability

Other courses, not included in this list, may be permitted with approval from a Program Director or Associate Head for Undergraduate Programs.

Free Electives (6 credits)

Free electives can be chosen from courses offered across the university.

