List of Electives for the Computer Engineering Option

Guideline for electives selection for Computer Engineering option:

3.4.1 TWO Computer Electives are to be selected from list 3.5.1.

3.4.2 Any One Elective is to be selected from either list 3.5.1 or list 3.5.2.

3.4.3 Any One Elective is to be selected from list 3.5.2.

3.4.4 One Science Math and Engineering elective (any Science, Math, or Engineering course above 200 level)

3.4.5 Each 4-credit Computer Science (Livingston College) course constitutes one elective course.

3.4.6 Students with a cumulative average of 3.2 or better may take a graduate level course as a Technical or Computer Elective with the approval of their advisor, instructor of the course, and the Dean's office.

LIST 3.5.1: COMPUTER ELECTIVES

14:332:322	Principles of Communication Systems
14:332:346	Digital Signal Processing
14:332:376	Virtual Reality (14:332:378 is a co-requisite)
14:332:402	Sustainable Energy: choosing among options
14:332:415	Introduction to Automatic Control Theory (This course is not offered often)
14:332:417	Control System Design
14:332:421	Wireless Communication Systems (14:332:322 is a prerequisite)
14:332:423	Computer and Communication Networks
14:332:424	Introduction to Information and Network Security
14:332:435	Topics in ECE
14:332:436	Topics in ECE
14:332:443	Machine Learning for Engineers
14:332:445	Topics in ECE
14:332:446	Topics in ECE
14:332:447	Introduction to Digital Signal Processing Design
14:332:451	Introduction to Parallel and Distributed Programming
14:332:453	Mobile App Engineering and User Experience
14:332:456	Network-Centric Programming (usually offered only in alternate years)
14:332:472	Robotics and Computer Vision
14:332:474	Intro to Computer Graphics (This course is not offered often) (The course 198:428 can be taken in place)
14:332:479	VLSI Design
14:332:482	Deep Submicron VLSI Design for Electrical and Computer Engineering
14:332:491/2	Special Problems/Independent Study (not open to students on academic probation)
14:332:493	Topics in Electrical and Computer Engineering (if topic is computer related)
14:332:494	Topics in Electrical and Computer Engineering (if topic is computer related)
01:198:334	Introduction to Imaging and Multimedia
01:198:336	Principles of Information and Data Management
01:198:344	Design and Analysis of Computer Algorithms
01:198:440	Introduction to Artificial Intelligence

These courses are not offered often: 14:332:415, 14:332:474

LIST 3.5.2: TECHNICAL ELECTIVES

14:xxx: (where "xxx" is a departmental code): SOE 200+ level courses from other departments are accepted as technical electives;

14:332:382 Electromagnetic Fields
14:332:463 Analog Electronics
14:332:465 Physical Electronics
14:332:466 Opto-Electronic Devices
14:332:481 Electromagnetic Waves
14:332:491/2 Special Problems/Independent Study (not open to students on academic probation)
14:332:496/7 Co-Op and Internship (not open to students on academic probation)

01:640:250 Introductory Linear Algebra
01:640:311 Advanced Calculus I
01:640:312 Advanced Calculus II (640:421 Advanced Calculus for Engineers is not acceptable as this duplicate 332:345 Linear Systems and Signals)
01:640:350 Linear Algebra
01:640:351 Introduction to Abstract Algebra
I01:640:352 Introduction to Abstract Algebra
01:640:354 Linear Optimization
01:640:357 Topics in Applied Algebra
01:640:373 Numerical Analysis I
01:640:374 Numerical Analysis II

01:640:403 Introduction to Theory of Functions of a Complex Variable
01:640:423 Elementary Partial Differential Equations (01:640:421 is not acceptable)
01:640:424 Stochastic Models in Operations Research
01:640:428 Graph Theory
01:640:454 Combinatorics
01:640:478 Mathematical Theory of Probability II

01:750:313 Modern Physics 01:750:351** Thermal Physics I
01:750:406 Introductory Solid-State Physics
01:750:417 Intermediate Quantum Mechanics
01:750:421 Fluid and Plasma Phenomena
01:750:464 Mathematical Physics

01:960:463 Regression Methods
01:960:467 Applied Multivariate Analysis
01:960:484 Basic Applied Statistics

01:160:307 Organic Chemistry I
01:160:308 Organic Chemistry II
10:160:314 Organic Chemistry Laboratory
01:160:315 Honors Organic Chemistry I
01:160:316 Honors Organic Chemistry II

01:198:213	Software Methodology
01:198:214	Systems Programming
01:198:314	Principles of Programming Languages
01:198:323*	Numerical Analysis and Computing
01:198:417	Distributed Systems: Concepts and Design
01:198:424	Modeling and Simulation of Continuous Systems
01:198:439	Introduction to Data Science
01:198:440	Introduction to Artificial Intelligence
01:198:442	Topics in Computer Science
01:198:443	Topics in Computer Science
01:198:444	Topics in Computer Science
01:198:445	Topics in Computer Science
01:198:452	Formal Languages and Automata
07:211:330	Animation 3D
11:117:413	Unit Processes in Environmental Engineering I
11:117:414	Unit Processes in Environmental Engineering II
11:117:462	Design of Solid Waste Treatment Systems
11:117:474	Air Pollution Engineering
14:125:201	Introduction to Biomedical Engineering
14:125:208	Introduction to Biomechanics
14:125:255	Biomedical Engineering system Physiology
14:155:201	Chemical Engineering Material and Energy Balances
14:155:208	Chemical Engineering Thermodynamics I
14:180:216	Introductory Computer-Aided Design and Drafting
14:180:243	Mechanics of Solids
14:440:222	Engineering Mechanics: Dynamics
14:440:301	Introduction to Packaging Engineering
14:440:302	CAD for Packaging Engineering
14:440:371	Packaging Evaluation Methods
14:440:373	Packaging Manufacturing
14:440:378	Sustainable Packaging
14:440:392	Undergraduate Research in Engineering
14:440:403	Safety Engineering in Packaging
14:440:406	Packaging Printing and Decoration
14:440:468	Packaging Machinery
14:440:471	Distribution Packaging
14:540:201	Work Design and Ergonomics
14:540:210	Engineering Probability
14:540:320	Engineering Statistics
14:540:491	Special Problems

14:635:203	Introduction to Materials Science & Engineering (NB)
14:635:204	Materials Processing
14:635:205	Crystal Chemistry and Structure of Materials
14:635:206	Thermodynamics of Materials
14:635:212	Physics of Materials
14:635:303	Phase Diagrams
14:635:304	Ceramic Compositions
14:635:305	Materials Microprocessing
14:635:306	Processing III
14:635:307	Kinetics of Materials Processes
14:635:309	Characterization of Materials
14:635:312	Glass Engineering
14:635:314	Strength of Materials
14:635:316	Electronic, Optical and Magnetic Properties of materials
14:635:320	Introduction to Nanomaterials
14:635:321	Structural, Mechanical and Chemical Application of Nanostructures and Nanomaterials
14:365:322	Photonic, Electronic and Magnetic Applications of Nanostructures and Nanomaterials
14:635:330	Introduction to Nanomaterials
14:635:340	Electrochemical Materials and Devices

14:650:210	Introduction to Aerospace Engineering
14:650:231	Mechanical Engineering Computational Analysis and Design
14:650:291	Mechanics of Materials
14:650:388	Computer-Aided Design in Mechanical Engineering

Independent Study or Special Problems xxx:491, xxx:492, other than 332, are not, in general, considered as electives.

NOTEs:

* Credit not given for both 01:198:323-324 and 01:640:373-374

** Credit not given for both 01:750:351 and 14:650:351

***** Credit will not be given to 01:198:416**