THE CITY COLLEGE – SCHOOL OF ENGINEERING

November 2, 2023

Computer Engineering Curriculum
Fall 2023 – Spring 2024

Math 20100 Calculus I Pre: Math 19500 (C min.) 3–4 cr.	**Chem 10301** General Chemistry I Pre: Math 19500 (C min.) 4 cr.	**Engl 11000**[6] Freshman Composition 3 cr.	**Engr 10100**[6] Engineering Design Pre/Co: Math 19500 (C min.) 1 cr.	**CSc 10300** Introduction to Computing for Majors Pre: Math 19500 (C min.) or Pre/Co: Math 20100 (C min.) 3 cr.	**Liberal Arts**[4] 3 cr.
Math 21200 or **20200** Calculus II Pre: Math 20100 (C min.) 3–4 cr.	**Phys 20700** University Physics I Pre/Co: Math 21200 or 20200 4 cr.	**Engr 10300** Analysis Tools for Eng'rs Pre: Math 20100 (C min.) 2 cr.		**CSc 10400** Discrete Math Structure I Pre: Math 20100 (C min.) 4 cr.	**Engl 21007** Writing for Engineering Pre: Eng 11000 or FIQWS 3 cr.
Math 21300 Pre: Math 21200 (C min.) or **20300** Pre: Math 20200 (C min.) Calculus III 4 cr.	**Phys 20800** University Physics II Pre: Phys 20700 Pre/Co: Math 21300 or 20300 4 cr.	**Engr 20400** Electrical Circuits Pre/Co: Phys 20800 (C min.), Math 21300 or 20300 (C min.) 3 cr.	**EE 21000** Switching Systems Pre/Co: Math 21200 or 20200 (C min.) 3 cr.	**CSc 21200** Data Structures Pre: CSc 10300 or permission, & 10400 3 cr.	
Math 39100 Differential Equations Pre: Math 21300 or 20300 (C min.) 3 cr.	**Math 34600** Linear Algebra Pre: Math 21200 or **39200** Lin. Alg. & Vector Analysis *if Math 21300 not taken* Pre: Math 20300 (C min.) 3 cr.	**EE 20500** Linear Systems I Pre: Engr 10300 & 20400 Pre/Co: Math 39100 (C min.) 3 cr.	**EE 24100** Electronics I Pre: Phys 20800 (C min.) Pre/Co: EE 20500 & EE 21000 3 cr.	**EE 31100** Probability & Statistics Pre: Math 21300 or 20300 (C min.) 3 cr.	**CSc 22100** Software Design Lab Pre: CSc 21200 & Engl 21007 or 2100x 3 cr.
EE 22100 EE Lab I Pre: EE 21000, Engr. 20400 Pre/Co: Engr 10300 1 cr.	**CSc 21000** Assembly Language Pre: CSc 10300 or permission 3 cr.	**EE 30600** Linear Systems II Pre: EE 20500 3 cr.	**EE 33000** Electromagnetics Pre: Phys 20800 & Math 39100 & Math 34600 or 39200 (all C min.) 3 cr.	**EE 31200** Communication Theory Pre: EE 31100, EE 20500 3 cr.	**CSc 22000** Algorithms Pre: CSc 21200 3 cr.
EE 32200 EE Lab II Pre: EE 22100 & EE 24100 1 cr.	**EE 45700** Digital Integrated Circuits Pre: EE 24100 3 cr.	**CSc 33200** Operating Systems Pre: CSc 22000 & 22100 4 cr.	**CSc 34200** Computer Organization Pre: (CSc 21000 & EE 21000) or CSc 21100 Co: CSc 34300 3 cr.	**CSc 34300** Computer Organize Lab Coreq: CSc 34200 1 cr.	**Liberal Arts**[4] 3 cr.
Track Elective *(from **Systems track** or **Computation & Signal Processing track** lists below)* 3 cr.	**CSc 59866** Senior Project I Pre/Co: senior standing & permission 3 cr.	or **EE 59868** Capstone Design for CpE I Pre: EE 32200, Pre/Co: Lab EE 42500 & senior standing Two consecutive semesters	**EE 42500** Computer Engineering Lab Pre: EE 32200 Pre/Co: EE 34400 or 44400 or (CSc 21000 & CSc 34200) 1 cr.	**Computer Engineering Elective** *(from list below)* 3 cr.	**Liberal Arts**[4] 3 cr.	**Liberal Arts**[4] 3 cr.
Track Elective *(from same track as above)* 3 cr.	**CSc 59867** Senior Project II Pre: CSc 59866 3cr.	or **EE 59869** Capstone Design for CpE II Pre: EE 59868	**Practice / Ethics Issues** *(1 Course)* CSc 37500: Social Iss. Comp. Phil 34902: Computer Ethics Eco 10400: Intro Quant Econ Engr 27600: Eng. Economics EE 43800: Mgmt Concpts Eng Engr 30000: Impact Bio Tech 3 cr.		**Liberal Arts**[4] (20000 or higher) 3 cr.	**Liberal Arts**[4] (20000 or higher) 3 cr.

Systems track

CSc 41200: Computer Networks
EE 33300: Intro Antennas, Microwv & Fiber Ops
EE 33900: Semiconductor Materials & Devices
EE 37100: Linear Feedback Systems
EE 45100: Communication Electronics
EE 46000: Computer Communication Systems
EE 46300: Wireless Communications
EE 47200: Digital Design Using Verilog
Engr 23000: Thermodynamics
Phys 32300: Quantum Mech for Applied Physics

Computation & Signal Processing track

CSc 30100: Numerical Issues in Sci Programming
CSc 44700: Introduction to Machine Learning
CSc 47000: Image Processing
CSc 47100: Computer Vision
CSc 47200: Computer Graphics
CSc 47900: Digital Libraries
CSc 59944: Neural Computing
CSc I1900: Pattern Recognition†
EE 35900: Artificial Intelligence Solutions in Engr
EE 45300: Digital Signal Processing
EE 47100: Intro to Digital Image Processing
EE I2200: Image Processing
EE I6530: Artificial Intelligence for Engr. Appls

Computer Engineering Electives

CSc 30100	CSc 38000	CSc 42800	CSc 44000	CSc 44800	CSc 47000	CSc 47800	BME 50500	EE 35900	EE 45300	EE 46200	EE 51003
CSc 30400	CSc 41200	CSc 43000	CSc 44200	CSc 45000	CSc 47100	CSc 47900	EE 33300	EE 37100	EE 45400	EE 46300	
CSc 32200	CSc 42000	CSc 43200	CSc 44500	CSc 45400	CSc 47200	CSc 48000	EE 33900	EE 44100	EE 45600	EE 46400	
CSc 33500	CSc 42200	CSc 43500	CSc 44600	CSc 45600	CSc 47300	CSc 48600	EE 34200	EE 45100	EE 45800	EE 47100	
CSc 33600	CSc 42300	CSc 43800	CSc 44700	CSc 46000	CSc 47400	CSc 49200	EE 35700	EE 45200	EE 46000	EE 47200	
						CSc 51003					

1. **The latest version of the curriculum sheet supersedes any curriculum and pre-/corequisite information in the Undergraduate Bulletin or online.**

2. **"C" Passing Grade Requirement:** Courses in shaded area (▢) require a minimum passing grade of "**C**".

3. **Skills tests:** Certain students may be required to pass CUNY Assessment Tests in one or more subjects within 1 or 2 years of admission.

4. **Liberal Arts electives:** CpE students must take **six** approved courses, of which at least two must have course numbers of 20000 or higher. **Four** of the courses should satisfy Flexible Core (Pathways) liberal arts requirements in the Creative Expression (CE), World Cultures & Global Issues (WCGI), Individual & Society (IS), and U.S. Experience (US) areas. Prior courses in these four areas from other colleges can satisfy the electives. The remaining **two** courses must be chosen from the list on the Grove School of Engineering web site at ccny.cuny.edu/engineering/gen-ed .

   See ccny.cuny.edu/engineering/pathways for details and the Pathways course lists. A prior degree may remove the requirement of all six courses.

5. **Other Graduation Requirements:** Apply for graduation during registration for the last semester. Minimum GPA of 2.00. Minimum QPA of zero. Residency Requirement: 30 credits of 30000-level or higher Computer Science or Electrical Engineering courses taken at CCNY.

6. **Transfer students with credit for Math 21200 or 20200** are considered too advanced for Engr 10100. They should take an additional 1-credit CSc or EE lab instead. (FIQWS 10026 fulfills the requirements for Engl 11000 and Engr 10100.)

7. **Program Changes:** Substitution of other courses for required courses must be approved by the Chair of the Computer Science Department (NAC 8/206) for CSc courses or the Chair of the Electrical Engineering Department (ST-602) for EE courses, and approved by the Associate Dean of the Office of Undergraduate Affairs (ST-209) in both cases.

8. Red texts are the most recent curriculum changes.

Total Credits: 129–132.

Advising: Course checklist for Computer Engineering majors
2019 Curriculum

	Course *(if blank, fill in course number you took ↓)*			Grade *(fill in)*	Currently enrolled: ✓	**Intend next semester ✓**
Math	201	3-4	Calc I	≥ C		
	(202 or) 212	3-4	Calc II	≥ C		
	(203 or) 213	4	Calc III	≥ C		
	391	3	Diff. Eq.	≥ C		
	(392 or) 346	3	Lin Alg (& Vec)	≥ C		
Chem	103	4	General Chem	≥ C		
Phys	207	4	University Phys I	≥ C		
	208	4	University Phys II	≥ C		
English	110	3	Freshman Comp			
	210.07	3	Writing for Engg			
Liberal arts	CE elective	3	←*fill*			
	WCGI elective	3	←*fill*			
Two of these six courses should be ≥200.	IS elective	3	←*fill*			
	US elective	3	←*fill*			
	GSoE list: elective	3	←*fill*			
	GSoE list: elective	3	←*fill*			
Engr	101	1	Engg Design			
	103	2	Analysis Tools			
	204	3	Electric Circuits			
C.Sc.	103	3	Intro Computing			
	104	4	Discrete Math			
	210	3	Assembly Lang			
	212	3	Data Structures			
	220	3	Algorithms			
	221	3	Softw Design Lab			
	332	4	Operating Systems			
	342+343	4	Comput Org			
C.Sc. *or* E.E.	*(from list)* elective	3	←*fill*			
E.E.	205	3	Linear Systems I			
	210	3	Switching Systems			
	221	1	EE Lab I			
	241	3	Electronics I			
	306	3	Linear Systems II			
	311	3	Probability & Stats			
	312	3	Communic Theory			
	322	1	EE Lab II			
	330	3	Electromagnetics			
	425	1	Comput Engg Lab			
	457	3	Digital Integ Circ			
Track: ☐ Sys or ☐ Comp+SigProc	*(from list)* elective	3	←*fill*			
	" elective	3	←*fill*			
Capstone project	☐ EE 598.68 ☐ or CSc 598.66	3	Senior Design I			
	EE 598.69 or CSc 598.67	3	Senior Design II			
Practice/ethics	*(from list)* elective	3	←*fill*			

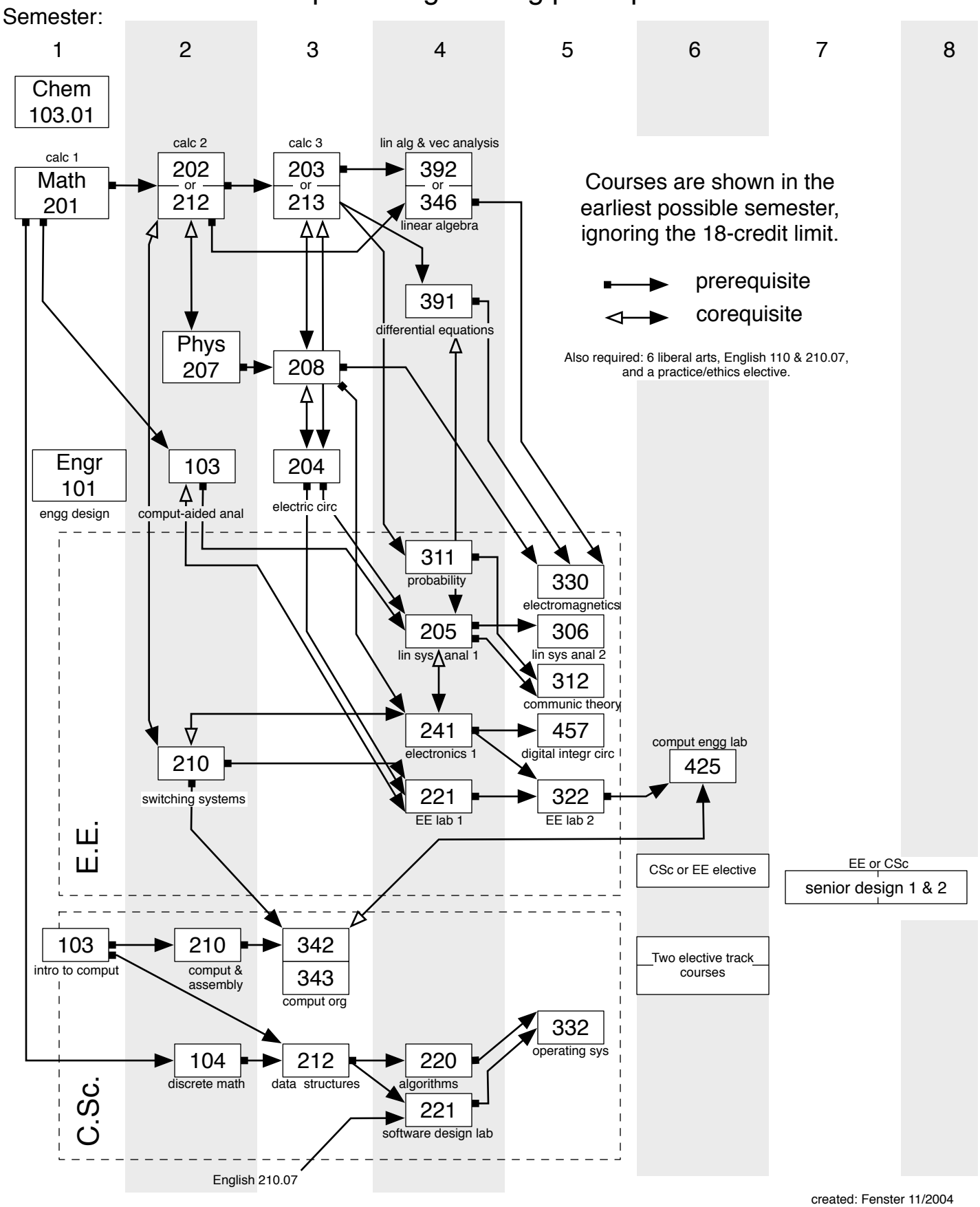
☐ Residency requirement: 30 credits of CSc + EE courses numbered 300 or higher must be taken at CCNY.

GPA: _____ **QPA:** _____ (GPA & QPA calculator: www-cs.ccny.cuny.edu/~fenster/gpa.html)

QPA uses **only** your grades in all CSc & EE courses, and Engr 204: F=−2. D=−1. {C−, C, C+}=0. {B−, B, B+}=1. {A−, A, A+}=2. Multiply each grade by the number of credits, and add them. FIN=FAB=F. Count only courses taken at CCNY.
Good standing: GPA ≥ 2, QPA ≥ 0, and you do not need a course for the third time. W credits must be < 12 in the last two years.

last updated: Feb. 2024

Computer Engineering prerequisites



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