THE CITY COLLEGE – SCHOOL OF ENGINEERING

June 10, 2013

Computer Science Curriculum
Fall 2013 - Spring 2014

Math 20100 Calculus I Pre: Math 19500 (C min) 3 cr.	**Science Elective** [5] 4 cr.	**Engl 11000** Freshman Composition 3 cr.	**Speech 11100** [6] Foundations of Speech Comm. 3 cr.	**Liberal Arts** (10000 or higher) 3 cr.
Math 20200 Calculus II Pre: Math 20100 (C min) 3 cr.	**Science Elective** [5] 4 cr.	**CSc 10300** Intro to Computing for Majors Pre: Math 19500 (C min) or Pre/Co: Math 20100 (C min) 3 cr.	**CSc 10400** Discrete Math Structures Pre: Math 20100 (C min) 4 cr.	**Engl 21007** Writing for Engineering Pre: Eng 11000 or FIQWS 3 cr.
Math 20300 Calculus III Pre: Math 20200 (C min) 4 cr.	**CSc 21100** Fund. of Computer Systems Pre: CSc 10300 or permission 3 cr.	**CSc 21200** Data Structures Pre: CSc 10300 or permission, & 10400 3 cr.	**CSc 21700** Probability & Statistics for Computer Sci Pre: CSc 10200, CSc 10400 & Math 20100 (C min) 3 cr.	**Liberal Arts** (10000 or higher) 3 cr.
Math 34600 Elements of Linear Algebra Pre: Math 20300 3 cr.	**CSc 30400** Theoretical Computer Science Pre: CSc 10400 3 cr.	**CSc 22000** Algorithms Pre: CSc 21200 3 cr.	**CSc 22100** Software Design Lab Pre: CSc 21200, & Engl 21007 or 2100x 3 cr.	**CSc 113xx** *programming language* Pre: CSc 10300 1 cr.	**Free Elective** [7] Any course except remedial, lower level than required, duplicate, worker education, or independent study courses. 3 cr.
Science Elective [5] 4 cr.	**CSc 30100** Numerical Issues in Scientific Prog. Pre: CSc 21700, CSc 22000, Math 20300 (C min) & Math 34600 (C min) 3 cr.	**CSc 33500** Programming Language Paradigms Pre: CSc 22000 & CSc 22100 3 cr.	**CSc 32200** Software Engineering Pre: CSc 22000 & CSc 22100 4 cr.	**CSc 33600** Introduction to Database Systems Pre: CSc 22000, CSc 22100 3 cr.
A. Theory & Application Elective [8] *(1 or 2 Courses)* CSc 42200: Computability CSc 42800: Formal Languages & Automata CSc 44800: Artificial Intelligence CSc 45000: Combinatorics & Graph Theory CSc 48000: Computer Security CSc 48600: Computational Complexity 3 or 6 cr.	**CSc 33200** Operating Systems Pre: CSc 22000 & (CSc 21700 or EE 31100) 4 cr.	**CSc 34200** Computer Organization Pre: CSc 21100 or (CSc 21000 & EE 21000) Co: CSc 34300 3 cr.	**CSc 34300** Computer Organ. Lab Co: CSc 34200 1 cr.	**Engr 27600** Engineering Economics **Pre: Math 20100 (Cmin)** **or** **Eco 10400** Intro. Quant. Economics Pre: Math 20100 or 20500 3 cr.	
B. Computational Techniques For Sci & Engr Elective [8] *(1 or 2 Courses)* CSc 44000: Computational Methods CSc 44200: Systems Simulation CSc 44600: Math. Optimization Tech. CSc 47000: Image Processing CSc 47100: Computer Vision CSc 47200: Computer Graphics CSc 47900: Digital Libraries 3 or 6 cr.		**Technical Elective** [7] Courses in Computer Science, Biology, Chemistry, EAS, Math, Physics, & Engineering; excluding (1) courses at the 10000 level; (2) courses with no prerequisites; (3) "professional" courses; (4) project & seminar courses; (5) duplicate courses. 3 cr.		**CSc 59866** Senior Design Project I Pre/Co: Senior, Perm. *(two consecutive semesters)* 3 cr.	**Liberal Arts** (20000 or higher) 3 cr.
C. Computer Systems Elective [8] *(1 or 2 Courses)* CSc 31800: Internet Programming CSc 41200: Computer Networks CSc 42000: Compiler Construction CSc 43000: Distributed Computing CSc 43500: Concur. in Operating Sys. CSc 43800: Real-Time Computing Systems CSc 47300: Website and Web Applications 3 or 6 cr.		**Technical Elective** [7] Courses in Computer Science, Biology, Chemistry, EAS, Math, Physics, & Engineering; excluding (1) courses at the 10000 level; (2) courses with no prerequisites; (3) "professional" courses; (4) project & seminar courses; (5) duplicate courses. 3 cr.	**Free Elective** [7] Any course except remedial, lower level than required, duplicate, worker education, or independent study courses 3 cr.	**CSc 59867** Senior Design Project II Pre: CSc 59866 3 cr.	**Liberal Arts** (20000 or higher) 3 cr.

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. **General Education/Liberal Arts electives:** CSc students must take four approved courses and Speech 11100 (Foundations of Speech Communication) for 15 credits (five courses) of which at least 6 credits (two courses) must be at the 20000 level or higher. A list of approved courses is posted on the School of Engineering web site at http://www.ccny.cuny.edu/engineering/genreq.html and can be viewed at the Office of Undergraduate Affairs (ST-209) or the Office of Student Programs (ST-2M7).

   Each course falls into one or more general education *clusters*, specified in the list. The five courses must collectively occupy at least three clusters. The four clusters are: (f) Professional and Ethical Responsibilities, (g) Communication, (h) Global and Societal Context, and (j) Contemporary Issues.

5. **Science Elective Requirements:** Students are required to take at least 12 credits of science. These credits must include one of the following sequences: (a) Bio 10100 & 10200 (8 cr.), (b) Chem 10301 & 10401 (8 cr.), or (c) Phys 20700 & 20800 (8cr.). In addition students need to take at least one more course in Biology, Chemistry or Physics at a level not lower than the required in Biology, Chemistry or Physics.

6. **Speech Requirements:** Students who are exempted from Speech 11100 must take another speech course in its place.

7. **Free/Technical Elective Requirements:** CSc 10000 can be used as a Free Elective **only** if it is taken before CSc 10300. CSc 31700 (The Internet) counts only as a free elective.

8. **CSc Electives**: Take one course in each of three elective groups (**A** – **C**) and then one additional course in one of the three groups.

9. **Other Graduation Requirements:** Apply for graduation during registration for the last semester. Minimum GPA of 2.00. Minimum QPA of zero. Residency Requirement: 33 credits of 30000-level or higher Computer Science courses taken at CCNY.

10. **Program Changes:** Substitution of other courses for required courses must be approved by the Chair of the Computer Science Department (NAC-8/206), and the Associate Dean of the Office of Undergraduate Affairs (ST-209).

Total Credits: 126.