

KINGSBOROUGH COMMUNITY COLLEGE
The City University of New York

CURRICULUM DATA TRANSMITTAL SHEET

DEPARTMENT Mathematics & Computer Science DATE March 7, 2012

Title of Course or Degree Change: CP 01000 - Computer Science Concepts, Tools, and Methods


Change(s) Initiated: (Please check)

- | | |
|---|---|
| <input type="checkbox"/> Letter of Intent | <input type="checkbox"/> Proposal |
| <input type="checkbox"/> Closing of Degree Program | <input type="checkbox"/> Proposal (Letter of Intent sent previously) |
| <input checked="" type="checkbox"/> New Course* | <input type="checkbox"/> Change in Degree Requirements |
| <input type="checkbox"/> New 82 Course | <input type="checkbox"/> Change in Degree Requirements (adding concentration) |
| <input type="checkbox"/> New Certificate Program | <input type="checkbox"/> Change in Discipline Code |
| <input type="checkbox"/> Change in Pre/Co-Requisite | <input type="checkbox"/> Change in Description |
| <input type="checkbox"/> Deletion of Course | <input type="checkbox"/> Change in Course Titles, Numbers, Credits &/or Hours |
| <input type="checkbox"/> Other (please describe): _____ | |

PLEASE ATTACH PERTINENT MATERIAL TO ILLUSTRATE AND EXPLAIN ALL CHANGES

I. DEPARTMENTAL ACTION

Action by Department and/or Departmental Committee, if required:

Date approved 3/6/2012 Signature, Committee Chairperson: 

Signature, Department Chair: 

II. PROVOST ACTION

Provost to act within 30 days of receipt and forward to College-wide Curriculum Committee exercising one of the following options:

- A. Approved B. Returned to department with comments

Recommendations (if any): _____

Signature, Provost: _____ Date: _____

III. CURRICULUM SUB-COMMITTEE RECOMMENDATIONS (*FOR NEW COURSES ONLY):

- A. Approved B. Tabled (no action to be taken by Curriculum Committee)

Recommendations (if any): _____

Signature, Sub-Committee Chair: _____ Date: _____

IV. COLLEGE-WIDE CURRICULUM COMMITTEE ACTION

Committee to act within 30 days of receipt, exercising one of the following options:

- A. Approved (forwarded to Steering Committee)
B. Tabled (Department notified)
C. Not Approved (Department notified)

Signature, Chairperson of Curriculum Committee _____ Date: _____

Kingsborough Community College
Of The City University of New York

Department of Mathematics and Computer Science

1. Department, Course Number and Title

Department of Mathematics and Computer Science,
CP 01000 **Computer Science Concepts, Tools, and Methods**

2. Distribution Requirements for Groups I-V

CUNY General Education Flexible Core three-credit course

3. Demonstration of Course Transferability

Common core of general education at CUNY

4. Bulletin Description of Course

Computer science overview, including a general introduction to the concept of computers and computer systems, applications, programming and networking. These topics are introduced to the student with a broad outlook approach that provide fundamental knowledge of the discipline and connects these concepts to practical applications of the role of computers in society, including areas such as security, privacy, ethics, and social networking. The interdisciplinary nature of computer science is stressed, by examples of its application to multiple fields (including life and physical sciences, linguistics, logic, mathematics, psychology, statistics, technology-related studies, general scientific discovery) are presented.

5. Number of Weekly Class Hours

Three hours per week

6. Number of Credits

Three credits

7. Prerequisites

Exit from all remedial courses.

8. Justification for Course

Computers are ubiquitous in all areas of modern society, and their applications and systems provide powerful tools for the pursuit of knowledge, as well as for the facilitation of a better society. The degree to which the student is familiar with and fluent in the concepts and capabilities of computers directly affects and enhances their ability to gather, interpret and assess information from a variety of sources. One of the important elements of this course is a description of how various computer applications can be used in a variety of disciplines to evaluate evidence and arguments critically and analytically.

9. Course Withdrawals

None

10. CPI Requirements

None

11. Field Work, Internship, or Independent Study

N/A

12. Textbook

Computer Science: An Overview (11th Edition) by J.G. Brookshear,
Addison Wesley Publishers (2012)

13. Required Course for Majors

N/A

14. Specify if Course is Open Only to Selected Students

Open to all students who have completed the prerequisite(s)

15. What Students Will Know and be Able To Do Upon Completion of Course

Students completing this course will have an understanding of, and the ability to identify and apply the fundamental concepts and methods of computer science to explore the scientific world in a variety of areas including, but not limited to: computer technology, history of science, as well as technology-related studies.

The student will understand how technology tools and computer applications are applied to the processes of analyzing problems and developing practical, complete and accurate solutions to problems. The course is designed to enlighten the student as to how computers may serve as a tool for the articulation and for evaluation of empirical evidence supporting scientific or formal theories.

Completion of this course will provide the students with an understanding of the extremely significant and substantial impact of computer science on the contemporary world (including areas such as personal privacy, security, and ethical responsibility). Students can explore the relationship of computer science and technology principles to matters of policy and public concern.

16. Methods of Teaching

Instruction will include lectures accompanied with demonstrations on computers.

17. Assignments to Students

Written assignments and oral presentations on topics related to computer technology

18. Methods of Evaluation of Learning

Evaluation will be based on class tests, a final examination, as well as various presentations and assignments.

19. Topical Course Outline

1. Overview of computers and computer systems. Overview of computer science.
 - *hardware, software, programming, networks/internet, applications, security*

2. Computer programming concepts.
 - *general description of the high level language concept (Java, C++)*
 - *illustrative examples of html and other coding methods*

3. Computer networking.
 - general description of basic computer networking concepts (addresses, protocols)
 - description of the concept and structure of the Internet and the World Wide Web

4. History of computers, computer systems and computer science.
 - overview of computer history (generation of computers)
 - overview of networking history (internet, world wide web)

5. Exploration of computer technologies in multiple disciplines.
 - bioinformatics, education, commerce, entertainment, transportation, etc.

6. Impact of computers on society.
 - social networking, security, privacy, ethics, the digital divide

7. Computer programming introduction.
 - development of a computer program (algorithms, data, and software engineering concepts)

20. Selected Bibliography

Brookshear, J.G., *Computer Science An Overview*, 11th edition Addison Wesley (2012)
ISBN 978-0-13-256903-3

Reed, David, *A Balanced Introduction to Computer Science*, 2nd edition Pearson Prentice Hall (2008) ISBN 978-0-13-601722-6

Snyder, Lawrence, *Fluency with Information Technology: Skills Concepts and Capabilities*, 3rd edition Pearson Addison Wesley (2008) ISBN 978-0-321-51239-0

Coyle, Diane M., *Computers are Your Future*, 10th edition Pearson (2009)
ISBN 978-0-13-504511-4

Coulthard, G.J., *Computing Now*, McGraw -Hill (2012) ISBN 978-0-07-351685-1

March 2012