Alexander College
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CURRICULUM GUIDE: OFFICIAL COURSE OUTLINE

<table>
<tr><td>Course Code</td><td>CPSC 100</td><td>Course Title</td><td colspan="4">Elements of Computer Science</td></tr>
<tr><td>Credit Value</td><td>4</td><td>Department</td><td colspan="4">Mathematics and Science</td></tr>
<tr><td rowspan="2">No. of weeks</td><td rowspan="2">14</td><td rowspan="2">Hrs. per week</td><td>Lecture</td><td>Tutorial</td><td>Laboratory</td><td>Total</td></tr>
<tr><td>3</td><td>0</td><td>1</td><td>4</td></tr>
<tr><td>Course Description</td><td colspan="6">An introduction to elementary concepts in Computer Science and Information Technology. Topics include the history of computing, the basic structure of a digital computer system (hardware and software), networks, programming, Internet, World-Wide-Web (WWW), and the social impacts of computer technology. This course is suitable for students with little or no programming background.</td></tr>
<tr><td>Prerequisite(s)</td><td colspan="6">ENGL 088, MATH 12 or equivalent is recommended</td></tr>
<tr><td rowspan="3">Initial Articulation Targets</td><td>UBC</td><td>SFU</td><td>UVic</td><td>UNBC</td><td colspan="2">TRU</td></tr>
<tr><td>No credit</td><td>CMPT 1XX (4)</td><td>CSC 100 (1.5)</td><td>CPSC 1XX (3)</td><td colspan="2">COMP 1000 (3)</td></tr>
<tr><td colspan="6">For updated information on the transferability of this course, please consult the BC Transfer Guide, www.bctransferguide.ca</td></tr>
<tr><td>Learning Outcomes</td><td colspan="6">Upon successful completion of this course, the student will be able to:
Convert numbers between bases.
Explain the basic data representations in a computer system
Determine the Boolean output from logic gates
Explain the different types of hardware in a computer system
Explain the basic construction of a computer, its hardware, and software
Write basic programs in machine code, assembly, and high-level language (Python)
Solve basic problems relating to operating system memory allocation and CPU scheduling
Explain the concepts of networks and relating them to the Internet and WWW
Differentiate between the usage and functions of spreadsheets and databases
Create a basic homepage (HTML)
Explain computer and network security issues</td></tr>
<tr><td>Content</td><td colspan="6">Core topics – all of the following will be covered:
Binary Values, Number Systems
Data Representation
Gates and Circuits
Computing Components
Low-level Programming Languages and Pseudocode
High-level Programming Languages (Python)
Operating Systems</td></tr>
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Alexander College
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<tr><td></td><td colspan="3">

- Information Systems
- Simulations and Graphics
- Networks and The World Wide Web (HTML)
- Computer Security

Additional topics may also be covered, at the discretion of the instructor:

- Searching algorithms: sequential, binary
- Sorting algorithms: selection, bubble, insertion

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<tr><td>Methods of Instruction</td><td colspan="3">Lectures, assignments, computer laboratory work, projects, assigned reading, quizzes</td></tr>
<tr><td>Required Textbook(s)</td><td colspan="3">The following textbook(s) is/are required, or approved equivalent(s).

Dale, Nell and John Lewis. Computer Science Illuminated. 7th Ed. Burlington, MA: Jones & Bartlett Learning, 2019.</td></tr>
<tr><td>Required Equipment and Technology</td><td colspan="3">Students are required to have a computer with internet access.
The following resources are provided by the College:
• Office 365
• Student email</td></tr>
<tr><td>Homework Hours</td><td colspan="3">At minimum, students can expect one hour of homework for every hour of instructional time.</td></tr>
<tr><td rowspan="2">Evaluation</td><td>Component</td><td colspan="2">% Value</td></tr>
<tr><td>Assignments and quizzes
Labs and projects
Midterm examinations (1-2)
Final examination</td><td colspan="2">15-30%
15-20%
20-35%
30-35%</td></tr>
<tr><td>Completion Requirements</td><td colspan="3">The minimum grade to pass this course is D (50%). Unless otherwise stated, a minimum grade of C- (55%) is required for this course to fulfil a prerequisite.</td></tr>
<tr><td>Course Designer(s)</td><td>Alexandra Fedorova, Simon Fraser University
Tiko Kameda, Ph.D., Department of Computing Science, Simon Fraser University</td><td>Consultant(s), if applicable</td><td>Tiko Kameda, Ph.D., Department of Computing Science, Simon Fraser University</td></tr>
<tr><td>Dean’s Approval</td><td>Barbara Moon, Ph.D.
Professor Emeritus, Department of Biology, University of the Fraser Valley</td><td>Dean’s Approval Date</td><td>January 23, 2006</td></tr>
<tr><td>Curriculum Committee Approval Date</td><td>January 23, 2006</td><td>First Term Offered</td><td>Spring 2010</td></tr>
<tr><td>Last Review Date</td><td>September 28, 2022</td><td>Next Review Date</td><td>September 28, 2027</td></tr>
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Revision History	April 18, 2007 – major revision by Alexandra Fedorova, SFU August 1, 2014 – major revision by Tiko Kameda, SFU September 28, 2022-Revision to learning outcomes, content, textbook, assessment, resources by Kelly Cheung.