Alexander College
YOUR ROAD TO UNIVERSITY STARTS HERE!

CURRICULUM GUIDE: OFFICIAL COURSE OUTLINE

Course Code	CPSC 276	Course Title	Introduction to Software Engineering			
Credit Value	3	Department	Mathematics and Science			
No. of weeks	14	Hrs. per week	*Lecture*	*Tutorial*	*Laboratory*	*Total*
			3	0	1	4
Course Description	This course covers the theory and major processes of software development and project management. Topics include requirements analysis, software design, implementation, testing, maintenance, and ethics as related to software. Students will gain practical experience with software development tools and working in a team with other students to create applications.					
Prerequisite(s)	ENGL 099, CPSC 225, CPSC 115 or MATH 115, MATH 151 or MATH 104 (B or higher)					
Initial Articulation Targets	*UBC*	*SFU*	*UVic*	*UNBC*	*TRU*	
	CPSC 310 (4)	CMPT 276 (3)	CSC 2XX (1.5)	CPSC 2XX (3)	COMP 2920 (3)	
	For updated information on the transferability of this course, please consult the BC Transfer Guide, www.bctransferguide.ca					
Learning Outcomes	Upon successful completion of this course, the student will be able to: • Compare the major software development methodologies. • Describe processes for determining and modeling the requirements of a software project • Understand how to apply the Unified Modeling Language (UML) to document a high-level project design. • Describe common design patterns in software design. • Describe and contrast unit, integration and system tests and understand the role of quality assurance in a software project. • Implement testing frameworks for white and black box testing. • Apply software development principles to complete a team-based project. • Employ software development tools such as Integrated Development Environments (IDE), debuggers and version control software. • Understand issues related to the management of software development teams. • Understand the professional responsibilities of a software designer and the importance of considering application design in a societal context.					

Alexander College
Main Campus 4805 Kingsway, Burnaby, BC V5H 4T6
www.alexandercollege.ca

<table>
<tr><td>Content</td><td colspan="3">Core topics – all of the following will be covered:
Software life cycle, including a comparison between different methodologies, particularly agile and plan-driven development.
Requirements analysis and modeling
High-level design using UML diagrams
Implementation, including the importance of coding standards and code review
Testing, including the various phases and types of testing, unit testing, integration testing and quality assurance
Introduction to development tools such as IDEs, debuggers and version control, also specific tools related to the chosen platform
Ethics and professional responsibilities of the software designer
Additional topics may also be covered, at the discretion of the instructor.</td></tr>
<tr><td>Methods of Instruction</td><td colspan="3">Lectures, assignments, computer laboratory work, projects, assigned reading, quizzes, examinations</td></tr>
<tr><td>Required Textbook(s)</td><td colspan="3">The following textbook(s) is/are required, or approved equivalent(s).

Delessio, Carmen et al. Sams Teach Yourself Android Application Development in 24 Hours. 4th Ed, Sams Publishing, 2015.</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="5">Evaluation</td><td>Component</td><td colspan="2">% Value</td></tr>
<tr><td>Assignments and Quizzes</td><td colspan="2">10-20%</td></tr>
<tr><td>Labs and Projects</td><td colspan="2">10-20%</td></tr>
<tr><td>Midterms (1-2)</td><td colspan="2">20-40%</td></tr>
<tr><td>Final Examination</td><td colspan="2">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>Radwa Hammad, M.Sc., Computer Science instructor, Alexander College
Kelly Cheung, Ph.D., Department Head of Math and Science, Alexander College</td><td>Consultant(s), if applicable</td><td>John Edgar, M.Sc. School of Computing Science, Simon Fraser University</td></tr>
<tr><td>Dean’s Approval</td><td>Barbara Moon, Ph.D., Dean of Arts and Sciences, Alexander College</td><td>Dean’s Approval Date</td><td>November 26, 2020</td></tr>
<tr><td>Curriculum Committee Approval Date</td><td>November 26, 2020</td><td>First Term Offered</td><td></td></tr>
</table>

Last Review Date	July 29, 2024	Next Review Date	July 29, 2029
Revision History	July 29, 2024 - Minor updates to assessments and ranges by Kelly Cheung.		

Alexander College
Main Campus 4805 Kingsway, Burnaby, BC V5H 4T6
www.alexandercollege.ca