Bow Valley College

Course Outline

CLCM3403

Cloud Architecture Design and Implementation Planning
Fall 2023 - Current

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CLCM3403 Cloud Architecture Design and Implementation Planning

COURSE DESCRIPTION

This course will enable learners to demonstrate their ability to take the specification documentation for a Cloud application and produce both the Cloud Architecture Design document and the Implementation Plan for realizing the Cloud Application. Learners must be able to understand and explain requirements and specification documentation and will be able to explain the steps from a specification to a design architecture element. They will demonstrate expanding a set of specifications into a complete design architecture and they will document that design architecture. Learners will also be able to explain a design architecture and how to develop an implementation plan from the design architecture. Learners will develop an implementation plan from a design architecture and explain how the implementation plan represents the design architecture. They will learn, develop and be assessed on: understanding requirements and specification documents, understanding security and governance requirements, designing and documenting Cloud architecture that will fulfill a specification while supporting security and governance needs, identifying data and code services and functional elements that will implement a Cloud application that meets stakeholder requirements, writing and verbal communication skills, and verification of implementation plan with stakeholders.

REQUISITES	None
EQUIVALENTS	Complete the following courses: • CLCM3401 - Cloud Architecture Design and Implementation Planning (3)
CREDITS	3
HOURS	45
ELIGIBLE FOR PLAR	No
ZERO TEXTBOOK COST	Yes

COURSE COMPETENCY

COMPETENCY TITLE

Cloud Application Implementation – Novice Practitioner

COMPETENCY STATEMENT

Implement code and data services to fulfill stakeholder requirements.

COMPETENCY DESCRIPTION

A Cloud Architect is a person having expertise and thorough understanding of cloud architecture and

services. A Cloud Architect gets involved right from the planning stage to suggest best possible solutions to develop/migrate applications in cloud. Their role in a project is of utmost importance as they lay the foundation of the entire project in the Cloud by gathering requirements and designing solutions based on that. A Cloud Architect works with the Product Owner, Developer, IT System Administrators, IT Security Analysts and others to understand the application and underlying IT software/hardware requirements.

COURSE LEARNING OUTCOMES

Bow Valley College is committed to ensuring our graduates can demonstrate their abilities in key areas that will make them effective citizens and encourage their development as lifelong learners. In addition to the discipline-specific skills that learners acquire in their programs, the College has identified ten learning outcomes.

College-Wide Outcomes:

1. Communication
2. Thinking Skills
3. Numeracy and Financial Literacy
4. Working with Others
5. Digital Literacy
6. Positive Attitudes and Behaviours
7. Continuous Learning
8. Health and Wellness Awareness
9. Citizenship and Intercultural Competence
10. Environmental Sustainability

#	COURSE LEARNING OUTCOME(S)	COLLEGE WIDE OUTCOMES SUPPORTED
1	Develop design architecture document while demonstrating thoroughness and written communication skills and by demonstrating teamwork skills.	1, 2, 4, 5, 6
2	Develop the implementation plan by incorporating the current Cloud resources and working as part of a team by demonstrating attention to details, and drawing conclusions from stakeholders.	1, 2, 4, 5, 6
3	Develop proficiency in HTML to create and structure web pages and apply this knowledge to build responsive and interactive interfaces for cloud-based applications.	1, 2, 4, 5, 6
4	Gain practical skills in using Python libraries and frameworks for cloud application development, such as Flask or Django.	1, 2, 3, 4, 5, 6
5	Develop a solid foundation in GoLang programming language, focusing on practical hands-on exercises and cloud projects.	1, 2, 3, 4, 5, 6, 7
6	Apply the learned knowledge and skills to develop a real-world cloud-based project, demonstrating the ability to integrate multiple technologies and build cloud-native applications effectively.	1, 2, 3, 4, 5, 6, 7

LEARNING PATHWAY

**The time it takes learners to demonstrate competencies will vary. An example of a suggested schedule for learning and development is shown below. Learners will need to plan out their assessment attempts within their course. For additional information, please consult the Course Offering Information in Brightspace.*

WEEK/HOURS	LEARNING AND DEVELOPMENT PLAN
Week 1	Complete the Performance Demonstrations; Review your personalized learning plan
Week 2	Develop design architecture document while demonstrating thoroughness and written communication skills and by demonstrating teamwork skills
Week 3	Develop design architecture document while demonstrating thoroughness and written communication skills and by demonstrating teamwork skills
Week 4	Develop design architecture document while demonstrating thoroughness and written communication skills and by demonstrating teamwork skills
Week 5	Develop design architecture document while demonstrating thoroughness and written communication skills and by demonstrating teamwork skills
Week 6	Develop design architecture document while demonstrating thoroughness and written communication skills and by demonstrating teamwork skills
Week 7	Develop design architecture document while demonstrating thoroughness and written communication skills and by demonstrating teamwork skills
Week 8	Develop the implementation plan by incorporating the current Cloud resources and working as part of a team by demonstrating attention to details, and drawing conclusions from stakeholders
Week 9	Reading Week (modifications to this week will occur to adjust to the academic calendar)
Week 10	Develop the implementation plan by incorporating the current Cloud resources and working as part of a team by demonstrating attention to details, and drawing conclusions from stakeholders
Week 11	Develop the implementation plan by incorporating the current Cloud resources and working as part of a team by demonstrating attention to details, and drawing conclusions from stakeholders
Week 12	Develop the implementation plan by incorporating the current Cloud resources and working as part of a team by demonstrating attention to details, and drawing conclusions from stakeholders
Week 13	Develop the implementation plan by incorporating the current Cloud resources and working as part of a team by demonstrating attention to details, and drawing conclusions from stakeholders
Week 14	Develop the implementation plan by incorporating the current Cloud resources and working as part of a team by demonstrating attention to details, and drawing conclusions from stakeholders
Week 15	Develop the implementation plan by incorporating the current Cloud resources and working as part of a team by demonstrating attention to details, and drawing conclusions from stakeholders

COURSE MODULES AND SCHEDULE

**Course schedule subject to change, depending on delivery mode and term of study. For exact dates, please consult the Course Offering Information in Brightspace.*

WEEK/HOURS	MODULES
1	Introduction to web development
2	Linux commands for server management
3	SQL fundamentals
4	Dynamic web development
5	Java GUI programming
6	Introduction to python programming
7	Introduction to programming with Go (GoLang)
8	GoLang for cloud computing Usage
9	Reading Week
10	Deploying python for scripting and automation in the cloud
11	Designing and deploying database-based application in the cloud - SQL fundamentals
12	Cloud-based application development case studies
13	Cloud-based application development case studies
14	Assessment support session
15	Final exam

ASSESSMENT

This course follows an assessment-first approach, in which learners will be assessed, and receive structured feedback, and a personalized learning plan. Learners will also receive differentiated support from an instructor based on their individual needs.

Learners will have a variety of ways to demonstrate they have met the required competency through the demonstration of learning outcomes and criteria as laid out in the rubric. Learners will have multiple (but not unlimited) attempts to prove competency. It is suggested that learners plan out their assessment attempts within their course.

Learners will have flexibility in how they satisfy course learning outcomes while still adhering to the criteria found in the rubric and the Course Offering information. Please refer to the Course Offering Information and the rubric in Brightspace for additional information.

COURSE LEARNING OUTCOMES	ASSESSMENT
1	Performance Demonstration
2	Performance Demonstration

ASSESSMENT

COURSE LEARNING OUTCOME(S)	ASSESSMENT	WEIGHT
1, 2, 3, 4	Quizzes (Minimum of 3)	15%
1, 2, 3, 4, 5, 6	Lab journals (Minimum of 8)	40%
1, 2, 3, 4, 5	Assignments (Minimum of 2)	30%
1, 2, 3, 4, 5, 6	Final exam	15%

Important: For details on each assignment and exam, please see the Course Offering Information.

PERFORMANCE STANDARDS

A minimum grade of D is required to pass this course. However, a program may require a higher grade in this course to progress in the program or to meet specific program completion requirements.

Please consult with the program area or contact the program chair for further details. A minimum Grade Point Average of 2.0 is required for graduation.

GRADING SCHEME

Grade	**Percentage**	**Grade Point**	**Description**
A+	95-100	4.0	Exceptional: superior knowledge of subject matter
A	90-94	4.0	Excellent: outstanding knowledge of subject matter
A-	85-89	3.67	
B+	80-84	3.33	

B	75-79	3.0	Very Good: knowledge of subject matter generally mastered
B-	70-74	2.67	
C+	67-69	2.33	
C	64-66	2.0	Satisfactory/Acceptable: knowledge of subject matter adequately mastered
C-	60-63	1.67	
D+	57-59	1.33	
D	50-56	1.0	Minimal Pass
F	Less than 50	0.0	Fail: an unsatisfactory performance

REQUIRED LEARNING RESOURCES

The following are expected as additional resources:

- Cloud platform
- Integrated Development Environment like Visual Studio
- Source code repository like GitHub

Additional learning resources may be found in the Course Offering Information or in Brightspace.

ADDITIONAL INFORMATION

Additional information may be found in the Course Offering Information or in Brightspace.

Additional information may be found in the Course Offering Information or in Brightspace.

ACADEMIC ACCOMMODATIONS

Learners with a disability (learning, physical, and/or mental health) may qualify for academic and exam accommodations. For more information, or to apply for accommodations, learners should make an appointment with Accessibility Services in the Learner Success Services (LSS) Department. Accessibility

Services can also assist learners who may be struggling with learning but do not have a formal diagnosis. To make an appointment visit LSS on the first floor of the south campus or call 403-410-1440. It is the learner's responsibility to contact Accessibility Services and request academic accommodations. For more information, please visit our website at http://www.bowvalleycollege.ca/accessibility.

INSTITUTIONAL POLICIES

Bow Valley College is committed to the highest standards of academic integrity and honesty. Learners are urged to become familiar with and uphold the following policies: Academic Integrity (500-1-7), Learner Code of Conduct, Procedures and Guidelines (500-1-1), Learner Appeals (500-1-12), Attendance (500-1-10), Grading (500-1-6), Academic Continuance and Graduation (500-1-5), and Electronic Communications (300-2-13). Audio or video recording of lectures, labs, seminars, or any other teaching and learning environment by learners is allowed only with consent of the instructor as part of an approved accommodation plan. Recorded material is to be used solely for personal study and is not being used or distributed without prior written consent from the instructor.

Turnitin:

Students may be required to submit their course work to Turnitin, a third-party service provider engaged by BVC. Turnitin identifies plagiarism by checking databases of electronic books and articles, archived webpages, and previously submitted student papers. Students acknowledge that any course work or essays submitted to Turnitin will be included as source documents in the Turnitin.com reference database, where it will be used solely to detect plagiarism. The terms that apply to a student's use of Turnitin are described on Turnitin.com.

Online Exam Proctoring:

Examinations for this course may require proctoring through an online proctoring service. Online proctoring enables online exam taking within a controlled and monitored environment, thereby enhancing academic integrity. Online proctoring may occur through a variety of methods, including but not limited to:

a. live online proctoring where a remote invigilator authenticates identity and observes completion of an exam using specialized software and recordings;
b. automated proctoring where the exam session is recorded and AI (artificial intelligence) analyzed;
c. browser lockdown that limits access to other applications, websites, copying, printing, screen capture and other functions; or
d. a combination of both live/automated proctoring and browser lockdown.

Course instructors will review recordings, analyses, and data obtained through online proctoring for academic integrity infractions. It is the student's responsibility to meet the technical, software, location, and identity verification requirements necessary to enable online proctoring.

Further details of these policies are available in the Academic Calendar and on the Bow Valley College website, bowvalleycollege.ca.

Learners are encouraged to keep a copy of this course outline for future reference.

Collection of Personal Information:

This course, including your image and voice, may be recorded and made available to you and other students taking the course section. By attending the class(es) online or in person, you consent to the collection of your personal information. If you do not wish to be recorded, please contact your instructor before starting the course/class to discuss alternative arrangements.

You may use the recordings only for educational purposes and you must not copy, share, or use the recordings for any other purpose without the instructor's express permission.

Your personal information is collected in accordance with section 33(c) of the Freedom of Information and Protection of Privacy Act (Alberta) to deliver academic programming, support learner flexibility, promote universal design for learning principles, and for purposes consistent with the course activities and outcomes. If you have any questions about the collection, disclosure, use, or protection of this information, please contact the College's Access and Privacy Officer at foip@bowvalleycollege.ca.