CSD-4553 Cloud Computing

Computer Studies

Course Number:	Co-Requisites:	Pre-Requisites:
CSD-4553	N/A	CSD-4203
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Approved by:	Chris Slade, Senior Dean	
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Approved for Academic Year:	2023-2024	
Credit Weight:	3.00	

Course Description

Traditionally, software applications were deployed on physical servers owned and maintained by the organization developing the software; however, over the past decade, there has been a shift from companies of all sizes towards leveraging cloud computing platforms over in-house servers due to a variety of economic and technical reasons. In this course students will (1) evaluate technical and fundamentals topics of cloud computing, (2) analyze various methods for cloud management, (3) evaluate cloud platform solutions including infrastructure as a service (IaaS) to install and configure virtual resources on the cloud platforms, (4) evaluate storage provisioning, networking, testing and deploying cloud technologies, (5) discuss cloud computing standards, security, the business in cloud computing and methods of planning for cloud integration, and last but not least, (6) discuss cloud deployment options and cloud DevOps.

Course Learning Outcomes/Course Objectives

1. **Evaluate technical and fundamental characteristics of cloud computing.**
   - 1.1 Discuss cloud computing basic terms and characteristics.
   - 1.2 Discuss the fundamental concepts of cloud computing.
   - 1.3 Discuss the technical concepts of cloud computing.
   - 1.4 Discuss Virtualization and Scalability.
   - 1.5 Discuss Hypervisors and their role in cloud computing.
   - 1.6 Discuss Software-defined offerings.
   - 1.7 Discuss cloud delivery models.
   - 1.8 Discuss cloud and scalable computing.

2. **Analyze methods of cloud management, monitoring and delivery, and hosting models.**

2.1 Discuss cloud management practices.

2.2 Discuss cloud workload management.

2.3 Discuss cloud performance concepts.

2.4 Discuss storage performance concepts.

2.5 Discuss common performance issues.

2.6 Discuss Cloud Delivery and Hosting Models.

2.7 Discuss Cloud Orchestration.

3. **Evaluate cloud installation, configuration, and management methods and the hardware associated with these functions.**

3.1 Experiment with cloud installation, configuration, and management.

3.2 Assess cloud migration.

3.3 Assess cloud hardware resources.

4. **Evaluate storage provisioning, networking, testing, and deploying cloud technologies.**

4.1 Discuss Cloud storage concepts.

4.2 Experiment with cloud technology storage provisioning.

4.3 Discuss cloud management strategies.

4.4 Discuss cloud deployment options.

5. **Discuss cloud computing standards, security, the business in cloud computing, and methods of planning for cloud integration.**

5.1 Discuss cloud computing standards and security.

5.2 Discuss the business components of cloud computing.

5.3 Discuss cloud service, business models.

5.4 Discuss cloud disaster recovery.

5.5 Discuss planning for cloud migration.

6. **Discuss application life cycle, deployment models, cloud computing deployment options, and Cloud DevOps practices**

6.1 Discuss application life cycle.

6.2 Discuss application deployment models.

6.3 Discuss cloud computing DevOps practices.

Relationship to Essential Employability Skills

This course contributes to your program by helping you achieve the following Essential Employability Skills:

EES 1.1 Communicate clearly, concisely and correctly in the written, spoken and visual form that fulfills the purpose and meets the needs of the audience. (A,)

EES 1.2	Respond to written, spoken or visual messages in a manner that ensures effective communication. (A,)
EES 3.4	Apply a systematic approach to solve problems. (T, A,)
EES 3.5	Use a variety of thinking skills to anticipate and solve problems. (T, A,)
EES 4.6	Locate, select, organize and document information using appropriate technology and information systems. (T, A,)
EES 4.7	Analyze, evaluate and apply relevant information from a variety of sources. (A,)
EES 5.8	Show respect for diverse opinions, values, belief systems and contributions of others. (A,)
EES 5.9	Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals. (A,)
EES 6.10	Manage the use of time and other resources to complete projects. (A,)
EES 6.11	Take responsibility for one's own actions, decisions and consequences. (A,)

Relationship to Vocational Learning Outcomes

This course provides the opportunity for you to achieve the following Program Vocational Learning Outcomes (VLO's), which will be taught and evaluated at a taught (T), assessed (A) or culminating performance (CP) level:

CPCM - Computer Programmer

VLO 1	Identify, analyze, develop, implement, verify and document the requirements for a computing environment. (T)
VLO 4	Implement robust computing system solutions through validation testing that aligns with industry best practices. (T)
VLO 5	Communicate and collaborate with team members and stakeholders to ensure effective working relationships. (T)
VLO 6	Select and apply strategies for personal and professional development to enhance work performance. (T)
VLO 9	Support the analysis and definition of software system specifications based on functional and non-functional requirements. (T)
VLO 10	Contribute to the development, documentation, implementation, maintenance and testing of software systems by using industry standard software development methodologies based on defined specifications and existing technologies/frameworks. (T)
VLO 11	Apply one or more programming paradigms such as, object-oriented, structured or functional programming, and design principles, as well as documented requirements, to the software development process. (T)

CPCT - Computer Programmer

VLO 1	Identify, analyze, develop, implement, verify and document the requirements for a computing environment. (T)
VLO 4	Implement robust computing system solutions through validation testing that aligns with industry best practices. (T)
VLO 5	Communicate and collaborate with team members and stakeholders to ensure effective working relationships (T)
VLO 6	Select and apply strategies for personal and professional development to enhance work performance. (T)

VLO 7	Apply project management principles and tools when working on projects within a computing environment. (T)
VLO 9	Support the analysis and definition of software system specifications based on functional and non-functional requirements. (T)
VLO 10	Contribute to the development, documentation, implementation, maintenance and testing of software systems by using industry standard software development methodologies based on defined specifications and existing technologies/frameworks. (T)
VLO 11	Apply one or more programming paradigms such as, object-oriented, structured or functional programming, and design principles, as well as documented requirements, to the software development process. (T)

CPRO - Computer Programmer

VLO 1	Identify, analyze, develop, implement, verify and document the requirements for a computing environment. (T, A)
VLO 4	Implement robust computing system solutions through validation testing that aligns with industry best practices. (T, A)
VLO 5	Communicate and collaborate with team members and stakeholders to ensure effective working relationships. (T, A)
VLO 6	Select and apply strategies for personal and professional development to enhance work performance. (T, A)
VLO 7	Apply project management principles and tools when working on projects within a computing environment. (T, A)
VLO 9	Support the analysis and definition of software system specifications based on functional and non-functional requirements. (T, A)
VLO 10	Contribute to the development, documentation, implementation, maintenance and testing of software systems by using industry standard software development methodologies based on defined specifications and existing technologies/frameworks. (T, A)
VLO 11	Apply one or more programming paradigms such as, object-oriented, structured or functional programming, and design principles, as well as documented requirements, to the software development process. (T, A)

CSAC - Computer Software and Database Development

VLO 3	Deploy software applications for multiple devices and multiple operating systems. (T)
VLO 4	Evaluate and integrate security features into the client and database application tiers to secure against system threats. (T)

FSDM - Full Stack Software Development

VLO 3	Implement program logic through the use of various programming paradigms (i.e. procedural, object-oriented, functional) that are supported by industry standard programming languages. (T)
VLO 4	Integrate software applications/tools for teams to collaborate and control the outcomes of a project. (T)

FSDO - Full Stack Software Development

VLO 3	Implement program logic through the use of various programming paradigms (i.e. procedural, object-oriented, functional) that are supported by industry standard programming languages. (T)
VLO 4	Integrate software applications/tools for teams to collaborate and control the outcomes of a project. (T)

FSDS - Full Stack Software Development

VLO 3	Implement program logic through the use of various programming paradigms (i.e. procedural, object-oriented, functional) that are supported by industry standard programming languages. (T)
VLO 4	Integrate software applications/tools for teams to collaborate and control the outcomes of a project. (T)

FSDT - Full Stack Software Development

VLO 3	Implement program logic through the use of various programming paradigms (i.e. procedural, object-oriented, functional) that are supported by industry standard programming languages. (T)
VLO 4	Integrate software applications/tools for teams to collaborate and control the outcomes of a project. (T)

Learning Resources

Recommended:

Salam, A., Gilani, Z., & Ul Haq, S. (2015). Deploying and managing a cloud infrastructure: Real-World skills for the CompTIA cloud + certification and beyond: Exam CV0-001. [ISBN: 978-1-118-87510-0].
Eric Vanderburg (July 2021). All in one CompTIA Cloud+ Certification: Exam CV0-003 [ISBN: 978-1264264872]
Publisher: McGraw-Hill Education

Supplemental:

Personal Computer

Student Evaluation

Tests- 40% (two equally weighted)
Assignments- 30% (two equally weighted)
In-Class Activities - 30% (3 equally weighted)

Prior Learning Assessment and Recognition

Students who wish to apply for prior learning assessment and recognition (PLAR) need to demonstrate competency at a post-secondary level in all of the course learning requirements outlined above. Evidence of learning achievement for PLAR candidates includes:

- Not Applicable: Post graduate course and not eligible for PLA

Course Related Information

Refer to Program Related Information

College Related Information

Note: It is the student's responsibility to retain course outlines for possible future use to support applications for transfer of credit to other educational institutions.

Academic Integrity

Lambton College is committed to high ethical standards in all academic activities within the College, including research, reporting and learning assessment (e.g. tests, lab reports, essays).

The cornerstone of academic integrity and professional reputation is principled conduct. All scholastic and academic activity must be free of all forms of academic dishonesty, including copying, plagiarism and cheating.

Lambton College will not tolerate any academic dishonesty, a position reflected in Lambton College policies. Students should be familiar with the Students Rights and Responsibilities Policy, located at lambtoncollege.ca. The policy states details concerning academic dishonesty and the penalties for dishonesty and unethical conduct.

Questions regarding this policy, or requests for additional clarification, should be directed to the Lambton College Student Success Department.

Students with Disabilities

If you are a student with a disability please identify your needs to the professor and/or the Accessibility Centre so that support services can be arranged for you. You can do this by making an appointment at the Accessibility Centre or by arranging a personal interview with the professor to discuss your needs.
Lambton College in Toronto at Cestar College Campus and Lambton College in Mississauga at Queen's College Campus, please identify your needs to the professor and/or student services.

Student Rights and Responsibility Policy

Acceptable behaviour in class is established by the instructor and is expected of all students. Any form of misbehaviour, harassment or violence will not be tolerated. Action will be taken as outlined in Lambton College policy.

Date of Withdrawal without Academic Penalty

Please consult the Academic Regulations and Registrar's published dates.

Waiver of Responsibility

Every attempt has been made to ensure the accuracy of this information as of the date of publication. The content may be modified, without notice, as deemed appropriate by the College.

Students should note policies may differ depending on the location of course offering. Please refer to your study location specific policies:

LAMBTON COLLEGE POLICIES - applicable to all Lambton College students:

- Student Rights & Responsibilities & Discipline policy (2000-5-1)
- Test & Exam Writing Protocol (2000-1-6)
- Evaluation of Students (2000-1-3)
- **Policy Link** - **https://www.lambtoncollege.ca/custom/Pages/Policies/Policies.aspx**

CESTAR COLLEGE:

- **www.lambtoncollege.ca/policies-tor**

QUEENS COLLEGE:

- **www.lambtoncollege.ca/policies-miss**