TRINE UNIVERSITY

Course Syllabus

Course Title: Cloud Computing

Course and Section Number: IS 5503

Number of Credit Hours: 3

Term and Year: Spring 2025 Term 2 Hybrid

Time and Place:
999 Republic Drive, Allen Park, MI 48101,
Sunday, April 13, 2025, Classroom 130.
7:30 AM to 4:00 PM

Instructor: Dr. Tom Vang

Remote/Virtual Office /Hours:
By Appointment or Wednesday &
Thursday, 7 PM – 8 PM EST

Office Phone: (586) 436-2043

Email: vangt@trine.edu

Course Description: This course examines public and private Clouds used in Hybrid and MultiCloud topologies, major public Cloud providers and their related services. Emphasis is placed on Cloud migration strategies, scalable Cloud deployments, and management of data in the Cloud.

Prerequisites: None

Learning Outcomes: Upon completion of this course the student should be able to:

1. Assess the use of Cloud architectures for hosting data, virtualized computing, and software as a service application.
2. Evaluate the essential strategies and considerations for successful Cloud migrations and management.
3. Design Hybrid Cloud and Multi-Cloud architectures using public and/or private Clouds.
4. Examine system, network and storage virtualization and their role in enabling the cloud computing system model.

Required Text (e-Book): Deploying and managing a cloud infrastructure: real world skills for the CompTIA cloud+ certification and beyond

Authors: Zafar Gilani, Abdul Salam, Salman Ul Haq.
Available the Trine University WorldCat database
OCLC Number/Unique Identifier: 900193718

References: See below

Other Materials:

Course Requirements:

Attendance/Participation: All students are expected to abide by the attendance policy set forth by the instructor in each class. Students must log into the course at least once a week. Simply logging in is not enough; you must submit/complete an assignment, post to a discussion board, or other similar assignment tasks to avoid being counted absent. If you do not participate in the course, you will be counted absent. Attendance is submitted on Monday following each week of class. Lack of attendance may impact course grades and Academic standing. **You will be administratively dropped from the course if you are reported absent a total of three weeks.** Students must provide advance notice of absences, as well as relevant documentation regarding absences, to the instructor as soon as possible following the illness or event that led to the absence. Any arrangement to make up work because of class absence is the responsibility of the student.

Due Date Requirements: Trine University's academic philosophy is to provide each student with an opportunity to actively learn and demonstrate competencies needed in today's high-performance workplace. Just as in the workplace, it is expected that you will complete ALL assignments and assessments by the due date to receive full credit. The due date for all postings and assignments is 11:59 P.M. EST (Indianapolis Time), on the date listed in the Course Schedule.

Late assignments will not be accepted; please plan accordingly.

Grading/Evaluation: The method of grading graduate students is the letter grade system (A, B, C, F). Courses in which grades below "C" are earned cannot be used in fulfillment of degree requirements.

Trine Graduate Grading Scale:

Grade	Percentage	Quality Points	Meaning of Grade
A	93-100	4.0	Excellent
B+	86-92	3.5	Very Good
B	81-85	3.0	Good
C+	75-80	2.5	Above Average
C	70-74	2.0	Average (lowest passing grade)
F	00-69	0.0	Failure
I	Incomplete	Not figured into GPA	
IP	In Progress (grade deferred)	Not figured into GPA	
W	Withdrawal	Withdrawal before completion of 80% of semester	

WP	Withdrawal	Withdrawal after completion of 80% of semester issued only under special circumstances and with approval of the department chair/director	

Graded Assessment	Total Grade Points Percentage
Active Participation in (8) Weekly Discussion Forums	20%
Completion of (7) Quizzes	20%
Completion of (5) Labs	20%
Podcast Reflections (8)	10%
Cloud Readiness Assessment: Build	5%
Cloud Readiness Assessment: Apply	5%
Cloud Migration Roadmap	5%
Annotated Bibliography	5%
Final Scholarly Paper	10%
Total Points	100%

Other Policies:

Academic Misconduct:
The University prohibits all forms of academic misconduct. Academic misconduct refers to dishonesty in examinations (cheating), presenting the ideas or the writing of someone else as one's own (plagiarism) or knowingly furnishing false information to the University by forgery, alteration, or misuse of University documents, records, or identification. Academic dishonesty includes, but is not limited to, the following examples: permitting another student to plagiarize or cheat from one's own work, submitting an academic exercise (written work, printing, design, computer program) that has been prepared totally or in part by another, acquiring improper knowledge of the contents of an exam, using unauthorized material during an exam, submitting the same paper in two different courses without knowledge and consent of professors, or submitting a forged grade change slip or computer tampering. The faculty member has the authority to grant a failing grade in cases of academic misconduct as well as referring the case to Student Life.

Plagiarism:
You are expected to submit your own work and to identify any portion of work that has been borrowed from others in any form. An ignorant act of plagiarism on final versions and minor projects, such as attributing or citing inadequately, will be considered a failure to master an essential course skill and will result in an F for that assignment. A deliberate act of plagiarism,

such as having someone else do your work, or submitting someone else's work as your own (e.g., from the Internet, fraternity file, etc., including homework and in-class exercises), will at least result in an F for that assignment and could result in an F for the course.

Artificial Intelligence (AI) Guidelines for this Course:

AI is prohibited: This course prohibits the use of Artificial Intelligence (AI) tools and software. All submitted work must be the student's original work. Students cannot have anyone else or any AI program contribute to their assignments. Students cannot use AI tools to write content, create arguments, develop ideas, or edit their work.

If AI use is suspected without proper attribution in submitted work, the faculty member will communicate with the student. The goal of this communication will be to identify the student's intentions, provide guidance on adhering to the policy, and support the student's learning and improvement. This approach ensures fairness and protects both the student and faculty member from potential misunderstandings or unjust accusations. If a student uses AI in an unauthorized manner, the behavior may be considered academic misconduct.

Electronic Devices:
Use of electronic devices including smart watches and cell phones is prohibited during exams or quizzes unless directly allowed by the instructor.

Course Mapping:

Week One: Introduction to Cloud Computing	
Learning Activities and Materials	**Assessments**
Read: 1. Text Chapter 1 - Understanding Cloud Characteristics (LO1) (p1-26) 2. Text Chapter 2 - To Grasp the Cloud – Fundamental Concepts (LO4) (p27-52) 3. uCertify Lessons Introduction Watch: 1. What is Cloud Computing? - Cloud Computing Fundamentals Training (13:36) (LO1) 2. Introduction to Cloud Computing - the Basics SaaS, PaaS, IaaS and more (14:49) (LO1) 3. The main DIFFERENCES between IaaS, SaaS and PaaS explained... (2:16) (LO4) 4. IT Networking Tutorial - Virtualization and cloud computing (7:29) (LO4) 5. Hypervisors and Virtualization Explained. (8:08) (LO4) Review: N/A Listen: 1. Introduction to CloudCast Basics (5:57) (LO1)	1. Discussion Forum 1 (LO1) (LO4) 2. Complete uCertify Pre-Assessment (LO1) (LO2) (LO3) (LO4) 3. Reflection on podcast assignment (written or oral) (LO1)
Week Two: Cloud Principles and Design	
Learning Activities and Materials	**Assessments**
Read: 1. Text Chapter 3 – Within the Cloud: Technical Concepts of Cloud Computing (LO1) (LO2) (p 53-86) 2. Lesson 1 – Cloud Principles and Design (LO1) (LO2) Watch: 1. Cloud Computing Architecture Tutorial (14:13) (LO1) 2. Cloud Computing Explained (8:36) (LO2) Review: Lesson 1 Cards (1-15) (LO1) (LO2)	1. Discussion Forum 2 (LO1) (LO2) 2. Lab 1.1.3 (LO1) Lab 1.1.4 (LO1) Lab 1.1.5 (LO1) Lab 1.1.6 (LO1) Lab 1.1.7 (LO2) Lab 1.1.8 (LO2) Lab 1.2.2 (LO2) 3. Lesson 1 Quiz (UCertify) (LO1) (LO2) 4. Reflection on podcast assignment (written or oral) (LO1) (LO2)

Listen: Building and Managing Scalable SaaS Services (28:36) (LO2)	
Week Three: Cloud Networking and Storage	
Learning Activities and Materials	**Assessments**
Read: 1. Text Chapter 9 – Storage Provisioning and Networking (LO4) (p 245-286) 2. Lesson 2 – Cloud Networking and Storage (LO4) Watch: 1. What is Cloud Storage? (8:54) (LO4) 2. What is Cloud Storage and How Does it Work? (6:01) (LO4) 3. Cloud Networking Overview (2:10) (LO4) 4. Networking for Cloud Computing (26:44) (LO4) Review: Lesson 2 Cards (1-20) (LO4) Listen: Cloud Chaos, HyperConvergence & Commoditization (45:04) (LO4)	1. Discussion Forum 3 (LO1) (LO2) 2. Lab 2.1.2 (LO4) Lab 2.1.3 (LO4) Lab 2.1.4 (LO4) Lab 2.1.5 (LO4) Lab 2.1.6 (LO4) Lab 2.1.7 (LO4) Lab 2.1.8 (LO4) Lab 2.1.9 (LO4) Lab 2.1.10 (LO4) Lab 2.1.11 (LO4) Lab 2.1.12 (LO4) 3. Lesson 2 Quiz (UCertify) (LO4) 4. Reflection on podcast assignment (written or oral) (LO4)
Week Four: Assessing Cloud Needs	
Learning Activities and Materials	**Assessments**
Read: 1. Text Chapter 5 – Diagnosis and Performance Monitoring (LO2) (p 121-156) 2. Text Chapter 6 – Cloud Delivery and Hosting Models (LO2) (p157-220) 3. Lesson 3 – Assessing Cloud Needs (LO2) Watch: 1. Getting Started with Cloud: Assess (43:41) (LO2) Review: Lesson 3 Cards (1-25) (LO2) Listen: Etsy's Big Data Cloud Migration (32:36) (LO2)	1. Discussion Forum 4 (LO2) 2. Lab 2.1.13 (LO2) Lab 2.1.14 (LO2) Lab 2.1.15 (LO2) Lab 2.1.16 (LO2) Lab 2.1.17 (LO2) Lab 2.1.18 (LO2) Lab 2.1.19 (LO2) Lab 2.1.20 (LO2) Lab 2.1.21 (LO2) 3. Lesson 3 Quiz (UCertify) (LO2) 4. Reflection on podcast assignment (written or oral) (LO2) 5. Annotated Bibliography assignment (LO1) (LO2) (LO3) (LO4)
Week Five: Engaging Cloud Vendors	

Learning Activities and Materials	Assessments
1. Text Chapter 7 – Practical Cloud Knowledge: Install, Configure, Manage (LO2) (P 181--220 2. Text Chapter 12 – The Cloud Makes it Rain Money: The Business in Cloud Computing (LO2) (p347-374) 3. Lesson 4 – Engaging Cloud Vendors (LO2) Watch: 1. Which Cloud Provider Should I Choose for my Business? (5:16) (LO2) 2. Cloud Providers Compared (13:20) (LO2) 3. Cloud Provider Comparisons (11:53) (LO2) 4. Cloud Services Explained (4:40) (LO2) Review: Lesson 4 Cards (1-25) (LO2) Listen: The Economics & Beyond of Object Storage (36:14) (LO2)	1. Discussion Forum 5 (LO2) 2. Lab 3.1.2 (LO2) Lab 3.2.2 (LO2) 3. Lesson 4 Quiz (UCertify) (LO2) 4. Reflection on podcast assignment (written or oral) (LO2) 5. Cloud readiness assessment: build (LO2)
Week Six: Management and Technical Operations	
Learning Activities and Materials	**Assessments**
Read: 1. Text Chapter 4 – Cloud Management (LO4) (p 87-120) 2. Text Chapter 8 – Hardware Management (LO4) (p 221-244) 3. Lesson 5 – Management and Technical Operations (LO4) Watch: 1. Introduction to Cloud Management (2:59) (LO4) 2. Best Practices for Cloud Operations in the Enterprise (5:07) (LO4) 3. What is Cloud Operations? (4:50) (LO4) 4. VMware Cloud Management Dashboard (3:35) (LO4) Review: Lesson 5 Cards (1-22) (LO4) Listen: Bringing Depth to Paas for Real-World Deployments (31:59) (LO4)	1. Discussion Forum 6 (LO4) 2. Lab 5.3.1 (LO4) Lab 5.3.2 (LO4) Lab 5.3.3 (LO4) 3. Lesson 5 Quiz (UCertify) (LO4) 4. Reflection on podcast assignment (written or oral) (LO4) 5. Cloud readiness assessment: apply (LO4)

Week Seven: Governance and Risk	
Learning Activities and Materials	**Assessments**
Read: 1. Text Chapter 10 – Testing and Deployment (LO3) (p287-322) 2. Text Chapter 13 – Planning for Cloud Integration: Pitfalls and Advantages (LO3) (p375-397) 3. Lesson 6 – Governance and Risk (LO3) Watch: 1. What is Cloud Governance and Enterprise Risk Management? (13:13) (LO3) 2. Foundations of Cloud Governance (26:26) (LO3) 3. Hybrid-Cloud and Multi-Cloud (13:34) (LO3) 4. Cloud Adoption Essentials: Cloud Architecture Basics (15:38) (LO3) Review: Lesson 6 Cards (1-27) (LO3) Listen: Who manages the Clouds? (38:09) (LO3)	1. Discussion Forum 7 (LO3) 2. Lesson 6 Quiz (UCertify) (LO3) 3. Reflection on podcast assignment (written or oral) (LO3) 4. Cloud migration roadmap assignment (LO3)
Week Eight: Compliance and Security in the Cloud	
Learning Activities and Materials	**Assessments**
Read: 1. Text Chapter 11 – Cloud Computing Standards and Security (LO3) (p323-p347) 2. Lesson 7 – Compliance and Security in the Cloud (LO2) (LO3) Watch: 1. What is Cloud Security Compliance? (3:15) (LO2) (LO3) 2. AWS Cloud Security and Compliance (33:37) (LO2) (LO3) Review: Lesson 7 Cards (1-22) (LO2) (LO3) Listen: Cloud Passage – Security in the Cloud (30:20) (LO3)	1. Discussion Forum 8 (LO2) (LO3) 2. Lab 7.2.4 (LO2) Lab 7.2.5 (LO2) Lab 7.2.6 (LO2) Lab 7.2.7 (LO2) Lab 7.2.8 (LO2) 3. Lesson 7 Quiz (UCertify) (LO2) (LO3) 4. Complete uCertify Post-Assessment (LO1) (LO2) (LO3) (LO4) 5. Reflection on podcast assignment (written or oral) (LO2) (LO3) 6. Complete Final Scholarly Paper (LO1) (LO2) (LO3) (LO4)

References

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