MODULE DESCRIPTION

Module title	**Cloud Computing**
Module code	61CSE327
Study program	Computer Science

Module coordinator/Lecturer

Type	Lecturer	Email	Office	Office hours (if any)
Module Coordinator	Assoc. Prof. Manuel Clavel	manuel.clavel@vgu.edu.vn		
Lecturer	Assoc. Prof. Manuel Clavel	manuel.clavel@vgu.edu.vn		
Tutorial				
Lab				
Other				

Classification   ☐ Compulsory   ☐ Compulsory Elective   X Elective

Semester   Winter 2025 Semester

Student workload

Credits	6	ECTS
Contact hours	60	AHs
Assignments and independent learning	120	AHs
Total Working hours	180	AHs

Frequency   The module is offered one semester/each academic year

Prerequisites 61CSE215 Object-oriented Programming with Java

Applicability for other modules

Intended learning outcomes

On successful completion of this module the learner will be able to:

- Understand the different Cloud models —in particular, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS)—, and evaluate their applicability in different scenarios.

- Understand the different aspects involved in Cloud security —including "security of-the-cloud" and "security-in-the-cloud".

- Build and deploy web applications that uses Amazon Web Services (AWS), including: compute, database, storage, and server-less computing services.

- Understand the relationships among the main Cloud service providers: Amazon Web Services (AWS), Microsoft Azure, and Google Cloud (GC).

Contents *(Outline of subject and topics explored)*

No.	Topic
1.	**Cloud Concepts. Cloud Security.** Introduction to Cloud Computing. Introduction to Amazon Web Services (AWS). Introduction to Cloud security. AWS IAM: users and policies.
2.	**Basic Cloud Compute. EC2 Instance.** Introduction to AWS Compute services. AWS VPC. AWS EC2.
3.	**Basic Cloud Databases. RDS Instances.** Introduction to AWS Database services. AWS RDS
4.	**Basic Cloud Storage. S3 Buckets.** Introduction to AWS Storage services. AWS EBS. AWS S3
5.	**Advanced Cloud Compute. Lambda functions and triggers.** Introduction to AWS container services. AWS Lambda
6.	**Advanced Cloud Security. Temporary credentials and roles.** AWS temporary credentials. AWS IAM roles
7.	**Cloud Logging and Monitoring.** AWS CloudWatch. AWS CloudTrail
8.	**Cloud Economics and Billing.** Fundamentals of pricing. Total Cost of Ownership. AWS Billing and Cost Management

Learning activities   *(Learning and teaching methods have to be described (e.g. lectures, exercises, seminars, internships, project work, self-study)*

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Activities	Explanation
Attendance	Students should attend 100%. There is no grade for the attendance completion.
Individual Assignments	Weekly assignments are given to help students' learning and development. There is no grade for the individual assignments.
Group work	There is no group work.
Online Activities	A forum will be created on VGU's e-learning platform for student discussion and share on topics and individual works. There is no grade for the participation in the forum.
Self-study	As needed.
Internship	None.
Lab or Workshop	None.
Field Work	None.

Mode of assessment

Online interaction: There is no grade for the participation in the forum.
Mini tests: None
Assignments: There is no grade for the individual assignments.
Individual project: Throughout this module, the students will develop a cloud-based, server-less web application using AWS. The weekly individual assignments will help the students to develop their individual project.
Final Exam:

- Length of examination: 90 minutes
- Content: the students will be asked to answer questions regarding their individual project, including adding new features to and/or modifying existing features of their individual projects.
- All material, references are allowed in the exam room.

Grading policy

Assessment method	Percentage of total	Assessment date
Online interaction	0%	
Mini tests	0%	
Assignments	0%	
Individual project	50%	
Final exam	50%	
Total	**100**	

Module materials

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Material	Type	Material Locations[i]
Build your future in the AWS Cloud.	Recommended	https://www.aws.training/
Welcome to AWS documentation	Recommended	https://docs.aws.amazon.com/
AWS Whitepapers & guides	Recommended	https://aws.amazon.com/whitepapers/

Written/updated by

Assoc. Prof. Dr. Manuel Clavel

Date: 24 / 7 /2025

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[i] The Material Locations column require to fill in one of the 3 options below:
1. If a material is a printed book/document available at VGU library, please input the phrase **VGU Central Library / VGU HCMC Office / VGU Language Center and Foundation Year Collection**. All printed materials available at VGU library are searchable on VGU Library website.
2. If a material is an e-book/e-journal article available at a database of VGU's library or the libraries/indirect providers cooperate with VGU like VNU, International University, Fulbright University, Springer Link, ProQuest, IEEE, etc., please fill in **the name of the database**.
3. If a material is an open access resource, please fill in "**Open Access**".
4. If a material is an e-book/e-journal article/others NOT available at databases of VGU's library or the libraries/indirect providers cooperate with VGU BUT shared and allowed for use by partners, please input **"Consortium Networks".**

If a material is a website or other material types, please input **"Others".**

Lecturers should request VGU Library to purchase unavailable books for their courses and submit the procurement documents to the VGU Library at least 3 months in advance for printed books, and 3 weeks for e-books. To optimize the available resources, it is strongly recommended to search the databases of the library and use books/materials in stock.

- Here is the Guide for How to search and request Library materials for your courses
- For more information, please read **Library Collection Development Policy** (The link will be provided after the policy is approved and published on website https://library.vgu.edu.vn)