



Course Syllabus

Course Code	Course Title	ECTS Credits
COMP-474	Cloud Computing	6
Prerequisites	Department	Semester
COMP-417	Computer Science	Fall, Spring
Type of Course	Field	Language of Instruction
Elective	Computer Science	English
Level of Course	Lecturer(s)	Year of Study
1 st Cycle	Dr. Nicholas Loulloudes	4 th
Mode of Delivery	Work Placement	Corequisites
Conventional	N/A	N/A

Course Objectives:

The main objectives of the course are to:

- Introduce the background and concepts of cloud computing
- Compare and contrast cloud computing with other computing paradigms
- Cover in detail the different technologies used in cloud computing including: virtualization, scalability, elasticity, and load balancing
- Expose the students to cloud services and platforms
- Make students aware of problems and challenges when designing and developing applications using cloud computing technology
- Expose the students to development tools/environments/frameworks to develop applications using cloud computing infrastructure

Learning Outcomes:

After completion of the course students are expected to be able to:

1. Describe the concept, benefits, principals, architecture, and implementation technology of cloud computing
2. Compare and contrast the cloud computing with other computing paradigms

3. Explain in details aspects of the cloud computing including: virtualization, scalability, elasticity, and load balancing
4. Explain fundamental architecture, models, services, and platforms that are used in the cloud computing domain
5. Be aware of problems and challenges as to avoid them when designing and developing cloud based applications
6. Design and develop cloud based applications to be hosted by various cloud computing infrastructures
7. Demonstrate the ability to select an appropriate technology/platform/environment in order to provide a cloud computing based application that fulfills the design requirements.

Course Content:

1. Introduction to Cloud Computing
2. Principles of Parallel and Distributed Computing
3. Cloud Concepts and Technologies
4. Virtualization in Depth
5. Cloud Architecture, Services and Platforms
6. MapReduce and Hadoop
7. Design of Cloud Applications
8. IaaS Providers (Amazon Web Services)
9. Cloud Application Development

Learning Activities and Teaching Methods:

Lectures, Lab Presentations, Lab Tutorials, Theoretical Exercises and Assignments

Assessment Methods:

Assignments, Course Project (programming, individual project), midterm Examination, Final Examination

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Mastering Cloud Computing, Foundations and Applications Programming	R. Buyya, C. Vecchiola, S. T. Selvi	Elsevier	2013	978-0-12-411454-8
Cloud Computing: A Hands-On Approach	A. Bahga, V. Madiseti	CreateSpace	2013	978-1494435141

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Cloud Computing: Concepts, Technology & Architecture	T. Erl, R. Puttini, Z. Mahmood	Prentice Hall	2013	978-0133387520
Cloud Computing Strategies	D. N. Chorafas	CRC Press	2010	978-1439834534
Pro Amazon EC2 and WS: Elastic Computing Cloud and Web Services Development with Java	M. Yankelevich, M. Malamud, D. Mahaya	APRESS	2011	978-1430224471