Module Specification

Cloud Computing

Version: 2023-24, v2.0, 20 Mar 2023

Contents

Part 1: Information

Module title: Cloud Computing

Module code: UFCFKJ-15-M

Level: Level 7

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Computer Sci & Creative Tech

Partner institutions: None

Delivery locations: Not in use for Modules

Field: Computer Science and Creative Technologies

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: See Learning Outcomes

Outline syllabus: Cloud Computing Overview:
History of cloud computing and a discussion of business drivers and technology

innovations.

Basic cloud terminology and concepts are introduced, along with descriptions of common benefits and challenges of cloud computing adoption.

Understanding of virtualisation concept and possible business drivers behind the use of virtual computer hardware platforms, operating systems, storage devices, and computer network resources.

Concepts and Models:

Cloud delivery and cloud deployment models are discussed in detail, discussion on cloud characteristics and roles and boundaries.

Cloud-Enabling Technologies:

Contemporary technologies that realize modern-day cloud computing platforms and innovations are discussed, including data centres, virtualisation, and Web-based technologies.

Fundamental Cloud Security:

Security topics and concepts relevant and distinct to cloud computing are introduced including: confidentiality, integrity, authenticity, availability, threat, vulnerability, risk, security controls, security mechanisms, security policies and descriptions of common cloud security threats and attacks.

Cloud Infrastructures and Management Mechanisms:

Primary cloud computing mechanisms and their management mechanisms.

Sustainability impacts of Cloud Computing:

Sources of electricity and related greenhouse gas emissions, clean and dirty cloud, using renewable power to de-carbonise cloud / data centres, ways to improve cloud energy efficiency, buying clean cloud services, impacts of migrating from in-house to cloud and societal impacts of cloud computing.

Cloud Computing Architectures:

Technology architecture within the realm of cloud computing – including requirements and considerations that manifest themselves in broadly scoped

architectural layers (e.g. fundamental, advanced, and specialized) and numerous distinct architectural models.

Future of Cloud Computing:
Cloud computing future opportunities, challenges and research trends.

Part 3: Teaching and learning methods

Teaching and learning methods: This module will involve 2 hours contact time per week for one semester equally divided between lecture and tutorial sessions.

Contact time: 24 hours
Assimilation and development of knowledge: 86 hours
Presentation preparation: 10 hours
Coursework preparation: 30 hours
Total study time: 150 hours

The module is delivered through weekly lectures and weekly tutorial sessions. Each lecture will direct the course and introduce the new ideas and skills required. Then small group tutorial sessions will enable each student to carry out the study and research exercises described in the associated work-sheet under the guidance of a Tutor.

The teaching material is available from Blackboard. A course text is also recommended.

Scheduled learning includes lectures and tutorials.

Independent learning includes time engaged with essential reading and assignment preparation and completion.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Demonstrate a comprehensive understanding of the business drives, techniques and methodologies applicable to cloud computing and virtulisation

MO2 Undertake independent analysis of the security issues in Cloud Computing

MO3 Evaluate sustainability issues arising from cloud computing and propose actions to mitigate against these

MO4 Critically compare between traditional data storage and modern-day cloud computing data centre technology, and apply new approaches to complex problems that are appropriate to this level

MO5 Critically evaluate various cloud computing mechanisms including cloud services e.g. cloud storage, cloud usage monitoring, automated scaling and remote administration to apply to complex problems

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 126 hours

Face-to-face learning = 24 hours

Total = 150

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ufcfkj-15-m.html

Part 4: Assessment

Assessment strategy: A single oral assessment presentation/viva exam will be taken at the completion of teaching. This will consist of questions related to course work produced by the student which should test the student's understanding and knowledge of the fundamental concepts presented in the course work as well as their ability to apply those concepts and ideas to real-life scenarios (case studies).

The coursework normally involves solving a business related cloud adoption problem based on given requirements, proposing a solution and preparing implementation

specifications. The actual assignment topics are chosen to demonstrate some basic principles, which are especially significant to the course. The coursework is required to be carried out by individual students and the assessment should be made on written work provided by each individual.

There will be opportunities for formative assessment in the form of regular in-class presentations of research/implementation completed as part of tutorial work completed and subsequent group discussions.

Assessment components:

Report (First Sit)

Description: Individual coursework report (2000 words)

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

Presentation (First Sit)

Description: Oral assessment presentation/viva exam (20 minutes)

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

Report (Resit)

Description: Individual coursework report (2000 words)

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested:

Presentation (Resit)

Description: Oral assessment presentation/viva exam (20 minutes)

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Information Technology [Villa] MSc 2023-24

Information Technology [Frenchay] MSc 2023-24

Information Technology [Frenchay] MSc 2023-24

Data Science [GCET] MSc 2023-24

Data Science [NepalBrit] MSc 2023-24

Data Science [Frenchay] MSc 2023-24

Data Science [Frenchay] MSc 2023-24

Artificial Intelligence [Frenchay] MSc 2023-24

Information Technology [Frenchay] MSc 2022-23