



Module Specification

Cloud Computing

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Part 1: Information

Module title: Cloud Computing

Module code: UFCE9H-15-M

Level: Level 7

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Computing and Creative Technologies

Partner institutions: None

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: This module provides a thorough examination of cloud computing, covering its key components and their impact on the current business landscape. It explores the drivers behind cloud adoption, enabling technologies, and recent innovations. Topics include service and deployment models, data centers, virtualization, and practical applications such as virtual platforms and storage.

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: The module, presented via our online virtual learning environment, consists of a clearly signposted, easy-to-navigate student journey through carefully chosen learning materials which are designed to engage and challenge students as they work towards achieving the module learning outcomes. Content may be in a range of formats, including clear well-written text, diagrams, animations, video and interactive video, activities, quizzes, asynchronous discussions, coding and interpretation exercises.

Students will be provided with as many opportunities as possible to ‘perform their understanding’ rather than just reading or watching video to passively acquire knowledge. This may be in the form of simple tasks, activities or quizzes that students can engage with in the online environment, or larger pieces of work that may require additional thought. Whatever their nature, such tasks will be authentic (connected to the real world) and directly relevant to the programme learning outcomes.

The online environment also provides important opportunities to encourage students to work with, and learn from, their peers. The careful use of structured online discussion forums helps to foster an active learning community and enable students to share their responses to key questions, and to discuss, and even challenge, each other’s ideas.

All learning materials are produced and presented in a way that ensures that they are appropriate for as diverse an audience as possible. We follow W3C accessibility standards and ensure that all content can be used with all popular screen-readers, offering alternative formats where possible. In general, we aim to avoid using language, idioms, images or other devices which root the content in any particular culture or creed that instead adequately reflect the diversity of the student audience.

In general, modules are designed with a number of key learning principles in mind that align closely with those of the university.

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 virtualisation.

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.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 126 hours

E-learning/online learning = 24 hours

Total = 150

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

Part 4: Assessment

Assessment strategy: The coursework 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 peer review and discussion of work.

Assessment tasks:

Report (First Sit)

Description: Individual coursework report (2000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Report (Resit)

Description: Individual coursework report (2000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Data Science [UWE online] MSc 2023-24

