

Module specification

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Module Code	COM570
Module Title	Cloud, Distributed Architecture and Security
Level	5
Credit value	20
Faculty	FACE
HECoS Code	100734
Cost Code	GACP
Pre-requisite module	N/A

Programmes in which module to be offered

Programme title	Core/Optional/Standalone
BSc (Hons) Computer Science	Core
BSc (Hons) Computer Science with Industrial Placement	Core
BSc (Hons) Cyber Security	Core
BSc (Hons) Cyber Security with Industrial Placement	Core
BSc (Hons) Computing for Business	Core

Breakdown of module hours

Learning and teaching hours	15 hrs
Placement tutor support hours	0 hrs
Supervised learning hours e.g. practical classes, workshops	15 hrs
Project supervision hours	0 hrs
Active learning and teaching hours total	30 hrs
Placement hours	0 hrs
Guided independent study hours	170 hrs
Module duration (Total hours)	200 hrs

Module aims

This module will introduce students to the concepts, principles and technologies of cloud computing, distributed architecture and security. Explore the design principles and challenges associated with cloud computing and distributed systems. Examine the security risks and mitigation strategies in cloud and distributed environments. Investigate various cloud

computing models and deployment options. Develop practical skills in designing, implementing and managing cloud-based and distributed systems.

Module Learning Outcomes

At the end of this module, students will be able to:

1	Identify the fundamental concepts of cloud computing and distributed systems.
2	Investigate distributed system architectures and technologies.
3	Evaluate current topics related to cloud, distributed architecture and security.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

The assessment will consist of multiple tasks, typically including analysing a real-world case study involving the implementation of a distributed system in a cloud environment; evaluating the architecture, scalability, fault tolerance and security aspects of the system; and presenting findings and recommendations in a written report or oral presentation.

Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1,2,3	Coursework	4000 Words or Equivalent	100%	

Derogations

None

Learning and Teaching Strategies

In line with the Active Learning Framework, this module will be blended digitally with both a VLE and online community. Content will be available for students to access synchronously and asynchronously and may indicatively include first and third-party tutorials and videos, supporting files, online activities any additional content that supports their learning.



Welsh Elements

This module is designed to support Welsh-speaking students in line with the Welsh Language Standards. While the primary delivery will be in English, students will have the opportunity to submit assessments, including coursework and projects, in Welsh if preferred. Relevant module materials, such as reading lists, key texts, and guidance, will be available bilingually upon request, ensuring accessibility for all students. Additionally, where possible, guest speakers, case studies, or examples may include references to the Welsh business context, especially in areas such as data use in local industries and Welsh public sector organisations.

The department encourages students to develop bilingual digital skills by incorporating Welsh-language datasets, tools, and resources where appropriate, offering an inclusive learning environment. We also support the development of bilingual visualisation techniques, enabling students to create digital outputs that reflect the Welsh language, should they wish to do so.

Indicative Syllabus Outline

Yearly content will be updated to represent the most appropriate content for current industry technologies, but a list of indicative topics could include:

- Cloud computing models (IaaS, PaaS, SaaS)
- Cloud deployment models (public, private, hybrid, multi-cloud)
- Benefits and challenges of cloud computing
- Principles of distributed systems
- Client-server architecture
- Distributed storage and databases
- Cloud Infrastructure and Virtualization
- Cloud Security Fundamentals
- Data privacy regulations (example: GDPR)
- Securing cloud-based applications
- Legal and regulatory considerations in the cloud

Indicative Bibliography

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads:

- S. Dubey, *Scaling Google Cloud Platform: Run Workloads Across Compute, Serverless PaaS, Database, Distributed Computing, and SRE*, BPB Publications, 2022.

Other indicative reading:

- Lisdorf, *Cloud Computing Basics: A Non-Technical Introduction*, Apress, 2021.



Administrative Information

For office use only	
Initial approval date	08/11/2023
With effect from date	Sept 26
Date and details of revision	March 26 Addition of BSc (Hons) Computing for Business programme title
Version number	2

