Solent University Module Descriptor

Module Code: COM611 Module title: Computer Systems & Architecture

Why is this module important?

Today billions of devices are connected through the Internet and now digital technology is ubiquitous in life. Computers are the core component of any network and many devices. Knowledge and skills in computer architecture, components and functioning is essential for resolving various challenges and applying relevant and flexible solutions. Ability to select an appropriate Computer System for particular services or network is an essential skill for networks professionals. This module includes a comprehensive study on computers architecture, components, characteristics, performance and applications, examining various hardware and software platforms and will enable you to understand the principles that underpin decision-making in terms of the selection, integration and configuration of computers for certain purposes.

What you will learn on the module

You will develop knowledge and skills on various computing models used within computer systems. You will be introduced to vital components of computer systems such as the Central Processor Unit (CPU), the Graphics Processing Unit (GPU), memory, storage and the related models used to characterise and evaluate performance.

During the module you will develop practical skills that will enable evaluation, comparison and assessment of computer components and their capabilities. This will enable you to select appropriate configurations for particular purposes and applications.

You will have the opportunity to learn:

- Computing mathematics associated with the subject area
- Computer Architecture Models
- Central Processor Unit (CPU) and Graphics Processing Unit (GPU)
- Performance and the relevant models of Memory and Storage
- Computer Systems Performance – energy consumption, cooling
- Entry level servers
- Midrange servers
- High end servers
- Supercomputers

How you will learn

You will be introduced to the contents of this module and the practical and conceptual challenges it presents in weekly lectures supplemented by a follow-up tutorial and/or seminar, which aim to either test students' understanding of a topic or require them to engage in a research or problem-based activity. Regular formative testing allows progress to be monitored and feedback to be provided on key areas of learning. Activity-based, seminar sessions provide you with the opportunity to apply the knowledge, concepts and skills encountered in the module to theoretical contexts and in situations drawn from real life case studies and scenarios. You'll be required to draw on independent study, supported by Solent Online Learning, you will also have opportunities in timetabled sessions to compare and discuss your work with your tutors and peers.

How much time the module requires: you are expected to study for 200 hours, which equates to 10 hours per credit. This total learning time is made up of contact time, directed learning tasks, independent learning and assessment activity. Your tutor will offer you guidance on how you should best manage your study time on this module.

How you will be assessed

Tasks which help you to learn and prepares you for summative tasks (Formative):
You will be required to choose a research topic from a given list or a topic as discussed with the tutor. Early in the semester, you will carry out independent research on a selected topic and will receive regular feedback on your progress. In the middle of the period you will give a presentation. Feedback on this presentation will guide you towards the final report submission.

Tasks which count towards your degree (Summative):
First summative assessment will be a presentation in the middle of the semester. The presentation will on an allocated topic that you must research and demonstrate your understanding. The second summative assessment takes the form of a technical report which is a significant expansion of the topic you had covered in your presentation. The expansion must contain critical evaluation of the available technologies and the rational of your choice.

When assessment does not go to plan
Referral in first assessment presentation will require revision and resubmission of the slides and speaker notes.
Referral in second assessment will require resubmission of original report subject to substantive feedback from the tutor.

What you will be able to do after the module
On successful completion of the module, students should be able to:

1. Critically assess computer servers, their components, characteristics, models, applications, and the factors that influence system performance within a given context.
2. Analyse the resource requirements in terms of hardware and software for a specific server solution accounting for the highly changeable environment in which it is implemented.
3. Appraise health and safety issues concerned with safe operation of computing hardware and systems.
4. Autonomously evaluate and critically assess various computer and server systems with a view to identifying improvements.
5. Communicate effectively using a variety of methods, according to professional standards.

How this relates to the dimensions of Solent's Real-world curriculum framework

Dimensions	How students learn	How students are assessed
Students are challenged to think in critical, creative and applied ways	Students will evaluate, compare and assess various computer components and systems.	The research project which presents their knowledge on theories and practices and their skills and abilities to critically compare and assess certain phenomena and then select

		and apply appropriate solution to particular task or problem.
Students are inspired to do research through inquiry, curiosity and problem-solving	Students are tasked to solve a problem using research evidence, collect and analyse data	Students research and identify appropriate information, analyse it and present their solution.
Students experience an intellectually stimulating curriculum which inspires them to learn for life	Students identify and work on world leading challenges and problems and propose their advanced solutions	Students compare and asses their solution or achievement towards published solutions in the subject area.

Summative assessment details

AE1	Weighting:	40%
	Assessment type:	Presentation
	Aggregation:	Aggregated to AE2
	Length/duration:	10 min plus 5min Q&A
	Online submission:	Yes
	Grade marking:	Yes
	Anonymous marking:	No

AE2	Weighting:	60%
	Assessment type:	Report
	Aggregation:	Aggregated to AE1
	Length/duration:	2000 words
	Online submission:	Yes
	Grade marking:	Yes
	Anonymous marking:	No

Module Author: Dr Kalin Penev

Module Title: Computer Systems & Architecture			
Credit Points:	20	Module Code:	COM611
FHEQ Level:	4	School/Service	SMAT
Module Delivery Model:	CD	Max/Min student numbers	
Module Leader:	Dr. Kalin Penev		
HECOS code	100162		

Module change history:

Module Approved/Year Implemented/Code	July 2019	2020/20	COM611
Module Approved/Year Implemented/Code			
Module modified/Year Implemented/Code			
Add extra rows as required			