

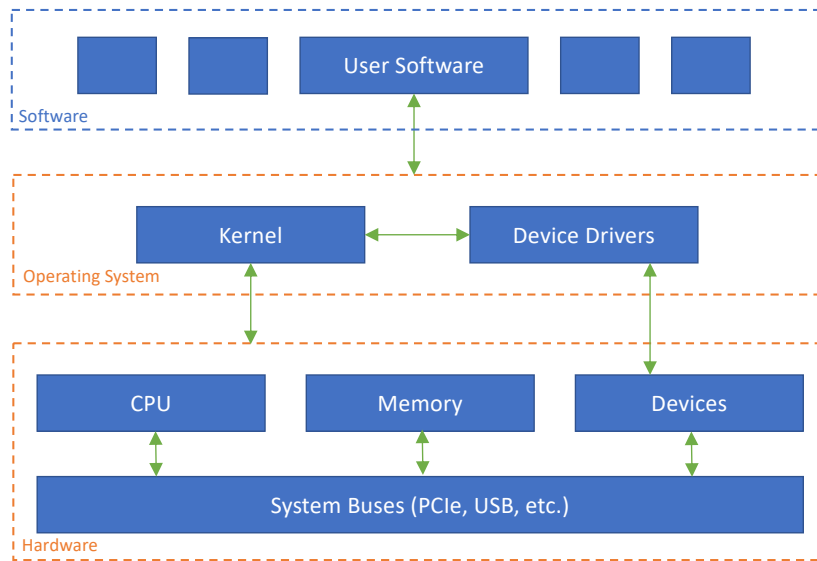
01 | Module Introduction

Dr Stuart Thomason

Module Aims

- To introduce how computers function at the instruction operational level
- To introduce the relationships between the instruction operational level and both the higher (software) and lower (hardware) levels
- To introduce the structure and functionality of modern operating systems
- To explain how the principal components of computer systems perform their functions and how they interact with each other

Software & Hardware



Module Structure

- CPU architecture and machine instructions
- Assembly language programming
- Operating system concepts
- Process management
- File and device management
- Concurrent programming
- Memory management
- Compilers and code generation

Learning Outcomes

- LO1: Describe the structure and operation of computer hardware at the register transfer level
- LO2: Implement and reason about simple algorithms at the level of machine code
- LO3: Describe the overall structure and functionality of a modern operating system and its interactions with computer hardware and user processes
- LO4: Explain how modern operating systems and programming languages implement concurrency and the issues that arise when working with concurrent processes
- LO5: Use the Linux command line and describe how files, devices and processes are managed by the Linux kernel

Module Delivery

- Delivery will be in person via lectures and labs
 - Lectures every week on Tuesday, Thursday and Friday at 3pm (**weeks 1 to 11**)
 - One lab slot per week on either Tuesday, Thursday or Friday (**starting in week 3** – check your timetable)
- Each week will have its own page on Canvas
 - Lecture slides published in advance (every Friday for the following week)
 - Live lecture recordings uploaded a few hours after each delivery
 - Lab sheet to work through in your scheduled slot (with demonstrator support)
- Make the most of the facilities we provide
 - Attend the labs and work through the tasks to explore material from lectures
 - Chat to us about the module content during the lab sessions and after lectures

Recommended Reading

- The material on Canvas should be sufficient to complete this module
- Lecture material is based on these books...
 - Williams – Computer Systems Architecture (2nd Ed) 18 copies
 - Silberschatz – Operating System Concepts (9th Ed) 20 copies
 - Flynn – Understanding Operating Systems (7th Ed) 20 copies
- Harold Cohen Library, Ground Floor Rear, Book Zone 3
- Earlier editions are also available and they are perfectly okay!

Assessment

20%	Coursework Assembly Language Programming	Due Week 8 (20 th March)
30%	Online Class Test (1 hour) Multiple Choice (20 questions)	Week 6 (10 th March)
50%	Exam (2 hours) Multiple Choice (40 Questions)	Formal Exam Period

- Class Test
 - Marks will be released almost immediately (a few days later)
 - Will give you a good idea of how you are progressing
 - Good practice for the exam (which has the same format of questions)
- Multiple Choice Questions
 - Based on material from **lecture slides** and **lab sheets**
 - Attending and completing the labs will give you the best opportunity for good marks

Contact Me

- If you have a general question that others would benefit from, post it on the [Canvas Discussion](#) area
- I will try to attend every lab session so you can speak to me individually or in small groups (there are one or two dates that I can't attend)
- You can also email me any time about the module or programme s.thomason@liverpool.ac.uk
- On the module teaching days (Tuesday, Thursday, Friday) I will be around in my office for most of the time, so pop along for a chat if you want to ([Holt Building, Room 201](#))