

# CS241-15 Operating Systems and Computer Networks

**26/27**

**Department**

Computer Science

**Level**

Undergraduate Level 2

**Module leader**

Jonathan Foss

**Credit value**

15

**Module duration**

10 weeks

**Assessment**

Multiple

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

To introduce the fundamental concepts of modern day operating systems and computer networks.

### Module aims

To introduce the fundamental concepts of modern day operating systems and computer networks.

### Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

50% of the module is on operating systems, and 50% is on computer networks.

Topics on operating systems include functions of operating systems and computer networks, system interfaces, process management, concurrency, low level IPC, high level IPC, deadlock detection and recovery, and memory management.

Topics on networks include models of communication (TCP IP protocol stack), LANs (topologies, polling, CSMA systems, Ethernet, bridging, switching), WANs (topologies, packet / circuit

switching, routing algorithms, ), client-server systems, socket programming, network management issues (performance, security, monitoring), UDP, TCP reliable data transfer, flow control, congestion control, IP addressing, Internet routing algorithms

## Learning outcomes

By the end of the module, students should be able to:

- - Understand the generic requirements, structure, operation, and administration of a modern operating system.
- - Analyse, design, and write programs at the operating systems level.
- - Understand the requirements and design of modern network protocols and systems, their operation and use by applications.

## Indicative reading list

[Reading lists can be found in Talis](#)

[Specific reading list for the module](#)

## Subject specific skills

1. Design low level system software
2. Implement networking protocols
3. Design simple operating systems

## Transferable skills

1. Problem solving
  2. System design and organisation
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## Study

### Study time

Type	Required
Lectures	30 sessions of 1 hour (20%)
Practical classes	6 sessions of 1 hour (4%)
Private study	114 hours (76%)
Total	150 hours

### Private study description

Reading the course material  
Solving problems  
Programming  
Revision

## Costs

No further costs have been identified for this module.

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## Assessment

You do not need to pass all assessment components to pass the module.

Students can register for this module without taking any assessment.

### Assessment group D3

	<b>Weighting</b>	<b>Study time</b>	<b>Eligible for self-certification</b>
Programming Assignment	20%		Yes (extension)
The programming assignment will test your knowledge of C programming, various OS concepts (such as multithreading, synchronisation, memory management), and various CN concepts (such as layering of the IP protocol stack, packet structures) .			

This assessment is eligible for self-certification (extension).

Centrally-timetabled examination (On-campus)	80%		No
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A paper which examines the course content and ensures learning outcomes are achieved.

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- Answerbook Pink (12 page)
- Students may use a calculator

### Assessment group R2

	<b>Weighting</b>	<b>Study time</b>	<b>Eligible for self-certification</b>
In-person Examination - Resit Exam	100%		No

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- Answerbook Pink (12 page)

- Students may use a calculator

## **Feedback on assessment**

Feedback on coursework via Tabula

[Past exam papers for CS241](#)

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## **Availability**

### **Courses**

This module is Core for:

- Year 2 of UCSA-G500 Undergraduate Computer Science
- UCSA-G503 Undergraduate Computer Science MEng
  - Year 2 of G500 Computer Science
  - Year 2 of G503 Computer Science MEng
- Year 2 of UCSA-I1N1 Undergraduate Computer Science with Business Studies
- Year 2 of UCSA-G406 Undergraduate Computer Systems Engineering
- Year 2 of UCSA-G408 Undergraduate Computer Systems Engineering

This module is Option list B for:

- Year 2 of UCSA-G4G1 Undergraduate Discrete Mathematics
- UCSA-G4G3 Undergraduate Discrete Mathematics
  - Year 2 of G4G1 Discrete Mathematics
  - Year 2 of G4G3 Discrete Mathematics