

Systems Architecture 2

CM10195

Russell Bradford (Operating Systems)
Alan Hayes (Networking)

2021



CM10195

This unit follows on directly from Systems Architecture 1
(CM10194)

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- You are lucky because it's all good stuff!

Unit Outline

There are two major chunks of material:

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1. Introduction to Operating Systems: taught by me

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“Operating systems are like underwear - Nobody really wants to look at them”

Bill Joy

Unit Outline

Structure of this unit:

- Pre-recorded “lectures”, released week-by-week on Re:View/Panopto. The main delivery of the content of this unit. These will be in several chunks each week: they will vary in number and length as is appropriate for the topic being discussed, but generally there will be several short videos (instead of fewer long ones)
- These will be uploaded Monday mornings

Unit Outline

- Live Interactive Online sessions:
 - Wednesdays 12:15
 - Thursdays 15:15

On Zoom. See Moodle for links. These sessions will be reactive (“make it up as we go along”) for things like questions, supplementary discussions, coursework, past papers, or anything (relevant) you want.

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At first, we shall only be using the Wednesdays session as there won't be so much to talk about and to manage our workload/studyload. We shall use the Thursdays as and when they are needed

Unit Outline

Assessment

Usual combination of assessed coursework and exam

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1. Essay on Operating System issues (15%)

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2. Networking Assignment (15%)

Unit Outline

Assessment

Usual combination of assessed coursework and exam

1. Essay on Operating System issues (15%)
2. Networking Assignment (15%)
3. End of unit exam (70%)

Unit Outline

Assessment

Coursework timelines (approximately, subject to change):

1. set Wed 24 Feb, due Fri 19 Mar
2. set Wed 24 Mar, due Fri 23 Apr

Feedback on coursework will be provided via Moodle.

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The week starting 8th March is consolidation week: no new material

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The week starting 8th March is consolidation week: no new material

Easter break: two weeks starting 29th March

Unit Outline

Operating Systems

Outline content:

1. Introduction: What they are and what they do; history

Unit Outline

Operating Systems

Outline content:

1. Introduction: What they are and what they do; history
2. Processes

Unit Outline

Operating Systems

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1. Introduction: What they are and what they do; history
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3. Memory and memory management

Unit Outline

Operating Systems

Outline content:

1. Introduction: What they are and what they do; history
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4. Files and filesystems

Unit Outline

Operating Systems

Outline content:

1. Introduction: What they are and what they do; history
2. Processes
3. Memory and memory management
4. Files and filesystems
5. (Peripherals and I/O)

Unit Outline

Networks

1. Introduction: What they are and what they need to do; history

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2. Layering models

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4. Services (DNS, LDAP, SSL)

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Networks

1. Introduction: What they are and what they need to do; history
2. Layering models
3. Addresses and names
4. Services (DNS, LDAP, SSL)
5. Application abstractions: data services and web services

Unit Outline

Resources

The subject of Operating Systems is nearly as old as that of computers and so there are *lots* of books

Unit Outline

Resources

Some books I found on my shelf:

- “Operating Systems Internal and Design Principles” W Stallings, Prentice Hall
- “Computer Systems Architecture A Networking Approach” R Williams, Addison-Wesley
- “Introduction to Operating Systems Behind the Desktop” J English, Palgrave
- “Operating Systems a Concept-Based Approach” D M Dhamdhere, McGraw Hill
- “Operating Systems Concepts with Java” A Silbershatz et al, Wiley

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N.B. These were given to me by the publishers so I'm not saying they are the best books out there

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The thing to do is look at several and find one that suits you: they all contain roughly the same material

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Resources

Networking books

- “TCP/IP Illustrated Volume 1” W R Stevens, Addison-Wesley
- “Computer Networks, 4th Ed” A Tanenbaum, Pearson
- “The Art of Computer Networking” R Bradford, Pearson (Polish Edition: “Podstawy Sieci Komputerowych”, WKŁ)

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These are definitely all good books!

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Unit Web page: `http:`

`//people.bath.ac.uk/masrjb/CourseNotes/cm10195.html`
(link on Moodle)

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I keep a 9-5 (approx) Monday–Friday week and am unlikely to respond out of those times (a long time ago someone said “Get a life”, so I did)

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They are often abbreviated in style, and so are not the whole story and would not be suitable to be quoted verbatim in an exam

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Like every Unit, you are expected to read around the subject for yourself

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You need to take your own notes, read, and *participate*

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You don't expect to get fit simply by paying to joining a gym. . .

“If you have college courses in CS, buy the books and spend day and night the few days before class going through the books and taking notes and answering questions and programming examples before the first class even starts. If you really want to do this in your life, that’s what you should do, not just wait for the education to be handed you. Those who finish at the top will always be in high demand. You can learn outside of school too but you have to put a lot of time into it. It doesn’t come easily. Small steps, each improving on the other, is what to expect, not instant understanding and expertise.”

Steve Wozniak, co-founder of Apple

Standard Introductory Slides

Computer Science is not a spectator sport

Anon

