Operating Systems – COMP-H2014:

Learning Plan 2025 – Version 4

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1. Schedule (*Subject to Change)*

Week	Lecture Topic	Reading	CA (Graded activities)	Practical Activity	
Week 1 27 Jan	Lecture 0: Module Overview Lecture 1: Fundamental Concepts	**Core**: Silberschatz: Chapter 1	**ThreadMentor Project OUT (25%)**: Please read the Project Description on BrightSpace.	**Note**: aim to spend some 'practical' time each week on your ThreadMentor Team Project	
Week 2 03 Feb	Bank Holiday = No Lecture + No Monday Practicals		Reflective Activity for Practical Open Note in Lecture	Practical 1: • Installing Mageia 8 Linux **on your Laptop/Desktop** • Reading about the Project • Exploring Mageia Linux Workshop	
Week 3 10 Feb	Lecture 1: Fundamental Concepts continued	**Core**: Silberschatz: Chapter 2: Operating-System Structures **Supplementary**: • Filesystem Hierarchy Standard (FHS) 2.2 • Nemeth et al	Reflective Activity for Practical Open Note in Lecture	Practical 2: • Basic Linux command line revision	
Week 4 17 Feb	Lecture 2: OS Structures continued	**Core**: Silberschatz: Chapter 3: Processes	Reflective Activity for Practical Open Note in Lecture	Practical 3: • Introduction to Emacs • Introduction to C Programming	
Week 5 24 Feb	Lecture 2: OS Structures continued		Reflective Activity for Practical Open Note in Lecture	Practical 3: • Introduction to Emacs • Introduction to C Programming	
Week 6 3 March	Lecture 3: Processes	**Core**: Silberschatz: Chapter 4: Threads & Concurrency	Reflective Activity for Practical Open Note in Lecture	**Gerome's Groups** Practical 4: • ThreadMentor Set-up for the Project • ThreadMentor Project: Reading about Threads	**Kevin's Groups** Practical 3: • Introduction to Emacs • Introduction to C Programming

Week 7 10 March	Lecture 3: Processes continued	**Core**: Silberschatz: Chapter 5: CPU Scheduling	Reflective Activity for Practical Open Note in Lecture	**Gerome's Groups** Practical 5: • Installing software from source code	**Kevin's Groups** Practical 4: • ThreadMentor Set-up for the Project • ThreadMentor Project: Reading about Threads
Week 8 17 March	Bank Holiday = No Lecture + No Monday Practicals		**Mid-Semester Progress Presentations + Questions from Lecturer (5%) - Gerome's Groups**	**No practical today for Gerome's groups because of presentations**	**Kevin's Groups** Practical 5: • Installing software from source code
Week 9 24 March	Lecture 5: Process Scheduling Lecture 6: Synchronisation	**Core**: Silberschatz: Chapter 6: Synchronisation Tools	Open Note in Lecture **Mid-Semester Progress Presentations + Questions from Lecturer (5%) - Kevin's Groups**	**Gerome's Groups** Practical 6: Monitoring Processes in Linux • Programming Parent & Child Processes in C	**No practical today for Kevin's groups because of presentations**
Week 10 31 March	Lecture 6: Synchronisation continued		Open Note in Lecture	**Gerome's Groups** Practical 6 continued	**Kevin's Groups** Practical 6: Monitoring Processes in Linux • Programming Parent & Child Processes in C
Week 11 07 April	Lecture 6: Synchronisation continued Lecture 7: Deadlocks	**Core:** Silberschatz: Chapter 6: Process Scheduling **Core**: Silberschatz: Chapter 7: Deadlocks	Open Note in Lecture **CA MCQ Test (6%)**		**Kevin's Groups** Practical 6 continued
Week of 14 April & 21 April = Mid-Semester Study Break = 2 Weeks' Study!					
Week 12 28 April	Lecture 8: Memory Management Students **must** attend the last lecture to obtain the marks for **all** of the Open Notes submitted	**Core**: Silberschatz: Chapter 8 & 9: Memory-Management Strategies & Virtual-Memory Management	Open Note in Lecture **ThreadMentor Project IN (20%):**		

			• ThreadMentor Team Project Presentations/Demonstrations + Questions from Lecturer • Team Report Submission	
Week 13 05 May	**Bank Holiday Monday + Review Week**			

2. Continuous Assessment: Total Allocated = 50%

Assessment	Description	% Points
Multiple-Choice Test	One multiple choice test.	**6%**
Practicals + associated 'Reflective' Activities (Every week)	1. Low attendance at practicals may require you to sit an **individual interview** as part of the assessment process for the practicals and the project. 2. 'Reflective' Activity for each Practical handout: this may include a BrightSpace-based quiz, completion of a Reflective Journal or some other activity. The Reflective Journal template is available on BrightSpace.	**9%**
Open Notes (in every lecture)	An Open Note is a sheet that I give you to takes notes on during the Lecture: • Open Notes are worth 10% in total (approximately 1% each), **subject to conditions** – see below • I will **only** accept Open Notes from students who remain until the **end** of each lecture, unless by prior individual agreement by me. • Open Notes will be given back to you for the duration of the CA MCQ Test to assist you during the test. • Open Notes **must** be returned to me at the end of the CA Test. • I do not grade the content of your handwritten notes on Open Notes. • I will **only** allocate marks for Open Notes that you return to me (i.e. any missing Open Notes will not have marks allocated). • To gain the marks for all your Open Notes, you **must** attend the last lecture + submit an Open Note for it. • You are not permitted to have other people sign Open Notes for you. This will be considered plagiarism.	**10%**
Practical Team Project (See the Project Description document on BrightSpace for the requirements relating to the Project.)	Mid-Semester 'Project Progress' Presentation	5%
	End of Semester Presentation/Demonstration and Team Report 1. It is a **requirement** of the Project that you/your team take part in the presentation/demonstration at the end of the semester. This is so that I can verify that the project work is your/your team's own work. Unless there is a really good reason (for e.g.: certified medical reasons, family illness or bereavement, etc.), I will only accept Project Reports where an individual/team has undertaken the Presentation/Demonstration. If you/your team don't present, you will consequently score ZERO for **both** presentation/demonstration **and** report. Remaining Team members who present will be graded as normal. 2. The Project Presentation/Demonstration and Report may be graded on an individual basis, where it becomes clear that some members of the team contributed more to the project than others.	20%
	Project Total	**25%**
Grand Total		**50%**

3. Communication, My Availability and My Expectations of You

3.1. Communication via the Q&A Forum or eMail: Technical Queries

I have set up a "Questions and Answers" Forum on the OS BrightSpace page – this Q&A Forum is **your** forum for asking technical questions about the module material and the Team Project. It is also your forum for attempting to *answer* your colleagues' queries about the module material and the Team Project. I encourage collaboration amongst students and amongst teams – but **not** copying! You will find that if you try to answer your classmates' questions, you will learn a great deal in the process. I will of course monitor queries posted to the forum, and respond, as appropriate, to questions.

Please note: There is no such thing as a stupid question. It is absolutely vital that you make use of the Q&A Forum, Labs sessions and Lectures to ask questions and seek help when you don't understand something. Not understanding is a normal part of life. We all experience it. Please try not to be afraid to ask questions. I am here to help you navigate your way through the OS module! As stated above, I encourage you also to try to answer questions posted by other students. If you get the answer wrong, that's okay. Making mistakes is a normal part of learning too, and we all do that too.

If you feel anxious/uncomfortable about using the Q&A Forum, please email me your technical query and I will post it anonymously on the Q&A Forum and answer it there, so that every student gets the benefit of the question and answer.

3.2. Communication via eMail: Personal Queries/Notifications

For privacy reasons, please use eMail for communicating, in strict confidence, any personal queries/difficulties you have; for eg: absence from class due to illness. Alternatively, you can give a Medical Certificate to Deirdre Woods in the School Office, and she will inform me ***only*** of the dates of your certified absence, thereby keeping your personal health information as private as possible.

3.3. My Availability

I am generally available to answer queries, including those on the Q&A Forum/eMail, during office hours Monday – Friday. These are typically 10am – 5pm. I will do my best to respond to you in a timely manner.

If for some reason, I am unable to hold a class, I will do my utmost to contact you all, at the earliest possible time. This may be via the Announcements on BrightSpace or via the School Office.

3.4. Communications if there are module issues

From time to time, issues can arise with the way a module is running. If you are unhappy about something, please let me know – I do not want my students to be unhappy! You can either:

1. Talk to me directly after the lecture or in the lab, or

2. email me or,
3. if you feel uncomfortable raising it with me directly, you can ask your class representative to email me or talk to me.

Often, issues arise out of a misunderstanding by one or both parties, and a discussion can often help to resolve some or all of these. If, after trying to resolve the issue, you are still unhappy, you can raise the issue again with me, or seek the assistance of the Course Coordinator.

3.5. My Expectations of You

Some points to note. The Operating Systems module is a difficult module. You may have already heard this from other students! My emphasis in all my modules is on *understanding* and *thinking* – if you can't explain a concept to someone else, you don't really understand it. This is the test you should use throughout the semester. Work with your Project Team or other students in study teams, aiming to explain the material to each other. This, in my view, is one of the best ways to learn and to test that your understanding of the material.

It is very important that you commence working on your Team Project and Practical material **straight away**. It is also important that you obtain a book or online resource on operating systems to read **in advance** of the lectures.

In recent years, a significant number of students have left work on the Team Project until the last few weeks, with disastrous consequences for their grades. The Team Project is a semester long project not a two to three week one. It requires time to absorb the ideas and concepts, to work with the ThreadMentor software and to prepare a good presentation, demonstration and report.

Experience shows that if you work hard, you will do very well in the module. Unfortunately, experience also shows that if you don't put in the work **early on**, you will quickly fall behind, and it will be very difficult for you to catch up, meaning that you will not do so well.

3.6. Learning Disabilities

If you have a Learning Disability but have not informed the University, it is essential that you contact the Course Coordinator, Laura Keyes NOW! Laura's email address is: laura.keyes@tudublin.ie

For those of you with a Learning Disability and a Learning Agreement with the University, reasonable accommodations will be made, in line with University policy, where appropriate and where feasible.

4. End of Semester Written Exam: 50%

To do well in the traditional written exam, it is **absolutely essential** that you practise writing out answers to questions from past papers. You should aim to write answers to each past question **three times**; each time, refining your answers. I am happy to provide *guidance* on any model answers you produce.

5. Required and Supplementary Reading

5.1. Required Reading

- Abraham Silberschatz, Peter Baer Galvin, Greg Gagne 2018, *Operating system concepts*, 10th Edition Ed., Wiley. (Older editions are generally okay too, although they might be missing some elements on mobile operating systems and multiprocess architectures).
- William Stallings 2014, *Operating systems: Internals and Design Principles: International Version*, 8th Edition Ed., Pearson Education
- A Book on the C Programming Language such as:
  - Kernighan and Ritchie 1988, *The C Programming Language*, 2nd Edition, Prentice Hall Software Series
  - Kelley and Pohl 1998, *A Book on C: Programming in C*, Addison-Wesley Longman, Inc.
  - Online resources: see section below

5.2. Supplementary Materials

- Remzi Arpaci-Dusseau, Andrea Arpaci-Dusseau (University of Wisconsin-Madison), Peter Reiher (UCLA): *Operating Systems: Three Easy Pieces*: https://pages.cs.wisc.edu/~remzi/OSTEP/
- William S. Davis, T. M. Rajkumar 2005, *Operating systems*, 6th Edition Ed., Pearson/Addison Wesley Boston
- Tanenbaum 2008, *Modern Operating Systems*, 3rd Edition Ed., Pearson Higher Education
- Sobell, *A practical guide to Linux*

5.3. Online Resources (Click-able Links)

- ***T***he ***L***inux ***D***ocumentation ***P***roject: www.tldp.org
- C Tutorialspoint Website
- Cprogramming.com Website
- C Programming Tutorial for Beginners: Learn C Language Basics
- Learn C Programming
- https://www.linuxtopia.org/online_books/programming_books/learning_gnu_c/index.html
- https://www.learn-c.org/