Operating Systems

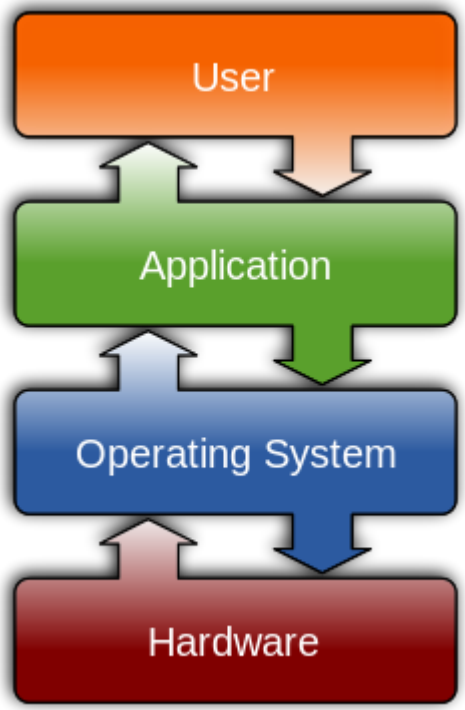
COMP2240/6240

Course Overview

OPERATING SYSTEMS

- An operating system (OS) is **system software** that **manages** computer hardware and software resources and provides common **services** for computer programs.

- Common components
  - Program execution
  - Interrupts
  - Memory management
  - Disk access & File systems
  - Device drivers
  - Networking
  - Security
  - User Interface



COURSE SUMMARY

Subject Code	COMP2240/COMP6240
Subject Title	Operating Systems
Homepage	https://uonline.newcastle.edu.au/
Unit Value	10
Assumed knowledge	**SENG1120/SENG6120**

This is a second year course and the assumed knowledge will be needed to be fully prepared for it

Contact Information

Course Coordinator and Lecturer	Nasimul Noman Room: ES228 Email: Nasimul.Noman@newcastle.edu.au
Contact Hours	Monday; 12:00-14:00 Otherwise by previous appointment.
Tutor	Daneil Bell Email: daniel.p.bell@newcastle.edu.au

TIMETABLE

- Lectures
  - 17:00 -19:00 Tuesday (HPE203)
- Tutorials/Workshops
  - 11:00 -13:00 Thursday (EA101)
  - 9:00 -11:00 Thursday (ES238)

COURSE CONTENT

MAIN TOPICS

1. Hardware overview.
2. Processes and process scheduling including multi-processors.
3. Concurrency control using hardware and software techniques.
4. Memory Management.
5. Virtual memory.
6. I/O and disk management.
7. File systems and file manipulation.
8. Security mechanisms.
9. Networking
10. Process migration

Detailed content

Weekly program

- Week 1 – Operating System Overview
- Week 2 – Processes and Threads
- Week 3 – Scheduling
- Week 4 – Real-time System Scheduling and Multiprocessor Scheduling
- Week 5 – Concurrency: Mutual Exclusion and Synchronization
- Week 6 – Concurrency: Deadlock and Starvation
- Week 7 – Memory Management
- Week 8 – Memory Management II
- Week 9 – Disk and I/O Scheduling
- Week 10 – File Management
- Week 11 – Security and Protection
- Week 12 – Revision of the course
- Week 13 – Extra revision (if needed)

Semi-flip delivery

- **PPP Mode of teaching**
- **Prepare:**
  - Watch roughly 20 minutes of videos before the lecture
  - Learn some terminology / basic concept
- **Participate:**
  - Engage in the lecture
  - Participate/discuss/ask questions
- **Practice:**
  - Work with some problems
  - Know some concepts of real OS

ASSESSMENT

- Assignments:
  - 3 programming assignments – worth 10%+15%+15%
  - Coding (preferably in Java) and written report

- Midterm – In week 8 – worth 15%

- Exams
  - Final exam – worth 45%

ASSESSMENT SCHEDULE

Assessment Item and Description	Method of submission	Due date	Weighting	Item Returnable (Y/N)
Assign 1	Electronically through Blackboard	**Week 6 (07/09/2018)**	10%	**Y**
Midterm	In Lecture	**Week 8 (18/09/2018)**	15%	**Y**
Assign 2	Electronically through Blackboard	Week 9 **(12/10/2018)**	15%	**Y**
Assign 3	Electronically through Blackboard	Week 12 **(02/11/2018)**	15%	**Y**
Final exam	**Formal Examination process**	**Exam Period**	**45%**	**N**

REFERENCES

- Suggested textbook
  - "Operating Systems - Internals and Design Principals", 9th/8th/7th Edition, William Stallings
  - Copies in library