EEE6032   OPERATING SYSTEMS

Credits: 10

Course Description including Aims

1. To provide students with an understanding of the structure of modern multi-tasking operating systems.
2. To identify the links between systems and the underlying architectures.

Outline Syllabus

Historic introduction and origins of the operating system. Elements of the multi-user operating system - Hardware considerations, memory protection, system mode operation, time slicing. **Memory management:** Fragmentation - internal and external. Virtual memory. Paging. Segmentation. **Processes:** Scheduling, process synchronisation, inter-process communication. **Threads:** Comparison with heavyweight processes. **Deadlocks:** detection, avoidance and recovery. **File systems.**

Time Allocation

20 lectures plus 12 hours of additional support material.

Recommended Previous Courses

Students should have background knowledge equivalent to EEE343 "Computer Architecture".

Assessment

2 hour examination, answer 3 out of 4

Recommended Books

Silberschatz, Galvin   *Operating System Concepts*   Addison-Wesley
& Gagne

Objectives

By the end of this module successful students will be able to

1. Describe the key elements and functionality of a modern computer operating system.

2. Demonstrate an understanding of computational processes and their interaction, particular process interactions and synchronisation.

3. Demonstrate an appreciation of the issues surrounding the management of resources such as: memory, disk space and the CPU.

4. Understand the interaction between an operating system and the underlying hardware, and the hardware extensions which facilitate key functionality in a modern operating system.