## Operating Systems Concepts

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| *SMS Code* | IN616001 | *Directed Learning hours* | 60 |
| *Level* | 6 | *Workplace or Practical Learning hours* | 0 |
| *Credits* | 15 | *Self-Directed Learning hours* | 90 |
| Prerequisites | IN510001, IN515001 & IN520001 | *Total Learning Hours* | 150 |
| *This course approved in another Programme: No* | | | |

***Aims***

To introduce students to the role of operating systems in computer systems. To increase students’ ability to select, configure, and manage operating systems.

***Learning Outcomes***

At the successful completion of this course, students will be able to:

1. Identify and relate key components of operating systems
2. Explain and analyse process and memory and storage management concepts and issues
3. Identify protection and security issues
4. Configure and manage operating systems and selected services including the use of appropriate scripting languages
5. Identify, select and apply criteria for the evaluation of operating systems

***Indicative Content***

* Evolution of key operating system services
* Essential aspects of process management
* Relevant operating systems
* Interacting with the OS via shells
* Relevant scripting languages
* System-call interface structure
* Process initialisation issues
* Process synchronization issues
* Memory Hierarchy
* Memory paging and segmentation
* File systems
* Protection and security issues and solutions
* Booting & Bootloaders

***Assessment***

| **Assessment Activity** | **Weighting** | **Learning Outcomes** |
| --- | --- | --- |
| Configuration & Documentation Activities | 20% | 1,2,3,4,5 |
| Programming Activity | 20% | 5,6 |
| OS Research & Evaluation Portfolio | 20% | 1,2,3,4,7 |
| Exam | 40% | All |

***Resources***

**Required:**

None

**Recommended:**

Text books and readings are administered as appropriate and updated to reflect ongoing conceptual and technological developments.

Example resources used in the past:

Silberschatz, A., Gagne, G. & Galvin, P. (2012) *Operating System Concepts Essentials (9th ed.)*. John Wiley & Sons. Inc.

Tanenbaum, A. (2007) *Modern Operating Systems*. (3rd ed.). Prentice Hall.

Arpaci-Dusseau & Arpaci-Dusseau (2015) *Operating Systems:* *Three Easy Pieces*. Arpaci-Dusseau Books