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| **Operating Systems** | **Module Title:** |
| **CAP 332** | **Module ID:** |
| **CAP 212, CAP 223** | **Prerequisite:** |
| **5** | **Level:** |
| **3 (3+0+1)** | **Credit Hours:** |

**Module Description:**

Introduction; Operating System services; CPU Scheduling; Disk Scheduling; Memory

Management; Process synchronization.

**Module Aims:**

* To study the operations performed by Operating System as a resource manager.
* To learn the evolution of Operating systems.
* To study computer security issues and Operating System tools.

**Learning Outcomes:**

* Discuss issues and problems involved in the design and implementation of operating systems.
* Identify the abstract services common to all operating systems
* Define the basic operations system components and understand how the entire system fits together
* Develop hands-on experiences with the practical side of operating systems by programming and simulating different aspects.
* Describe OS support for processes and threads
* Describe CPU Scheduling, synchronization, and deadlock.
* Explain OS support for virtual memory, disk scheduling, I/O, and file systems.
* Identify security and protection issues in computer systems

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| List of Topics | No. of  Weeks | Contact Hours |
| Introduction | 1 | 3 |
| Operating-System Structures | 2 | 6 |
| Processes | 2 | 6 |
| Threads | 1 | 3 |
| CPU Scheduling | 2 | 6 |
| Process Synchronization | 2 | 6 |
| Deadlocks | 1 | 3 |
| Main Memory | 2 | 6 |
| Files | 1 | 3 |
| I/O Systems | 1 | 3 |

**Textbook:**

Operating System Concepts, Silberschatz, Galvin, and Gagne, 8th edition, Wiley