

# **School of Computer Science & Information Technology, DAVV, Indore**

## **CS-5511: Operating Systems**

**Faculty Name:** Dr. Ugrasen Suman

### **Course Contents**

#### **Unit-I**

Introduction: Evolution of operating systems, operating system concepts, Computer System Operations: Interrupts, Storage structures. Operating System Structures: Operating system services, System Calls.

#### **Unit-II**

Processor Management: Process concepts, Threads, CPU Scheduling: Algorithms for batch Processing and Algorithms for time sharing operating systems. Processes Synchronization. Deadlock handling.

#### **Unit-III**

Memory Management: Concepts, single user memory management, Partition memory allocation. Virtual memory management using paging and segmentation techniques.

#### **Unit-IV**

File Management: Operations on a file, structure of a file system, Free block list, keeping track of blocks allocated to a file, directory structure, sharing and protection of files, file system Reliability, Unix file system, Distributed file system.

#### **UNIT-V**

Device Management: Goals of input/output software design, Structure of device hardware and software. Layers of I/O software, structure of device drivers, Disk driver, disk arm scheduling algorithms, terminal driver, clock driver etc. Protection and Security.

**Case Studies:** Unix/Linux, Windows operating system

#### **Text Books:**

- (i) Operating System Concepts, Addison Wesley, 6<sup>th</sup> Edition, A. Silberschatz and P. Galvin. 2003.
- (ii) Modern Operating System, A.S Tanenbaum., Prentice Hall of India.

#### **Reference Books:**

- (i) Operating systems, 4<sup>th</sup> Edition, William Stallings, Pearson Education, 2003.
- (ii) Design of Unix operating system, Bach M., Pearson Education.