

## **APT 2040: OPERATING SYSTEMS**

Pre-requisites: IST 1020: Introduction to Information Technology

3 Credit Units

### **Course Rationale**

To develop an understanding of the concepts which underline both single CPU and distributed operating systems. The course also provides the students with an understanding of human computer interface existing in computer system and the basic concepts of operating system and its working. The students will also get hand-on experience and good working knowledge to work in DOS, Windows and UNIX environments. The aim is to gain proficiency in using various operating systems after undergoing this course.

### **Course Description**

The course covers the concepts and architecture of a stored program digital computer system and provides an understanding of the characteristics and the operating principles of the main hardware components of a computer system. In addition, the course covers the concepts and fundamentals of the operating systems. These fundamentals include process management, memory management, and device management and file management. This course enables students to understand how the interface between users and machine is achieved through system utilities and programs. Development of operating systems is also discussed.

### **Learning outcomes**

On completion of this course the student will be able to:

1. Identify and describe the structure of operating systems;
2. Illustrate and explain the process concept and the way in which processes are managed;
3. Critically evaluate the techniques used in storage management;
4. Describe the concepts and principles of distributed operating systems.
5. Apply the learned operating systems skills in systems administration;

### **Course Content**

Review of types of Operating systems, UNIX O.S Fundamentals, Processes and Process Management, Thread, scheduling algorithm, Dead lock principle, Process Synchronization, Memory Management, File Management, Input and Output Management, Distributed Operating System, Operating System Security

### **Teaching and Learning Methodologies**

Classes for the course consist of a series of theory and practical lectures, Assignments. Group Projects.

### **Instructional Materials/Equipment**

Course text, Handouts, White board, Presentation slides, Journals; Linux platform

## **Method of Evaluation**

Laboratory Work	20%
Project	20%
Assignments	10%
Mid-semester	20%
Final semester exams	30%
<b>Total</b>	<b>100%</b>

## **Course Text**

Operating Systems by **Sibsankar Haldar, Alex A. Aravind – 2009**

## **Recommended readings**

1. Operating System Concepts (7th edition) Silberschatz, Galvin & Gagne Wiley ISBN 0-471-69466-5 2004
2. Modern Operating Systems (3<sup>rd</sup> Edition) Tanenbaum Prentice Hall, 2007
3. Operating Systems: A Modern Perspective (3rd edition) Nutt, Addison-Wesley, ISBN 0-321-18955-8
4. Operating Systems: Internals and Design Principles (4th edition or later) , Stallings, Prentice Hall ISBN: 0-130-27837-1
5. Operatings Systems (Concurrent and Distributed Software Design) , Jean Bacon and Tim Harris, Addison-Wesley, ISBN: 0-321-11789-1
6. Understanding Operating Systems (3rd edition or later), Flynn & McHoes, International Thomson Publishing, ISBN 0-534-37666-5
7. Operating Systems and Middleware, Hailperin, International Thomson Publishing' ISBN 0-534-42369-8
8. Operating Systems: Internals and Design Principles by William Stallings – 2008
9. Operating systems by Achyut S Godbole, Achyut – 2005