4152 - OPERATING SYSTEMS

Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)			
					Theory		Practical Ex.	Total
Lectures	Practical	Credit						
3	3	6	50	-	3Hrs.	100	-	150

Pre-requisite	Source	Semester	Theory	Test	Total	TW	PR	Gr Total
Nil	COM		75	25	100	50	–	150

Rationale: It is known that without software a computer is useless. It is software, which makes a computer, store, process, retrieve information and engage in many other useful activities. Computer Software can be broadly divided into two System Software and application software. The most fundamental of all System S/W is the Operating System, which controls all the computer resources and provides the base upon which the application program can be written. This course in Operating System introduces the students to the internal working of the O.S, its functions & function management. The UNIX Operating System is also covered up as a case study.

COURSE CONTENTS	Hrs	Mks
1. INTRODUCTION What is an Operating System. Functions of an Operating System, Types of Operating Systems & their Salient Features, Batch Processing Systems, Multiprogramming, Time sharing, Multitasking, Real time systems. Elements of Assemblers, Compiler, Interpreters, Linkers, Loaders, Editors.	4	10
2. INFORMATION MANAGEMENT File Systems, Device Drivers, Terminal I/O, I/O Organisation & IOCS.	7	15
3. PROCESS MANAGEMENT What is Process, Context Switching, Process States and Transitions, Process control blocks, Process hierarchy, operation on process: Create, Kill, Dispatch, Block Delay, Suspend & Scheduling.	10	20
4. MEMORY MANAGEMENT Single contiguous Memory Management, Fixed partition Memory Management, Variable partitions, Non-Contiguous Allocation – General Concepts Paging, Segmentation, Virtual Memory Management Systems.	10	20
5. SECURITY & PROTECTION Security threats, Attacks on Security Violation through Parameters, Computer Worms, Computer Virus, Security Design Principles, Authentication, Protection Mechanism, Encryption.	5	10
6. UNIX Case study on UNIX- History of UNIX, Overview of Unix, Unix file System, Data Structures for Process/memory management. Process States and State transition, Executing & Terminating a program in Unix System booting & login. Process Scheduling, Memory Management in Unix.	12	25
Total	48	100

PRACTICALS:

The practical working in this course will be based on the Unix operating system and shall involve the use of the following Unix commands, shell programming & Internet/Intranet usage.

1. Ex line editor and Vi screen editor commands
2. Unix commands

a) Access control commands
b) File management commands.
c) Status information commands.
d) Running programs commands.
e) Test processing commands.
f) Communication commands.
g) Use of wildcard & Filters.
h) System administration commands.