**SRM UNIVERSITY**

**FACULTY OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**COURSE PLAN**

**Course Code** : MC0601

**Course Title** : OPERATNG SYSTEM

**Semester** : III

**Course Time** : June – November 2012

| Day | B | |
|---|---|---|
| | Hour | Timing |
| Day 1 | 1 | 08.45-09.35 |
| Day 2 | 4 | 11.25-12.15 |
| Day 3 | 4 | 11.25-12.15 |
| Day 4 | - | - |
| Day 5 | 6 | 02.20-03.10 |

**Location** : S.R.M.E.C – Tech Park

**Faculty Details**

| Sec. | Name | Office | Office hour | Mail id |
|---|---|---|---|---|
| B | S.P.ANGELIN CLARET | TP106/A | 8:30-4:00 | spangelin@ktr.srmuniv.ac.in |
| C | V.ELIZABETH JESI | Conference Room | 8:30-4:00 | jesiv@ktr.srmunic.ac.in |
| A | S.SARAVANAN | TP206/A | 8:30-4:00 | saravanans@ktr.srmuniv.ac.in |
| D | S.METILDA FLORENCE | TP003/A | 8:30-4:00 | metilda_florence@ ktr.srmuniv.ac.in |

**Text Books**:

1. Silberschatz, Galvin&Gagne- Operating System Principles-John Wiley &Sons-7th Edition-2006

**Reference Books:**

1. Milan Milenkovic-Operating System Concepts and Design-McGraw Hill-2003
2. Andrew S.Tannenbaum –Modern Operating System –Prentice Hall India-1997
3. Deital-An Introduction to Operating System-Pearson Education-1990

**Prerequisite** : Nil

**Objectives:**

**At** the end of the course, student should be able to understand:

- Various Scheduling techniques
- Storage and Management concepts
- Page Replacement Algorithms
- Deadlock Detection,Avoidance and Recovery

**Assessment Details**

| | |
|---|---|
| Announced Quiz | : 10 Marks |
| Unannounced Quiz | : 05 Marks |
| Cycle test | : 20 Marks |
| Model Exam | : 20 Marks |
| Case Study | : 10 Marks |
| Attendance | : 05 Marks |
| **Total** | **: 70 Marks** |

**Test Schedule**

| S.No. | DATE(Tentative) | TEST | TOPICS | DURATION |
|---|---|---|---|---|
| 1 | 08-08-2011 | Cycle Test | Unit 1& 2 | 2 periods |
| 2 | 30-08-2011 | Unannounced Quiz | Unit 3 | 20 mins |
| 3 | 07-09-2011 | Announced Quiz | Unit 4 | 20 mins |
| 4 | 10-10-2011 | Model Exam | All 5 Units | 3 Hours |

**Outcomes**

Students who have successfully completed this course will have full understanding of the following concepts

| **Course outcome** | **Program outcome** |
|---|---|
| To learn<br>• Various Process Scheduling techniques<br>• Storage Management Concepts<br>• Page Replacement Algorithms<br>• Deadlock detection, avoidance and recovery | The ability to understand and appreciate the design and implementation aspects of an operating system. |

**Detailed Session Plan**

| **Introduction to operating system-System Structure** | | | | | |
|---|---|---|---|---|---|
| **Session No.** | **Topics to be covered** | **Time (min)** | **Ref** | **Teaching Method** | **Testing Method** |
| 1 | Computer system Organization, Architecture | 50 | 1 | BB | Analogy and Group Discussion |
| 2 | Operating System structure, Operations | 50 | 1 | BB | Group Discussion |
| 3 | Process management, memory management , Storage management | 50 | 1 | BB | Group Discussion |
| 4 | Protection & security, Distributed systems, special purpose systems, computing environments | 50 | 1 | BB | Group Discussion |
| 5 | Operating system services, user operating system interface, system calls | 50 | 1 | BB | Group Discussion |
| 6 | Types of system calls | 50 | 1 | BB | Quiz |
| 7 | System programs, design and implementation | 50 | 1 | BB | Group Discussion |
| 8 | Virtual machines, operating system generation, system boot | 50 | 1 | BB | Case Studies |

| | | | | | |
|---|---|---|---|---|---|
| **Process Management-Process Concepts, Process scheduling** | | | | | |
| 9 | Overview, Process Scheduling | 50 | 1 | BB | Group Discussion |
| 10 | Interprocess communication | 50 | 1 | BB | Group Discussion |
| 11 | Interprocess communication | 50 | 1 | BB | Brain Storming |
| 12 | Basic concepts, Scheduling criteria | 50 | 1 | BB | Group discussion |
| 13 | Scheduling Algorithm | 50 | 1 | BB | Group discussion |
| 14 | Scheduling Algorithm | 50 | 1 | BB | Group Discussion and Problem Solving |
| 15 | Scheduling algorithm | 50 | 1 | BB | Comparative Study |
| **Process Coordination-Synchronization, Deadlocks** | | | | | |
| 16 | Process coordination-Synchronization | 50 | 1 | BB | Group discussion |
| 17 | The critical section problem | 50 | 1 | BB | Analogy and Group discussion |
| 18 | Semaphores | 50 | 1 | BB | Group discussion |
| 19 | Classic Problems of synchronization | 50 | 1 | BB | Brain Storming |
| 20 | Atomic Transactions | 50 | 1 | BB | Case Studies |
| 21 | System Model, Deadlock Characterization | 50 | 1 | BB | Analogy and Group Discussion |
| 22 | Prevention,Avoidance,Detection | 50 | 1 | BB | Quiz |
| 23 | Detection | 50 | 1 | BB | Group Discussion |
| 24 | Recovery from deadlock | 50 | 1 | BB | Group discussion |
| | **Memory Management Strategies, Virtual memory** | | | | |
| 25 | Introduction to Memory Management | 50 | 1 | BB | Presentation |
| 26 | Swapping | 50 | 1 | BB | Group discussion |
| 27 | Contiguous Memory Allocation | 50 | 1 | BB | Group discussion |
| 28 | Paging | 50 | 1 | BB | Quiz |
| 29 | Structure of page Table, Segmentation | 50 | 1 | BB | Group discussion |
| 30 | Demand paging | 50 | 1 | BB | Group discussion |
| 31 | Page replacement Algorithm | 50 | 1 | BB | Group discussion |
| 32 | Page replacement Algorithm | 50 | 1 | BB | Brain Storming and Problem Solving |
| 33 | Allocation of Frames | 50 | 1 | BB | Case Studies |

| | | | | | |
|---|---|---|---|---|---|
| | **Storage Management –File System-Implementing File System-Secondary Storage Management** | | | | |
| 34 | File concept, Access methods | 50 | 1 | BB | Group discussion |
| 35 | Directory Structures | 50 | 1 | BB | Group discussion |
| 36 | File System Mounting, File Sharing, Protection | 50 | 1 | BB | Group discussion |
| 37 | File System Structure, implementation | 50 | 1 | BB | Case Studies |
| 38 | Directory Implementation, allocation Methods, Free space Management | 50 | 1 | BB | Group discussion |
| 39 | NFS | 50 | 1 | BB | Group discussion |
| 40 | Overview of Mass Storage structure, Disk Structure, Disk attachment | 50 | 1 | BB | Analogy and Group discussion |
| 41 | Disk Scheduling, Disk management | 50 | 1 | BB | Group discussion and Comparative Study |
| 42 | RAID structure | 50 | 1 | BB | Group discussion |
| 43 | **Case Study- Windows XP** | 50 | 1 | BB | Case Study |
| 44 | **Case Study- Windows XP** | 50 | 1 | BB | Case Study and Comparative Study |
| 45 | **Case Study- Windows XP** | 50 | 1 | BB | Case Study |

**Staff-in-charge** **HOD/MCA**

**1. S.P.ANGELIN CLARET**

**2. V.ELIZABETH JESI**

**3. S.SARAVANAN**

**4. A.RAJALAKSHMI**