

2. Simulate CRC Algorithm
3. Simulate Stop & Wait Protocol.
4. Simulate Go-Back-N Protocol.
5. Simulate Selective Repeat Protocol.

## **OPERATING SYSTEMS C E 312**

### **1.1 Course Description**

This course is intended to introduce the concepts, structure, features, trends and design Mechanism of Operating system. The Operating System has seen consistent innovations and developments like other fields of computer science. In this course efforts have been to capture these changes. The trend is towards GUI based free, platform independent, secure and network-based operating system

### **1.2 Learning Targets/Outcomes**

By learning this course Student will able to

- Understand common Unix command
- Understand vital Operating system concept like process management, memory management, File System and I/O.

### **1.3 Course Organization**

There will be 3-hours lecture per week, 1-hours tutorial/discussion and 2 hours Laboratory session each week. Please note that some of the tutorial/discussion sessions may be converted to lectures if need be. Students are expected to attend all lectures and to participate in class discussions.

### **2.1 Text Book**

- Silberschatz, Abraham and Galvin, Peter B. Operating System Concepts. 9th Edition. John Wiley Sons

### **2.2 Reference Text Books**

- Milan Milenkovic, Operating Systems Concepts and Design, McGraw Hill 1987
- Tanenbaum, S Andrew, Operating Systems – Design and Implementation, PHI, 2001.

## **3. Course Content**

### **3.1 Introduction**

- 3.1.1 System Software
- 3.1.2 Resource Abstraction
- 3.1.3 OS strategies
- 3.1.4 OS strategies...Continue

### **3.2 Types of operating Systems**

- 3.2.1 Multiprogramming,
- 3.2.2 Multiprogramming...continue
- 3.2.3 Batch, Time Sharing
- 3.2.4 Batch, Time Sharing...continue

### **3.3 Types of operating systems**

- 3.3.1 Single user and Multiuser
- 3.3.2 Single user and Multiuser..continue

- 3.3.3 Process Control
- 3.3.4. Real Time Systems

### **3.4 Operating System Organization**

- 3.4.1 Factors in operating system design
- 3.4.2 Factors in operating system design..continue
- 3.4.3 Basic OS functions
- 3.4.4 Basic OS functions..continue

### **3.5 Operating System Organization**

- 3.5.1 implementation consideration
- 3.5.2 process modes
- 3.5.3 Methods of requesting system services – system
- 3.5.4 Methods of requesting system services – system..continue

### **3.6 Process Management**

- 3.6.1 System view of the process and resources
- 3.6.2 System view of the process and resources..contine
- 3.6.3 Initiating the OS
- 3.7.4 Initiating the OS..continue

### **3.7 Scheduling**

- 3.7.1 Scheduling Mechanisms
- 3.7.2 Scheduling Mechanisms...continue
- 3.7.3 Strategy selection
- 3.7.4 Strategy selection...continue

### **3.8 Scheduling**

- 3.8.1 Non-pre-emptive strategies
- 3.8.2 Non-pre-emptive strategies ...contine
- 3.8.3 Pre-emptive strategies
- 3.8.4 Pre-emptive strategies..continue

### **3.9 Memory Management**

- 3.9.1 Mapping address space to memory space
- 3.9.2 Mapping address space to memory space..continue
- 3.9.3 Memory allocation strategies
- 3.9.4 Memory allocation strategies ...continue

### **3.10 Memory Management**

- 3.10.1 Fixed partition
- 3.10.2 Fixed partition
- 3.10.3 Variable partition
- 3.10.4 Paging, virtual memory

### **3.11 Shell introduction and Shell Scripting:**

- 3.11.1 What is shell and various type of shell, Various editors present in linux
- 3.11.2 What is shell and various type of shell, Various editors present in linux..continue
- 3.11.3 Different modes of operation in vi editor
- 3.11.4 What is shell script





### **3.12 Multiple Partitioned of management**

- 3.12.1 Writing and executing the shell script
- 3.12.2 Writing and executing the shell script..continue
- 3.12.3 Shell variable (user defined and system variables)
- 3.12.4 Shell variable (user defined and system variables)...continue

### **3.13 File System**

- 3.13.1 System calls,
- 3.13.2 System calls..continue
- 3.13.3 Using system calls Pipes and Filters
- 3.13.4 Using system calls Pipes and Filters..continue

### **3.14 File System Structure**

- 3.14.1 Decision making in Shell Scripts (If else, switch)
- 3.14.2 Loops in shell
- 3.14.3 Loops in shell ...continue
- 3.14.4 Functions

### **3.15 Overview of I/O Systems**

- 3.15.1 Utility programs (cut, paste, join, tr , uniq utilities)
- 3.15.2 Utility programs (cut, paste, join, tr , uniq utilities)..continue
- 3.15.3 Pattern matching utility (grep)
- 3.15.4 Pattern matching utility (grep)..continue

## **4. Plagiarism**

The University intends to develop and promote original work. Taking another person's words or ideas and using them as if they were your own or Plagiarism, as it is called, is taken very seriously at the University. Plagiarism may be deliberate or accidental.

## **Software Lab based on Operating Systems**

1. Usage of following commands:  
ls, pwd, tty, cat, who, who am I, rm, mkdir, rmdir, touch, cd.
2. Usage of following commands:  
cal, cat(append), cat(concatenate), mv, cp, man, date.
3. Usage of following commands:  
chmod, grep, tput (clear, highlight),  
bc.
4. Write a shell script to check if the number entered at the command line is prime or not.
5. Write a shell script to modify "cal" command to display calendars of the specified months.
6. Write a shell script to modify "cal" command to display calendars of the specified range of months.
7. Write a shell script to accept a login name. If not a valid login name display message – "Entered login name is invalid".

8. Write a shell script to display date in the mm/dd/yy format.
9. Write a shell script to display on the screen sorted output of "who" command along with the total number of users .
10. Write a shell script to display the multiplication table any number,

## **Advanced Java Technology CS 702**

### **1.1 Course Description**

The aim of the course is to study the advanced java concepts and its extended capability.

### **1.2 Learning Targets/Outcomes**

By learning this course Student will able to

- Use various tools, and Validation techniques, use of different templates available in IntelliJ IDEA,
- Implementation and testing strategies in real time applications.
- Use advanced concepts related to Web Services, spring and Hibernate

### **1.3 Course Organization**

There will be 3-hours lecture per week and 2 hours Laboratory session each week. Please note that some of the tutorial/discussion sessions may be converted to lectures if need be. Students are expected to attend all lectures and to participate in class discussions

### **2. Course Resource**

#### **References Books**

1. Bryan Basham;KathySierra;Bert Bates, Head first Servlets and JSPs, O'Rilley Media
2. Black Book, Java Server Programming, Dreamtech Press
- 3.Complete Reference -mcgraw publication

### **3. Course Content**

#### **Java ServerPage(JSP)**

Introduction- Servlet and JSP, JspLifeCycle, Jsp Implicit Objects & Scopes,. JspDirectives  
.Jsp Scripting Elements,JspActions, . JSTL & Tag Library

#### **Java Servlet Programming**

HTTP request, HTTP response, Directory structure of web application, Servlets and CGI, container responsibilities, servlet life cycle, Get and Post Requests, Deployment Descriptor, various names for servlet referencing, Request and Response Objects, Request forwarding, Servlet init parameters, Servlet Request parameters, context parameters, Servlet Listeners, various servlet attributes and its scopes Java beans, databases, Session management Cookie management, Servlet Filters

Java Database Connectivity(JDB) Introduction, Java.Sql Package JdbcArchitecture,Types of Drivers,Statement ,ResultSet ,Read Only ResultSet,UpdatableResultSet,Forward Only ResultSet,ScrollableResultSet,.PreparedStatement, CallableStatement, BLOB & CLOB, , Introduction To RMI, and CORBA

### **4. Plagiarism**