

SACRED HEART COLLEGE (AUTONOMOUS)

Department of Computer Science

BSc Computer Applications

Course plan

Academic Year 2015 – 16

Semester VI

COURSE PLAN OPERATING SYSTEM

Course Description:

Operating system is the manager of computer resources. The subject introduces the basic components of an operating system and various types of operating systems. Different CPU scheduling techniques gives a clear picture about how an operating system handles different types of tasks. Memory management policies are dealt to give information about how the main memory can be handled by an operating system. Since the secondary storage devices cannot handle more than one request at a time, it is necessary for an operating system to synchronize the jobs waiting for the devices.

Course Objectives

- To introduce the fundamental concepts and principles of operating systems
- To emphasize the functions of operating systems to the computer system, the system operator (user), and variations in the design and implementations of operating systems.
- To focus on Foundational concepts, Process management, Memory management, virtual memory, file systems and I/O management

Book of study :

- Operating System Principles, Seventh Edition, Abraham Silberschatz, Peter Galvin and Greg Gagne, John Wiley
- Operating Systems- By William Stallings

References:

Operating Systems- By MilanKovic (TMH)

Sessions	Topic	Method	Remarks
1	OS Definition, ,	Lecturing	using ppt
2	Functions, OS as a resource manager	Lecturing	using ppt
3	types of OS	Lecturing	using ppt
4	types of OS	Lecturing	using ppt
5	types of OS, Evolution of OS	Detailed review of assignment	
6	Operating System Operations	Lecturing	
7	Operating System Services	Lecturing	
8	User Operating System Interface	Lecturing	using ppt
9	System Calls, Types of System Calls.	Lecturing	using ppt
10	Process: Basic Concepts,	Lecturing	
	Process Scheduling,	Lecturing	
11	Operations on 'Processes,	Lecturing	using ppt
12	Inter process communication,	Lecturing	
13	Process Scheduling	Lecturing	
14	Scheduling Criteria, Scheduling Algorithm	Lecturing	
15	Scheduling Algorithm	Lecturing	
16	Scheduling Algorithm	Lecturing	
17	Multiple Processor Scheduling.	Lecturing	
18	The Critical Section problem	Lecturing	
19	Synchronization Hardware,	Lecturing	
20	Semaphores	Lecturing	
21	Problems of Synchronization	Lecturing	
22	Problems of Synchronization	Lecturing	
23	Monitors	Lecturing	
24	Dead Locks : System Model, Dead Lock Characterization,	Lecturing	
25	Methods of Handling Dead Locks	Lecturing	
	Dead Lock Prevention,	Lecturing	
26	Dead Lock Avoidance	Lecturing	
27	Dead Lock Avoidance	Lecturing	
30	Dead Lock Detection	Lecturing	
31	Dead Lock Detection	Lecturing	
	Recovery from Dead Lock	Lecturing	
	Recovery from Dead Lock	Lecturing	
32	Memory Management Strategies	Lecturing	

33	Swapping	Lecturing	
	Contiguous memory allocation	Lecturing	
34	Paging,	Lecturing	
35	Paging,	Lecturing	
36	Segmentation	Lecturing	
37	Virtual Memory Management	Lecturing	
38	Demand paging	Lecturing	
39	Page Replacement	Lecturing	
40	Page Replacement	Lecturing	
41	File System	Lecturing	
42	File Concept	Lecturing	
43	Access Methods	Lecturing	
44	Directory Structure,	Lecturing	
45	Directory Structure,	Lecturing	
	protection	Lecturing	
	Implementing File Systems		
46	File System Structure,	Lecturing	
47	Directory Implementation,	Lecturing	
48	Allocation Methods	Lecturing	
49	Free Space Management	Lecturing	
50	Efficiency and Performance	Lecturing	
51	Recovery	Lecturing	
52	Revision	Seminars	
53	Revision		
54	Revision		

COURSE PLAN
SEMESTER VI- REAL ANALYSIS

COURSE OBJECTIVES

- **To test the convergence of series**
- **To Familiarise theorems on continuity.**
- **To Compute definite integrals by using Riemann Sum**
- **To Test uniform convergence of Series .**

Text book:

S.C.Malik and Savitha Arora - Mathematical Analysis, 2nd Edition.

Sessions	Topic	Method	Remarks
1	Introductory Session	Interaction	
2	A necessary condition for convergence	Lecture Method	
3	Cauchy`s general principle of convergence for a series	Lecture Method	
4	Positive term series	Lecture Method	
5	A necessary condition for convergence of positive term series	Lecture Method	
6	Geometric series	Lecture Method	
7	The comparison series $\sum_{hP} \frac{1}{hP}$ comparison test for positive term series without proof	Lecture Method	
8	Problems	Interaction	
9	Cauchy`s root test	Lecture Method	
10	DALEMBERTÈS RATIO test	Lecture Method	
11	Raabe`s test	Lecture Method	
12	Problems	Interaction	
13	Gauss`s test	Lecture Method	
14	Problems	Interaction	
15	Series with arbitrary terms, Alternating series	Lecture Method	
16	Absolute convergence	Lecture Method	

17	Continuous function	Interaction	
18	Continuity at a point	Lecture Method	
19	Continuity in an interval	Interaction	
20	Discontinuous functions	Lecture Method	
21	CIA – I	1 hr; descriptive answers only	
22	Theorems on continuity	Lecture Method	
23	Theorems	Interaction	
24	Theorems	Lecture Method	
25	Functions continuous on closed intervals	Lecture Method	
26	Theorems	Interaction	
27	Theorems	Lecture Method	
28	Theorems	Lecture Method	
29	Theorems	Interaction	
30	Theorems	Lecture Method	
31	Theorems	Lecture Method	
32	Theorems	Interaction	
33	Theorems	Lecture Method	
34	Uniform continuity	Lecture Method	
35	Theorems	Interaction	
36	Theorems	Lecture Method	
37	Theorems	Lecture Method	
38	Definitions and existence of the integral	Lecture Method	
39	Problems	Interaction	
40	Inequalities of integrals	Lecture Method	
41	Problems	Interaction	
42	Refinement of partitions of integrability	Lecture Method	
43	Theorems	Lecture Method	
44	Theorems	Interaction	
45	Theorems	Lecture Method	
46	Integrability of the sum of integrable functions	Lecture Method	
47	Theorems	Interaction	
48	Theorems	Lecture Method	
49	Theorems	Lecture Method	
50	Theorems	Interaction	
51	The integrals as the limit of a sum	Lecture Method	
52	Some applications	Lecture Method	
53	Some integrable functions	Lecture Method	
54	Theorems	Interaction	
55	Theorems	Lecture Method	

56	Integration and differentiation	Lecture Method	
57	Theorems	Lecture Method	
58	Problems	Interaction	
59	The fundamental theorem of calculus	Lecture Method	
60	Problems	Interaction	
61	CIA II	2 HOURS	
62	Problems	Interaction	
63	Point wise convergence	Interaction	
64	Uniform convergence on an interval	Lecture Method	
65	Cauchy`s criterion for uniform convergence	Lecture Method	
66	A test for uniform convergence of sequences	Lecture Method	
67	Problems	Interaction	
68	Test for uniform convergence of series	Lecture Method	
69	Weierstrass`s M-test	Interaction	
70	Abel`s test	Lecture Method	
71	Theorems	Lecture Method	
72	Problems	Interaction	
73	Statement of Dirichelet`s test without proof	Lecture Method	
74	Discussion on the CIA & REVISION	Interaction	
75 – 82	Seminar	Interaction	
83 – 90	Revision		

COURSE PLAN LINUX

Course Description:

This course introduces students to the basic concepts and core functions of the Linux operating system in a stand-alone environment. Students learn basic command structures and capabilities of the Linux operating system, along with the skills required to perform common basic system configuration and management tasks. Typical tasks covered include, but are not limited to installing the operating system, working the command line shell, managing/mounting/creating file systems, file permissions overview, managing and troubleshooting the boot process, task automation, software management and customizing the operating system environment.

Objectives:

- comfortably use basic UNIX/Linux commands from the command line (from a terminal window);
- organize and manage their files within the UNIX/Linux file system;
- organize and manage their processes within UNIX/Linux;
- usefully combine UNIX/Linux tools using features such as filters, pipes, redirection, and regular expressions; customize their UNIX/Linux working environment;
- be knowledgeable enough about basic UNIX/Linux shell scripting to be able to successfully read and write bash shell scripts;
- know how to use UNIX/Linux resources to find additional information about UNIX/Linux commands

Sessions	Topic	Method	Remarks
1.	Linux introduction and file system	Lecturing	
2.	Basic Features, Advantages	Lecturing	
3.	Installing requirement,	Using PPT	
4.	Basic Architecture of Unix/Linux system, Kernel, Shell	Using PPT	
5.	Linux File system - Boot block, Super block, Inode table, Data blocks	Using PPT	
6.	Linux standard directories	Lecturing	
7.	Commands for files and directories	Lecturing	
8.	cd, ls, cp, rm, mkdir, rmdir, pwd, file, more, less,	Practicals	
9.	Creating and viewing files using cat, file comparisons	Practicals	
10.	View files	Lecturing	
11.	disk related command	Lecturing	
12.	checking disk free spaces.	Lecturing	
13.	Revision		

14.	Test		
15.	Understanding shells	Using PPT	
16.	Processes in Linux	Lecturing	
17.	process fundamentals connecting processes with pipes	Lecturing	
18.	redirecting input/output,	Practicals	
19.	Background processing,	Lecturing	
20.	Mmanaging multiple processes	Lecturing	
21.	scheduling of processes, Batch commands, kill, ps, who	Lecturing	
22.	Printing commands, find, sort, touch, file	Lecturing	
23.	file processing commands - wc, cut, paste etc	Practicals	
24.	mathematical commands - expr, factor etc	Lecturing	
25.	Creating and editing files with vi editor	Using PPT	
26.	Revision		
27.	test		
28.	Common administrative tasks	Lecturing	
29.	identifying administrative files – configuration and log files	Lecturing	
30.	Role of system administrator	Lecturing	
31.	Managing user accounts-adding & deleting users, changing permissions and ownerships	Lecturing	
32.	Creating and managing groups, modifying group attributes	Practicals	
33.	Temporary disabling of user's accounts, creating and mounting file system	Lecturing	
34.	checking and monitoring system performance - file security & Permissions, becoming super user using su	Lecturing	
35.	Getting system information with uname, host name, disk partitions & sizes, users, kernel	Lecturing	
36.	installing and removing packages with rpm command	Using PPT	
37.	Revision		
38.	Test		
39.	Basics of shell programming	Lecturing	
40.	various types of shell available in Linux	Lecturing	
41.	comparisons between various shells	Lecturing	
42.	shell programming in bash	Lecturing	
43.	Revision		
44.	Seminar		

45.	Conditional and looping statements	Lecturing	
46.	case statement	Practical	
47.	parameter passing and arguments	Lecturing	
48.	Shell variables, system shell variables, shell keywords	Lecturing	
49.	Creating Shell programs for automating system tasks	Lecturing	
50.	Revision		
51.	Seminar		
52.	Seminar		
53.	Simple filter commands – pr, head, tail, cut, sort, uniq, tr	Practical	
54.	Filter using regular expression – grep, egrep, sed	Using PPT	
55.	Seminar		
56.	Seminar		
57.	DHCP, DNS, Squid, Apache, Telnet, FTP,Samba	Using PPT	
58.	Seminar		
59.	Qp Discussion		
60.	Qp Discussion		

Books of study:

1. “Red Hat Linux Bible” by Cristopher Negus, Wiley DreamtechIndia
2. “UNIX Shell Programming” by YeswantKanethkar, BPB

References:

1. “Official Red Hat Linux User’s guide” by Redhat, Wiley DreamtechIndia
2. “UNIX for programmers and users” by Graham Glass & King Ables, Pearson Education
3. “Beginning Linux Programming” by Neil Mathew & Richard Stones, Wiley DreamtechIndia

COURSE PLAN
COURSE : Operation Research

Course Description: This course mainly focus on solution of L.P.P in Operation Research

Objectives:

To gain Knowledge about various optimization techniques in O.R relating to business and management

Sessions	Topic	hours	Method	Remarks
1.	Introduction.Origin and Development of O.R	3	Lecturing	Module I
2.	Objectives of O.R	3	Lecturing	
3.	Modelling and types of models in OR	2	Lecturing	
4.	Linear Programming problems	3	Lecturing	Module II
5.	Graphic method	3	Lecturing	
6.	Graphic Method	2	Lecturing	
7.	Simplex Method	3	Lecturing	
8.	Simplex Method	3	Lecturing	
9.	Duality	3	Lecturing	
10.	Duality	3	Lecturing	
11.	Duality	2	Lecturing	
12.	Transportation problem	3	Lecturing	Module III
13.	North west,Least Cost Method	2	Lecturing	
14.	Vogel's Method	3	Lecturing	
15.	UV Method	3	Lecturing	
16.	Assignment Problem	3	Lecturing	

17.	Hungarian Algorithm	2	Lecturing	
18.	Network Analysis	2	Lecturing	Module IV
19.	Calculation of critical path	4	Lecturing	
20.	PERT	4	Lecturing	
21.	Expected Completion Time and its Variance	3	Lecturing	
22.	Seminar	7		
23.	Revision	6		

Core Reference

1. S.C. Gupta and V.K. Kapoor: Fundamentals of Applied Statistics, Sultan Chand and Sons
2. M.Mahajan Statistical Quality Control
3. R.C Gupta: Statistical Quality Control