

Lecture Plan 1

Faculty:-

Semester:-V

Class:-IT

Course Code:-IT-303-F

Subject:-System Programming and System Administration

Unit:-I

S. No.	Topic :- Evolution of components system programming	Time Allotted:-
1.	Introduction System programming and system program. Evolution of major components and its functions	<u>10</u>
2	DiVSION of the Topic Evolution of the Components of a Programming System Assemblers Loaders Macros Compilers	<u>30</u>
3.	Conclusion Students understand the concept of System programming and system programs. Components and its function.	<u>5</u>
4	Question / Answer What is system programming? What are different types of system program?	<u>5</u>

Assignment to be given:-Nil

Reference Readings:- Systems Programming John J. Donovan.

Lecture Plan 2

Faculty:- Semester:- V Class:- IT Course Code:- IT-303-F

Subject:- System Programming and System Administration

Unit:-I

S. No.	Topic :-Software Tools	Time Allotted:-
1.	Introduction Software tools like text editor is used for editing the text. Interpreter is like compiler,ITcompiles the program line by line. Program generator – generates a program by specifying conditions. Debug monitor- is used for setting the breakpoints, displaying the values of variables, debugging the program. Programming enVronment-includes all that which is needed for making a program	<u>10</u>
2	DiVSION of the Topic Text editors and types Interpreters Program generators Debug monitor Programming enVronment	<u>30</u>
3.	Conclusion Students understand the concept of Software tools-text editors, interpreters, program generators, debug monitor, programming enVronment	<u>5</u>
4	Question / Answer What are various types of text editors? What is difference between interpreter and compiler?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Dhamdhere D.M.– “Systems Programming and Operation Systems”

Lecture Plan 3

Faculty:- Semester:- V Class:- IT Course Code:- IT-303-F

Subject:- System Programming and System Administration Unit:-II

S. No.	Topic :-Compiler –OverView of compilation process	Time Allotted:-
1.	Introduction Compiler and its function . Compilation process-Phases of compilation. Incremental compiler.	<u>10</u>
2	DiVSION of the Topic Compiler Functions of compiler Compilation process Phases of compilation Incremental compiler	<u>30</u>
3.	Conclusion Students understand the concept of compilation process and its phases.	<u>5</u>
4	Question / Answer What are the phases of compilation and explain them? What is incremental compiler?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Compiler design –Aho ,Ulman & Sethi

Lecture Plan 5

Faculty:- Semester:- V Class:- IT Course Code:- IT-303-F

Subject:- System Programming and System Administration

Unit:-II

S. No.	Topic :- Loader and its types	Time Allotted:-
1.	Introduction Loaders & its types To avoid possible reassembling of all subroutines when a single subroutine is changed, and to perform the tasks of allocation and linking for the programmer, the general class of relocating loaders was introduced. An example of a relocating loader scheme is that of the Binary Symbolic Subroutine (BSS) loader such as was used in the IBM 7094, IBM 1130, GE 635, and UNIVAC 1108. The BSS loader allows many procedure segments, yet only one data segment. The assembler assembles each procedure segment independently and passes on to the loader the text and information as to relocation and intersegment references.	<u>10</u>
2	DiVSION of the Topic (1) "Compile-and-Go" Loaders (2) General Loaders Scheme (3) Absolute Loaders (4) Subroutine Linkages	<u>30</u>
3.	Conclusion Loaders & its regularities	<u>5</u>
4	Question / Answer Q1. What is loader and explain various loader schemes?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Donovan – "Systems Programming" - McGraw Hill.

Lecture Plan 6

Faculty:- Semester:- V Class:- IT Course Code:-IT-303-F

Subject:- System Programming and System Administration Unit:-II

S. No.	Topic:-Loader continued	Time Allotted:-
1.	Introduction Loader schemes	<u>10</u>
2	DiVSION of the Topic Reallocating loader Direct linkage loader Binders Linking loader overlays	<u>30</u>
3.	Conclusion Covered various loader schemes and overlays.	<u>5</u>
4	Question / Answer What are various loader schemes?	<u>5</u>

Assignment to be given: - Nil

Reference Readings: - Donovan – “Systems Programming” - McGraw Hill.

Lecture Plan 7

Faculty: -

Semester: - V

Class: -IT

Course Code: - IT-303-F

Subject: - System Programming and System Administration

Unit:-III

S. No.	Topic :- Macro language and macro processor	Time Allotted:-
1.	Introduction Macro In its simplest form, a macro is an abbreviation for a sequence of operations. The MACRO pseudo-op is the first line of the definition and identifies the following line as the macro instruction name. Following the name line is the sequence of instructions being abbreviated-the instructions comprising the 'macro' instruction? The definition is terminated by a line with the MEND pseudo-op.	<u>10</u>
2	Division of the Topic (1) Macro Instructions (2) Features Of a Macro Facility (3) Macro Instruction Arguments (4) Conditional Macro Expansion (5) Macro calls within macros (6) Macro Instruction Defining Macros	<u>30</u>
3.	Conclusion Understands the concept of macro, macro instructions and features of macro facility	<u>5</u>
4	Question / Answer Q1. Explain the features of macro facility?	<u>5</u>

Assignment to be given: - Nil

Reference Readings: - Donovan – “Systems Programming” - McGraw Hill.

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Lecture Plan 8

Faculty:-

Semester: - V

Class: -IT

Course Code: - IT-303-F

Subject: - System Programming and System Administration

Unit:-IV

S. No.	Topic :-Unix and features of operating system	Time Allotted:-
1.	Introduction Operating system basics and features like file structure,CPU scheduling . unix basics and features of unix like multitasking ,multiuser system , pattern matching and so on.	<u>10</u>
2	DiVSION of the Topic Operating system-basics Operating system features File structure CPU scheduling Unix basics Unix features	<u>30</u>
3.	Conclusion Understands operating system basics and features ,unix basics and features	<u>5</u>
4	Question / Answer What are the features of unix?	<u>5</u>

Assignment to be given: - Nil.

Reference Readings: - Unix Concept and Applications – Sumitabha Das
Operating systems –GalVn

Lecture Plan 9Faculty:-Semester:- VClass:- ITCourse Code:- IT-303-FSubject:- System Programming and System AdministrationUnit:-IV

S. No.	Topic :-Memory Management and file system	Time Allotted:-
1.	Introduction Managing the memory ,swapping ,demand paging .file system	<u>10</u>
2	DiVSION of the Topic Memory management Swapping Demand paging File system :block, fragments and Inodes Directory structure User to User communication	<u>30</u>
3.	Conclusion Students understand the concept of memory management , file system and user to user communication	<u>5</u>
4	Question / Answer What is file system and directory structure?	<u>5</u>

Assignment to be given:- NilReference Readings:- operating system - GalVn

Lecture Plan 10

Faculty:- Semester:- V Class:- IT Course Code:- IT-303-F
Subject:- System Programming and System Administration Unit:-V

S. No.	Topic :-Getting started with Unix	Time Allotted:-
1.	Introduction Unix architecture-kernel is core of the OS, Command structure –parts of command Basic commands like date ,calendar ...etc. user names and groups ,changing the password, characters with special meaning	<u>10</u>
2	DiVSION of the Topic Unix architecture Command structure Basic commands User names and groups Logging in, Changing the password Characters with special meaning	<u>30</u>
3.	Conclusion Students understands the unix architecture, command structure and some commands	<u>5</u>
4	Question / Answer Can you run Unix commands in Uppercase? What is use of Echo command?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

Lecture Plan 11

Faculty:- Semester:- V Class:- IT Course Code:- IT-303-F

Subject:- System Programming and System Administration Unit:-V

S. No.	Topic :-Unix Documentation	Time Allotted:-
1.	Introduction Unix offers an online facility in the man command .man displays documentation-often called the man documentation-of practically every command on the system.man page is diVded into a number of compulsory and optional sections.	<u>10</u>
2	DiVSION of the Topic Man command NaVgation and search Understanding the man documentation	<u>30</u>
3.	Conclusion Students understood the concept of man documentation. And naVgation and searching	<u>5</u>
4	Question / Answer How do you direct man to use a specific pager say,less?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

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Lecture Plan 12

Faculty:-

Semester:- V

Class:- IT

Course Code:- IT-303-F

Subject:-

System Programming and System Administration

Unit:-V

S. No.	Topic :-file system.	Time Allotted:-
1.	Introduction File is a container for storing information. Directory is folder where you store files and other directories. Unix treats directories and deVces as files. All physical deVces are treated as files.shell is also a file. Operations on file	<u>10</u>
2	DiVSION of the Topic Files and directories Current directory Looking at directory content Absolute and relative path File permissions Operations on files	<u>30</u>
3.	Conclusion Students understood the concept of file system, various commands related to files, file permission and operations on files, changing permission modes.	<u>5</u>
4	Question / Answer What are basic operations on files?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

Lecture Plan 13

Faculty:- Semester:- V Class:- IT Course Code:- IT-303-F

Subject:- System Programming and System Administration Unit:-V

S. No.	Topic :-standard files,Filters and pipelines	Time Allotted:-
1.	Introduction Shell associates three files with the terminal-two for the display and one for the keyboard. These are standard input, standard output and standard error. Filters-commands which accept data from standard input , manipulate ITand write the results to standard output . pipes-when sequence of commands is combined together.	<u>10</u>
2	DiVSION of the Topic Standard files-input,output,error Filters pipelines	<u>30</u>
3.	Conclusion Student understand the concept of standard files –standard input,standard output, standard error, filters and pipelines.various related to them.	<u>5</u>
4	Question / Answer What is filter ? What is pipe and what is pipeline?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

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Lecture Plan 14

Faculty:-

Semester:- V

Class:- IT

Course Code:- IT-303-F

Subject:- System Programming and System Administration

Unit:-V

S. No.	Topic :-process and unix editor	Time Allotted:-
1.	Introduction Process is an instance of a running program. It is identified by the process-id(PID) And its parent PID(PPID).various commands associated with process-ps,ps options,nohup.V Editor-	<u>10</u>
2	DiVSION of the Topic Processes Finding out about processes Stopping background process Unix Editor V	<u>30</u>
3.	Conclusion Students understand the concept of process and various commands associated with it.Also understands the concept of V Editor	<u>5</u>
4	Question / Answer Name three modes of V and how you can switch from one mode to another?	<u>5</u>

Assignment to be given:-

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

Lecture Plan 15

Faculty:- Semester:- V Class:-IT Course Code:- IT-303-F

Subject:- System Programming and System Administration

Unit:-V

S. No.	Topic :-Text manipulation	Time Allotted:-
1.	Introduction Files statistics include operations on files.grep filter searches for a pattern.you can ignore a case when performing a match and select lines not containing the pattern. Comparing files-three commands to compare the files.	<u>10</u>
2	DiVSION of the Topic Inspecting files File statistics Searching for pattern Comparing files	<u>30</u>
3.	Conclusion Students understand the concept of inspecting files, file statistics, searching for pattern, comparing files.	<u>5</u>
4	Question / Answer What is the command for comparing the files?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

Lecture Plan 16Faculty:- Semester:- VClass:- ITCourse Code:- IT-303-FSubject:- System Programming and System AdministrationUnit:-V

S. No.	Topic :-operations on files	Time Allotted:-
1.	Introduction Operations on files include displaying and creating files,copying files, deleting files, renaming files etc. Lp prints the file and can be used to print multiple copies. you can cancel any job with cancel. Sort can sort the file numerically, reverse the sort order, make a case-insensitive sort, merge two sorted files. Cut command is used for splitting the files .	<u>10</u>
2	DiVSION of the Topic Operations on files Printing files Rearranging files Sorting files Splitting files	<u>30</u>
3.	Conclusion Students understand the concept of operations on files, printing files, rearranging files, sorting files, splitting files.	<u>5</u>
4	Question / Answer Can you make a case-insensitive sort ?if yes how?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
 Unix for programmers and users-Glass and Ables

Lecture Plan 17

Faculty:- Semester:- V Class:-IT Course Code:- IT-303-F

Subject:- System Programming and System Administration Unit:-V

S. No.	Topic :-Translating characters and awk utility	Time Allotted:-
1.	Introduction Commands have been handling either entire lines or columns.tr filter manipulates individual characters in a line. Tr translates characters using two expressions but only accepts standard input.ITcan be used to change the case of letters. AWK is not just a command ,ITis a programming language also ITcombines features of several filters.awk can manipulate individual fields in a line. Awk can perform numeric computation.ITuses all the comparison operators.perl is better than awk.	<u>10</u>
2	DiVSION of the Topic Translating characters Awk utility	<u>30</u>
3.	Conclusion Students understood the concept of translating characters and awk utility	<u>5</u>
4	Question / Answer Convert the contents of the file emp.lst to uppercase? What is awk utility?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

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Lecture Plan 18

Faculty:- Semester:- V Class:-IT Course Code:- IT-303-F

Subject:- System Programming and System Administration Unit:-VI

S. No.	Topic :- Shell programming	Time Allotted:-
1.	Introduction A shell is a program that is an interface between a user and the raw operating system. ITmakes basic facilities such as multitasking and pipeling easy to use as well as adding useful file specific features ,like wildcards and I/O redirection.four common shells in use: The bourne shell(sh) The korn shell(ksh) The C shell(csh) The bourne again shell(bash) Wild cards	<u>10</u>
2	DiVSION of the Topic Shell Programming Borne shell C shell Wild cards	<u>30</u>
3.	Conclusion Students understand the concept of shell programming in the borne and C shell	<u>5</u>
4	Question / Answer What is shell programming?what are the types of shell?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

Lecture Plan 19Faculty:- Semester:- VClass:- IT Course Code:- IT-303-FSubject:- System Programming and System Administration Unit:-VI

S. No.	Topic :-simple shell program and constructs	Time Allotted:-
1.	Introduction Shell program or script-file that contains shell commands. A shell program runs in interpretive mode. ITis not compiled to a separate executable file as a c program is. Case is a compact matching construct.expr can perform basic integer computing. while and for loops are used in shell programming. both continue and break can be used in while and for loops.	<u>10</u>
2	DiVSION of the Topic Simple shell program Constructs-while loop For loop If condition Continue break	<u>30</u>
3.	Conclusion Students understood the concept of shell program. And also come to know about constructs and other keywords.	<u>5</u>
4	Question / Answer What is the exit status of a command? What will this construct do and why-while[5] ?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
 Unix for programmers and users-Glass and Ables

Lecture Plan 20

Faculty:- Semester:- V Class:-IT Course Code:- IT-303-F
Subject:- System Programming and System Administration Unit:-VI

S. No.	Topic :-interactive shell scripts and advanced features	Time Allotted:-
1.	Introduction Read command is used for making scripts interactive. The shell has two types of operators to group commands: () statements enclosed are executed in a sub shell {} statements enclosed are executed in a current shell only. Export is used for exporting shell variables You can also generate a file name from the system date And many more features	<u>10</u>
2	DiVSION of the Topic Interactive shell scripts Advanced features	<u>30</u>
3.	Conclusion Students understand the concept of interactive shell scripts and advanced features	<u>5</u>
4	Question / Answer	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

Doc. No.: DCE/0/15

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Lecture Plan 21

Faculty:- Semester:- V

Class:- IT Course Code:- IT-303-F

Subject:- System Programming and System Administration

Unit:-VII

S. No.	Topic :- System administration	Time Allotted:-
1.	Introduction System administrator uses the root user account ,though any user can also invoke the su command to acquire superuser powers. The administrator can change the attributes of any file and kill the process.he can also change the system date and use wall to address all users. He can also maintain user accounts.	<u>10</u>
2	DiVSION of the Topic Definition of system administration Booting the system Maintaining the user accounts	<u>30</u>
3.	Conclusion Student understood the system administration which includes booting the system, maintaining user accounts.	<u>5</u>
4	Question / Answer Where are the administrator 's commands located? What are five functions that can't be performed by a nonpriVleged user?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

Lecture Plan 22

Faculty:- Semester:- V Class:- IT Course Code:- IT-303-F

Subject:- System Programming and System Administration Unit:-VII

S. No.	Topic :-file system and backups.	Time Allotted:-
1.	Introduction File system related administrative tasks are ensuring the integrity of the file system, checking disk usage , assigning quotas , creating file systems. Backups – tar accepts directory and filenames directly on the command line.The –c key option to copy files to the backup deVce. Restoration – files are restored with the –x key option.	<u>10</u>
2	DiVSION of the Topic File system Special files Backups and restoration Roles of a system manager	<u>30</u>
3.	Conclusion Students understand the concept of files system, backups and restoration.Also understands the concept system manager	<u>5</u>
4	Question / Answer What are the commands for backups and restoration?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- Unix Concept and Applications – Sumitabha Das
Unix for programmers and users-Glass and Ables

Doc. No.: DCE/0/15
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Lecture Plan 23

Faculty:- Semester:- V Class:- IT Course Code:- IT-303-F

Subject:- System Programming and System Administration Unit:-VII

S. No.	Topic :-OverView of linux.	Time Allotted:-
1.	Introduction Linux is a popular, freely distributable operating system, and is a Vable alternative to Microsoft Windows. Linux is the fastest-growing server-side operating system today.	<u>10</u>
2	DiVSION of the Topic OverView of linux Features of linux	<u>30</u>
3.	Conclusion Students understand the basics of linux operating system	<u>5</u>
4	Question / Answer Is linux open source?	<u>5</u>

Assignment to be given:- Nil

Reference Readings:- operating system -GalVn