

# DEPARTMENT OF INFORMATION TECHNOLOGY

## NITK, SURATHKAL

<b>Course Code:</b>	<b>IT202</b>	<b>Course Title:</b>	<b>Unix Programming and Practise</b>
<b>Core/Elective/MLC :</b>	<b>Core</b>	<b>L-T-P :</b>	<b>(1-0-3)3</b>
<b>Type of Course:</b> <b>(Lecture/Tutorial/Seminar/Project)</b>	<b>Lecture</b>	<b>Course Instructors</b>	<b>Ms. Sangeetha</b> <b>Ms. Deepthi.L</b>

### Course Objectives:

The objective of this course is to provide a comprehensive introduction to Unix utility commands and shell programming. At the end of the course students will have the fundamental skills required to write simple and complex shell scripts to automate jobs and processes in the UNIX environment.

### Course Outcomes:

On completion of this course, students should be able to:

- ❖ **CO1:** To understand the concept about architectural design of the UNIX Operating system.
- ❖ **CO2:** To identify and implement UNIX commands and utilities.
- ❖ **CO3:** To effectively use the software development tools such as editors, compilers, debuggers and profilers.
- ❖ **CO4:** Acquire knowledge about filters and pipes to process unix files.
- ❖ **CO5:** To develop shell scripts to perform more complex tasks
- ❖ **CO6:** To create and manage simple file processing operations, organize directory with appropriate security.

### Detailed Course plan:

WEEKS	TOPICS	DETAILS ABOUT THE TOPICS
1-2	Introduction	Unix OS, History, Features, Architecture, Basic Utility Commands such as cp, mv, mkdir, rm, ls, grep, find, sed
3-4	General Purpose Utilities and File System	Cal, date, echo, printf, bc, script, mailx, passwd, who, uname, tty, sty, File System, File handling command such as cat, cp, rm, wc, cmp, diff, gzip, gunzip, pwd

		File Attributes, Ownership and Permissions
5-7	vi Editor	Basics, Input mode and ex mode, Navigation, Editing text, Undoing Last Editing Instructions, Repeating the Last Command, Searching for a pattern, Substitution
8-9	Shell and Shell programming	The shell's interceptive cycle, shell offering, Pattern matching, Escaping and Quoting, Three standard files, Two special files, Pipes, tee, Command substitution, Shell variables
10-11	Process	Basics, ps, Internal and External commands, Process states and zombies, nice, at, batch, mesg, cron, time
12-15	Filters Compilers Debuggers Profilers	pr, head, tail, cut, paste, sort, uniq, tr How and why to use compilers, Running and optimizing programs and How and why to use debuggers. Debugging programs How and why to use profilers. IDE(Eclipse)

### Grading scheme:

#### Theory - 60%

Mid Sem ----- 20%  
End Sem ----- 40%

#### Lab - 40%

Lab Assignments ----- 15%  
Mini Project-----15%  
End Sem Lab -----10%

### Reference Textbooks

- 1.Sumitaba Das, UNIX Concepts and Applications
- 2.Richard W Stevens, UNIX Network Programming , Prentice Hall PTR
- 3.Roderick Smith O'Relly , UNIX Power Tools