

**T. Y. B. C. A. Semester 5**  
**Effective From: June 2013.**

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**Paper No.: 502 (Core Paper-2)**

**Teaching Hours: 4 Hrs./Week**

**Paper Title: UNIX & Shell Programming**

**Credits: 4**

**Prerequisite: Fundamental Knowledge of Operating System.**

**Aim: To provide basic knowledge of Multi-User Operating System.**

**Expected Outcome: The students will understand the concepts of Multi-User Operating System and will be able to work with such Operating System.**

**1. Introduction**

- 1.1. Features
- 1.2. System Structure
- 1.3. Shell & its Features
- 1.4. Kernel
- 1.5. Architecture of the UNIX OS

**2. Overview**

- 2.1. Logging in & out
- 2.2. I node and File Structure
- 2.3. File System Structure and Features
- 2.4. Booting Sequence & init process
- 2.5. File Access Permissions

**3. Shell Programming**

- 3.1. Screen Editor (vi)
- 3.2. Environmental & user defined variables
- 3.3. Argument Processing
- 3.4. Shell's interpretation at prompt
- 3.5. Arithmetic expression evaluation
- 3.6. Control Structure
- 3.7. Redirection
- 3.8. Background process & priorities of process
- 3.9. Conditional Execution

**4. Advanced Shell Programming**

- 4.1. Filtering utilities
- 4.2. awk
- 4.3. Batch Process
- 4.4. Splitting, Comparing, Sorting, Merging & Ordering Files
- 4.5. Communications with other users

**VEER NARMAD SOUTH GUJARAT UNIVERSITY – SURAT**  
**Bachelor of Computer Application (B.C.A) 3<sup>rd</sup> Year**  
**Proposed Syllabus (As Per CBCS)**

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**Reference Books:**

1. Stephen G Kochan, Patrick Wood, Unix Shell Programming, 3rd Edition – Sams Publishing
2. Dale Dougherty, Arnold Robbins, sed & awk, 2nd Edition – O'Reilly Media
3. Kernighan & Pike – The UNIX Programming Environment - PHI
4. M. J. Bach - The design of the UNIX OS –Prentice Hall
5. A. S. Godbole - Operating Systems - Tata McGraw Hill.
6. Vijay Mukhi - Working with UNIX BPB Publications
7. Vijay Mukhi - UNIX Shells – BPB Publications.
8. Das - UNIX System Concepts & Applications - Tata McGraw Hill.
9. Yashwant Kanetkar, UNIX & Shell Programming, BPB Publications.