

## Course: 502 : UNIX & Shell Programming

Course Code	502
Course Title	UNIX & Shell Programming
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation etc.)
Review / Revision	June 2016
Purpose of Course	To provide basic knowledge of Multi-User Operating System.
Course Objective	To make students aware of basic concepts of Multi-User Operating System. To make students learn Shell Programming.
Pre-requisite	Fundamental knowledge of Operating System.
Course Out come	The students will understand the concepts of Multi-User Operating System and will be able to work with such Operating System. The students will also be able to do shell programming in UNIX environment.
Course Content	<p><b>Unit 1. Introduction</b></p> <ol style="list-style-type: none"> <li>1.1. Features of Unix OS</li> <li>1.2. System Structure</li> <li>1.3. Shell &amp; its features</li> <li>1.4. Kernel</li> <li>1.5. Architecture of the UNIX OS</li> </ol> <p><b>Unit 2. Overview</b></p> <ol style="list-style-type: none"> <li>2.1 Logging in &amp; out</li> <li>2.2 I node and File Structure</li> <li>2.3 File System Structure and Features</li> <li>2.4 Booting Sequence &amp; init process</li> <li>2.5 File Access Permissions</li> </ol> <p><b>Unit 3. Shell Programming</b></p> <ol style="list-style-type: none"> <li>3.1 Screen Editor (vi)</li> <li>3.2 Environmental &amp; user defined variables</li> <li>3.3 Argument Processing</li> <li>3.4 Shell's interpretation at prompt</li> <li>3.5 Arithmetic expression evaluation</li> <li>3.6 Control Structure</li> <li>3.7 Redirection</li> <li>3.8 Background process &amp; priorities of process</li> <li>3.9 Conditional Execution</li> </ol> <p><b>Unit 4. Advanced Shell Programming</b></p> <ol style="list-style-type: none"> <li>4.1. Filtering utilities: grep, sed etc.</li> <li>4.2. awk utility</li> <li>4.3. Batch process</li> <li>4.4. Splitting(cat, cut, head and tail), comparing(cmp, comm., diff), Sorting(sort), Merging &amp; Ordering files (paste, uniq)</li> </ol> <p><b>Unit 5. Communication with other users</b></p> <ol style="list-style-type: none"> <li>5.1 write, wall and mesg</li> <li>5.2 mail, motd and news</li> </ol>

Reference Books	<ol style="list-style-type: none"> <li>1. Unix Shell Programming, 3rd Edition, Stephen G Kochan, Patrick Wood – Sams Publishing</li> <li>2. Unix Shell Programming-3<sup>rd</sup> edition, Stephen G Kochan &amp; Patrick Wood –Sams Publishing.</li> <li>3. Sed &amp; awk -2<sup>nd</sup> edition, Dale Dougherty &amp; Arnold Robbins, - O'Reilly Media.</li> <li>4. The Unix Programming Environment, Kernigham &amp; Pike –PHI.</li> <li>5. The Design of the UNIX OS, M. J. Bach – Prentice Hall.</li> <li>6. Operating Systems, A. S. Godbole –Tata McGraw Hill.</li> <li>7. Working with UNIX, Vijay Mukhi –BPB Publications.</li> <li>8. UNIX Shells, Vijay Mukhi –BPB Publications.</li> <li>9. UNIX System Concepts &amp; Applications, Das –Tata McGraw Hill.</li> <li>10. UNIX &amp; Shell Programming, Yashwant Kanetkar –BPB Publications.</li> </ol>
Teaching Methodology	Class Work, Discussion, Self-Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment.