Course Type	Course Code	Name of Course	L	T	P	Credit
DSC1	NCSC101	Introduction to Unix and Software Tools	3	0	0	3

Course Objective

The objective of the course is to present an introduction to the Unix Operating System and common Software Tools and Platforms.

Learning Outcomes

Upon successful completion of this course, students will:

- have fundamental understanding of the *nix platforms and common utilities useful for day-to-day operation
- have knowledge about basic web development
- have a basic understanding of creating structured documents through LaTeX
- have familiarisation with the Python Environment

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1.	**Introduction to Unix:** Basic Unix Commands, The Shell, Unix File System, Make File, File Handling, File Attributes, Basics of vi Editor	8	Familiarization with the Unix Operating System
2.	**Bash Shell**: Basics, Filters, Filters Using Regular Expressions, Essential Shell Scripting	8	Learn basics of Shell Programming
3.	**Basic network Commands:** telnet, ftp, sftp, ping; Concept of DNS, ssh, Use of Web Proxies	6	Understand basics Unix Networking Concepts
4.	**Basic Web Development:** Introduction to Client-Server Applications, Creating static Web Pages using HTML and CSS	4	Introduction to web development and related technologies
5.	**Version Control:** Importance of Version Control, History of Version Control Systems (CVS, Mercurial, SVN), Basics of git, Using Github for versioning projects	4	Importance of versioning code and Git tools
6.	**LaTeX:** Difference between Structured and Unstructured Documents, Introduction to LaTeX and BibTeX, Creating PDFs using pdfTeX, Introduction to Overleaf.com	6	Preparing documents with LaTeX
7.	**Python Scripting:** Python as a Scripting Language, Python 2 vs Python 3, Installing and setting up Python CLI, Creating and executing simple Python scripts on CLI	6	Introduction to Python Command line Tools

Text Books:

1. Sumitabha Das : "Unix Concepts and Applications", Latest Edition, McGraw –Hill
2. Ethan Watrall, Jeff Siarto: "Head First Web Design", Latest Edition, O'Reilly Media, Inc.
3. Raju Gandhi: "Head First Git", Latest Edition, O'Reilly Media, Inc.
4. Stefan Kottwitz: "LaTeX Beginners Guide", Latest Edition, O'Reilly Media, Inc.
5. Alfredo Deza, Noah Gift: "Python Command Line Tools", Latest Edition, O'Reilly Media, Inc.

Reference Books:

1. Brian W. Kernighan, and Rob Pike, "The Unix Programming Environment", Latest Edition PHI
2. Martin C. Brown : "Python: The Complete Reference", Latest Edition, McGraw –Hill