**CSET213 – Linux and Shell Programming**

# Detailed Syllabus

## Module 1 (Contact hours: 8)

Linux and Linux utilities, Architecture of Linux, features of Linux, Introduction to vi editor, Linux commands, File handling utilities, security by file permissions, process utilities, disk utilities, Networking commands, Text processing utilities, backup utilities, User management.

## Module 2 (Contact hours: 8)

Shells need and types, Derived Operators, Linux session, Standard streams, Redirection, Pipes, Tee command, command execution, command-line editing, Quotes, command substitution, job control, aliases, variables, shell/environment customization, Filters, and pipes, File operations.

## Module 3 (Contact hours: 12)

Grep Operation, Grep Commands, Grep Address, Grep Application, Sed Scripts, operation, Unix file structure, File descriptors, System calls and device drivers, File management, File structures, System calls for file management, Directory API, Process and Process Structure, Process table, Viewing processes, System processes, Process scheduling, zombie processes, orphan process, Fork and its operation, Signals functions, unreliable signals, interrupted system calls, Signal sets, File locking, Threats and Vulnerabilities analysis of Linux- direct, indirect, veiled, conditional, Security Measures in Linux-SSH key pair, Scan Log files , Close Hidden ports, Linux Malwares- Botnets, Ransomware, Rootkits, Socket, Socket communications, UDP, TCP, AWK, Shell Scripting and Security- Password Tester, Permissions and Access Control Lists, Shell Scripting for DevOps- Using environment variables, Bash Script