1. Basic computing

* + Operating Systems
  + Managing File on Windows OS
  + Types Of Applications; Open-Source vs Proprietary
  + Surfing the internet
  + Installing Software

1. Introduction to Linux
   * Overview of Linux
   * Linux Architecture
   * Linux Infrastructures (On-Prem Vs Cloud)
2. Virtualization and Intro to Cloud
   * Virtualization Technologies (Primary and Secondary Hypervisors)
   * VMWare:
     1. VMWare Dashboard
     2. Deploying VMs on VMware WorkStation Pro
   * Intro to AWS
3. Installing and Working with CentOS 7

* Basic tools and Commands
* Understanding the file system hierarchy in Linux
* Linux Config Files
* Shell Basics (Aliases, Internal vs External cmds)
* Variables
* Redirecting Output to a file

1. Accessing Servers Remotely
   * Intro Teleworking
   * Deployment of Minimal VMs
   * Using ssh to gain Remote Access
   * Configuring SSH
2. Getting Help On a Linux Server
   * Reading Manual Pages
   * Reading Info Docs
3. Managing Files and Directories
   * Working with files and directories
   * Matching File Names with Shell Expansion
   * Making Links between files
   * Editing files with Vim/Vi
   * Using RegEx
   * Transferring Files
   * Finding and Locating Files
4. System Backup and Recovery
   * Backup strategies and tools (rsync, tar, etc.)
   * Implementing system backups and restores
   * Disaster recovery planning and procedures
5. User and Group Administration
   * Describing user and group concepts
   * Gaining Super User Access
   * Managing Local User Accounts and Passwords
   * Managing Local Group Accounts
   * Group management and resource sharing
   * Controlling access to Files (File Permissions)
   * Managing file system attributes (ACLs, extended attributes)
6. Package Management
   * Working with RPM packages
   * Managing software updates and repositories using YUM and DNF
7. System Services and Processes
   * Managing system services using systemd
   * Process management and monitoring
   * Troubleshooting common service and process issues
8. System Security
   * Implementing secure user authentication (PAM, SSH)
   * Firewalls
     1. Project ONE: Apache Web Server Configuration
   * Configuring firewalls and SELinux
   * Performing system security hardening
     1. Project TWO: Tomcat Deployment
9. Analyzing and Storing Logs
   * Describing System Log Architecture
   * Reviewing Syslog Files
   * Reviewing System Journal entries
   * Diagnosing and resolving common system issues
   * System log analysis and troubleshooting
   * Maintaining Accurate Time on the system
     1. Project THREE: NTP Server Configuration
10. Managing System Networks
    * Describing Networking Concepts
    * Validating Network Configurations
    * Configuring Networking on the CLI
    * Editing Network Configuration files
    * Configuring Hostname and Name Resolution
11. Storage Administration
    * Disk management and partitioning
    * Logical Volume Manager (LVM) configuration and management
    * Managing file systems and storage devices
    * Network File Systems
      1. Project FOUR: Configuring NFS server.
12. Kernel and System Tuning
    * Kernel architecture and configuration
    * Run Levels
    * System performance tuning and optimization
    * Monitoring system resources and performance
    * Swap
13. High Availability and Clustering
    * Introduction to high availability concepts
    * Load balancing with HAProxy; Nginx
14. Shell Scripting and Automation
    * Introduction to Bash scripting
    * Writing and executing shell scripts
    * Automating tasks with shell scripts and cron jobs
15. Migration
    * Review of Chapter 8 (Backup and Recovery)
    * Internal Migration
    * External Migration
16. Configuration Management
    * Intro to SCM
    * Git and GitHub
    * Other SCM Tools
17. Ansible
    * Intro and Benefits of IaaC
    * Ansible roles
18. Containers
    * Intro to Containerization
19. Introduction to Computer Networking

* **PROJECTS:**
  + *Installing Apache webserver.*
  + *Configuring Nginx proxy*
  + *Configuration of HAproxy*
  + *Deployment of Tomcat webserver*
  + *Installation and Configuration of Wordpress*
  + *Configuring Nfs Server*
  + *Setting NTP*
  + *Deploying Nagios/Zabbix*
  + *Configuring DNS Server*