OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

B.Voc. (CYBER SECURITY)

Second Year

(THIRD AND FOURTH SEMESTER)

FOR

2020-21, 2021-22 and 2022-23 Sessions

SYLLABUS

OUTLINE OF PAPERS AND TESTS

FOR

B.VOC(Cyber Security) Second Year(3rd Semester)

2020-21, 2021-22 and 2022-23 Sessions

Code	Title of Paper	Component	Credits	University Examination	Internal Assessment	Max. Marks	Exam. Duration Hours
B.VCS-211	Fundamentals of Operating System	General	4.5	60	40	100	3
B.VCS-212	Ethical Hacking- Level 1	General	4.5	60	40	100	3
B.VCS-213	Web Development Using PHP and MYSQL	Skill	4.5	60	40	100	3
B.VCS-214	Linux	Skill	4.5	60	40	100	3
B.VCS-215	Software Lab – IV	General	4.0	50	50	100	3
B.VCS-216	Software Lab – V	Skill	4.0	50	50	100	3
B.VCS-217	Software Lab – VI	Skill	4.0	50	50	100	3

1. The breakup of marks for the practical will be as under:
   - i. Internal Assessment — 50 Marks
   - ii. Viva Voce (External Evaluation) — 20 Marks
   - iii. Lab Record Program Development and Execution(External Evaluation) — 30 Marks

2. The breakup of marks for the internal assessment for theory Subjects will be as under:
   - i. Average of Both Mid Semester Tests / Internal Examinations — 24 Marks
   - ii. Attendance — 8 Marks
   - iii. Written Assignment/Project Work etc. — 8 Marks

SYLLABUS

OUTLINE OF PAPERS AND TESTS

FOR

B.VOC(Cyber Security) Second Year(4th Semester)

2020-21, 2021-22 and 2022-23 Sessions

Code	Title of Paper	Component	Credits	University Examination	Internal Assessment	Max. Marks	Exam. Duration Hours
B.VCS-221	Software Engineering	General	4.5	60	40	100	3
B.VCS-222	Ethical Hacking- Level 2	General	4.5	60	40	100	3
B.VCS-223	Software Testing Concepts and Tools	Skill	4.5	60	40	100	3
B.VCS-224	Python	Skill	4.5	60	40	100	3
B.VCS-225	Software Lab – VII	Skill	4	50	50	100	3
B.VCS-226	Project –II	Skill	4	50	50	100	3
B.VCS-227	Software Lab – VIII	General	4	50	50	100	3
B.VCS-228	Environment Studies and Road Safety Awareness*(qualifying paper)			70	30	100	3

1. The breakup of marks for the practical will be as under:
   - i. Internal Assessment — 50 Marks
   - ii. Viva Voce (External Evaluation) — 20 Marks
   - iii. Lab Record Program Development and Execution(External Evaluation) — 30 Marks

2. The breakup of marks for the internal assessment for theory Subjects will be as under:
   - i. Average of Both Mid Semester Tests / Internal Examinations — 24 Marks
   - ii. Attendance — 8 Marks
   - iii Written Assignment/Project Work etc. — 8 Marks

* B. VCS-128: Environment Studies and Road Safety Awareness is a compulsory qualifying paper as per university guidelines, the marks for this paper are not counted for the total marks for the degree.

B.VCS-211 : FUNDAMENTALS OF OPERATING SYSTEM

Max Marks: 60 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35% **Lectures to be delivered: 55-65**

Instructions for the paper setter
The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

Instructions for the candidates
Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Introduction: Operating System as Resource Manager, types of operating system - batch processing, Multiprogramming, Multitasking, time sharing, parallel, distributed and PC operating system. **Operating System Fundamentals**: Components of an OS, Functions of an OS, Types of OS.
Operating System Security: Program Threats, System Threats, Computer Security Classifications, Layers of Computer System, Os Protection principles.
Components of an OS Security Environment: Services**,** Files **,** Memory. Services:- User authentication, Remote access, Administration tasks, Password policies. Files:-Common threats, File Permissions, File Transfer

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SECTION B

Malicious Software and Software Security- Malicious Web, Internet Security Issues, Types of Internet Security Issues, Computer viruses, Spyware, Key-Loggers, Secure Coding, Electronic and Information Warfare. Mobile platform security models- Android, iOSMobile platform security models, Detecting Android malware in Android markets. Security Risk Management- How Much Security Do You Really Need, Risk Management,
Information Security Risk Assessment: Introduction, Information Security Risk Assessment: Case Studies, Risk Assessment in Practice.
Trusted Computing Architecture- Introduction to Trusted Computing, TPM Provisioning, Exact Mechanics of TPM.
Reference Books:

1. Hansen, Per Brinch, "Operating System Principles", Prentice-Hall.
2. N. Haberman, "Introduction to Operating System Design", Galgotia Publication Semyour
3. MTA Windows of Fundamentals (Microsoft Official Academic Course) [Paperback] Microsoft Official Academic Course.

B.VCS-212 ETHICAL HACKING- LEVEL 1

Max Marks: 60 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35% **Lectures to be delivered: 55-65**

Instructions for the paper setter
The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

Instructions for the candidates
Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Basics of Cyber Security and Ethical hacking: Introduction to Ethical Hacking, Case Studies, Elements of Information Security, Threat Categories, Methodologies/Phases of Ethical Hacking, Types of Hackers, Vulnerability, Threat and Exploit

Networking Concepts: Basics of Networking from WAN, IP Address v4 and v6, Ports and Services, Tracing an IP Address, Measuring the Bandwidth of your Network, Proxy and its Types.
Attack Scenarios: IP and Port Scanning, Working on a Live Router, Network Scanning Internal and External, Understanding Network Devices like Switch/Repeater, Default Password Attack, Securing an Organizational Network, Securing a Home Network, Tool set for Smartphone for Network Security
Information Gathering: WHOIS and Way Back Machine, Extracting Information from SNMP, DNS Enumeration, Service Discovery Through Ports, LDAP and NTP Enumeration, Security from Enumeration
Basics of Google Ethical Hacking: Google Hacking, Searching for Open Cameras by Google Hacking

SECTION B

Antivirus: Virus, Virus and Its types, Virus and Worm, Malware Detection, Demonstrating Virus, Scanning a file with different antivirus for free, Recommending an Antivirus for your Complete Security
Stolen Laptop or Mobile Tracing: Recommended Tools to install on your Mobile or Laptop, Tracing your lost device, Reporting to the Police
Email and Social Networking Ethical Hacking: Email E-Hacking, Tracing Email, Email Account E-Hacking , Secure your Email Accounts, Gmail Security, Facebook Security, Instagram Security, LinkedIn Security
Ethical Hacking Windows: Server and client, Deep Freeze, Binder, Drive lock, Key Logger, Mobile Key Logger, Host.
Digital Forensics and USB Ethical Hacking: Recover data from the USB Pen drives, Hard Disk Drive – Police Forensic way, Permanent Data Deletion, USB password recovery, Auto copy USB, Restrict the use of External Drive.
Windows Password Recovery: Making USB Pen Drive Bootable, Booting an OS by UEFI and Legacy, MBR & GPT Hard disk Enumeration for Root kits, BIOS Attacks & Security, Password

Bypass, Getting the Administrator/Root access, Running Exploits, Clearing Tracks, Securing the Windows,

Account with SAM Lock Tool, More on Securing Window Administrative Password

Registry Ethical Hacking: Updating the registry, Fixing the loopholes, Group Policy, restrictions

Reference Books:

1. Thomas Mathew, Ethical Hacking, 0571 Publisher, 2003. 13 2.
2. Joel SeatnbraV and George Kurtz, Hacking Exposed: Network Security Secrets & Solutions, Stuart McClure, McGraw-Hill, 2005

B.VCS-213 WEB DEVELOPMENT USING PHP AND MYSQL

Max Marks: 60 **Maximum Time: 3 Hrs. Min Pass Marks: 35%** **Lectures to be delivered: 55-65**

Instructions for the paper setter

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

Instructions for the candidates

Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

PHP: A Brief History of PHP, Introduction to PHP, Syntax, Scope of Variables: Global and Local Variables, Data types, Control Statements, Operators- Arithmetic, Logical, Relational and Bit-Wise operators. Functions, JavaScript functions Local and Global scope, Calling Functions, Defining a Function, Built-in functions. Installing and Configuring PHP on Windows. Installing web site on web server-Apache, WAMP. Creating Arrays, Multidimensional Arrays, Cookies. Document Object Model and Finding Elements. Basic Events, Standard Event Model.

String: Quoting String Constants - Printing Strings - Accessing Individual Characters -Cleaning Strings - Encoding and Escaping -Comparing Strings - Manipulating and Searching Strings – Regular Expressions.

SECTION B

Database Connectivity: Server side programming, Client Side Scripting, WAMP tool, HTML Form Fields (Controls), PHP Form Handling, Form Validations.

Objects: Terminology - Creating an Object - Accessing Properties and Methods - Declaring a Class - Introspection – Serialization Extending PHP.

AJAX: Introduction, Identifiers, Variables, Defined Constants, Operators and Expressions.HTML Form Fields (Controls).

Architectural Overview: The pval/zval Data Type, Parameter Handling, Returning Values, References, Global Variables.

MySql: Data Types, Sql Queries: Creating Database, Creating Table, Inserting, Updating, Deleting Data. Searching, Sorting , Altering table.

Reference Books:

1. Robin Nixon, Learning PHP, MySQL, and JavaScript, Shroff/O'Reilly.
2. Raj Kamal, Internet and Web Technologies, Tata McGraw-Hill.
3. Matt Zandstra, Sams Teach Yourself PHP in 24 Hours, Sams Publishing.
4. Steven M. Schafer, HTML, CSS, JavaScript, Perl, Python and PHP, Wiley India

B.VCS-214 LINUX

Max Marks: 60 **Maximum Time: 3 Hrs. Min Pass Marks: 35%** **Lectures to be delivered: 55-65**

Instructions for the paper setter

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

Instructions for the candidates

Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Introduction: Overview of Linux, Linux's History, Advantages of Linux, Minimum System Requirements; Installing Linux: Choosing Text or Graphics Installation, Setting up your Hard Drive, Understanding the Swap Space, Creating the Linux File-system partition, Setting up the mouse, root password and Ethernet, Configuration X, Selecting packages to Install, Creating the Boot Disk. Using LILO boot manager: Installing LILO, LILO make-file, Updating LILO, Removing or Disabling LILO, Troubleshooting LILO. The Boot Process, Startup Scripts, Shutdown, Halt and reboot, Creating a New Login, Virtual Terminals, Running as root.

Basic Linux Commands : How Linux Commands Work, Command Options & Parameters, Input and Output Redirection, Mian pages, Wildcards : * and ?, Environment Variables, The process status Commands : ps, termination command : kill, the su command, the grep command.

Linux File System : Common types of files, filenames, Inodes, The root directory, How directories are named, Navigating the Linux file System : pwd command, Absolute and relative filenames; cd command, Creating and Deleting files : Cat, Creating Directories, Moving and Copying files, Moving Directories, Removing files and directories, Important directories in the Linux file System : / , /home, /bin, /usr, /usr/bin, /var/spool, /dev, /sbin, /etc.

File and Directory ownership, Groups, Changing group ownership, File Permissions, UMASK Setting, Changing File Permission, Changing directory permissions; Bash : What is Shell ? How the Shell gets Started, The most common Shells;

SECTION B

Shell Scripting: Creating and Executing Shell Programs, Using variables : Assigning a value to a variable, Accessing the value of a variable, Positional Parameters and other Built-In Shell Variables; Special Characters, Conditional Statements : if Statement , case Statement; Iteration Statements : for Statement, while Statement, until Statement, shift Command, select Statement, repeat Statement, Functions.

Editing and Typesetting : Text Editors vi, The vi Editor, Starting vi, vi modes, Inserting Text, Quitting vi, Moving the Cursor, Deleting Text, Copying and Moving Text, Searching and Replacing Text, Setting Preferences.

Linux for System Administrators: System Administration Basics, The root Account, Starting and Stopping the System, Booting from a Floppy, Using LILO to Boot, Shutting Down Linux; Mounting File Systems : Mounting a Floppy, CD-ROM, Creating a New file System, Un-mounting file Systems, Backup and restore: Compressing files with gzip, Using tar and cpio; Setting up your System : Setting the System Name, Using a Maintenance Disk, Forgetting the root Password, Setting the Login Message.

Reference Books:

1. Tim Parker : Linux Unleashed Third Edition, Techmedia, 1999.
2. Tackett, J : Special Edition using LINUX, PHI.
3. Norton, P. : Complete guide to LINUX, Techmedia.
4. Komarinski, M : LINUX System Administration Handbook, AW.
5. SUMITABHA DAS : UNIX Concepts & Application 2nd Edition, Tata McGraw-Hill

B.VCS – 215 SOFTWARE LAB – IV (Based on B.VCS- 212)

Max Marks: 50 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35%

This laboratory course will comprise as exercises to supplement what is learnt under paper B.VCS-212: Ethical Hacking- Level 1

*Maximum Marks for Continuous Assessment: 50

Maximum Marks for University Examination: 50

B.VCS – 216 SOFTWARE LAB – V (Based on B.VCS- 213)

Max Marks: 50 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35%

This laboratory course will comprise as exercises to supplement what is learnt under paper B.VCS-213: Web Development Using PHP and MYSQL

*Maximum Marks for Continuous Assessment: 50

Maximum Marks for University Examination: 50

B.VCS – 217 SOFTWARE LABS – VI (Based on B.VCS- 214)

Max Marks:50 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35%

This laboratory course will comprise as exercises to supplement what is learnt under paper B.VCS-214: Linux

*Maximum Marks for Continuous Assessment: 50

Maximum Marks for University Examination: 50

B.VCS - 221 SOFTWARE ENGINEERING

Max Marks: 60 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35% **Lectures to be delivered: 55-65**

Instructions for the paper setter
The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

Instructions for the candidates
Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Introduction to Software: Definition, Software characteristics, Software components, Software Applications.
Introduction to Software Engineering: Definition, Software Engineering Paradigms, waterfall method, prototyping, Interactive Enhancement, The Spiral model, Fourth Generation Technique.
Software Requirement Specification (SRS): Problem analysis, structuring information, Data flow diagram and data dictionary, structured analysis, Characteristics and component of (SRS).
Planning a Software Project: Cost estimation, uncertainties in cost estimation, Single variable model, and COCOMO model.

SECTION B

System Design: Design Objectives, Design Principles, problem, Partitioning, Abstraction, Top Down and Bottom–up techniques, Structure Design, Structure Charts, Design Methodology, Design Review.
Detailed Design: Module specification, Specifying functional module, data abstraction.
Coding: Coding by Top–down and Bottom–up, Structured Programming, Information Hiding, Programming style, Internal Documentation.

Reference Books:

1. Roger S Pressman, Software Engineering – A Practitioner's Approach, Tata McGraw- Hill.
2. I. Sommerville, Software Engineering, Pearson Education.
3. Pfleeger, Software Engineering, Pearson Education.
4. Carlo Ghezzi, Mehdi Jazayari and Dino Mandrioli, Fundamentals of Software Engineering, Prentice Hall.

B.VCS-222: **ETHICAL HACKING LEVEL 2**

Max Marks: 60 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35% **Lectures to be delivered: 55-65**

Instructions for the paper setter
The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

Instructions for the candidates
Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Firewall: Finding the Password file of Router and Decrypting, Securing Routers and Cameras, Address Resolution Protocol (ARP), Firewall Concepts, Working on Access Controls List, Types of Firewall, Hardware Firewall and its working, Unified Threat Management (UTM), Rules set for Firewall & UTM, Protocols (FTP, Telnet, SSH etc)

Malware Analysis. Working with Trojan, Demonstrating Trojan, Creating Backdoors, Testing for Backdoors in a Software, Types of Trojan, Remote Access Trojan (RAT), Ransomware, Software Firewall.

Social Engineering Attack: Phases of Social Engineering, Types of Social Engineering, Demonstrating Phishing, Working on Live Phishing on External Network, Identity theft, Human Interactions, Attacks: Shoulder Surfing, Tailgating, Eavesdropping, Security from Social Engineering

Steganography (Hide data into images): Steganography and Types, Manual, Tools, NTFS Alternate Data Stream.

Cryptography: Types of Cryptography Algorithms, Objectives, Secure and Unsecure Channels, Drive Encryption & Locking, Encrypting the Whole Disk, Symmetric and Asymmetric, Attacking the Encryption, Cryptanalysis.

Sniffing: Address Resolution Protocol and MAC, Spoofing Attack, Poisoning the DNS, Man, in the Middle (MITM) Attack, Sniffing Protocols, Wireshark in Windows and Linux, Security from Sniffing

SECTION B

Secure Socket Layer (SSL): Determining whether your connection is secure or not, Advance Sniffing Security, SSL: How it works

Google Ethical Hacking: Introduction to Google Ethical Hacking, Using Google Dorks on Google Search Engine, Grabbing Information from other websites using Google, FTP Details, Demonstration of leaking of confidential information on vulnerable website, Securing a website from Google Ethical Hacking.

Data Loss Prevention: Employee Monitoring System, Digital End Point (Data Loss Prevention Software), Email Spoofing & Phone (VOIP)

Wireless Ethical Hacking: Types of Wireless Devices, Wireless Encryption Types, Wireless Network Vulnerability, Exploit testing on a WIFI with Kali, Defending Against Wireless Attacks, Ethical Hacking on Wi-Fi router with WEP|WPA|WPA2 encryption, Securing Wi-Fi Router from being hacked, Introduction on WPA3 Security.

DDOS (Distributed Denial of Service): Categories of DDOS, Bots and Its Case Study, Tools to test for DDOS, Online DDOS Monitoring, Security form DDOS

Kali Linux Advance Tools: Driftnet in Kali, Ettercap and Bettercap, Basics of Metasploit, Basics of Armitage.

Reference Books:

1. Thomas Mathew, Ethical Hacking, 0571 Publisher, 2003. 13
2. Joel SeatnbraV and George Kurtz, Hacking Exposed: Network Security Secrets & Solutions, Stuart McClure, McGraw-Hill, 2005

B.VCS-223 SOFTWARE TESTING CONCEPTS AND TOOLS

Max Marks: 60 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35% **Lectures to be delivered: 55-65**

Instructions for the paper setter
The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

Instructions for the candidates
Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Introduction: What is Automation testing, Which Test Cases to Automate?, Automated Testing Process, Test tool selection, Define the scope of Automation, Planning, Design, and Development, Test Execution, Framework for Automation, Automation Tool Best Practices, Benefits of Automation Testing, Different types of software testing that can be automated, How to Choose an Automation Tool?, Automation Testing Tools

Selenium: Why do we need Selenium?, Selenium with Java vs. Python (pros and cons), Program structure

Testing Techniques:-Structural versus Functional Technique Categories, Verification versus Validation, Static versus Dynamic Testing, Examples of Specific Testing Techniques

Test Administration:-Test Planning, Customization of the Test Process, Budgeting, Scheduling

SECTION-B

Selenium- Web Driver: Introduction to Web driver and Remote vs. Local, Guide to install Web driver, Creating your first script on Web driver, Accessing Forms in Web driver, Accessing Links and Table content in Web driver, Remote web driver

Automation Framework: Advanced Web element access method- Contains, Sibling, Ancestor and etc., Framework designing methods, Framework adaptation, Feature Testing Automation, Report Generation out of Automation, Real time Automation and the Challenges.

PyAutoGUI – Controlling Mouse and Keyboard: Introduction to pyautogui, Accessing Flash content using pyautogui, Controlling Keyboard and Mouse events on web driver.

Reference Books:

1. Anish Chapagain, " Hands-On Web Scraping with Python"
2. Rajeev Gupta,"Selenium WebDriver", Pearson.

3. Mark Collin," Mastering Selenium WebDriver 3.0"

B.VCS-224 PYTHON

Max Marks: 60 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35% **Lectures to be delivered: 55-65**

Instructions for the paper setter
The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

Instructions for the candidates
Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Introduction to Python: Python Installation and Working with Python Understanding Python variables Python basic Operators Understanding python blocks.
Data Types: Declaring and using Numeric data types: int, float, complex Using string data type and string operations Defining list and list slicing, Use of Tuple data type.
Program Flow Control: Conditional blocks using if, else and elif Simple for loops in python For loop using ranges, string, list and dictionaries Use of while loops in python Loop manipulation using pass, continue, break and else Programming using Python conditional and loops block.
Functions Modules and Packages: Organizing python codes using functions Organizing python projects into modules Importing own module as well as external modules Understanding Packages Powerful Lamda function in python Programming using functions, modules and external packages.

SECTION-B

String List and Dictionary Manipulations: Building blocks of python programs Understanding string in build methods List manipulation using in build methods Dictionary manipulation Programming using string, list and dictionary in build functions.
File Operation: Reading config files in python Writing log files in python Understanding read functions, read(), readline() and readlines() Understanding write functions, write() and writelines() Manipulating file pointer using seek Programming using file operations.
Reference Books:

1. Downey, Allen B. (May 2012). Think Python: How to Think Like a Computer Scientist (Version 1.6.6 ed.). ISBN 978-0-521-72596-5.
2. Hamilton, Naomi (5 August 2008). "The A-Z of Programming Languages: Python". Computerworld. Archived from the original on 29 December 2008. Retrieved 31 March2010.
3. Lutz, Mark (2013). Learning Python (5th ed.). O'Reilly Media. ISBN 978-0-596-15806-4.
4. Pilgrim, Mark (2004). Dive Into Python. Apress. ISBN 978-1-59059-356-1.
5. Pilgrim, Mark (2009). Dive Into Python 3. Apress. ISBN 978-1-4302-2415-0.

B.VCS - 225 SOFTWARE LAB – VII (Based on B.VCS- 223 and 224)

Max Marks: 50 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35%

This laboratory course will comprise as exercises to supplement what is learnt under paper B.VCS-223: Software Testing Concepts and Tools and B.VCS: Python

*Maximum Marks for Continuous Assessment: 50

Maximum Marks for University Examination: 50

B.VCS - 226 PROJECT II

Max Marks: 50 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35%

In This course student will have to submit a Project with Report to the supervisor.

a. Project Report 25 Marks

b. Viva Voce 25 Marks

B.VCS - 227 SOFTWARE LAB – VIII(Based on B.VCS -222)

Max Marks: 50 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35%

This laboratory course will comprise as exercises to supplement what is learnt under paper B.VCS- 222: Ethical Hacking-Level 2

*Maximum Marks for Continuous Assessment: 50

Maximum Marks for University Examination: 50