

Examination Scheme

for

Diploma in Cyber Security and Ethical

Hacking

w.e.f. 2025-2026

(Choice Based Credit System)



CH. BANSI LAL UNIVERSITY

BHIWANI



Chaudhary Bansi Lal University, Bhiwani

(Established under Govt of Haryana Act No 25 of 2014)

Study & Evaluation Scheme of Diploma in Cyber Security and Ethical Hacking

Summary

- **Programme:** Diploma in Cyber Security and Ethical Hacking
- **Eligibility:** 10+2 with 50% marks
- **Duration:** One Year full time (Annual System)
- **Medium:** English/Hindi
- **Minimum Required Attendance:** 75%
- **Total Credits:** 22

Assessment/ Evaluation

Internal Marks	External Marks	Total Marks
10	40	50

Internal Evaluation

Minor Test	Attendance	Assignment
05	03	02

Duration of Examination

External	Minor Test (Internal)
3 hrs	1 Hr

To qualify the course, a student is required to secure a minimum of 40% marks in aggregate including the end semester examination and internal evaluation (i.e. both internal and external). A candidate who secures less than 40% of marks in a course shall be deemed to have failed in that course. The student should have at least 40% marks in aggregate to clear the semester.

Question Paper Structure

1. The paper shall consist of 9 questions. Out of which, first question shall be of short answer type and will be compulsory. Question No. 1 shall contain 8 parts representing all units of the syllabus and students shall have to answer all parts.
2. The remaining 8 questions shall have internal choice. The weightage for each question shall be 8 marks.

Scheme of Examination for Diploma in Cyber Security and Ethical Hacking

(w.e.f. 2025-2026)

Credits – 22

Marks – 550

Sr. No.	Course Code	Title of the Course	Course Type	Credit			Contact Hours per week			Examination Scheme				Total Marks
										End Term		Practical		
				Theory	Practical	Total	Theory	Practical	Total	External	Internal	External	Internal	
1	25DCSEH-101	Computer Hardware	CC	2	2	4	2	4	6	40	10	40	10	100
2	25DCSEH-102	Fundamentals of Networking with CCNA	CC	2	2	4	2	4	6	40	10	40	10	100
3	25DCSEH-103	Python Language with AI	CC	2	2	4	2	4	6	40	10	40	10	100
4	25DCSEH-104	Virtual Machine operating System	CC	2	2	4	2	4	6	40	10	40	10	100
5	25DCSEH-105	Cyber Security	CC	2	2	4	2	4	6	40	10	40	10	100
6	25DCSEH-106	Cyber Laws and BNS, BNSS	CC	2	--	2	2	--	2	40	10	--	--	50
	Total			12	10	22	12	20	32	240	60	200	50	550

Note:

1. Paper 25DCSEH-101, 25DCSEH-102 and 25DCSEH-103 will be taught in first term and 25DCSEH-104, 25DCSEH-105 and 25DCSEH-106 will be taught in second term.
2. Examinations may be held on demand basis.

25DCSEH-101	Computer Hardware	2L:0T:4P	4 Credits
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Maximum Marks:100
External Examination: 40
Internal Assessment: 10
Practical External Examination: 40
Practical Internal Examination: 10
Max. Time: 3 Hrs

Course Objectives:

1. To understand the basics of computer hardware.
2. To provide the detail of various components of computer parts.
3. To understand the Central Processing Unit & main Board.
4. To understand the memory management of computer.

Examiner Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.

Instructor Note: In practical component the teacher concerned/instructor will ensure minimum 15 programs / case studies execution during the laboratory work.

UNIT-I

Computer Fundamentals and Basic of Power System: -

Identify different Ports of a computer system. Demonstrate configurations and changes in BIOS and CMOS Setup and POST.

UNIT-II

Introduction to SMPS and UPS.

Install Test and Troubleshoot Switch Mode Power supply & UPS (Uninterrupted Power Supply).

UNIT - III

Introduction CPU and Main Board.

Install a CPU on Motherboard & underlying technology used. Install and connect accessories like optical drive, keyboard, mouse, monitor, Printer and Troubleshoot them.

UNIT- IV

Primary & Secondary Memory, Disk Partitioning.

Install RAM, SSD, HDD and explain Primary memory (RAM & ROM) and Secondary Memory in Computer system. Create partition of the HDD, SSD, of computer system (in window and Linux according to user need.

Suggested Readings:

1. RON White, "How Computers Works".

25DCSEH-102	Fundamentals of Networking with CCNA	2L:0T:4P	4 Credits
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Maximum Marks:100
External Examination: 40
Internal Assessment: 10
Practical External Examination: 40
Practical Internal Examination: 10
Max. Time: 3 Hrs

Course Objectives:

1. To understand the basics of computer Network.
2. To understand the Internet and internet configuration.
3. To understand the Data communication.
4. To understand the Cisco Certified Network Associate.

Examiner Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.

Instructor Note: In practical component the teacher concerned/instructor will ensure minimum 15 programs / case studies execution during the laboratory work.

UNIT - I

Introduction of Networking. Computer networks, connect nodes like computer, router, and switches use cable, fiber optics, or wireless signals. Hardware, software, protocols and the connect medium.

UNIT-II

Internet and Internet Configuration. Configure the router or modem and setup a secured connection via internet.

UNIT- III

Data communication and Networking. Explain working principle of communication and utility of network in a big system. connect computer in a network system and able to share, files, printers or other resources in a system.

UNIT-IV

Fundamentals of CCNA. Cisco Certified Network Associate is covers networking fundamentals, IP server, Security Fundamentals, automation and Programmability. Routing and Switching Essentials, Scaling Networks, knowledge of service Provider, Design network methodologies, wireless config.

Suggested Readings:

1. Wendell Odom, "CCNA 200-301" *volume 1*.

25DCSEH-103	Python Language with AI	2L:0T:4P	4 Credits
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Maximum Marks:100
External Examination: 40
Internal Assessment: 10
Practical External Examination: 40
Practical Internal Examination: 10
Max. Time: 3 Hrs

Course Objectives:

1. To understand the basics of Python programming.
2. To provide the detail of various components of Python.
3. To understand the strings and lists in Python.
4. To understand working of functions in Python
5. To understand files in GUI of Python.

Examiner Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.

Instructor Note: In practical component the teacher concerned/instructor will ensure minimum 15 programs / case studies execution during the laboratory work.

UNIT-I

Introduction of Python, About the real python, material of python, setting up python in windows, macOS, Ubuntu, Linux.

UNIT-II

Strings and String Methods, String Concatenation, Indexing and slicing, manipulate string with methods, interact with user input, working with strings and numbers, streamline your print statement, Summary and additional resource.

UNIT-III

Functions and Loops. What is a function really, write own function, Convert Temperatures, track your investments, understand scope in python, Summary and additional resources.

UNIT-IV

Graphical User Interface. Add GUI Elements with easy GUI, Example apps, introduction to Tkinter, working with widgets, Controlling layout with Geometry managers, Summary and additional resource.

Suggested Readings:

1. E. Balagurusamy, *"Introduction to Computing and Problem Solving Using Python"*, McGrawHill Education.
2. Rao R. Nageswara, *"Core Python Programming"*, Dream Tech, New Delhi.
3. Michael Heydt, *"Learning Pandas: High performance data manipulation and analysis using Python"*, Packt Publishing Limited, 2nd Edition.
4. Fabio Nelli, *"Python Data Analytics"*, A Press, 1st Edition.

25DCSEH-104	Virtual Machine Operating System	2L:0T:4P	4 Credits
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Maximum Marks:100
External Examination: 40
Internal Assessment: 10
Practical External Examination: 40
Practical Internal Examination: 10
Max. Time: 3 Hrs

Course Objectives:

1. To understand the basics of Operating Systems.
2. To understand the Virtual Machine.
3. To understand the Installing and Configuration.
4. To understand the System Access and File System.

Examiner Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.

Instructor Note: In practical component the teacher concerned/instructor will ensure minimum 15 programs / case studies execution during the laboratory work.

UNIT-I

Introduction of Linux, Windows and Virtual Machine, Difference between Linux and windows, using window and Linux, what is oracle virtual Box? Downloading oracle virtual Box.

UNIT-II

Installation and Configuration, Downloading and installing oracle virtual Box, creating virtual machine, Linux Distributions, Different way to install Linux and Window, Downloading and installing Linux and window, Linux desktop (GUI), Virtual Machine management, Linux vs Windows.

UNIT-III

System access and File System, Accessing Linux and Window system, New network commands, Connect Linux and window with Virtual machine, Important things remember in Linux and Windows, Introduction to File system, File system navigation Commands and file paths, Linux and windows file types, Soft and hard links, Difference between find and locate command.

UNIT-IV

Linux and windows Fundamentals, Command syntax, File permissions (chmod) File ownership, TAB completion and up arrow keys, adding text, file maintenance command, user account management, switch user and sudo access, monitor user, Linux and window directory service – account authentication. system maintenance commands. Terminal control and commands. recover root password Linux. Environment variables. Finding system information.

Suggested Readings:

1. Abraham Silberschatz and Peter B Galvin, “Operating system concepts”,
2. Archer J Harris, “Operating Systems”.

25DCSEH-105	Cyber Security	2L:0T:4P	4 Credits
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Maximum Marks:100
External Examination: 40
Internal Assessment: 10
Practical External Examination: 40
Practical Internal Examination: 10
Max. Time: 3 Hrs

Course Objectives:

1. To understand the Cyber Security and Ethical Hacking.
2. To understand the Information gathering and digital foot printing.
3. To understand the Social Engineering and Malware Attack.
4. To understand the Vulnerability Assessment and Penetration Testing.

Examiner Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.

Instructor Note: In practical component the teacher concerned/instructor will ensure minimum 15 programs / case studies execution during the laboratory work.

UNIT-I

Introduction of Cyber Security and Ethical hacking, Information Security Overview, Cyber kill chain concepts, Ethical Hacking Concepts, Information Security controls, Protect Data.

UNIT-II

Footprinting Concepts, Footprinting through search Engines, Footprinting through Social Networking sites and web services, DNS and Network Footprinting, Email Footprinting, Footprinting tools, Network Scanning Concepts, Port Service and OS Discovery, Scanning IDS and Firewall.

UNIT-III

Malware Concepts, Apt Concepts, Trojan Concepts, Fireless Malware Concepts, countermeasures, Anti-malware Concepts, Social Engineering Concepts, Insider threats, Identity Theft, Impersonation on social Network, DoS/DDoS Concepts, DoS/DDoS Techniques, DoS/DDoS case study, DoS/DDoS Protection Tools, virus and worm concepts.

UNIT-IV

Vulnerability Assessment Concepts, Vulnerability Assessment Classification and Assessment Types, Vulnerability Assessment solutions, Vulnerability Assessment Tools, Vulnerability Assessment report, System hacking concepts, Gaining Access, covering logs, web server concepts, web application hacking methodology, SQL injection, SQL injection tools, wireless concepts and threats, wireless hacking tools, cryptography concepts, disk encryption, cryptanalysis, cryptography tools, cloud hacking tools, cloud security, serverless computing, container technology, IoT attacks, IoT Concepts, Hacking Android OS and iOS, Mobile Security Guidellines and Tools, Web application Security Testing, Networking Security Testing.

Suggested Readings:

1. Wenliang Du, "Computer and Internet Security"
2. William (2017), "Cryptography and Network Security - Principles and Practice", Pearson Publication

25DCSEH-106	Cyber Laws and BNS, BNSS	2L:0T:0P	2 Credits
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Maximum Marks:50
External Examination: 40
Internal Assessment: 10
Max. Time: 3 Hrs

Course Objectives:

1. To understand the Fundamentals of cyber law.
2. To understand the Internet law.
3. To understand the Electronic record & Property right in India.
4. To understand the Cyberspace and IT Act judicial.

Examiner Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.

UNIT-I

Internet, e-commerce and e-Governance with reference to free market economy, Understanding computers, Internet and Cyber Laws, Conceptual Framework of E-Commerce, E-governance, role of Electronic Signature in E-Commerce with reference to free market economy in India.

UNIT-II

Law Relating to Electronic Record and Intellectual Property Right in India, Legal Aspects of Electronic Records/Digital Signature, the Role and Regulations of certifying authorities of India, Protection on intellectual Property Rights in Cyberspace in India.

UNIT-III

International Efforts Relating to cyberspace Laws and Cyber Crimes, International efforts related to cyberspace laws, Council of Europe (COE), Convention on cyber crimes.

UNIT-IV

Penalties Compensation and offences under the cyberspace and internet in India, Penalties, Compensation and adjudication of violations of Provisions of IT Act and Judicial Review, Some important offences under the cyberspace law and the internet in India, other offences under the Information Technology Act in India.

Suggested Readings:

1. Harish Chander, "*Cyber Law and IT Protection*",
2. Suresh T Viswanathan, "Bharat's The Indian Cyber Law with The Information Technology Act 2000.