	FACULTY OF SCIENCE
	Effective from Academic Batch:2025-26
Programme:	**Master of Science (Cyber Security)**
Semester:	**I**
Course Code:	
Course Title:	**Fundamentals of Internet Technologies**
CourseGroup:	**CORE**

Course Objectives:

- The objective of this course is to provide students with a comprehensive understanding of database systems, focusing on MySQL and MySQL Workbench as practical tools for database management. The course aims to equip learners with the skills to design, create, and manipulate relational databases using SQL, covering both fundamental and advanced queries. Students will explore key concepts such as data types, normalization, relationships, indexing, stored procedures, functions, triggers, and optimization techniques. Additionally, the course emphasizes hands-on practice in database structure management, user access control, and security best practices. By the end of the course, students will be capable of designing secure, efficient, and scalable database applications, and will demonstrate their learning through a real-world project implementation.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	--	--	4	50/20	50/20	--	--	100/40

* **J**: Jury; **V**: Viva; **P**:Practical

Detailed Syllabus:

Sr.	Contents	Hours

1	**Computer Hardware and Operating Systems**
	• Overview of Computer Components
	  ○ Input, Output, and Storage Devices
	  ○ CPU, RAM, ROM, Motherboard
	• Types of Storage
	  ○ HDD, SSD, Optical Drives, USB Drives
	• Power Supply and Cooling Systems
	• Ports and Interfaces
	  ▪ USB, HDMI, VGA, Ethernet, Audio ports
	• Installation and Configuration of Operating Systems
	  ○ BIOS/UEFI, Boot Process
	  ○ OS Installation (Windows and Linux basics
		15

2	**Networking Fundamentals and Devices**
	• Basic Networking Concepts
	  ○ LAN, WAN, MAN, PAN, Internet, Intranet
	• Network Topologies and Protocols
	  ○ TCP/IP, HTTP, FTP, DNS, DHCP
	• IP Addressing
	  ○ IPv4, Subnetting basics
	• Networking Devices
	  ○ Switch, Router, Hub, Modem, Access Point
	• Introduction to Network Security
	  ○ Firewalls, Antivirus, Secure Configuration Basics	

3	**Telecommunications and Internet Connectivity**
	• Internet Technologies
	  ○ ISPs, Broadband, Fiber, DSL, Satellite
	• Wireless Technologies
	  ○ Wi-Fi Standards (802.11 a/b/g/n/ac/ax)
	  ○ Hotspot Creation and Management
	• Mobile Networks
	  ○ Basics of 3G, 4G, 5G Technologies
	• Wi-Fi Devices
	  ○ Wireless Adapters, Range Extenders, Access Point
		15

4	**Mobile Devices and IoT**
	• Introduction to IoT
	  ○ Definition, Architecture, Applications
	• IoT Devices and Communication
	  ○ Smart Home Devices (bulbs, thermostats)
	  ○ Wearables, Smart Appliances
	• Basic IoT Connectivity
	  ○ Zigbee, Bluetooth, MQTT
	• Mobile Devices Overview
	  ○ Smartphones, Tablets, Smartwatches
	• Security and Privacy in IoT
	  ○ Common threats and protection mechanisms
		18

Reference Books:	
1	**"Computer Fundamentals"-** P.K. Sinha, Priti Sinha-BPB Publications
2	**"Networking All-in-One For Dummies"**-: Doug Lowe-: Wiley
Supplementary learning Material:	
1	**Online Tool – PCPartPicker** https://pcpartpicker.com
2	**Free eBook – Operating System Concepts Essentials** https://os-book.com
3	**IoT Simulator Tool** – Cisco Packet Tracer (IoT Mode)

Pedagogy:
● Justify all the topics unit-wise ● Assignments / Quiz / Presentation / Participation for continuous evaluation and assessment ● Internal / External Examination as per the norms of CVM University

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
20	40	15	15	5	5	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Understand the components of a computer system and demonstrate the ability to install and configure basic operating systems.	**25**
CO-2	Explain the fundamental concepts of networking, IP addressing, protocols, and the role of networking devices.	**25**
CO-3	Analyze various internet technologies, mobile networks, and wireless communication standards.	**25**
CO-4	Understand the architecture of IoT systems and demonstrate the usage of mobile and smart devices in a connected environment..	**25**

Curriculum Revision:	
Version:	1.0
Drafted on (Month-Year):	April -2025
Last Reviewed on (Month-Year):	May -2025
Next Review on (Month-Year):	Feb- 2027

	FACULTY OF SCIENCE
	Effective from Academic Batch:2025-26
Programme:	**Master of Science(Cyber Security)**
Semester:	**I**
Course Code:	
Course Title:	**Data Communication and Computer Networks**
Course Group:	**CORE**

Course Objectives:

- The objective of this course is to provide students with a solid foundation in data communication and computer networking principles. It covers fundamental concepts such as data transmission, signal types, bandwidth, error detection, and correction methods. The course explores standard network models, including the OSI and TCP/IP models, and introduces key protocols and standards. Students will learn IP addressing, subnetting, and routing mechanisms, along with essential protocols like ICMP, ARP, DHCP, and DNS. The course further examines transport layer functionalities (TCP vs UDP), congestion control, and application layer protocols including HTTP, FTP, SMTP, and others. Emphasis is placed on network security through topics like cryptography, SSL/TLS, firewalls, and IDS.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	--	--	4	50/20	50/20	--	--	100/40

* **J**: Jury; **V**: Viva; **P**:Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	**Introduction to Data Communication** • Introduction • Network Types • Data Transmission • Bandwidth and Throughput • Communication Principles • Communication Protocols • Communication Standards • Network Communication Models - The OSI Model and Encapsulation - Network	15
2	**IP Addressing** • Principles of Binary Numbering • IPV4 Addressing: IPV4 Address Structure • Classes of Addresses • Types of Addresses	15

	• Assigning IPV4 Addresses • Subnetting IPV4 Addressing: Need for IPV6 • IPV6 Address Structure IPV6 • Address Types - IPV6 Data Flows	
3	**Common Ports and Protocols** • DHCP - DNS - FTP - H.323 - HTTP(s) - IMAP - IMAP over SSL - LDAP LDAPS - MGCP • MySQL - NTP - POP3 - POP3 over SSL - RDP - SFTP - SIP - SMB SMTP - SMTP TLS • SSH - SQLnet - Telnet - TFTRP - IP Protocol Type: TCP, UDP, ICMP, GRE, IPsec, ARP • Routing between the Networks	**15**
4	**Virtualization and Cloud Computing** • Virtualization and Cloud Computing Concepts • Virtual Networking • Cloud Computing Deployment Models • Cloud Computing Service Models • Putting Network Virtualization and Cloud Computing to Work	**18**

Reference Books:	
1	**Data Communications and Networking"** – Behrouz A. Forouzan
2	**Computer Networking: A Top-Down Approach**– James F. Kurose, Keith W. Ross
Supplementary learning Material:	
1	• **Cisco Networking Academy** – https://www.netacad.com/.
2	• **NPTEL Online Networking Courses** – https://nptel.ac.in/
3	• **Coursera - Networking Courses** – https://www.coursera.org/

Pedagogy:

- Justify all the topics unit-wise
- Assignments / Quiz / Presentation / Participation for continuous evaluation and assessment
- Internal / External Examination as per the norms of CVM University

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
20	40	15	15	5	5	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	To understand the fundamentals of data communication including data transmission, signal types, transmission modes, bandwidth, latency, and error detection/correction techniques.	**25**
CO-2	To explain and compare network models such as the OSI and TCP/IP models, and understand networking protocols and standards, along with IP addressing, subnetting, and routing mechanisms.	**25**
CO-3	To analyze and differentiate core internet and transport layer protocols, including ICMP, ARP, DNS, DHCP, TCP, and UDP, as well as understand congestion control techniques and application layer protocols.	**25**
CO-4	To explore advanced networking topics such as network security (encryption, SSL/TLS, firewalls, VPNs), wireless communication (Wi-Fi, Bluetooth, 3G–5G), and modern technologies like cloud computing, SDN, and network virtualization	**25**

Curriculum Revision:	
Version:	1.0
Drafted on (Month-Year):	April-2025
Last Reviewed on (Month-Year):	May- 2025
Next Review on (Month-Year):	Feb-2027

	FACULTY OF SCIENCE
	Effective from Academic Batch:2025-26
Programme:	**Master of Science (Cyber Security)**
Semester:	**I**
Course Code:	
Course Title:	**Ethical Hacking Essentials**
Course Group:	**CORE**

Course Objectives:

The Ethical Hacking Essentials course aims to equip students with a comprehensive understanding of ethical hacking principles and techniques to assess and strengthen security systems. The course covers a wide range of topics, including network vulnerabilities, penetration testing, security protocols, and risk management. Students will learn to identify and exploit weaknesses in computer systems and networks in a controlled and legal manner, with the ultimate goal of enhancing cybersecurity. By the end of the course, learners will have gained practical skills in ethical hacking tools and methodologies, along with an understanding of the ethical and legal considerations involved in penetration testing. This knowledge prepares students to effectively contribute to the protection of digital infrastructure against malicious cyber threats.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	--	--	4	50/20	50/20		--	100/40

* **J**: Jury; **V**: Viva; **P**:Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	**Ethical Hacking Fundamentals:** • Information Security Fundamentals • Information Security Laws and Regulation • Cyber Kill Chain Methodology • Hacking Concepts and Hacker Classes • Different Phases of Hacking Cycle • Ethical Hacking Concepts, Scope, and Limitations • Ethical Hacking Tools • Threat and Threat Sources • Malware and its Types • Vulnerabilities • Vulnerability Assessment	15

2	**Social Engineering Techniques and Countermeasures** • Social Engineering Concepts and its Phases • Social Engineering Techniques • Insider Threats and Identity Theft • Social Engineering Countermeasures • Password Cracking Techniques • Password Cracking Tools • Password Cracking Countermeasures	**15**
3	**Network and Wireless Attacks and Countermeasures** • Sniffing • Packet Sniffing Concepts • Sniffing Techniques - Sniffing Countermeasures • Denial-of-Service Attacks • DoS and DDoS Countermeasures • Cloud Computing Concepts • Container Technology • Cloud Computing Threats • Cloud Attack Countermeasures • Wireless Terminology - Wireless Encryption - Wireless Network-Specific Attack Techniques - Bluetooth Attacks - Wireless Attack Countermeasures	**15**
4	**Mobile & IoT Attacks and Countermeasures** • Mobile Attack Anatomy • Mobile Platform Attack Vectors and Vulnerabilities • Mobile Device Management (MDM) Concept • Mobile Attack Countermeasures • IoT Concepts - IoT Threats and Attacks • IoT Attack Countermeasures • OT Concepts - OT Threats and Attacks - OT Attack Countermeasures	**18**

Reference Books:	
1	**"The Web Application Hacker's Handbook"** by Dafydd Stuttard and Marcus Pinto
2	**"Hacking: The Art of Exploitation"** by Jon Erickson
Supplementary learning Material:	
1	• **Cybrary** (https://www.cybrary.it).
2	• **Wireshark** (https://www.wireshark.org)
3	• **OWASP (Open Web Application Security Project)** (https://owasp.org)
Pedagogy:	
• Justify all the topics unit-wise • Assignments / Quiz / Presentation / Participation for continuous evaluation and assessment • Internal / External Examination as per the norms of CVM University	

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
20	40	15	15	5	5	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Understand and apply ethical hacking principles, tools, and methodologies to assess and mitigate security risks, while adhering to legal and ethical standards.	**25**
CO-2	Understand and apply social engineering concepts, recognize common attack techniques, and implement countermeasures to mitigate risks like phishing, pretexting, identity theft, and password cracking.	**25**
CO-3	Analyze and apply countermeasures to network security threats, including packet sniffing, DoS/DDoS attacks, cloud computing risks, and wireless network vulnerabilities, ensuring comprehensive protection of digital infrastructure.	**25**
CO-4	Analyze and mitigate security risks in mobile devices, IoT systems, and Operational Technology (OT), implementing effective countermeasures and secure practices to protect these platforms from cyber threats.	**25**

Curriculum Revision:	
Version:	1.0
Drafted on (Month-Year):	April-2025
Last Reviewed on (Month-Year):	May -2025
Next Review on (Month-Year):	Feb -2027

FACULTY OF SCIENCE

Effective from Academic Batch: 2025-26

Programme:	**Master of Science (Cyber Security)**
Semester:	
Course Code:	
Course Title:	**Fundamentals of Operating System**
Course Group:	CORE

Course Objectives:

- To provide exposure to the students to the concepts of an operating system.
- To nurture the students to analyze the process synchronization.
- To provide the exposure to the students to the understanding of memory management.
- To raise the opportunity for the students in the field of analysis on a need of a type of Operating System.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		
Lecture	Tutorial	Practical		Internal	External	Internal	External	Total
4	--	--	4	50/20	50/20	--	--	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	**Process Management** Introduction of Process, Process Scheduling, Operations on process, Cooperating Processes, Process Synchronization, Inter-process communication, Communication in client-server systems, Introduction of Threads, Multithreading Models, Basic concept of CPU Scheduling, Scheduling Criteria, Scheduling Algorithms	7
2	**Memory Management** Concept, Basic memory management techniques, Swapping, Demand Paging, Optimal Page Replacement Algorithm, FIFO Page Replacement Algorithm, Memory Allocation, Virtual Memory, Basic method of Paging, Segmentation, Critical Section Problem, Deadlock and characterization, Handling Deadlocks, Deadlock Prevention, Resource Allocation Graph, Banker's Algorithm.	8

3	**Windows** Introduction to Windows, Version of Windows, Operating System Administrator, My Computer, Recycle Bin, Desktop, Drives, working with directory, folders, files, Registry, Formatting a hard disk and loading operating system, Domain, workgroup, Active Directory, User Management, Network Setting, Services, IIS Configuration, Web browsers.	**7**
4	**Linux** Introduction to Linux System, Features of Linux, Basic Commands: login, logout, date, man, pwd, who, dir, ls, cd, mkdir, rmdir, wc, echo Use of Wild card characters, Types of FAP, use of chmod command Basic commands like cat, cp, mv, rm, rev, file redirection, grep, cut, paste, find, sort commands with example, Introduction to shell script: execution of it, shell script variable, expr, test, commands Control structure: if, if…else, case structure, Iteration: while, for	**8**

Reference Books:

1	Andrew S. Tanenbaum, "Modern Operating Systems", 3rd Edition, PHI
2	Stalling William, "Operating Systems", 6th Edition, Pearson Education
3	Silbcrschatz A.,Galvin P., Gagne G., "Operating System Concepts", 8th Edition, John Wiley and Sons
4	Milan Milenkovic, "Operating Systems Concepts and Design", TMGH
5	Das Sumitabha, "Unix Concepts and Applications", 3rd Edition, Tata McGraw Hill, 2003
6	M. J. Bach, "The Design of The Unix Operating System", PHI
7	Charles Crowley, "Operating Systems: A Design-oriented Approach", TMH

Supplementary learning Material:	
1	Intro to Operating Systems 2: Memory Management https://www.coursera.org/learn/codio-intro-to-operating-systems-2-memory-management#syllabus

Pedagogy:

- Classroom sessions
- Online coursework
- Assignments
- MCQ Tests
- Internal Examination

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
20	20	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Illustrate the basics of operating system. Analyze the process life cycle, process states transitions and scheduling algorithms.	**25**
CO-2	Implement and practice memory-management techniques. Analyse how deadlock occurs and resolve deadlock situation.	**25**
CO-3	Work with windows operating system.	**25**
CO-4	Implement basic commands of Linux Operating System.	**25**

Curriculum Revision:	
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Last Reviewed on (Month-Year):	May -2025
Next Review on (Month-Year):	Feb-2027

	FACULTY OF SCIENCE
	Effective from Academic Batch:2025-26
Programme:	**Master of Science (Cyber Security)**
Semester:	**I**
Course Code:	
Course Title:	**Fundamentals of MySQL**
CourseGroup:	**Elective -I**

Course Objectives:

- The objective of this course is to provide students with a comprehensive understanding of database systems, focusing on MySQL and MySQL Workbench as practical tools for database management. The course aims to equip learners with the skills to design, create, and manipulate relational databases using SQL, covering both fundamental and advanced queries. Students will explore key concepts such as data types, normalization, relationships, indexing, stored procedures, functions, triggers, and optimization techniques. Additionally, the course emphasizes hands-on practice in database structure management, user access control, and security best practices. By the end of the course, students will be capable of designing secure, efficient, and scalable database applications, and will demonstrate their learning through a real-world project implementation.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
2	--	4	4	25/10	25/10	25/10	25/10	100/40

* **J**: Jury; **V**: Viva; **P**:Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	**Introduction to MySQL Workbench and Basic Database Management** **Introduction to Databases and MySQL** • Types of Databases: Relational vs. Non-Relational • Overview of SQL and MySQL • Installing MySQL and MySQL Workbench • Introduction to MySQL Workbench: Interface and Navigation • Establishing a Connection to MySQL Server **Basic SQL Queries** • CREATE DATABASE, CREATE TABLE • Basic SELECT, INSERT, UPDATE, DELETE Queries • Introduction to Data Types in MySQL **Filtering and Sorting Data** • WHERE Clause, AND, OR Operators • ORDER BY and LIMIT Clauses • Basic Aggregation: COUNT, AVG, SUM, MIN, MAX	15

2	**Intermediate SQL Queries and Database Design** **Database Normalization and Relationships** • What is normalization? (1st, 2nd, 3rd Normal Forms) • Primary Key, Foreign Key, and Indexes • One-to-many, Many-to-many relationships **Advanced SQL Queries** • JOIN Operations (INNER, LEFT, RIGHT, FULL OUTER) • Aggregation with GROUP BY and HAVING Clauses • Subqueries (Nested, Correlated, Scalar Subqueries) **Managing Database Structure** • ALTER TABLE (Add, Modify, Drop columns) • Using Indexes to optimize queries • Handling Constraints (Unique, NOT NULL, etc.)	
3	**Advanced Database Management and Optimization** **Stored Procedures, Functions, and Triggers** • Understanding and Creating Stored Procedures • Introduction to Functions in MySQL • Creating Triggers (BEFORE, AFTER triggers) **Database Optimization** • Query optimization techniques • Using the EXPLAIN command to analyze query performance • Indexing strategies for performance improvement **Backup and Recovery** • Exporting and Importing Databases • Using MySQL Workbench for creating backups • Restoring data from backups	**15**
4	**User Management, Security, and Final Project** **User Management and Permissions** • Creating and managing MySQL users • GRANT, REVOKE, and SHOW GRANTS commands • User roles and privileges **Security Best Practices** • Securing MySQL Workbench and MySQL Server • Implementing encryption in MySQL • Managing secure connections and SSL configurations **Final Project Overview and Guidelines** • Project goals and objectives • Designing and developing a real-world database application • Implementing advanced SQL queries, stored procedures, and triggers	**18**

List of Practicals / Tutorials:

1	Practicals based on Database Creation
2	Practicals based on Table Creation
3	Practicals based on Basic Queries like select, insert, update, delete
4	Practicals based on Datatypes.
5	Practicals based on Filtering and Sorting Data
6	Practicals based on Normalization and Relationships
7	Practical based on Advanced SQL Queries
8	Practicals based on Managing Database Structure
9	Practicals based on Stored Procedures
10	Practicals based on Functions
11	Practicals based on Triggers.
12	Practicals based on Database Optimization
13	Practicals based on Backup and Recovery
14	Practicals based on User Management
15	Practicals based on Permissions

Reference Books:	
1	**Learning MySQL** - Seyed M.M. Tahaghoghi, Hugh E. Williams - **Publisher:** O'Reilly Media
2	**Database System Concepts (7th Edition)-** Abraham Silberschatz, Henry Korth, S. Sudarshan -McGraw-Hill
3	**"Learning MySQL"** by Seyed Tahaghoghi and Hugh Williams *Publisher: O'Reilly Media*
4	**"MySQL: The Complete Reference"** by Vikram Vaswani *Publisher: McGraw-Hill Education*
5	**"MySQLTutorial"** by Luke Welling and Laura Thomson *Publisher: Addison-Wesley Professional*

Supplementary learning Material:

1	**MySQL Workbench Documentation** for reference.
2	**W3Schools MySQL Tutorial** for SQL basics and examples.
3	**MySQL Official Documentation** for deeper insights into advanced topics.

Pedagogy:

- Justify all the topics unit-wise
- Assignments / Quiz / Presentation / Participation for continuous evaluation and assessment
- Internal / External Examination as per the norms of CVM University

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
20	40	15	15	5	5	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Understand and apply fundamental SQL operations using MySQL Workbench for basic database creation, data manipulation, and retrieval.	**25**
CO-2	Design normalized database schemas and executes intermediate-level SQL queries involving joins, subqueries, and schema modifications.	**25**
CO-3	Implement stored procedures, functions, triggers, and apply optimization and backup techniques to enhance database performance and reliability	**25**
CO-4	Manage database users and security configurations, and develop a complete database project incorporating advanced SQL and best practices.	**25**

Curriculum Revision:	
Version:	1.0
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	FACULTY OF SCIENCE
	Effective from Academic Batch:2025-26
Programme:	**Master of Science (Cyber Security)**
Semester:	**I**
Course Code:	
Course Title:	**Web Technology –I**
CourseGroup:	**Elective -II**

Course Objectives:

- **To impart the basic knowledge of how the web works, the technologies of HTML & CSS required creating presentable webpages. To develop their creative side to think and being able to perceive new ways of designing pages using new releases of HTML & CSS. Acquire skills to develop client-side interfaces through the use of the HTML and Acquire skills to write scripts to solve the problem. To create an opportunity of becoming freelance website designers or work as creative designers in software firms.**

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
2	--	4	4	25/10	25/10	25/10	25/10	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	**Introduction to HTML & Web Page Designing** An introduction to HTML, Structure of an HTML document, HTML basic tags, Text and paragraph formatting, Ordered and unordered lists, nested lists, HTML tables, Hyperlinks, Images, Frames, framesets, nested framesets Designing, HTML forms.	7

2	**Cascading Style Sheet and HTML 5** Concept of CSS, Creating Cascading Style Sheet, CSS Properties ,CSS Styling (Background, Text Format, Controlling Fonts), Way of specifying Style, CSS Color, Working with List and Tables. HTML-5: Overview, Syntax, Attributes, Events, SVG, MathML, Web Storage, Web SQL, Server-Sent Events, Web Socket, Canvas, Audio & Video, Geolocation, Micro-data, Drag & drop, Web Workers, Indexed DB, Web Messaging, Web CORS, Web RTC.	**10**
3	**Advanced Cascading Style Sheets & JavaScript** Fonts, Color, Background, Text, Border, Lists, Layers, Margin, Links, Position, Introduction to Scripting, Client Side Scripting vs. Server Side Scripting, Introduction to JavaScript, Variables, Operators, Conditional Statements, Loops, Dialog box, Prompt box, Alert box.	**7**
4	**Advanced JavaScript** Arrays, User-defined functions, String Object ,Math Object ,Date Object, HTML Form Hierarchy, Accessing Form elements (Text, Radio, Checkbox, Dropdown, Button), Event handling.	**6**

List of Practicals / Tutorials:

1	Practicals based on Basic formatting in HTML.
2	Practicals based on HTML Lists.
3	Practicals based on HTML Images.
4	Practicals based on HTML Hyperlinks.
5	Practicals based on HTML Tables.
6	Practicals based on Frames and Framesets.
7	Practicals based on HTML Forms.
8	Practicals based on basic CSS styling using Fonts, Text, Color, Background properties.
9	Practicals based on styling the borders and controlling the margins.
10	Practicals based on Class and ID selectors.
11	Practicals based on Lists, Layers, Box and Column properties.
12	Practicals based on Positioning elements and Layer properties.
13	Practicals based on basic operators.
14	Practicals based on reading inputs and generating outputs.
15	Practicals based on flow control statements.
16	Practicals based on Arrays and User-defined functions.
17	Practicals based on working with Built-in objects, their properties and methods.
18	Practicals based on HTML 5 Controls.

Reference Books:

1	Kogent Learning Solutions Inc. HTML 5 in simple steps Dreamtech Press
2	A beginner's guide to HTML NCSA,14th May,2003
3	Lynchburg Creating a Web Page and Web Site College Murray, Tom /,2002
4	Wilton P., Jeremy McPeak: Beginning JavaScript, 4th Ed., Wiley Pub.
5	Danny Goodman, Machael Morrison: "JavaScript Bible", 6th Ed., Wiley Pub.
6	Beginning CSS: Cascading Style Sheets for Web Design Wiley India
7	Kogent Learning Web Technologies: HTML, Javascript Wiley India

Supplementary learning Material:

1	Manuals of suitable packages / Online resources
2	World Wide Web Consortium – HTML 5.2 Specifications Link: https://html.spec.whatwg.org/
3	World Wide Web Consortium – HTML & CSS Link: https://www.w3.org/standards/webdesign/htmlcss
4	SWAYAM Portal: swayam.gov.in – HTML
5	https://onlinecourses.swayam2.ac.in/aic20_sp11/preview
6	e-Pg Pathshala: https://epgp.inflibnet.ac.in/ - HTML https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=7

Pedagogy:

- Classroom and Lab sessions
- Multiple Choice Quiz
- Online coursework
- Assignment
- Demonstration of examples
- Internal Examination
- Practice definitions
- Journal writing

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
25	25	15	15	10	10	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual Distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	The knowledge and understanding of internet and understanding basic structure of HTML.	**25**
CO-2	The ability to create simple webpages using HTML tags	**25**
CO-3	The skills to apply various CSS properties to an HTML web page/site.	**25**
CO-4	Designing forms and writing scripts to solve the problem using java scripts and validating the output as per requirement.	**25**

Curriculum Revision:	
Version:	1.0
Drafted on (Month-Year):	April -2025
Last Reviewed on (Month-Year):	May-2025
Next Review on (Month-Year):	Feb -2027