Annexure -A

Under-Graduate Programme in Bachelor of Science (B.Sc.) (Computer Science) / Bachelor of Arts (B.A.) (Computer Applications) / B.Sc. (Physical Science with Computer Science)

Scheme And Syllabus

(NEP-2020)

Effective from

Academic Session 2025-2026

Abbreviations Used:

L	Lectures
T	Tutorials
P	Practical
C	Credits
H	Hours
EE	External Examinations
IA	Internal Assessment
CO	Course Outcomes
UG	Undergraduate
DSC	Discipline Specific Course
AEC	Ability Enhancement Course
VAC	Value Added Course
MC	Minor Course
SEC	Skill Enhancement Course
I/A/P/C	Internship/Apprenticeship/Project/Community Outreach

Semester- I

Sr. No	Course Code	Course Type	Course Title	Contact Hrs/week				C	Semester End Marks	
				L	T	P	H		EE	IA
1.	COMP-101	DSC-A1	Fundamentals of Computers and Office Productivity Tools	**4**	**0**	**0**	**4**	**4**	70	30
2.		DSC-B1	To be chosen from other streams	-	-	-	-	**4**	70	30
3.		MC-1	To be chosen from other streams	-	-	-	-	**4**	70	30
4.		MDC- 1	To be chosen from corresponding Multidisciplinary pool	-	-	-	-	**3**	50	25
5.	COMP -151	SEC-1	Fundamentals of Computers and Office Productivity Tools - Lab	**0**	**0**	**6**	**6**	**3**	50	25
6.		AEC-1	To be chosen from corresponding Pool	-	-	-	-	**2**	35	15
TOTAL								**20**	**345**	**155**
									Total = 500	

Semester -II

Sr. No	Course Code	Course Type	Course Title	Contact Hrs/week				C	Semester End Marks	
				L	T	P	H		EE	IA
1.	COMP -201	DSC-A2	Internet and Web Technologies	**4**	**0**	**0**	**4**	**4**	70	30
2.		DSC-B2	To be chosen from other streams	**-**	**-**	**-**	**-**	**4**	70	30
3.		MC-2	To be chosen from other streams	**-**	**-**	**-**	**-**	**4**	70	30
4.		MDC- 2	To be chosen from corresponding multidisciplinary pool	**-**	**-**	**-**	**-**	**3**	50	25
5.	COMP -251	SEC-2	Internet and Web Technologies- Lab	**0**	**0**	**6**	**6**	**3**	50	25
6.		I/A/P/C-1	As per HPU Guidelines	**-**	**-**	**-**	**-**	**4**	70	30
7.		VAC-1	To be chosen from VAC Pool	**-**	**-**	**-**	**-**	**2**	35	15
TOTAL								**24**	**415**	**185**
									Total = 600	

- Student on exit will be awarded undergraduate certificate after securing 44 credits in semester I and II in the relevant discipline.

Fundamentals of Computers and Office Productivity Tools

COMP-101

Max Marks: 100

Credit (Theory) 4 60 Hours

Course Outcomes (COs)

After completing this course, students will be able to:

- **CO1** Students will understand fundamental computer concepts, including hardware, software, and basic programming.
- **CO2** Develop skills in creating, formatting, and managing professional documents using word processing software.
- **CO3** Apply spreadsheet functions for data entry, analysis, and visualization using formulas, charts, and pivot tables.
- **CO4** Utilize advanced features of spreadsheets for data validation, sorting, filtering, and importing/exporting data.
- **CO5** Create visually appealing and interactive presentations with animations, multimedia, and slide transitions.
- **CO6** Implement best practices for designing effective presentations and exporting them for professional use.

SECTION-I

Introduction to Computers: Characteristics, Evolution, Types (Microcomputers, Mainframes, Supercomputers), Block Diagram of a Computer.
Memory & Storage: RAM, ROM, Cache Memory, SSD, USB Flash Drives, Cloud Storage (Basics).
Input & Output Devices: Keyboard, Mouse, Touch Screen, Monitors (LCD, LED), Printers (Inkjet, Laser).
Software & Operating Systems: System Software (Operating Systems), Application Software, Overview of Windows & Linux.
Basic Programming Concepts: Introduction to Machine Language,Assembly Language, High-Level Languages.

SECTION-II

Word Processing Software (Microsoft Word / Google Docs / LibreOffice Writer): Introduction to Word Processing and Its Features; Creating, Saving, and Opening Documents; Formatting Text: Font, Paragraph, Styles, Page Layout; Working with Tables, Columns, and Lists; Insert Images, Shapes, Charts, and Hyperlinks; Header, Footer, Page Numbering, Watermark; Spell Check, Grammar Check, and Thesaurus; Mail Merge and Automated Letter Writing; Printing Documents and Exporting to PDF

SECTION-III

Spreadsheet Software (Microsoft Excel / Google Sheets / LibreOffice Calc): Introduction to Spreadsheets and Their Uses; Creating, Saving, and Formatting Worksheets; Working with Rows, Columns, and Cells; Data Entry, Sorting, and Filtering; Formulas and Functions (SUM, AVERAGE, IF, VLOOKUP, HLOOKUP); Creating and Formatting Charts and Graphs; Conditional Formatting and Data Validation; Pivot Tables and Data Analysis Basics; Importing and Exporting Data.

SECTION-IV

Presentation Graphics Software (Microsoft PowerPoint / Google Slides / LibreOffice Impress): Introduction to Presentation Software; Creating and Managing Slides; Formatting Text, Themes, and Backgrounds; Inserting Images, Shapes, Tables, and Charts; Using Animations and Slide Transitions;

Adding Multimedia: Audio and Video; Custom Slide Shows and Slide Master View; Printing Handouts and Exporting Presentations; Best Practices for Effective Presentations.

Text book:

1. Pradeep K. Sinha, Priti Sinha, "Computer Fundamentals". BPB Publications.
2. Peter Weverka, "Microsoft Office 2021 All-in-One for Dummies", Wiley, 2023.

Reference book:

1. Rajaraman, V., "Fundamental of Computers". Prentice Hall India, New Delhi.
2. Joan Lambert, Curtis Frye, "Microsoft Office Step by Step (Office 2021 and Microsoft 365)", Pearson, 2023.

Note: There will be 5 Parts (A, B, C, D, E) and the examiner shall set 9 questions in total from all the Sections/Blocks (I, II, III, IV) and each question shall carry 14 marks.

- Part A will have 2 questions from Section/Block I of the syllabus and students have to attempt any one.
- Part B will have 2 questions from Section/Block II of the syllabus and students have to attempt any one.
- Part C will have 2 questions from Section/Block III of the syllabus and students have to attempt any one.
- Part D will have 2 questions from Section/Block IV of the syllabus and students have to attempt any one.
- Part E will have 10 short answer questions from all the Sections/Blocks of the syllabus (I, II, III, IV) and the students shall have to attempt 7 in total carrying 2 Marks each.

Internet and Web Technology

COMP-201

Max Marks: 100

Credit (Theory) 4 60 Hours

Course Outcomes (COs)

- **CO1** Understand the fundamentals of the Internet and web technologies including protocols, web servers, and client-server architecture.
- **CO2** Develop structured web pages using HTML with proper formatting, lists, tables, forms, and multimedia elements.
- **CO3** Apply CSS styling techniques to enhance the visual presentation of web pages using various selectors and properties.
- **CO4** Manipulate the Document Object Model to dynamically update and control web page content.
- **CO5** Develop dynamic web applications using PHP with database integration and basic MySQL operations.

SECTION-I

Introduction to the Internet and its applications, evolution of the World Wide Web (WWW), difference between WWW and the Internet. Intranet vs Internet. Internet protocols: HTTP, HTTPS, FTP, SMTP, IMAP, and POP3. Types of web pages: static, dynamic, and active. Introduction to web servers, URL structure, web browsers, search engines, DNS, proxy servers, and client-server architecture.

SECTION-II

Structure of HTML documents, HTML tags and attributes, semantic elements, and formatting text (font, color, size). Creating and using HTML lists, tables, forms, images, and inserting links, comments, and horizontal rules. Introduction to CSS: external, internal, and inline styles, CSS rules, class selector, div & span tags. Styling properties: font, list, color, text alignment, and background images.

SECTION-III

Introduction to PHP, identifiers, variables, data types, scope of variables, operators, control structures (conditional statements and loops), functions, arrays, superglobals ($_GET, $_POST, $_SESSION, $_COOKIE), handling user input, and form validation in PHP.

SECTION-IV

Advanced PHP concepts: file handling (reading, writing, uploading files), session and cookie management, error handling and debugging, object-oriented PHP (OOP), connecting PHP with MySQL, performing CRUD operations, prepared statements, and security measures (SQL injection prevention, XSS protection).

Text Books:

1. Raj Kamal, Internet and Web Technologies, Tata McGraw-Hill.
2. Ramesh Bangia, Multimedia and Web Technology, Firewall Media.

Reference Books:

1. Naveen Kumari, Internet Technologies, Eagle Prakashan, 2015.
2. Uttam K. Roy, Web Technologies, Oxford University Press.
3. Steven Holzner, The Complete Reference PHP, Tata McGraw-Hill.
4. A.S. Godbole & A. Kahate, Web Technologies, 3rd Edition, Tata McGraw-Hill, 2017.
5. R. Greenlaw & E. Hepp, Fundamentals of Internet and WWW, 2nd Edition, Tata McGraw-Hill, 2007.
6. B. Patel & L.B. Barik, Internet & Web Technology, Acme Learning Publisher.
7. Jackson, Web Technologies, Pearson Education, 2008.
8. Wendy Willard, HTML Beginner's Guide, Tata McGraw-Hill.

9. Ivan Bayross, Web Technologies Part II, BPB Publications.
10. Ivan Bayross, Web Enabled Commercial Application Development Using HTML, JavaScript, DHTML, and PHP, 4th Edition, BPB Publications, 2013.
11. Kogent Learning, Web Technologies: HTML, JavaScript, PHP, Java, JSP, AJAX Black Book, Wiley India Pvt. Ltd.
12. Naramore &Boronczyk, Beginning PHP, Apache, MySQL Web Development, Wiley India Pvt. Ltd.

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- Part B will have 2 questions from Section/Block II of the syllabus and students have to attempt any one.
- Part C will have 2 questions from Section/Block III of the syllabus and students have to attempt any one.
- Part D will have 2 questions from Section/Block IV of the syllabus and students have to attempt any one.
- Part E will have 10 short answer questions from all the Sections/Blocks of the syllabus (I, II, III, IV) and the students shall have to attempt 7 in total carrying 2 Marks each.