DEPARTMENT OF COMPUTER SCIENCE
KUMAUN UNIVERSITY, NAINITAL

DRAFT SYLLABUS

National Education Policy-2020
Skill Enhancement Courses(SEC)
Offered by
Computer Science

Common Minimum Syllabus for Uttarakhand State Universities and Colleges

Four Year Undergraduate Programme-
FYUP/Honours Programme/Master in Science

SUBJECT: COMPUTER SCIENCE

EFFECTIVE FROM ACADEMIC YEAR 2025-26

Expert Committee

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Programme/Class: Certificate	**Year:** 1st	
Course Code:	**Course Title:** MS Word(Office 365)	**L| T|P(0|0|2)**

Unit	Topics
I.	**Introduction to Office 365:** Overview of word processing software, Introduction to Office 356 interface. **Basic Document Editing:** Creating, saving, and opening documents, Basic text formatting (font, size, style), Paragraph formatting (alignment, indentation, spacing).
II.	**Advanced Text Formatting:** Styles and formatting, Bulleted and numbered lists, Headers and footers.
III.	**Working with Tables:** Creating and formatting tables, Inserting and editing table contents.
IV.	**Working with Graphics:** Inserting images and shapes, Formatting and positioning graphics.
V.	**Advanced Features:** Using templates, Creating and using styles, Mail merge.
VI.	**Introduction to Word** - Fonts, Colors, Etc., Word art, Smart art, Shapes, Grouping, Guidelines for incorporating images and shapes, Instructions for customizing colors, headers, footers , page numbers, Instructions for using the Screen recording feature, Auto animations, charts graphs and (tables as part of excel)
VII.	Printing, Steps to convert a PDF document into a word file, PDF conversion with annotations included or excluded, based on preference, Using spell checker and grammar checker tools, Utilizing review features and option.
VIII.	Managing emails and attachments effectively, Steps for integrating and using Google slides within Office 365.
IX.	Guide to integrating ChatGPT and Copilot with MS Word for enhanced productivity.

Subject: Computer Science		
Programme/Class: Certificate	**Year:** 1st	
Course Code:	**Course Title:** MS Excel(Office 365)	**Credits: L | T | P (0 | 0 | 2)**

Course outcomes:

- Understand the basics of spreadsheets and their applications.
- Learn to create, format, and manage data in OpenOffice Calc.
- Use formulas and functions to perform calculations and data analysis.
- Create charts and graphs to visualize data effectively.

Course Prerequisites: Basic computer skills.

Units	Topics
I.	**Introduction to Spreadsheets**: Overview of spreadsheet software, Introduction to Excel interface, Structure and formats of data used in Excel, Using comments and lookup function, Cross sheet reference. Basic Spreadsheet Operations: Creating, saving, and opening spreadsheets, Entering and editing data, Formatting cells and data, Hidden rows and columns, transpose pivot functions.
II.	**Formulas and Functions:** Number formatting, Using basic formulas for calculations (e.g., addition, subtraction), Understanding cell references (relative, absolute), Using common functions (e.g., SUM, AVERAGE, IF), Automatic calculations.
III.	**Data Management:** Sorting and filtering data, using data validation, Managing multiple sheets, Applying conditional formatting and removing duplicate entries.
IV.	**Charts and Graphs:** Creating different types of charts (e.g., bar chart, pie chart),Customizing charts (e.g., titles, legends, axes), Adding charts to presentations or Documents.
V.	Guide to integrating ChatGPT and Copilot with Office 365 for enhanced productivity
VI.	Guide to integrating ChatGPT and Copilot with MS Excel for enhanced productivity.

Software Requirement:

- MS EXCEL (latest version)

Subject: Computer Science		
Programme/Class: Diploma	**Year:** 2nd	
Course Code:	**Course Title:** MS Powerpoint (Office 365)	**Credits: L | T | P (0 | 0 | 2)**

Course outcomes:

- Understand the basics of creating presentations.
- Learn to create, format, and manage slides in OpenOffice Impress.
- Use multimedia elements to enhance presentations.
- Develop skills for delivering effective presentations.

Course Prerequisites: Basic computer skills.

Units	Topics
I.	Introduction to Presentations: Overview of presentation software, Introduction to PowerPoint interface.
II.	Creating Presentations: Creating a new presentation, Adding, deleting, and rearranging slides, Using templates and themes.
III.	Formatting Slides: Formatting text and objects, Applying backgrounds and styles, Using master slides.
IV.	Enhancing Presentations: Adding images, shapes, and multimedia elements, Using transitions and animations, Incorporating charts and graphs.
V.	Delivering Presentations: Setting up slideshow options, Using presenter tools and notes, Tips for effective presentation delivery.
VI.	Guide to integrating ChatGPT and Copilot with MS Powerpoint for enhanced productivity.

Software Requirement:

- MS PowerPoint (latest version)

Subject: Computer Science		
Programme/Class: Diploma	**Year:** 2nd	
Course Code:	**Course Title:** Cyber Security Basics	**Credits: L | T | P(1| 0| 1)**

Course outcomes:

- Understand the cyber security threat landscape.
- Develop a deeper understanding and familiarity with various types of cyberattacks,cybercrimes, vulnerabilities and remedies thereto.
- Analyze and evaluate existing legal framework and laws on cyber security.
- Analyze and evaluate the digital payment system.
- Analyze and evaluate the importance of personal data its privacy and security.
- Analyze and evaluate the security aspects of social media platforms and ethical aspectsassociated with use of social media.

Course Prerequisites: Basic computer skills.

Units	Topics
I.	Introduction to Cyber crime- Cybercrime and offences, cybercrime against women and children, financial frauds, social engineering attacks, malware and ransomware attacks, zero day and zero click attacks. Cybercriminals modus-operandi ,Reporting of cybercrimes, Remedial and mitigation measures, Legal perspective of cybercrime, IT Act 2000 and its amendments, , Organizations dealing with Cybercrime and Cyber security in India, Case studies.
II.	Introduction to Social networks. Types of Social media, Social media platforms, Social media monitoring, Hashtag, Viral content, Social media marketing, Social media privacy, Challenges, opportunities and pitfalls in online social network, Security issues related to social media, Flagging and reporting of inappropriate content, Laws regarding posting of inappropriate content, Best practices for the use of Social media, Case studies.
III.	Modes of digital payments- Banking Cards, Unified Payment Interface (UPI),e-Wallets, Unstructured Supplementary Service Data (USSD), Aadhar enabled payments, Digital payments related common frauds and preventive measures. RBI guidelines on digital payments and customer protection in unauthorized banking transactions.
IV.	End Point device and Mobile phone security, Password policy, Security patch management, Data backup, Downloading and management of third party software, Device security policy, Cyber Security best practices, Significance of host firewall and Ant-virus, Management of host firewall and Anti-virus, Wi-Fi security, Configuration of basic security policy and permissions

Lab: Cyber Security basics

1. Checklist for reporting cybercrime at Cybercrime Police Station.
2. Checklist for reporting cybercrime online.
3. Reporting phishing emails.
4. Demonstration of email phishing attack and preventive measures.
5. Basic checklist, privacy and security settings for popular Social media platforms.
6. Reporting and redressal mechanism for violations and misuse of Social mediaplatforms.
7. Configuring security settings in Mobile Wallets and UPIs.
8. Checklist for secure net banking
9. Setting, configuring and managing three password policy in the computer (BIOS, Administrator and

	Standard User). 10. Setting and configuring two factor authentication in the Mobile phone. 11. Security patch management and updates in Computer and Mobiles. 12. Managing Application permissions in Mobile phone. 13. Installation and configuration of computer Anti-virus. 14. Installation and configuration of Computer Host Firewall. 15. Wi-Fi security management in computer and mobile

Subject: Computer Science		
Programme/Class: Diploma	**Year:** 2nd	
Course Code:	**Course Title:** Linux Launchpad : Ubuntu & Bash Mastery	**Credits: L | T | P (0 | 0 | 2)**

Course outcomes:

- Navigate the Ubuntu Linux environment using both GUI and command-line interfaces.
- Execute essential Linux commands to manage files, processes, and system resources.
- Perform essential Linux system administration tasks including user/group management and security implementation.
- Apply text processing tools including grep, sed, and AWK for data manipulation.
- Develop BASH shell scripts using variables, control structures, functions, and arrays.
- Implement file redirection and error handling techniques for robust system solutions.

Course Prerequisites: Basic understanding of Unix/Linux operating systems.

Units	Topics
I.	Getting Started: Ubuntu desktop, Synaptic package manager, Ubuntu software system, Basic Commands, General Purpose Utilities in Linux, File System, Working with Regular Files, File Attributes, Redirection Pipes, Working with Linux Process, The Linux Environment, Basics of System Administration, Simple filters, grep command, sed command
II.	Linux for system administrator, User and Group Management, Assigning Groups on User Creation, User Password management, Modifying User Account, Group Password and Login, Administrating Group with gpasswd Command, Modifying and Deleting Groups
III.	Overview of Linux AWK, Basics of awk, Variables and Operators in Awk, Built-in variables in Awk, Conditional statements in awk, Loops in awk, Basics of Single Dimensional Array in awk, More on Single Dimensional Array in awk, Multidimensional Array in awk, Built-in Functions in awk, User Defined Functions in awk
IV.	Introduction to BASH Shell Scripting, Basics of Shell Scripting, Command Line arguments and quoting, Globbing and export statements, Array Operations in BASH, More on Arrays, Conditional execution, Nested and multilevel if statement in BASH, Logical Operators in Bash,
V.	Arithmetic comparison in BASH, String and File Attributes comparison in BASH, Conditional Loops, More on Loops, Case statement in BASH, Using File Descriptors, Basics of functions, More on Functions, Arrays & functions, Advance topics in a function, Recursive function, Basics of Redirection (error handling), More on Redirection, 'Here' document and 'Here' string

Subject: Computer Science		
Programme/Class: B.Sc.	**Year:** 3rd	
Course Code:	**Course Title:** Web Client Technology	**Credits: L | T | P (0 | 0| 2)**

Course outcomes:

- Understand the concepts of HTML and CSS
- Differentiate between JavaScript and CSS
- Develop a client server application

Course Prerequisites: Basic Computer Knowledge

Units	Topics
I.	Introduction to HTML: HTML and its features, Concept of WWW, Internet and WWW, HTTP Protocol: Request and Response, Web browser and Web servers, Features of Web 2.0, Basic HTML, formatting and fonts, commenting code, color, hyperlink, lists, tables, images, simple HTML forms, website structure, HTML5.
II.	Introduction to CSS: CSS: Need for CSS, introduction to CSS, basic syntax and structure, using CSS, Inline styles, embedded style sheets, conflicting styles, linking external style sheets, positioning elements, backgrounds, element dimensions, background images, colors and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS, CSS2, Overview and features of CSS3.
III.	JavaScript: Client-side scripting with JavaScript, variables, functions, conditions, loops andrepetition, Pop up boxes, Advance JavaScript: JavaScript and objects, JavaScript own objects, the DOM and web browser environments, Manipulation using DOM, forms and validations, DHTML: Combining HTML, CSS and JavaScript, Events and buttons, Libraries and JQuery, Event-driven programming and the inclusion of click events.

Subject: Computer Science		
Programme/Class: B.Sc.	**Year:** 3rd	
Course Code:	**Course Title:** Web Server Technology	**Credits: L | T | P (0 | 0| 2)**

Course outcomes:

- Understand the concept of Scripting Languages.
- Understand the Web Development

Course Prerequisites: Basic knowledge of Client-side Web Technology

Units	Topics
I.	Introduction to PHP: Installation of PHP, Basic Syntax, defining variables and constants, data types, operators and expression, decision making statements, loop making constructs, mixing decisions and looping with HTML
II.	String Handling: Creating a string and accessing its content, searching and replacing content of a string, formatting a string, string built-in-functions
III.	Handling HTML Form with PHP: Creating a form, Basics of Server, Hosting, URL, submitting data to the server at the backend using GET and POST methods, GET vs POST methods, create a student' registration form, Use of official internet documentation and finding relevant links, basics of HTTPS.
IV.	Database Connectivity with MySQL: Connectivity with database, database creation,creating tables, insertion and retrieval of the data from the database, data manipulation.