COMPUTER APPLICATIONS
CLASS IX (Code 165)
(2019-20)

Learning Outcomes

1. Ability to familiarise with basics of computers.
2. Ability to navigate the file system.
3. Ability to create and edit documents, spread sheets, and presentations.
4. Ability to perform basic data manipulation using spread sheets and use Indian languages in documents.
5. Ability to send and receive emails, follow email etiquette, and communicate over the internet.
6. Ability to create and upload videos.
7. Ability to safely and correctly use websites, social networks, chat sites, and email.

Distribution of Marks and Periods

Unit No.	Unit Name	Marks	Periods	
			Theory	**Practical**
1.	Basics of Information Technology	5	10	05
2.	Cyber safety	10	05	05
3.	Office Tools	5	05	45
4.	Scratch/Python	10	35	70
5.	Lab Exercises	70	-	-
	Total	100	55	125

Unit 1: Basics of Information Technology

- Computer Systems: characteristics of a computer, components of a computer system – CPU, memory, storage devices and I/O devices
- Memory: primary (RAM and ROM) and secondary memory
- Storage devices: hard disk, CD ROM, DVD, pen/flash drive, memory stick
- I/O devices: keyboard, mouse, monitor, printer, scanner, web camera
- Types of software: system software (operating system, device drivers), application software including mobile applications
- Computer networking: Type of networks: PAN, LAN, MAN, WAN, wired/wireless communication, Wi-Fi, Bluetooth, cloud computers (private/public)
- Multimedia: images, audio, video, animation

Unit 2: Cyber-safety

- Safely browsing the web and using social networks: identity protection, proper usage of passwords, privacy, confidentiality of information, cyber stalking, reporting cybercrimes
- Safely accessing websites: viruses and malware

Unit 3: Office tools

- Introduction to a word processor: create and save a document.
- Edit and format text: text style (B, I, U), font type, font size, text colour, alignment of text. Format paragraphs with line and/or paragraph spacing. Add headers and footers, numbering pages, grammar and spell check utilities, subscript and superscript, insert symbols, use print preview, and print a document.
- Insert pictures, change the page setting, add bullets and numbering, borders and shading, and insert tables – insert/delete rows and columns, merge and split cells.
- Use auto-format, track changes, review comments, use of drawing tools, shapes and mathematical symbols.
- Presentation tool: understand the concept of slide shows, basic elements of a slide, different types of slide layouts, create and save a presentation, and learn about the different views of a slide set – normal view, slide sorter view and hand-outs.
- Edit and format a slide: add titles, subtitles, text, background, and watermark, headers and footers, and slide numbers.
- Insert pictures from files, create animations, add sound effects, and rehearse timings.
- Spreadsheets: concept of a worksheet and a workbook, create and save a worksheet.
- Working with a spreadsheet: enter numbers, text, date/time, series using auto fill; edit and format a worksheet including changing the colour, size, font, alignment of text; insert and delete cells, rows and columns. Enter a formula using the operators (+,-,*, /), refer to cells, and print a worksheet.
- Use simple statistical functions: SUM (), AVERAGE (), MAX (), MIN (), IF () (without compound statements); embed charts of various types: line, pie, scatter, bar and area in a worksheet.

Unit 4: Scratch or Python

Alternative 1: Educational programming language – Scratch

- Introduction to Scratch.
- Drag and drop commands, creating simple scripts, repeating blocks of commands.
- Discuss x-y plane, create scripts to move the cat (Scratch mascot).
- Create a script to draw diagrams using the pen feature.

Alternative 2: Python - (provided as an option to children with special needs)

- Introduction to Python
- A simple "Hello World" program
- Running a Python program
- The notion of data-types and variables: integer, float, string
- Arithmetic operations: +, -, *, /

5.   Lab Exercises

- Basic I/O devices: use the mouse and keyboard, draw a figure.
- Working with the operating system: Navigation of the file system using a mouse and keyboard.
- Word processing: create a text document; create a letter, report, and greeting card.
- Create a text document with figures in it. It should describe a concept taught in another course.
- Discuss the following in a text document about the basic organisation of a computer: CPU, memory, input/output devices, hard disk.
- Create a text document in an Indian language other than English.
- Create a presentation.
- Create a presentation with animation.
- Include existing images/ pictures in a presentation.
- Animate pictures and text with sound effects in a presentation
- Create a simple spreadsheet and perform the following operations: min, max, sum, and average.
- Create different types of charts using a spreadsheet: line, bar, area and pie.
- Write basic Scratch/Python programs.

Breakup of marks for the Practicals :

S.No.	Unit Name	Marks
1.	Lab Test (30 marks)	
	Proficiency with the OS	3
	Word processing	5
	Handling spreadsheets	7
	Creating presentations	7
	Writing basic Python/Scratch programs	8
2.	Report File + viva (25 marks)	
	Report file: • 4 documents each with a word processor, spreadsheet, and presentation tool • At least 4 programs on Scratch/Python	20
	Viva voce (based on the report file)	5
3.	Project (that uses most of the concepts that have been learnt)	15
	Total Marks	**70**

Computer Applications

CLASS X (Code 165)

(2019-20)

Learning Outcomes

1. Ability to create a simple website

2. Ability to embed images, audio and video in an HTML page

3. Ability to use style sheets to beautify the web pages.

4. Ability to write iterative programs with Scratch/Python.

5. Ability to Interface a web site with a web server and record the details of a user's request.

6. Ability to follow basic cyber ethics

7. Ability to familiarize with network concepts.

Distribution of Marks and Periods

Unit No.	Unit Name	Marks	Periods	
			Theory	Practical
1.	Networking	5	05	05
2.	HTML	12	30	50
3.	Cyber ethics	5	05	10
4.	Scratch/Python Theory	8	15	60
5.	Practicals	70	-	-
	Total	100	55	125

Unit 1: Networking

- Internet: World Wide Web, web servers, web clients, web sites, web pages, web browsers, blogs, news groups, HTML, web address, e-mail address, downloading and uploading files from a remote site. Internet protocols: TCP/IP, SMTP, POP3, HTTP, HTTPS. Remote login and file transfer protocols: SSH, SFTP, FTP, SCP, TELNET, SMTP, TCP/IP.

- Services available on the internet: information retrieval, locating sites using search engines and finding people on the net;

- Web services: chat, email, video conferencing, e-Learning, e-Banking, e-Shopping, e-Reservation, e-Governance, e-Groups, social networking.

- Mobile technologies: SMS, MMS, 3G, 4G.

Unit 2: HTML

- Introduction to web page designing using HTML: create and save an HTML document, access a web page using a web browser.
- HTML tags: html, head, title, body, (attributes: text, background, bgcolor, link, vlink, alink), *br (break), hr(horizontal rule), inserting comments, h1..h6 (heading), p (paragraph), b (bold), i (italics), u (underline), ul (unordered list), ol (ordered list), and li (list item). Description lists: dl, dt and dd. Attributes of ol (start, type), ul (type).*
- Font tags (attributes: face, size, color).
- Insert images: img (attributes: src, width, height, alt), sup (super script), sub (subscript).
- HTML Forms: Textbox, radio buttons, checkbox, password, list, combobox.
- Embed audio and video in a HTML page.
- Create a table using the tags: table, tr, th, td, rowspan, colspan
- Links: significance of linking, anchor element (attributes: href, mailto), targets.
- Cascading style sheets: colour, background-colour, border-style, margin, height, width, outline, font (family, style, size), align, float.

Unit 3: Cyber ethics

- Netiquettes.
- Software licenses and the open source software movement.
- Intellectual property rights, plagiarism and digital property rights.
- Freedom of information and the digital divide.
- E-commerce: Privacy, fraud, secure data transmission.

Unit 4: Scratch or Python (Theory and Practical)

Alternative 1: Scratch

- Revision of the basics of Scratch
- Sprite, tempo, variables, and events
- Coordinates and conditionals
- Drawing with iteration
- Update variables repeatedly, iterative development, ask and answer blocks
- Create games, animated images, stories and songs

Alternative 2: Python (only for children with special needs)

- Revision of Python basics
- Conditionals: if, if-else statements
- Loops: for, while (e.g., sum of first 10 natural numbers)
- Practice simple programs

5.   Lab Exercises

- Create static web pages.
- Use style sheets to enforce a format in an HTML page (CSS).
- Embed pictures, audio and videos in an HTML page.
- Add tables and frames in an HTML page.
- Decorate web pages using graphical elements.
- Create a website using several webpages. Students may use any open source or proprietary tool.
- Work with HTML forms: text box, radio buttons, checkbox, password, list, combo box.
- Write a blog using HTML pages discussing viruses, malware, spam and antiviruses
- Create a web page discussing plagiarism. List some reported cases of plagiarism and the consequent punishment meted out. Explain the nature of the punishment in different countries as per their IP laws.
- Create simple stories with Scratch (involving at least two objects/characters) and iteration OR write programs for finding the sum/product of first *n* natural numbers using Python

Breakup of marks for the practicals:

S.No.	Unit Name	Marks
1.	Lab Test (30 marks)	
	HTML (design one web page based on a diagram)	15
	Scratch or Python (write one program)	15
2.	Report File + viva (25 marks)	
	Report file: At least 10 HTML pages, and at least 5 Scratch/Python programs.	20
	Viva voce (based on the report file)	5
3.	Project (that uses most of the concepts that have been learnt)	15