THE LEXICON SCHOOLS

(Wagholi ● Hadapsar ● Kalyani Nagar)

Curriculum 2023-24

Class XII

Subject: Information Technology Subject Code: 802

Term	Month	Portion to be covered
	April	Employability Skills:Communication Skills –IV Subject Specific Skills:Database Concepts -RDBMS
Term I	June	Subject Specific Skills:Database Concepts -RDBMS
	July	Employability Skills: Self-Management Skills-IV Subject Specific Skills: Operating Web Based Applications
	August	Employability Skills: ICT Skills –IV Subject Specific Skills: Fundamentals of Java programming
	September	Employability Skills: Entrepreneurial Skills -IV Subject Specific Skills: Fundamentals of Java programming
Term II	October	Subject Specific Skills: Fundamentals of Java programming
	November	Employability Skills: Green Skills -IV Subject Specific Skills: Work Integrated Learning IT- DMA
	December	Revision
	January	Revision

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Curriculum 2023-24

Class XII

Subject: Informatics Practices Subject Code: 065

Term	Month	Portion to be covered
	April	Unit 1. Python Pandas -1 • Introduction to Python libraries- Pandas, Matplotlib. • Data structures in Pandas - Series and data frames.
Term I	June	Unit 1. Python Pandas -1 • Series: Creation of series from Nd array, dictionary, scalar value; mathematical operations, head and tail functions; selection, indexing, and slicing. • Data Frames: Creation of data frames from the dictionary of series, list of dictionaries, Text/CSV files, display; iteration. Unit 1. Python Pandas -I • Operations on rows and columns, Head and Tail functions, indexing using labels, Boolean indexing.
	July	Unit 1. Python Pandas -I • Transferring Data between .csv files and Data Frame. • Data Visualization: Purpose of plotting, drawing, and saving plots using Matplotlib, Plotting line plot, bar graph, and histogram. • Customizing plots: adding labels, titles, and legends in plots.
	August	Unit 2: Database Query using SQL • Math functions: POWER (), ROUND (), MOD (). • Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR (), LENGTH (), LEFf (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM (). • Date Functions: NOW (), DATE (), MONTH (), MONTHNAME (), YEAR (), DAY (), DAYNAME ().
	September	Unit 2: Database Query using SQL • Aggregate Functions: MAX (), MIN (), AVG ()' SU. M ()' COUbNT (H); u·sning COUNT (*). Querying and manipulating data using Group y,av1 g, Order by. Unit 3: Introduction to Computer Networks • Introduction to networks, Types of networks: LAN, MAN, WAN. Network Devices: modem, hub, switch, repeater, router, gateway.
	October	Unit 3: Introduction to Computer • Networks Network Topologies: Star, Bus, Tree, Mesh. • Introduction to Internet, URL, WWW, and its applications- Web, email, Chat, VoIP. • Website: Introduction, the difference between a website and webpage, stack vs dynamic web page, web server, and hosting of a website. • Web Browsers: Introduction, commonly used browsers, browser settings, add-ons and plug-ins, cookies.

Term II	November	Unit 4: Societal Impacts • Digital footprint, Net and communication etiquettes, data protection, intellectual property rights (IPR), plagiarism, licensing and copyright, Free and open-source software (FOSS), Cybercrime and cyber laws, hacking, phishing, cyberbullying, an overview of Indian IT Act. • E-waste: hazards and management. Awareness about health concerns related to the usage of technology.
	December	Revision
	January	Revision

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Curriculum 2023-24

Class XII

Subject: Computer Science Subject Code: 083

Term	Month	Portion to be covered
	April	**Unit I: Computational Thinking and Programming – 2** Revision of Python topics covered in Class XI. • Functions: types of function (built-in functions, functions defined in module, user-defined functions), creating user-defined function, arguments and parameters, default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope) **Project:** based on python Practicals on functions
Term I	June	**Functions:** types of function (built-in functions, functions defined in module, user defined functions), creating user defined function, arguments and parameters, default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope) **Practicals:** on lists dictionaries, strings Submission of project synopsis
	July	**Unit I: Computational Thinking and Programming – 2** • Introduction to files, types of files (Text file, Binary file, CSV file), relative and absolute paths practicals on file handling
	August	**Unit I: Computational Thinking and Programming – 2** • Text file: opening a text file, text file open modes (r, r+, w, w+, a, a+), closing a text file, opening a file using with clause, writing/appending data to a text file using write() and writelines(), reading from a text file using read(), readline() and readlines(), seek and tell methods, manipulation of data in a text file Practicals on file handling project coding
	September	**Unit I: Computational Thinking and Programming – 2** • Binary file: basic operations on a binary file: open using file open modes (rb, rb+, wb, wb+, ab, ab+), close a binary file, import pickle module, dump() and load() method, read, write/create, search, append and update operations in a binary file Practicals on file handling

Term II	October	**Unit I: Computational Thinking and Programming – 2** • CSV file: import csv module, open / close csv file, write into a csv file using csv.writer() and read from a csv file using csv.reader( ) • Data Structure: Stack, operations on stack (push & pop), implementation of stack using list. practicals on data structure stack
	November	**Unit II: Computer Networks** Evolution of networking: introduction to computer networks, evolution of networking (ARPANET, NSFNET, INTERNET) Data communication terminologies: concept of communication, components of data communication (sender, receiver, message, communication media, protocols), measuring capacity of communication media (bandwidth, data transfer rate), IP address, switching techniques (Circuit switching, Packet switching) Transmission media: Wired communication media (Twisted pair cable, Co-axial cable, Fiber-optic cable), Wireless media (Radio waves, Micro waves, Infrared waves) Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card) Network topologies and Network types: types of networks (PAN, LAN, MAN, WAN), networking topologies (Bus, Star, Tree) Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP Introduction to web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML), domain names, URL, website, web browser, web servers, web hosting **Unit III: Database Management** • **Database concepts:** introduction to database concepts and its need Practicals on python connectivity • **Relational data model:** relation, attribute, tuple, domain, degree, cardinality, keys (candidate key, primary key, alternate key, foreign key) • **Structured Query Language:** introduction, Data Definition Language and Data Manipulation Language, data type (char(n), varchar(n), int, float, date), constraints (not null, unique, primary key), create database, use database, show databases, drop database, show tables, create table, describe table, alter table (add and remove an attribute, add and remove primary key), drop table, insert, delete, select, operators (mathematical, relational and logical), aliasing, distinct clause, where clause, in, between, order by, meaning of null, is null, is not null, like, update command, delete command, aggregate functions (max, min, avg, sum, count), group by, having clause, joins: cartesian product on two tables, equi-join and natural join Project Submission
	December	Revision
	January	Revision