KENDRIYA VIDYALAYA SANGATHAN
MUMBAI REGION
SPLIT–UP SYLLABUS
SESSION 2019-20

CLASS: XI   **SUBJECT: INFORMATICS PRACTICES (065)**
                                                                (NEW SYLLABUS)

S.NO.	Month	Name of Lesson	Tentative No. of Theory Periods Required	Tentative No. of Practical Periods Required	Tentative No. of Working days
1.	April-May	----------------	-----------		-----------
2.	June	**4.1 Unit 1: Programming and Computational Thinking (PCT-1)** • Basic computer organization: describe a computer system and mobile system, CPU, memory, hard disk, I/O, battery, power, transition from a calculator to a computer • Trouble shooting with parts of computer and basic operations of operating system • Basic concept of Data representation: Binary, ASCII, Unicode • Familiarization with the basics of Python programming: a simple "hello world" program, process of writing a program, running it, and print statements; simple data-types: integer, float, string	08	04	10
3.	July	simple data-types: integer, float, string • Introduce the notion of a variable, and methods to manipulate it (concept of L-value and R-value even if not taught explicitly) • Knowledge of data types and operators: accepting input from the console, assignment statement, expressions, operators and their precedence. • Conditional statements: if, if-else, if-elif-else; simple programs: e.g.: absolute value, sort 3 numbers, divisibility. • Notion of iterative computation and control flow: for, while, flowcharts, decision trees and pseudo code; write a lot of programs: interest calculation, EMI, tax calculation (examples from GST), standard deviation, correlation	21	20	25

4.	August	• Lists and dictionary: finding the maximum, minimum, mean; linear search on a list of numbers, and counting the frequency of elements in a list using a dictionary.	20	18	24
5.	September	• Text handling: compare, concat, and substring operations • Introduction to Python modules: creating and importing.	21	18	23
6.	October	**Unit 2: Data Handling (DH-1)** • Numpy 1D array, 2D array Arrays: slices, joins, and subsets. Arithmetic operations on • 2D arrays.	**12**	**08**	**18**
7.	November	**Unit 3: Data Management (DM-1)** Relational databases: idea of a database and the need for it, relations, keys, primary key, foreign key;	**08**	**04**	**22**
8.	December	• Use SQL commands to create a table, keys, and foreign keys; insert/delete an entry, delete a table. • Basic SQL: select, project, and join; indexes, and a lot of in-class practice.	**14** **08**	**12** **04**	**18**
9.	January	**Unit 4: Society, Law and Ethics (SLE-1) - Cyber safety** • Cyber safety: safely browsing the web, identity protection, confidentiality, social networks, cyber trolls and bullying. • Appropriate usage of social networks: spread of rumours, and common social networking sites (Twitter, LinkedIn, and Facebook) and specific usage rules.	**08**	**04**	**22**
10.	February	• Safely accessing web sites: adware, malware, viruses, Trojans. • Safely communicating data: secure connections, eavesdropping, and phishing and identity verification.	**04**	------	23
11.	March	**SESSION ENDING EXAMINATION**			
TOTAL			**140 Theories**	**100 Practical**	

Note: Teachers have to arrange periods as per their availability of time for project work.

KENDRIYA VIDYALAYA SANGATHAN
MUMBAI REGION
SPLIT–UP SYLLABUS
SESSION 2019-20

CLASS: XII SUBJECT: INFORMATICS PRACTICES (065)

(NEW SYLLABUS)

S.NO.	Month	Name of Lesson	Tentative No. of Theory Periods Required	Tentative No. of Practical Periods Required	Tentative No. of Working days
1.	April-May	**4.1. Unit 1: Data Handling (DH-2)** **4.1.1. Python Pandas** • Advanced operations on Data Frames: pivoting, sorting, and aggregation • Descriptive statistics: min, max, mode, mean, count, sum, median, quartile, var • Create a histogram, and quantiles. • Function application: pipe, apply, aggregation (group by), transform, and apply map. • Reindexing, and altering labels.	25	10	23
2.	June / July	**4.1.2. Numpy** • 1D array, 2D array • Arrays: slices, joins, and subsets • Arithmetic operations on 2D arrays • Covariance, correlation and linear regression	35	15	35
4.	August	**4.1.3. Plotting with Pyplot** • Plot bar graphs, histograms, frequency polygons, box plots, and scatter plots.	20	15	24
5.	Sept	**4.2 Unit 2: Basic Software Engineering (BSE)** • Introduction to software engineering • Software Processes: waterfall model, evolutionary model, and component based model • Delivery models: incremental delivery, spiral delivery • Process activities: specification, design/implementation, validation, evolution • Agile methods: pair programming, and Scrum • Business use-case diagrams • Practical aspects: Version control system (GIT), and do case studies of software systems and build use-case diagrams	25	10	23

6.	Oct	**4.3. Unit 3: Data Management (DM-2)** • Write a minimal Django based web application that parses a GET and POST request, and writes the fields to a file – flat file and CSV file. • Interface Python with an SQL database • SQL commands: aggregation functions, having, group by, order by.	15	8	18
7.	**Nov Up to 15th Nov, 2019**	**4.4. Unit 4: Society, Law and Ethics (SLE-2)** • Intellectual property rights, plagiarism, digital rights management, and licensing (Creative Commons, GPL and Apache), open source, open data, privacy. • Privacy laws, fraud; cybercrime-phishing, illegal downloads, child pornography, scams; cyber forensics, IT Act, 2000. • Technology and society: understanding of societal issues and cultural changes induced by technology. • E-waste management: proper disposal of used electronic gadgets. • Identity theft, unique ids, and biometrics. • Gender and disability issues while teaching and using computers. • Role of new media in society: online campaigns, crowdsourcing, smart mobs • Issues with the internet: internet as an echo chamber, net neutrality, internet addiction • Case studies - Arab Spring, WikiLeaks, Bit coin	05 15	12 -----	22
8.	Dec	**1st Pre-Board Examination & Revision.**			
9.	Jan	**2nd Pre-Board Examination & Revision.**			
10	Feb	**CBSE Practical Examination**			
11	March	**CBSE Board Examination**			

Note: Teachers have to arrange periods as per their availability of time for project work.