1. Subject: INFORMATICS PRACTICES (065)

2. Objectives:

Students should be able to:

- Use, develop & debug python programs independently.
- Develop the logic for any given problem by means of flow diagrams.
- Understand aggregation operations, descriptive statistics, and re-indexing columns in a Data Frame.
- Apply functions row-wise and element-wise on a Data Frame.
- Understand basic software engineering: models, activities, business use-case diagrams, and version control systems.
- Store data in RDBMS (that forms the backend of any software).
- Retrieve data earlier stored in a database using an RDBMS.
- Connect a Python program with a SQL database, and learn aggregation functions in SQL.
- Have a clear understanding of cyber ethics and cybercrime. Understand the value of technology in societies, gender and disability issues, and the technology behind biometric ids.

3. Month wise division of syllabus:

Lesson No. / Topic	**Name of the lesson**	**Month**
Unit 1: Data Handling	Introduction to Python libraries- Pandas, Matplotlib. Data structures in Pandas - Series and Data Frames. Series: Creation of Series from – ndarray, dictionary, scalar value; mathematical operations; Head and Tail functions; Selection, Indexing and Slicing. Data Frames: creation - from dictionary of Series, list of dictionaries, Text/CSV files; display; iteration; Operations on rows and columns: add, select, delete, rename; Head and Tail functions; Indexing using Labels, Boolean Indexing; Importing/Exporting Data between CSV files and Data Frames.	April
Unit 1-Data Visualization	Purpose of plotting; drawing and saving following types of plots using Matplotlib – line plot, bar graph, histogram Customizing plots: adding label, title, and legend in plots.	May
	Python and SQL connectivity	
Unit 2- Database Query using SQL	Revision of database concepts and SQL commands covered in class XI Math functions: POWER (), ROUND (), MOD (). Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR (), LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM (). Date Functions: NOW (), DATE (), MONTH (), MONTHNAME	July & August

	(), YEAR (), DAY (), DAYNAME (). Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT (*). Querying and manipulating data using Group by, Having, Order by. Working with two tables using equi-join	
Unit 3: Introduction to Computer Networks	Introduction to networks, Types of network: PAN, LAN, MAN, WAN. Network Devices: modem, hub, switch, repeater, router, gateway Network Topologies: Star, Bus, Tree, Mesh. Introduction to Internet, URL, WWW, and its applications- Web, email, Chat, VoIP. Website: Introduction, difference between a website and webpage, static 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.	October
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, cyber bullying, overview of Indian IT Act. E-waste: hazards and management. Awareness about health concerns related to the usage of technology.	November

4. Scheme of assessment & weightage:

Sr. No.	Assessment Cycle	Month of Assessment	Mode of Assessment	Weightage
1	PT1	May	Pen paper Test	35
2	PT2	July/August	Pen paper Test	35
3	Half Yearly	September	Pen paper Test	70
4	PT3	October/November	Pen paper Test	35
5	PT4 (PAT)	December	Pen paper Test	70
6	Pre Board			70
7.	Final	February/March	Pen paper Test	70

CURRICULUM CONTENT FOR VARIOUS ASSESSMENTS:

ASSESSMENT	SYLLABUS
PERIODIC TEST -I	Unit 1: Data Handling
PERIODIC TEST - II	Unit 1: Data Handling Unit 1-Data Visualization
HALF YEARLY EXAM NOTE: Topics already assessed in Periodic 1 & Periodic 2 will be tested again in HALF YEARLY Exam.	Unit 1: Data Handling Unit 1-Data Visualization Unit 2- Database Query using SQL
PERIODIC TEST -III	Unit 2- Database Query using SQL

	Unit 3: Introduction to Computer Networks
PERIODIC TEST - IV	Unit 1: Data Handling Unit 4: Societal Impacts

IMPORTANT NOTE : *Full syllabus to be assessed in FINAL EXAM.

Note: Paper pen tests will consist of VSA, SA, LA, Case Based, LOTs, HOTs questions of 1,2,3,4 & 5 marks weightage

5. Marks Distribution

6. CRAB Worksheets per chapter will be assigned.

7. Prescribed books: