



GURU NANAK PUBLIC SCHOOL RAJOURI GARDEN

Syllabus:2026-27

Class: XII

Subject: INFORMATICS PRACTICES

1. Prerequisite: Informatics Practices – Class XI
2. Learning Outcomes At the end of this course, students will be able to:
 - Create Series, Data frames and apply various operations.
 - Visualize data using relevant graphs.
 - Design SQL queries using aggregate functions.
 - Import/Export data between SQL database and Pandas.
 - Learn terminology related to networking and internet.
 - Identify internet security issues and configure browser settings.
 - Understand the impact of technology on society including gender and disability issues.

Re teaching of Basics: 23/03/2026 to 31/03/2026

Revision tour of class 11th: Python fundamentals, List , Dictionaries

UNIT-1 (1ST April 2026 -30th April 2026)

Data Handling using Pandas -I 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.

UNIT-2 (1st May 2026 -7TH July 2026)

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.

UNIT-3 (8TH July 2026 -4TH August 2026)

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.

Database Query using SQL: Revision of database concepts and SQL commands covered in class XI Math functions: POWER (), ROUND (), MOD ().

UNIT-4 (5TH August 2026 -5th September 2026)

Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR (), LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM (). Date Functions: NOW (), DATE (), MONTH (), MONTHNAME (), 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-5 (1st October 2026 -26th October 2026)

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.

UNIT-6 (28TH October 2026 -21st November 2026)

Introduction to Emerging Trends: 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.