

Lesson Plan

Name: Dr. Parminder Kaur

Class: B.C.A- III (6th Semester)

Subject: B23-CAP-604: Basics of Data Science using Python

Months: January to May

Month and week	Topics
Jan III	Introduction to Data Science: Definition, importance, and applications
Jan IV	Overview of Python: Python programming basics, data types, and structures.
Feb I	Introduction to Python Libraries: NumPy, pandas, and matplotlib
Feb II	Basic Data Manipulation: Reading and writing data files, basic operations with pandas DataFrame.
Feb III	Data Import and Export: Handling CSV, Excel, and other file formats.
Feb IV	Data Cleaning Techniques: Handling missing values, duplicates, and data inconsistencies.
March II	Data Transformation: Data type conversion, normalization, and scaling.
March III	Data Visualization: Creating and customizing plots using matplotlib and Seaborn.
March IV	Descriptive Statistics: Calculating mean, median, mode, standard deviation, and variance using pandas.
April I	Inferential Statistics: Conducting hypothesis testing, t-tests, and chi-square tests.
April II	Regression Analysis: Implementing simple linear regression and multiple regression using scikit-learn.
April III	Predictive Modeling: Introduction to basic predictive models such as decision trees and logistic regression.
April IV	Advanced Python Libraries: Exploring advanced pandas, NumPy, and scikit-learn features.
May I	Data Analysis Tools: Time series analysis, clustering, and classification using scikit-learn. What-If Analysis Tools: Sensitivity analysis and scenario analysis using Python.

Lesson Plan

Name: Dr. Parminder Kaur

Class: BCA –II (4th Semester)

Subject: B23-CAP-403: Computer Graphics

Months: January- May

Month and week	Topics
Jan III	History of Computer Graphics (CG), Applications of Computer Graphics, Components of interactive graphics systems
Jan IV	Display devices: Refresh CRT, Color CRT, Plasma Panel displays LCD Panels,
Feb I	Raster-scan System, Random scan System, Graphic software, Input/Output Devices, Tablets
Feb II	Output Primitives: Points and Lines, Line Drawing Algorithms: DDA algorithm, Bresenham's algorithm,
Feb III	Circle drawing Algorithms: Polynomial Method, Bresenham's algorithm. Parametric representation of Cubic Curves, Bezier Curves
Feb IV	2D Transformation: Use of Homogeneous Coordinates Systems, Composite Transformation: Translation, Scaling, Rotation, Mirror Reflection,
March II	Rotation about an Arbitrary Point. Clipping and Windowing, Clipping Operations.
March III	Line Clipping Algorithms: The Mid-Point subdivision method, Cohen-Sutherland Line Clipping Algorithms
March IV	Polygon Clipping, Sutherland Hodgeman Algorithms, Text Clipping.
April I	3-D Graphics: 3-D object representations, 3-D Transformations: Translation, Rotation, Scaling, Projections,
April II	Hidden surface elimination: Back face removal, Depth Buffer algorithm, Scan-line algorithm, Depth sort algorithm, Shading.
April III	Revision
April IV	Revision
May-I	Revision

Lesson Plan

Name: Dr. Parminder Kaur

Class: BCA –II (4th Semester)

Subject: B23-VAC-421: Digital Empowerment

Months: January- May

Month and week	Topics
Jan III	Role & Significance of Digital Technology; Information & Communication Technology & Tools
Jan IV	Vision of Digital India: Digi Locker, E-Hospitals, e-Pathshala
Feb I	BHIM, e-Kranti (Electronic Delivery of Services), e-Health Campaigns
Feb II	Digital Financial Tools: Unified Payment Interface, Aadhar Enabled Payment System,
Feb III	USSD, Credit / Debit Cards, e-Wallets; Public utility portals of Govt. of India
Feb IV	RTI, Health, Finance, Income Tax filing, Education – Academic Bank of Credit.
March II	Electronic Communication: electronic mail, blogs, social media;
March III	Collaborative Digital platforms; Tools/platforms for online learning;
March IV	Collaboration using file sharing, messaging, video conferencing
April I	Online security and privacy; Threats in the digital world: Data breach and Cyber Attacks; Blockchain Technology;
April II	Security Initiatives by the Govt of India; Ethics in digital communication; Ethics in Cyberspace
April III	Revision
April IV	Revision
May-I	Revision

Lesson Plan

Name: Dr. Parminder Kaur

Class: BCA –I (2nd Semester)

Subject: B23-CAP-203: Concepts of Operating Systems

Months: January- May

Month and week	Topics
Jan III	Introductory Concepts: Operating System, Functions and Characteristics, Historical Evolution of Operating Systems, Operating System Structure.
Jan IV	Types of Operating System: Real-time, Multiprogramming, Multiprocessing, Batch processing. Operating System Services, Operating System Interface, Service System
Feb I	Calls, and System Programs. Management: Process Concepts, Operations on Processes, Process States, and Process Control Block. Inter-Process Communication.
Feb II	CPU Scheduling: Scheduling Criteria, Levels of Scheduling, Scheduling Algorithms, Multiple Processor Scheduling, Algorithm Evaluation.
Feb III	Synchronization: Critical Section Problem, Semaphores, Classical Problem of Synchronization, Monitors.
Feb IV	Deadlocks: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery.
March II	Memory Management Strategies: Memory Management of Single-user and Multiuser Operating Systems,
March III	Partitioning, Swapping, Contiguous Memory Allocation, Paging and Segmentation;
March IV	Virtual Memory Management: Demand Paging, Page Replacement Algorithms, Thrashing.
April I	Implementing File System: File System Structure, File System Implantation, File Operations,
April II	Type of Files, Directory Implementation, Allocation Methods, and Free Space Management.
April III	Disk Scheduling algorithm - SSTF, Scan, C- Scan, Look, C-Look. SSD Management.
April IV	Revision
May-I	Revision