Semester Lecture Plan

Name of the college: Government College of Arts, Science and Commerce, Sanquelim - Goa

Name of Faculty: Bhakti Gawas	Subject: Computer Science	

Paper code: CSC-149 Data and Business Analytics	Program/Course: F.Y.B.Sc.	Division:

Academic year: 2025 - 2026	Semester: II	Total Lectures: 15

Course Objectives:

1. To understand data processing, data analysis, business analytics concepts, computer networking basics, e-commerce technology and business applications.
2. To develop practical skills in data analytics and business analytics.

Course Learning Outcome:

On completion of the course, students will be able to:

CO1. Explain the concepts of data processing, data analysis, business analytics, computer networking, e-commerce technology and its applications in business.
CO2. Develop skills of data analysis and business analytics using relevant Application software.
CO3. Apply the Spreadsheet tools to solve business problems.
CO4. Review an E-commerce Website

Month	Lectures From:	To:	No. of lectures allotted	Topic, Subtopic to be covered	Learning outcome	ICT Tools	Reference books
December	01/12/2025	06/12/2025	1	**Unit I: Data processing, Data Analysis and Business Analytics** Data Processing – Steps involved in data processing, advantages of computers in data processing	1. Understand the steps involved in data processing, from data collection to information output. 2. Learners will also identify the advantages of computers in data processing.	Laptop, LCD Projector, PowerPoint Presentation	ITL Education Solutions Limited (2005), "Introduction to Information Technology", Pearson Education
	08/12/2025	13/12/2025	1	Data analysis and forecasting - importance of data analysis in business, Data forecasting, its need, benefits of data forecasting,	1. Understand the importance of data analysis in business decision-making. 2. Explain the concept of data forecasting, its need, and common forecasting approaches. 3. Identify the benefits of data forecasting.		
	15/12/2025	23/12/2025	1	Data Integration: concept and how it works Introduction to Business analytics – meaning and basic concepts.	1. Describe how data integration works using basic processes such as extraction, transformation, and loading. 2. Understand the meaning and basic concepts of business analytics and its role in supporting informed business decisions.		
December Christmas Vacation	24/12/2025	01/01/2026		Christmas Vacation	Christmas Vacation		

Month	Start Date	End Date	No.	Topic	Learning Outcomes	Teaching Aids	Reference
January	02/01/2026	10/01/2026	1	Visualization/ Data Issues: Organization/sources of data, Importance of data quality, Dealing with missing or incomplete data, Data Classification	1. Understand the organization and sources of data and their role in effective data visualization and analysis. 2. Explain the importance of data quality and identify common data issues. 3. Learners will also apply basic data classification techniques to organize and interpret data effectively.		
January	12/01/2026	17/01/2026	1	**Unit II: E-Commerce** Definition, E-commerce and Trade Cycle, Electronic Markets, Electronic Data Interchange and Internet Commerce	1. Understand the definition of e-commerce and explain the e-commerce trade cycle. 2. Describe electronic markets, electronic data interchange (EDI), and their role in modern business. 3. Understand internet commerce and its impact on buying and selling activities.	Laptop, LCD Projector, PowerPoint Presentation	ITL Education Solutions Limited (2005), "Introduction to Information Technology", Pearson Education
January	19/01/2026	24/01/2026	1	Types of E-commerce: Business to Business E-Commerce, Business to Consumer E-Commerce. Consumer to Consumer, Government to Consumer, Business to Government	1. Understand the different types of e-commerce models and their basic characteristics. 2. Understand the role of these models in digital trade and online services.		
January	26/01/2026	31/01/2026	1	Electronic Payment Systems: Smart Cards–Credit Cards – Wallets, Safe practices, Risks, E-Retail, Concept and Examples	1. Understand electronic payment systems including smart cards, credit cards, and digital wallets. 2. Identify safe practices and potential risks involved in electronic payments. 3. Understand the concept of e-retail and recognize common examples of online retail platforms.		

February	02/02/2026	07/02/2026	1	Online shopping–Introduction, Safety measures (Encryption of data authentication, SSL, Digital signatures, Digital Certificates)	1. Understand the concept of online shopping and its basic working process. 2. Explain key safety measures such as data encryption, authentication, SSL, digital signatures, and digital certificates.		
February	09/02/2026	14/02/2026	1	E-Banking, Features and services, M-Commerce, Products and services	1. Understand the concept of e-banking along with its key features and services. 2. Explain mobile commerce (m-commerce).		
February	16/02/2026	21/02/2026	1	**Unit III: Basics of Computer Networking** Networking basics, Need for computer networks	1. Understand the basic concepts of computer networking and its components. 2. Explain the need for computer networks in communication and resource sharing.		
February	23/02/2026	28/02/2026	1	Types of networks-LAN, MAN, WAN	1. Understand the different types of computer networks such as LAN, MAN, and WAN. 2. Differentiate between LAN, MAN, and WAN.		
March	02/03/2026	07/03/2026	1	Network Components–H/W, Software, Communication channels	1. Understand the key network components, including hardware, software, and communication channels. 2. Identify the functions of networking hardware and software.		
March	09/03/2026	14/03/2026	1	Network Devices	1. Understand the function and purpose of common network devices. 2. Identify and differentiate devices such as hubs, switches, routers, modems, and access points.		
March	16/03/2026	21/03/2026	1	Network topologies	1. Understand the concept of network topologies and different types used in networking. 2. Identify and compare topologies such as bus, star, ring, mesh, and tree.		

Practical Work:

Week 1	Spreadsheet
	(MS-Excel or any similar open-source software)
	  1. Working with worksheets -Entering data, Formatting, Editing, and Printing a worksheet.
	  2. Formulas and Functions in Excel, operators in formula.
	  3. Generally used Spreadsheet functions - Mathematical, Statistical, Financial, Logical, Date and Time, Database and Text functions.

Week 2	1. Introduction to some more useful functions such as the IF, nested IF, VLOOKUP and HLOOKUP 2. Data Sorting and Filtering 3. Result representation of data using spreadsheet
Week 3	4. What-if analysis, Logical tests (nested if functions), Goal seek, 5. Representing results graphically 6. Filtering, advanced filters, sorting and conditional formatting data.
Week 4	1. What-if analysis, Logical tests (nested if functions), Goal seek, 2. Representing results graphically 3. Filtering, advanced filters, sorting and conditional formatting data
Week 5	1. Data validation techniques, Hyperlinks 2. Pivot table, Scenarios.
Week 6	1. Summing through the sheets. 2. Getting external data files into Excel. 3. Macros - creation, editing and deletion of macros.
Week 7	1. Assignments to be given on the following topics: to prepare and analyse Loan and Lease statement; Ratio Analysis; Payroll statements;

Week 8	1. Capital Budgeting; Depreciation Accounting; Graphical representation of data; Frequency distribution and its statistical parameters; Correlation and Regression.
Week 9	Data Analytics 1. Assignments to analyse data available from IndiaStat.com such as Analysis of demographic data, environment data, public expenditure.
Week 10	1. Analyse data from annual reports of Companies and banks
Week 11 & 12	E-commerce Website review Write a review of an E-Commerce Site visited include: Site description, Site Design, ease in navigation, process for purchasing items, security, privacy, customer service, best features of site, Target Audience, Revenue model, Marketing Strategies.
Week 13 & 14	Computer Networking Basic Networking Setup of PC, Network commands like ipconfig, ping, traceroute, nslookupetc, Setup of Home Router / Wifi Hotspot, Understanding of Firewall and Basic Firewall Setup, File and Printer Sharing, connecting to share, Finding out public address, connection speeds etc.