



# School of Computer Science & IT Devi Ahilya Vishwavidyalaya

## SYLLABUS

### MBA(CM) 2 years

#### Program Educational Objectives (PEOs)

- PEO 1:** Impart a blend of management, computer & soft skills required for management professionals.
- PEO 2:** Develop technology enabled managerial capabilities for sound planning, smart decision making & efficient management of business organizations.
- PEO 3:** Imbibe profound knowledge adaptable to novel technology, innovations & changes in IT industries through lifelong learning.
- PEO 4:** Produce responsible citizens who can empower the business organization with human and ethical values.

#### Program Specific Outcomes (PSOs)

- PSO 1:** To prepare students to learn & implement ERP packages for effectively automating business processes.
- PSO 2:** To develop multidisciplinary skills and professional capabilities to address organizational management requirements.

## IV - SEMESTER

## CS-4522: ICT TOOLS FOR MANAGERS

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### Course Outcomes (COs):

**CO1:** Understand the basics, approaches, benefits and drawbacks of ICT tools.

**CO2:** Use different ICT tools for developing Literacy, Quizzing/testing/Gaming etc.

**CO3:** Explore tools Tableau, Microsoft Power BI, Google Data Studio. The student will be also able to perform operations on data using MS access features.

**CO4:** Learn and explore ICT Tools for project management. The student will be also able to perform operations on data processing in MS Excel functions.

**CO5:** Learn and explore data collection and survey tools.

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### Course Contents

#### UNIT-I

**No. of Hours: 8**

ICT's definition and meaning, different ICT approaches, ICT's components and characteristics, its applications, the numerous types of interactive ICT tools, the benefits and drawbacks of ICT, Models of Access to ICT, significance of ICT in education.

#### UNIT-II

**No. of Hours: 8**

Study of different ICT tools used for the purpose of developing Literacy - Literacy-specific software, Word processing tool, Blogging, Presentation software, Spreadsheets, Quizzing / testing / Gaming, Creative Creations, online collaboration etc. Creating Google forms and analysing it.

#### UNIT-III

**No. of Hours: 8**

Introduction to data visualization tools like Tableau, Microsoft Power BI, and Google Data Studio, creating interactive dashboards and reports, Advanced use of MS Access, Key features, parts or objects, file formats, security features, creating tables, types of databases, creating queries and relationships between tables in Access Database. Creating forms, reports, different sections of report, filter records, creating Pivot table view, sum up a column in a table.

#### UNIT-IV

**No. of Hours: 8**

Project management tools, configuration management tools, resource management tools, Absolute and relative addressing, creating absolute reference, working with graph, function and its syntax, data sort, data filter, access macros in Excel, recording and executing Macros, Pivot table- creation, adding fields and grouping. VLOOKUP function and use of VLOOKUP function.

#### UNIT-V

**No. of Hours: 8**

IT monitoring tool, productivity tools, communicative tools, Data collection and survey tools (e.g., Google Forms, SurveyMonkey), Web 2.0 tools, Comparison between web1.0, web2.0, web3.0 and major features of web 2.0 and web3.0.

#### Text Books:

Dr. Raghvendra V Madalli, Dr. Prakash, 2024. ICT basics and applications.

**Reference Books:**

1. Linda Foulkes, Learn Microsoft Office 2019, Packt Publishing limited; Illustrated edition (29 May 2020).
2. Pankaj Kumar, IT Tools and Business systems.

**Online Resources:**

## CS-4522: ICT TOOLS FOR MANAGERS - PRACTICAL

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### Course Outcomes (COs):

**CO1:** To explore various ICT tools for diverse purposes and applications.

**CO2:** Develop proficiency in creating, managing databases, querying data, and generating reports by using MS Access.

**CO3:** Enhance skills to analyze, organize, and visualize data using formulas, functions, and charts.

**CO4:** To acquire skills in using Web 2.0 tools for collaboration, content creation, and communication.

**CO5:** Learn and explore data collection and survey tools.

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### Course Contents

#### UNIT-I

**No. of Hours: 4**

To explore and practice some ICT tools used in different purpose-

- Developing Literacy, Quizzing/testing/gaming, Presentation, Creative Creation, Online collaboration, Creating Google forms and analysing it.

#### UNIT-II

**No. of Hours: 6**

Microsoft Access's Components: Tables, Queries, Forms and Reports

A. Create a Student Table with the following features:

Roll Number

Student Name

Class

Marks in Subject1, Subject2, Subject3, Subject4, Subject5

Total

Percentage

Division

B. Create a Library Database of your college having following fields and enter at least 30 records in it.

Field Name: Description

Book Code: Primary Key

Book Title: Subject Name

Publisher: Book Publisher Name

No. of Copies: Quantity in Invoice

No. of Pages: Total Pages in Book

Edition: Book Printing Edition

C. From the College Library database find out the following-

Total No. of Copies of Book subject wise

A report displays all books group by publisher

A report displays all books group by Book Title

A report displays all books group by Book Edition

### UNIT-III

**No. of Hours: 6**

To design a simple database in MS Access to store customer information, product details, and order data, then perform basic operations like adding new customers, placing orders, and generating reports on sales and customer details.

#### 1. Create Tables:

- Customers Table:  
Fields: CustomerID (AutoNumber, Primary Key), FirstName, LastName, Address, PhoneNumber, Email
- Products Table:  
Fields: ProductID (AutoNumber, Primary Key), ProductName, Price, Category
- Orders Table:  
Fields: OrderID (AutoNumber, Primary Key), CustomerID (Foreign Key referencing Customers), ProductID (Foreign Key referencing Products), Quantity, OrderDate

#### 2. Design Queries:

- Customer List:
  - o Select all fields from the "Customers" table
- Product Details by Category:
  - o Select ProductName, Price, Category from "Products" where Category = "Electronics"
- Order Summary:
  - o Select CustomerID, OrderID, ProductName, Quantity, OrderDate from "Orders"
  - o Join with "Customers" and "Products" tables using foreign keys

#### 3. Create Forms:

- New Customer Form:
  - o Fields: FirstName, LastName, Address, PhoneNumber, Email (allow data input for new customers)
- Place Order Form:
  - o Fields: CustomerID (dropdown from "Customers" table), ProductID (dropdown from "Products" table), Quantity

#### 4. Build Reports:

- Sales Report:
  - o Display OrderID, CustomerName, ProductName, Quantity, Price, Total (calculated) from "Orders" table, joined with "Customers" and "Products" tables
- Customer List with Order History:
  - o Display customer details from "Customers" table with a sub-report showing their order history from "Orders" table

### UNIT-IV

**No. of Hours: 8**

MS Excel understanding and using basic functions

- Using functions and graph- Sum, Average, Max, Min, Count, if and nested if function etc.

- Absolute, Mixed, and Relative Referencing.
- Various Chart- Bar chart/Pie chart /Line chart etc.
- Filtering and Sorting- filtering on text, numbers and colours
- Creating Pivot Tables- adding field and grouping
- Lookup functions- VLookup/HLookup
- Access Macros, recording and executing of it

**UNIT-V****No. of Hours: 2**

Explore web 2.0 tools.

**Text Books:**

1. Linda Foulkes, Learn Microsoft Office 2019, Packet Publishing Limited; Illustrated edition (29 May 2020).
2. Kevin Wilson, Exploring Microsoft Office: The Illustrated, Practical Guide to Using Office and Microsoft 365, Elluminet Press; 1st edition (30 November 2020)

**Reference Books:****Online Resources:**

1. <https://swayam.gov.in>
2. <https://www.geeksforgeeks.org/ms-access-a-gui-database>
3. <https://www.geeksforgeeks.org/excel-tutorial>

## CS-4717: BUSINESS ANALYTICS

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### Course Outcomes (COs):

**CO1:** Understand the impact of big data for business decisions and strategy.

**CO2:** Graphically interpret data to find meaningful patterns.

**CO3:** Analyze the data and use it for better management decisions.

**CO4:** Apply the statistical concepts for developing effective business strategy.

**CO5:** Solve complex business problems using AI-powered Management tools.

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### Course Contents

#### UNIT-I

**No. of Hours: 8**

Introduction: Foundations of Business Analytics, Types of Analytics, Business Analytics Process, Role of Business Analytics in Organization and Decision making, Models in Business Analytics, Problem-solving with analytics, Role of Big data in business, Stages of analytics.

Understanding the Data: Types of Data, Data collection, Data Processing, Importance of data quality, Dealing with missing or incomplete data. Understanding univariate and multivariate, categorical and quantitative data.

#### UNIT-II

**No. of Hours: 8**

Descriptive Analytics: Descriptive Statistical Measures: Exploratory data analysis, Measures of Central Tendency, Measures of location, dispersion, and shape of distribution, Recognize trends in data and Summarize datasets concisely. Analyze relationships between variables, Correlation analysis, Time series analysis, Time series and forecasting.

Data Visualization and EDA: Overview, Tables, Charts, Advanced data visualization, data dashboards. Interpretation from graphical charts-bar plots, box plots, scatter diagrams and histograms, Data Visualization using Power BI and Tableau.

#### UNIT-III

**No. of Hours: 8**

Univariate Statistical Analysis: Statistical approach to estimation and prediction, Statistical Inference, Confidence interval for estimation of mean, Margin of Error, Confidence Interval for estimation of proportion, Hypothesis testing for mean, Hypothesis testing for proportion, Case study on Amazon.

#### UNIT-IV

**No. of Hours: 8**

Multivariate Statistical Analysis: Two-sample t-test for difference in Means, Two-sample Z-test for difference in proportions, Test for homogeneity of proportions, Chi-square test for goodness of fit for multinomial data, Analysis of variance. Case study on Walt Disney Studios, Box Office Analysis.

#### UNIT-V

**No. of Hours: 8**

Use Monday.com for Risk Management & Mitigation. Investigate how Asana can be used to identify, assess and mitigate project risks. Identify potential risks within the project. Use Asana to create a risk register, assign responsibility for risk mitigation, and track progress on mitigation plans.

- a. Monitor the number of identified and mitigated risks.
- b. Analyze the effectiveness of risk mitigation strategies.
- c. Assess the impact of identified risks on project timelines and budgets.

**Text Books:**

1. James, E.R., "Business Analytics", UK: Pearson Education Limited, 2017
2. Camm, J.D., Cochran, J.J., Fry, M.J., Ohlmann, J.W., Anderson, D.R, Essentials of Business Analytics, Cengage Learning, 2015, Second Edition.

**Reference Books:**

1. Schniederjans, M.J., Schniederjans, D.G., Starkey, C.M., "Business Analytics: Principles, Concepts and Applications", 2014.
2. Hardoon, D.R. and Shmueli, G., "Getting Started with Business Analytics", CRC Press, 2016.

**Online Resources:**

NPTEL Course Video Lectures on " Business Analytics For Management Decision" - By Prof. Prof. Rudra P Pradhan IIT Kharagpur

## CS-4717: BUSINESS ANALYTICS - PRACTICAL

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### Course Outcomes (COs):

- CO1:** Develop the ability to use tableau for effectively analyzing and visualizing data.
- CO2:** Develop the skills to create interactive dashboards and reports using Power BI.
- CO3:** Learn to derive meaningful insights and make informed decisions.
- CO4:** Use asana to effectively plan, organize, track and collaborate on projects.
- CO5:** Understand the use of different project management tools for business advancement.
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### Course Contents

- UNIT-I** **No. of Hours: 8**  
Prepare a tableau dashboard to analyze a dataset of marketing campaigns and visualize the performance of various marketing campaigns.
- UNIT-II** **No. of Hours: 8**  
Prepare a tableau dashboard for sales forecast analysis of a company. The main task is to infer the past sales numbers of a company and then forecast their sales for the coming quarters and years.
- UNIT-III** **No. of Hours: 8**  
Perform Customer Churn Analysis using Power bi that reveals regional customers' product sales and profits. Prepare a report that can be used to analyze regional business growth across geographies to gain valuable insights and distribute profits among customers.
- a. Use heatmaps and bar charts to analyze customer churn rates across different regions, identifying high-risk areas.
  - b. Segment products to determine those with the highest churn rates and assess their impact on overall profitability.
  - c. Compare purchasing patterns of churned and retained customers using bubble charts or column charts to uncover actionable trends.
  - d. Leverage line and combo charts to identify seasonal churn patterns and predict future trends.
- UNIT-IV** **No. of Hours: 8**  
Use Asana for Cross-Functional Project Simulation. Create a virtual company within Asana. Utilize Asana's features like custom fields, workspaces, and team memberships to organize tasks and track progress across different departments.
- a. Measure project milestones achieved, timelines met, and overall project success.
  - b. Analyze Asana usage data (e.g., task assignments, comments, file uploads) to identify communication bottlenecks and areas for improvement.
- UNIT-V** **No. of Hours: 8**

AI Tools for Management: AI-powered Project Management Tools like Asana, Monday.com and Trello, Tools for Financial Analysis like SAP and Python Libraries, Tools for Marketing Management like HubSpot and Salesforce, HR and Talent Management Tools like LinkedIn Recruiter, BambooHR and Careerflow, Tools for Customer Service and Support like Zendesk.

**Text Books:**

1. James, E.R., "Business Analytics", UK: Pearson Education Limited, 2017
2. Camm, J.D., Cochran, J.J., Fry, M.J., Ohlmann, J.W., Anderson, D.R, Essentials of Business Analytics, Cengage Learning, 2015, Second Edition
3. Sharma, J.K., Khatua, P.K., "Business Statistics", Pearson Education Limited, 2012

**Reference Books:**

1. Prasad, R. N., Acharya, S., "Fundamentals of Business Analytics", Wiley Publication, 2011, Second Edition
2. Schniederjans, M.J., Schniederjans, D.G., Starkey, C.M., "Business Analytics: Principles, Concepts and Applications", 2014
3. Hardoon, D.R. and Shmueli, G., "Getting Started with Business Analytics", CRC Press, 2016

**Online Resources:**

- <https://www.udemy.com/course/businessanalysis>
- [https://onlinecourses.nptel.ac.in/noc24\\_cs65](https://onlinecourses.nptel.ac.in/noc24_cs65)

## CS-6313: SOFTWARE TESTING & QUALITY ASSURANCE

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### Course Outcomes (COs):

**CO1:** Develop the tester's perspective resulting in software quality improvement

**CO2:** Learn modern techniques of manual and automated testing

**CO3:** Acquire skills of creating, managing and tracking the test cases.

**CO4:** Define and comply with custom specific quality process in the company.

**CO5:** Acquire proficiency in tools for configuration management, test case management and automated testing.

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### Course Contents

#### UNIT-I

**No. of Hours: 10**

Software Testing: Introduction and background, Big picture of software development process and testing component in every phase of the process, Software testing terms and definitions: Black box & white box testing, static and dynamic testing, unit, integration, system, validation, acceptance, regression testing. Unit test Automation with JUnit, Techniques of black box testing: Preparing tests-to-pass and tests-to-fail, equivalence partitioning, data and state testing, White box testing: formal reviews of the code, programming standards and guidelines, preparing code review checklists, Data & Code coverage techniques

#### UNIT-II

**No. of Hours: 10**

Configuration and Compatibility testing: Isolating configuration bugs, identifying requirements of hardware, software and network, identifying platform and application versions, backward and forward compatibility, Data sharing compatibility, Foreign Language testing: Translation issues, ASCII, EBCDIC, Hotkeys and shortcuts, extended characters, computation on characters, localisation, compatibility and configurability issues, Documentation testing, Types of documentation testing, preparing checklists before documentation testing, Security testing, Website testing: Web page fundamentals.

#### UNIT-III

**No. of Hours: 5**

Automation Testing: Techniques and methods, Seminar on popular tools like Winrunner and Rational ROBO, Hands on experience on these tools.

#### UNIT-IV

**No. of Hours: 5**

Test Planning: Test Phases, Resource, manpower requirements, test strategy, test schedule, bug reporting mechanisms, metrics and statistics writing and tracking test cases, Introduction to automated bug tracking and test case management systems.

#### UNIT-V

**No. of Hours: 10**

Usability: Importance and Impact on SDLC, Generations of User Interfaces, The Usability Engineering Lifecycle, Usability Heuristics, Usability Testing, Usability Assessment Methods beyond Testing, Interface Standards, International User Interfaces. CMM: Process, Need for Process Improvement & Standards, Assessment, Improvement and Compliance against Matured Processes, Software Quality tradeoffs, Introduction: CMM Level I to V, Case Studies.

**Text Books:**

1. Software testing Ron Patton SAMS Publishing
2. CMM Level 5 unleashed

**Reference Books:**

1. Effective methods of software testing' Wiley Publishers, William E. Perry

**Online Resources:**

## CS-6313: SOFTWARE TESTING & QUALITY ASSURANCE - PRACTICAL

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### Course Outcomes (COs):

**CO1:** Develop the tester's perspective resulting in software quality improvement

**CO2:** Learn modern techniques of manual and automated testing

**CO3:** Acquire skills of creating, managing and tracking the test cases.

**CO4:** Define and comply with custom specific quality process in the company.

**CO5:** Acquire proficiency in tools for configuration management, test case management and automated testing.

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### Course Contents

#### UNIT-I No. of Hours: 8

1. To Test a basic data structure programs
2. To Test a Sample Website Using LoadRunner

#### UNIT-II No. of Hours: 8

3. To Perform Automation Testing on a Sample Website using Selenium and JMeter
4. To Test a Sample Android Application Using Bitbar

#### UNIT-III No. of Hours: 4

5. To Perform Functional Testing and Usability Testing on a Website

#### UNIT-IV No. of Hours: 2

6. To Perform Automation Testing on a Desktop Application

#### UNIT-V No. of Hours: 2

7. To Manage Defects using a Defect Management Tool

#### Text Books:

1. Software testing Ron Patton SAMS Publishing
2. CMM Level 5 unleashed

#### Reference Books:

1. Effective methods of software testing' Wiley Publishers, William E. Perry

#### Online Resources: