



School of Computer Science & IT Devi Ahilya Vishwavidyalaya

SYLLABUS

BCA 3 years/ BCA (Hons./ Research) 4 years

Program Educational Objectives (PEOs)

- PEO 1:** Exhibit a strong inclination towards higher education and actively pursue in continuous development of their professional skills.
- PEO 2:** Develop communication and soft skills to inculcate professionalism for working in cross-cultural and global environment.
- PEO 3:** Build expertise on latest technological trends to bridge gap between industry and academia for better employability.
- PEO 4:** Evolve competency to design and develop computing applications that address the societal needs.

Program Specific Outcomes (PSOs)

- PSO 1:** Apply knowledge of computing and inter-disciplinary techniques to design and develop quality software applications.
- PSO 2:** Ability to use modern tools and frameworks to create innovative solutions in emerging areas.

III - SEMESTER

CS-2222: Data Structures and Algorithms

Aim:

To understand and develop different data structures and apply this knowledge for better programming design.

Course Outcomes:

- CO 1: Adequate knowledge to understand various linear and non linear data structures.
 - CO 2: Know the strength and weakness of different data structures.
 - CO 3: Identify and build appropriate data structures for various real world challenges.
 - CO 4: understanding of algorithm complexity analysis.
 - CO 5: Design various searching and sorting algorithms.
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Unit-I

Data structures: Definition & Classification, Abstract data type, Concept of Algorithm analysis, Time and Space Complexity. Arrays: Definition, representation of One and Two dimensional arrays, Operations on Arrays.

Unit-II

Stacks: Definition, Implementation. Applications of Stack, Infix to Postfix Conversion. Queues: Operations on Queues, Queue Applications, Circular Queue, Double ended queue.

Unit-III

Singly Linked List: Implementation and Applications, Representation of a Polynomial, Polynomial Addition; Circular Linked List: Implementation and Applications, Doubly Linked List: Implementation and Applications.

Unit-IV

Introduction to Trees, Binary Tree, Tree Traversals: Preorder, Inorder and Postorder, Binary Search Tree. Graph: Definition of Undirected Graph and Directed Graph, Graph representation. Graph Traversal: Breadth first Traversal, Depth first Traversal.

Unit-V

Searching algorithms: Linear Search and Binary Search, Hashing: Hash Functions, Collision Resolution. Sorting algorithms: Selection Sort, Bubble Sort, Insertion Sort, Merge sort, Quick sort and Heap sort.

Text Books:

1. Data Structures using C and C++ by A. M. Tenenbaum, Langsam, Moshe J. Augentem, PHI Pub, 6th Edition.
2. Data Structures Using C by E Balagurusami, McGraw Hill Education first edition

Reference Book(s):

1. Theory & Problems of Data Structures by Jr. Symour Lipschetz, Schaum's outline by TMH 2006, Special Indian Edition.
2. Data Structures and Algorithms by A.V. Aho, J.E. Hopcroft and T.D. Ullman, Original edition, Addison-Wesley, 1999, Low Priced Edition.
3. Fundamentals of Data structures by Ellis Horowitz & Sartaj Sahni, Pub, 1983, AW, 1st Edition.
4. Data Structures and Program Design in C By Robert Kruse, PHI, 2nd Edition.

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IC-2930: Digital Marketing

Aim:

To develop proficiency in the specification, representation, and implementation of digital marketing and apply the concepts for better market design.

Course Outcomes:

- CO 1: Understand Marketing and Digital marketing with its tools.
 - CO 2: Learn to run a social media marketing campaign to gain hands-on real world experience.
 - CO 3: Solve and create digital marketing strategies for various brands.
 - CO 4: Application and use of various platforms of digital marketing.
 - CO 5: Features aspects, new technologies, and modern accept of digital marketing.
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Unit-I

Introduction to Digital Marketing: Meaning of Digital Marketing, Differences from Traditional Marketing, Return of Investments on Digital Marketing vs. Traditional Marketing, E Commerce, Tools used for successful Marketing, SWOT Analysis of Business for Digital Marketing, Meaning of Blogs, Websites, Portal and Their Differences, Visibility, Visitor Engagement, Conversion Process, Retention, Performance Evaluation.

Unit-II

Search Engine Optimization (SEO) : On page Optimization Techniques, Off Page Optimization Techniques, Preparing Reports, Creating Search Campaigns, Creating Display Campaigns.

Unit-III

Social Media Optimization (SMO): Introduction to Social Media Marketing, Advanced Facebook Marketing, WordPress Blog Creation, Twitter Marketing, LinkedIn Marketing, Instagram Marketing, social media Analytical Tools.

Unit-IV

Search Engine Marketing : Meaning and Use of Search Engine Marketing, Tools used - P Click, Google Ad words, Display Advertising Techniques, Generation Website Traffic Analysis, Affiliate Marketing and Ad Des Google Analytics, Online Reputation Management, Email Affiliate Marketing, Understanding Ad Words Algorithm, Adverb Designing.

Unit-V

Other Digital Marketing Concepts: Introduction, Content Marketing, Goals of Content Marketing, Start Content Marketing, E-mail Marketing -mail Newsletters, Digests, Dedicated E-mails, Lead Nurturing, Sponsorship E-mails, Transactional E-mails, Mobile Phone Marketing, Mobile Marketing Work, We Need a Mobile Marketing Strategy New Mobile Marketing Channels, Types of Mobile Marketing Strategies, Pay-Per-Click (PPC) Marketing Advantage of PPC Marketing, Factors behind Successful PPC Advertising, Conversion Rate Optimization (CRO).

Text Books:

DIGITAL MARKETING (Kamal Prakashan Indore)

Reference Book(s):

Dr. Arpana Bharani - Digital Marketing (Book)

Dr. Sheetanshu Rajoriya, Dr. Ajay Soni- Dr. Rupesh Meetal

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CS-2301: Management Information System

Aim:

Students will learn about computer based information systems, development of MIS, organizing and controlling of MIS.

Course Outcomes:

- CO 1: Students will learn about computer based information systems, development of MIS, organizing and controlling of MIS.
 - CO 2: Students will learn about transaction processing systems, management information systems, decision support systems, expert systems, executive information systems and phases in information system's development.
 - CO 3: Students will be familiar with the types of data processing, data storage and retrieval in MS Excel, computer operation of manual information system, components of computer systems.
 - CO 4: Students will be acquainted with decision making process, types of decisions, managerial decision making, characteristics and components of a Decision Support System.
 - CO 5: Students will be acquainted with decision making process, types of decisions, managerial decision making, characteristics and components of a Decision Support System.
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Unit-I

A systematic view of business, the significance and use of MIS, the MIS process, the development of MIS in an organization, the management process, information needs, a systematic approach to planning, organizing and controlling of MIS

Unit-II

Phases in information system's development – Steps involved in information system's planning, implementation and controlling.

Unit-III

Introduction to data processing, types of data processing, data storage and retrieval in MS Excel, computer operation of manual information system, components of computer systems, flow chart, data flow diagrams, conversion of manual system to computer-based systems, hardware and software, system's software, application software.

Unit-IV

Decision making process, types of decisions, managerial decision making, characteristics and components of a Decision Support System.

Unit-V

Introduction to system design, system design considerations, input/output design, forms design, file organization and database, data management, file design, database creation, query formation in MS Access, program design, control and security.

Text Books:

1. Kenneth C. Laudon & Jane P. Laudon, Essentials of Management Information Systems, Tenth Edition, Pearson Prentice-Hall, 2012.

Reference Book(s):

1. Effy Oz & Andy Jones Management Information Systems, Cengage Learning EMEA, 2008.
2. Terry Lucey, Management Information Systems, Ninth Edition, 2005, Thompson

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CS-2133: Statistics and Probability

Aim:

To make student aware about the basic concepts of statistical and probability methods for data analysis.

Course Outcomes:

- CO 1: Students will learn about simple methods of statistics.
 - CO 2: Students will be familiar with measures of Central tendency and dispersion.
 - CO 3: Students will be able to evaluate the probabilities and conditional probability.
 - CO 4: Students will learn about theoretical probability distribution and curve fitting method.
 - CO 5: Students will be able to learn about regression, correlation and concept of hypothesis.
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Unit-I

Measures of central tendency: Arithmetic Mean, Median and Mode. Geometric mean, Harmonic Mean and Partition values. Measures of dispersion: Dispersion, Range, Quartile Deviation, Mean deviation, Standard Deviation, Variance and Coefficient of Dispersion.

Unit-II

Skewness, Kurtosis, Moments, Measure of skewness and kurtosis. Theory of probability: Introduction and definition of Probability, Event, Sample Space, Law of addition and multiplication of Probabilities and Conditional Probability. Independent and Dependent events, Bayes' theorem, Mathematical Expectations and Moment generating functions.

Unit-III

Theoretical Distribution: Discrete Distribution- Binomial Distribution and Poisson Distribution. Continuous Distribution –Rectangular and Normal distribution. Curve fitting: Curve fitting and Methods of Least square, fitting a Straight line and a Parabola.

Unit-IV

Correlation and Regression: Correlation, Coefficient of Correlation, Rank Correlation, Lines of Regression. Multiple and Partial Correlation.

Unit-V

Testing of hypothesis: Null and Alternative hypothesis, two types of errors, level of significance and power of the test. Tests of significance.

Text Books:

S.C.Gupta, V.K.Kapoor "Fundamentals of Mathematical Statistics". 10th Edition, Publisher: Sultan Chand, 2000.

Reference Book(s):

1. D.N.Elhance.-'Fundamentals of Mathematical Statistics' Kitab Mahal, Allahabad
2. A.M.Goon, M.K.Gupta & B. Dasgupta (1980): An outline of Statistical theory, Vol. I, 6th revised edition, World Press.
3. J.K. Sharma, "Business Statistics" second edition, Pearson.

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CCIC-2929: Financial Accounting Using Tally

Aim:

The objective of this course is to acquaint students with the accounting concepts, tools and techniques and preparation of accounts for certain businesses so that they can develop business application easily.

Course Outcomes:

- CO 1: Students will recognize commonly used financial statements, their components and how information from business transactions flows in to these statements
- CO 2: Students will demonstrate progressive learning in the elements of managerial decision making, including planning, directing and controlling activities in a business environment and will be able to understand tax issues.
- CO 3: Students will be able to demonstrate knowledge of preparation of Financial Statements and or financial schedules in accordance with Generally Accepted Accounting Principles through analysis and synthesis of information as well and will be able to demonstrate
- CO 4: Students will demonstrate progressive affective domain development of values, including but not limited to receiving and responding to: the role of accounting in society, business ethics, environmental and global societal sustainability, and/or career opp
- CO 5: Students will be able to demonstrate knowledge of various advanced accounting issues related to Financial Accounting within a global and or ethical framework and will be able to understand implementation of accounting work and logic in the software through

Unit-I

Introduction to book keeping:

meaning, nature, development, objectives, merits and Difference between book keeping and accountancy. Fundamentals of accounting: Accounting concepts and conventions. Brief introduction to GAAP and its importance. Accounting structure: the process of accounting –journal, ledger, subsidiary books.

Unit-II

Trial Balance based on Double Entry Book Keeping System. Financial Systems and related concepts: Form and preparation of Income statements (P &L A/C), Statement of Financial Position.

Unit-III

Methods of Depreciation –

SLM Method and WDV method. Financing Decisions : Tools of Financial Analysis : Financial Statement Analysis, Statement of Financial position.

Unit-IV

Break Even Analysis. Leverages:

Operating , financial and combined. Accounting Package – Tally (Operations)

Unit-V

Inventory Management and Responsibility Accounting : Methods of Inventory Management and Material Issues. Responsibility Accounting Meaning, Objectives and Importance.

Text Books:

- 1) Tulsian's Accountancy for Class XI, Financial Management by Khan & Jain.
- 2) Tally Prime Practical Book (image based guide) by Pushpendra Singh Jadon, Prakash Sharma

Reference Book(s):

- 1) Financial Accounting by TS Grewal.
- 2) Financial Management by Khan and Jain.
- 3) NCERT Books on Accounting and FM for Class XI and X
- 4) Learn Tally Prime : with All New Features ,4/E by Rajesh U. C

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