SYLLABUS

Bachelor of Computer Applications

3rd SEMESTER

Mission of SCS&IT, DAVV

To produce world-class professionals who have excellent analytical skills, communication skills, team building spirit and ability to work in cross cultural environment.

To produce international quality IT professionals, who can independently design, develop and implement computer applications.

Professionals who dedicate themselves to mankind, who are environment conscious, follow social norms and ethics.

School of Computer Science & IT,
Devi Ahilya Vishwa Vidyalaya, Indore
www.scs.dauniv.ac.in

Course Name: **BCA 3rd Semester**

Subject Code: **CS-2222**

Subject Name: **Data Structure and Algorithms**

Aim of the Subject

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

Learning Outcomes

The students are expected to learn following after completion of the course:

- Knowledge about complexity analysis of an algorithm.
- Adequate knowledge to understand various linear and non linear data structures.
- Select and implement suitable data structures for different types of application problems.
- Design variety of algorithms for searching and sorting of data elements.

Unit 1

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 2

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

Unit 3

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 4

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 5

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 Book(s)

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 Material(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 Edit

Course Name: **BCA 3rd Semester**

Subject Code: **CS-2301**

Subject Name: **Management Information System**

Aim of the Subject

The aim of this course is to offer students with an understanding of how to use and manage information system in order to revive business processes, develop business decision making, and increase competitive advantage.

Learning Outcomes

The students are expected to learn following after completion of the course:

- Students will learn about computer based information systems, development of MIS, organizing and controlling of MIS.
- 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.
- 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.
- Students will be acquainted with decision making process, types of decisions, managerial decision making, characteristics and components of a Decision Support System.
- Students will learn about system design, types of input/output design, file organization and database design.

Unit 1

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 2

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

Unit 3

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 4

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

Unit 5

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 Book(s)

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

Reference Material(s)

1. Effy Oz & Andy Jones Management Information Systems, Cengage Learning EMEA, 2008.

2. Terry Lucey, Management Information Systems, Ninth Edition, 2005, Thompson

Course Name: **BCA 3rd Semester**

Subject Code: **CS-2133**

Subject Name: **Statistics & Probability**

Aim of the Subject

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

Learning Outcomes

The students are expected to learn following after completion of the course:

- Learn about simple methods of statistics
- Familiar with measures of Central tendency and dispersion
- Evaluate the probabilities and conditional probability
- Calculate the number of samples needed to construct confidence levels on the mean and
- variance of a normal distribution
- Use linear regression analysis to develop model of experimental data

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Unit 1

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 2

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 3

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 4

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

Unit 5

Testing of hypothesis: Null and Alternative hypothesis, two types of errors, level of significance and power of the test. Tests of significance: Chi-square distribution, test of popular variance and test of goodness of fit. t, F, Z distribution and tests based on them.

Text Book(s)

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

Reference Material(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.

Course Name: **BCA 3rd Semester**

Subject Code: **IC-2929**

Subject Name: **Financial Accounting Using Tally**

Aim of the Subject

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.

Learning Outcomes

The students are expected to learn following after completion of the course:

- Students will recognize commonly used financial statements, their components and how information from business transactions flows into these statements
- Students will demonstrate progressive learning in the elements of managerial decision making, including planning, directing and controlling activities in a business environment & students will be able to understand tax issues.
- 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 in formation as well.
- Students will complete a Project/ Written Assignment that integrates career orientation and or professional development skills.
- Students will be able to understand implementation of accounting work and logic in the software through Tally ERP 9.0 / Prime.

Unit 1

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 2

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

Unit 3

Methods of Depreciation –

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

Unit 4

Break Even Analysis. Leverages:

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

Unit 5

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

Unit 6 (Classroom & Lab Activity)

A. Fundamentals of Tally ERP

(a) Getting Functional with Tally ERP

(b) Setting up of firm in Tally ERP

B. Accounting Master in Tally ERP

(a) F-11 : Featurs

(b) F-12 : Configurations

(c) Setting up Account Heads

C. Inventory in Tally ERP

(a) Stock Groups, Stock Categories, Godowns/Locations, Units of measure, Stock Items,

(b) Creating inventory master for National Traders.

D. Voucher Entry in Tally ERP

(a) Accounting Vouchers, inventory vouchers

(b) Invoicing. Pay-roll accounting

E. Advanced Applications of Tally ERP

(a) Bill-wise details, cost centers, cost categories, voucher class and cost centre class, Bank reconciliation, Multiple currencies, interest calculations, Budgeting and Budgetary control, scenario analysis and optional vouchers.

(b) Advanced inventory control and Management

Text Book(s)

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 Material(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. Chheda

Course Name: **BCA 3rd Semester**

Subject Code: **IC-2930**

Subject Name: **Digital Marketing**

Aim of the Subject

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

Learning Outcomes

The students are expected to learn following after completion of the course:

- Learn working on various projects.
- Learn to run a social media marketing campaign to gain hands-on real world experience.
- Solve and create digital marketing strategies for various brands.

Unit 1

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 2

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

Unit 3

Social Media Optimization (SMO): Introduction to Social Media Marketing, Advanced Face book Marketing, Word press Blog Creation, Twitter Marketing, LinkedIn Marketing, Instagram Marketing, social media Analytical Tools.

Unit 4

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 Ma Affiliate Marketing, Understanding Ad Words Algorithm, Adverb Designing.

Unit 5

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 Book(s)

DIGITAL MARKETING (Kamal Prakashan Indore)

Reference Material(s)

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