



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Computer Applications

Name of Program: MCA

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teacher Assessment*	END SEM University Exam	Teacher Assessment*
MCAMA101	COMPULSORY	Mathematical Foundation of Computer Science	3	1	0	4	60	20	20	0	0

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

Q/A – Quiz/Assignment/Attendance, MST - Mid Sem Test.

***Teacher Assessment** shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Objectives:

- To introduce the students with the Discrete Mathematics, Probability and Statistics.

Course Outcome: After the successful completion of this course students will be able to

- understand and apply the fundamentals of the discrete mathematics.
- find probability of a random event.
- apply the techniques in the testing of quality of an item.

UNIT – I

Discrete Mathematics: Sets, Relations, Functions, Logic Operators, Truth Table, Normal Form, Boolean Algebra, Trees.

UNIT – II

Discrete Mathematics: Congruence and Equivalence Relations, Groups and Subgroups, Semi-group, Monoids examples and properties.

UNIT – III

Discrete Mathematics: Permutation and Combination, Pigeon Hole Principle, Principle of Exclusion and Inclusion, Ordinary and Exponential Generating Function, Recurrence Relation.

UNIT – IV

Probability: Axioms, Conditional probability, Bayes theorem, Random variable, Discrete RV- Binomial & Poisson RV, Continuous RV, Normal RV, Expectation, Mean and Variance



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UNIT – V

Probability: Sample distribution, Testing of Hypothesis, Curve fitting-Method of the least square.

Text Books:

1. C. L. Liu, Elements of Discrete Mathematics, Tata McGraw-Hill
2. Trembly J. P. & Manohar P., Discrete Mathematical Structure with applications to computer science, McGraw-Hill
3. Ross S., A First course in Probability, Sixth edition, Pearson Education
4. Ross Sheldon, Introduction to Probability Model, Eighth edition, Elsevier, 2003
5. Trivedi K. S., Probability and Statistics with Reliability, Queuing and Computer Science Applications, Second edition, Wiley, 2002.





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MCA101	COMPULSORY	Programming with C Language	3	0	4	5	60	20	20	30	20

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Course Educational Objectives (CEOs):

- To familiarize the students with programming and to encourage them to develop their logic.
- To make students well versed with C language to solve problems efficiently.
- Using simple and well drawn illustrations develop their programming skills using modular programming.
- To make the students well versed with the knowledge of pointer and structure.

Course Outcomes (COs): Student will be able to:

- Develop algorithms for problems.
- Apply the programming concepts to solve the given problems.
- Write the programs using modular programming.
- Write the programs using pointers and to manage memory.

Unit I:

Concept of problem solving, Problem definition, Flowcharting, Decision table, Algorithm. Characteristics of a good program - accuracy, simplicity, robustness, portability, minimum resource and time requirement, modularization; Categories of Programming Languages, Programming Paradigms: monolithic, Procedural, structured, Non Procedural. Type of errors in programming.

UNIT II:

Overview of C: Features of C, Structure of C program. Elements of C: C character set, identifiers and keywords, data types: primitive and user defined. Operators and Expressions, Type modifiers and type casting. Control Structures. Input/ Output: Unformatted and Formatted I/O functions in C.



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Unit III:

Functions: Definition, prototype, Function call, parameters passing – call by value and call by reference. Return value. Storage Classes in C: auto, extern, register and static, their scope, Recursion, Recursion v/s Iteration, types of recursion. Special constructs – Break, continue, exit(), goto and labels.

Arrays: Definition, Access of Elements, initialization; Multidimensional arrays, character arrays.

Unit IV:

Pointer: address and dereferencing operators, declaration, assignment, initialization. pointer to pointer. pointer and arrays, Array of pointers and its limitation, Function returning pointers; Pointer to function, Function as parameter. Dynamic memory management using functions like malloc(), calloc(), realloc(), free() etc.

Structure: Structure –basic, declaration, membership operator, structure within structure, array in structure, array of structure.

Unit V:

Pre-processor directives: #include, #define, #undef, #if, #ifdef, #ifndef, #else, #elif, #endif, #error, #pragma. Predefined macros. Command line arguments. Variable argument list functions.

List of Experiments:

1. Define an algorithm and flowchart. Draw algorithm and flow chart for a program that converts an input Fahrenheit degree into Celsius equivalent.
2. Write an algorithm and a C program to find the greatest among three numbers.
3. WAP to print an input string in lower case, upper case and mixed case using library function.
4. WAP a C program to reserve an input number.
5. Draw a flow chart to find prime number from 1 to 100.
6. Write a C program to obtain the sum of first n terms of the following series: $X - X^3/3! + X^5/5! - X^7/7! + \dots$
7. WAP to calculate factorial of a number using different loops.
8. WAP to calculate factorial of a number using recursion.
9. WAP in C to generate Fibonacci series.
10. WAP in C to generate Pascal triangle.



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11. WAP in C to swap value and address of two variables.
12. WAP in C to search a given element in an array using linear and binary search.
13. WAP to sort an integer array in ascending and descending order according to user's choice.
14. Write a menu driven program to perform matrix addition, subtraction and multiplication.
15. Write a program to sum diagonal elements of two matrices.
16. WAP a C program to reverse a string by recursion.
17. WAP using structure in C to generate student mark-sheet for 3 students with student details name, course, and semester and with marks in 5 subjects, assume max mark in each subject as 100 and passing marks as 35.

Text Books:

1. Kanitkar Yashwant, Let us C", Edition 16th 2017, BPB New-Delhi.
2. Balaguruswami, Ansi C, McGraw Hill Education; Eighth edition 2019, TMH, New-Delhi.
3. Kerninghan & Ritchie "The C programming language", Pearson Education India; 2nd edition (2015), PHI.
4. Schildt "C: The Complete reference" McGraw Hill Education; 4th ed., TMH 2017.
5. Byron S. Gottfried, "Programming with C", Schaum's Outline Series McGraw-Hill, II-Ed.
6. Concepts of Programming Languages Robert .W. Sebesta 8/e, Pearson Education, 2008.
7. Programming Language Design Concepts, D. A. Watt, Wiley dreamtech, rp-2007.

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Name of Program: MCA(Banking Technology)

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
MCBT 101	Compulsory	Banking Technology and Payment Systems	3	1	0	4	60	20	20	0	0

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Course Objectives:

This course is intended to provide the students an insight into the role played by technology in enhancing the effectiveness of the banking sector and also to provide strong foundation in the various technologies used for delivering Banking & Financial services. Apart from tracing the evolution of Banking Technology, this course will focus on current technologies as well as banking technologies of the future.

Course Outcomes:

It will enable the students to envision the current and future requirements, architectures of banks and accordingly develop roadmap and strategies. It will help students appreciate the fact that technology cannot be viewed in isolation, which will be a crucial step in integrating the technology and business goals of banks.

UNIT – I

Banking Operations-Overview: Introduction to Banking, Evolution of Banking Technology, Impact of Technology on Banking operations. Centralized Banking- concepts and opportunities, Centralized Banking – Architectures, Challenges and Implementation & Management Issues.

UNIT – II

Delivery Channels: Products, Services & Delivery Technologies. ATM- technology and operations, Electronic Cards- debit and credits, Smart cards in banking/e-money Internet Banking Architecture and Implementation, Internet Banking/Mobile Banking management, Phone banking and call centres, Electronic Delivery Channels Integration.

UNIT – III



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Back office Operations: Credit appraisal system, Forex management/SWIFT, Treasury management, Asset Liability management, Risk management- Operational risk, MIS/DSS/EIS

for Banks, Data Centre and Business continuity management, Internal workflow operations, Corporate Intranet and Knowledge management, Technology & Human Resource management, IT Governance.

UNIT – IV

Electronic & Mobile Commerce: Introduction to Electronic Commerce, Business Models, Market Research and E-Commerce, Advertising in E-Commerce, Legal & Public policy issues relating to E-Commerce, Introduction to Mobile Commerce, Mobile Payments, Mobile banking, Mobile micro payments and mobile macro payments, Auctions, Agents in E-Commerce, E-Trading, B2B,B2C.

UNIT – V

Payment Systems: Introduction to Payment Systems, Payments through the Internet- privacy issues- Card based, net based payment systems, SET Protocol MICR, ECS, EFT, Global Payment Scenario – Interbank/Intrabank, RTGS, History of Money/Electronic Money/ Electronic cheques, Micro payments.

Text Books:

1. Bank 3.0, Brett king, John wiley, 2013
2. The Art of Better Retail Banking, Hugh Croxford, Frank Abramson, Alex Jablonowski, John Wiley 2005
3. Business knowledge for IT in Retail Banking-Bizle Professional series, UK Edition, Essvale Corporation Ltd 2007.
4. Electronic Commerce, Bhaskar, Bharat, Tata McGraw Hill, New Delhi-2008.
5. Electronic Payment Systems for E-Commerce, Mahony D, Piercece M, Tiwari H, Artech House Computer Security Series, 2001

Reference Books:

1. Financial Services Information System, Jessica Keyes, Auerbach, 2000.
2. Technology management in financial services, Ross, McGill, Palgrave Macmillan, 2008.
3. Financial Technology management, Vol.1, Gulati, V.P., Srivasvatava, Shilpa; ICFAI University Press, 2008
4. Financial Technology management, Vol.2, Gulati, V.P., Srivasvatava, Shilpa; ICFAI University Press, 2008
5. Information Systems for Banks, Bhaskaran R, Taxmann, IIBF, 2005.
6. Electronic Commerce: A Managerial Perspective, Efrain Turban, Jae Lee, David King H, Michael Chang, Pearson Education, New Delhi 2001.



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Name of Program: MCA (BANKING TECHNOLOGY)

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
MCBT102	Compulsory	IT Infrastructure Management for Banks	3	1	0	4	60	20	20	0	0

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***Teacher Assessment** shall be based on following components: Quiz / Assignment / Project / Participation in class activities, given that no component shall exceed more than 10 marks

Course Education Objectives (CEOs):

The objective of this course is to expose the emerging area of IT Infrastructure and its Management. It focuses on Server Management and Data Center management. It also deals with the IT Services Management. This course comprehensively deals with Service Transition principles and Continual Service Improvement principles.

Course Outcomes (COs):

After successful completion of this course students will be able to manage the basic IT infrastructure of banking and financial services sector. They will be able to effectively handle the security issues, design principles of servers and data centers which are the basic blocks of IT infrastructure. They will be able to design and manage various IT services through well defined procedures available.

UNIT I

Server Management - Storage Management, Application Management, Information Life Cycle Management, Network Management, Security Management, Tools and Standards for Server, Storage, Application, Information Life Cycle Management, Network and Security Management.

UNIT II

Data Center Management - Data Center Basics, Data Center Architecture, Data Center Design, Data Center Network Design, Data Center Maintenance, Data Center HVAC, Data Center consolidation.

UNIT III

IT Services Management – Service Management as a practice, Service strategy principles, Service economics, Strategy and Organization - Strategy, tactics and operations – Service Design



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principles, Service Design processes, Service Design Technology related activities, Implementing Service Design.

UNIT IV

Service Transition principles - Service Transition processes, Service Transition common operation - implementing service transition: challenges, critical success factors and risk – Service Operation principles: Service Operation processes, Common Service Operation activities, implementing service operation.

UNIT V

Continual Service Improvement principles - Continual Service Improvement processes, Continual Service Improvement methods and techniques, Implementing Continual Service Improvement.

Text Books:

1. Office of Government Commerce, “ITIL - Service Strategy”, TSO publications, London, 2007
2. Office of Government Commerce, “ITIL - Service Design”, TSO publications, London, 2007
3. Office of Government Commerce, “ITIL - Service Transition”, TSO publications, London, 2007
4. Office of Government Commerce, “ITIL - Service Operation”, TSO publications, London, 2007
5. Office of Government Commerce, “ITIL - Continual Service Improvement”, TSO publications, London, 2007
6. Kailash Jayaswal, “Administering Data Centers: Servers, Storage and Voice over IP”, Wiley Publications
7. EMC, Information Storage Management: “Storing, Managing and Protecting Digital Information”, Wiley 2009
8. Gilbert Held, “Server Management: Best Practices Series”, Aurebach Publications, 2000
9. Stephan R. Kass, “Information Life Cycle Management”, Woodhead Publishing, 2006
10. Alexander Clemm, “Network Management Fundamentals”, Cisco Press, 2006



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MCA103	COMPULSORY	Internet Web Programming	3	0	4	5	60	20	20	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; Q/A – Quiz/Assignment/Attendance, MST - Mid Sem Test.

***Teacher Assessment** shall be based on following components:

Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Objectives:

- Provide an introduction to the fundamental concepts of HTML, CSS, XML, Javascript
- Learn CSS Grid Layout
- Develop basic programming skills using Javascript
- Develop skills in analyzing the usability of a website.
- Understand the principles of creating an effective Web Page.

Course Outcomes:

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes:

- Define the principle of Web page design.
- Define the basics of Javascript.
- Visualize the basic concept of HTML.
- Recognize the elements of HTML.
- Introduce basics concept of CSS.
- Develop the concept of XML, XSLT, DTD and XPath.

UNIT - I

Java Methodology: Classes, Objects, Method, Inheritance, Packages, Abstract Classes, Interfaces, Exception Handling, A brief introduction to Applets.

UNIT – II

HTML: Introduction to HTML, HTML Documents structure tags, Text Formatting Tags, Inserting Special Characters, Anchor Tags, List Tags, Tables, Frames and Floating Frames, Developing Forms, Adding Images and Sound.



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UNIT – III

CSS: Concept of CSS, Creating Style Sheet, CSS Properties, CSS Styling (Background, Text Format, Controlling Fonts), Working with block elements and objects, Working with Lists and Tables.

UNIT-IV

XML: Creating XML documents, overview of working with elements and attributes

UNIT-V

Javascript: Introduction to Javascript, Identifier and Operator, Control Structure, Functions DOM, Numbers and String Functions, Arrays and Event handling in Javascript, Bootstrapping.

List of Practicals:

1. Develop a webpage using Form tag.
2. Develop a webpage using different HTML tags.
3. Develop a webpage using Table tag.
4. Develop a webpage using Frame tag.
5. Develop a static website using HTML tags.
6. Creating XML documents.
7. Creating DTD to validate XML documents.
8. Creating XSLT Stylesheet for formatting data.
9. Develop a Javascript Form.
10. Creating a Javascript POPUP Message.
11. Change Link colors using CSS
12. Create a TextBox using CSS
13. Center-Align elements using CSS
14. Adjust padding using CSS
15. Make a Link Button using CSS

Text Books:

1. Jennifer Robbins, "Learning Web Design: A beginner's guide to HTML, CSS, Javascript and Web Graphics", 5th Edition, Oreilly, 2018
2. Doug Tidwell, "XSLT: Mastering XML Transformations", 2nd Edition, Oreilly, June 2009
3. Jon Ducket, "Javascript and JQuery: Interactive Front-End Web Development", 1st Edition, Wiley, July 2014

Reference Books:

1. Craig Granell, "The Essential Guide to CSS and HTML Web Design", 3th Edition, Apress, March 2008
2. Jon Ducket, "HTML and CSS: Design and Build Websites", 1st Edition, Wiley, November 2011
3. Michael Kay, "XSLT Programmer's Reference", Wrox Press Ltd, 1 April 2000



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HUPG101	COMPULSORY	Technical Communication and Soft Skills	3	1	0	4	60	20	20	0	0

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will be able to:

- Enable them communicate their ideas relevantly and coherently in speaking and writing.
- Understand the nuances of technical communication.

Course Outcomes (COs): The students should be able to:

- Use language accurately, fluently and appropriately.
- write project reports, reviews and resumes
- Exhibit advanced skills of interview, debating and discussion.

COURSE CONTENTS:

UNIT I

Fundamentals of Technical Communication: Technical Communication: Features; Distinction between General and Technical Communication; Language as a tool of Communication; Dimensions of Communication: Technical writing: Paragraph writing; The flow of Communication: Downward; upward, Lateral or Horizontal; Barriers to Communication.

UNIT II

Forms of Technical Communication: Technical Report: Technical Report v/s General Report ; Speech: Introduction & Summarization; 7 Cs of effective business writing: concreteness, completeness, clarity, conciseness, courtesy, correctness, consideration. Skills and sub skills of LSRW.



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UNIT III

Technical Presentation: Strategies & Techniques Presentation: Forms; interpersonal Communication; Class room presentation; style; method; Public Speaking: method; Techniques: Clarity of substance; emotion; Modes of Presentation; Overcoming Stage Fear: Confident speaking; Audience Analysis & retention of audience interest; Methods of Presentation, Areas for an effective presentation.

UNIT IV

Technical Communication Skills: Resume writing – CV – structural differences, structure and presentation, planning, defining the career objective Interview Skills – formal & informal interviews, concept and process, pre-interview planning, opening strategies, answering strategies, interview through tele and video-conferencing, Group Discussion – dynamics of group discussion.

UNIT V

Soft Skills: An Introduction–Definition and Significance of Soft Skills; Process, Importance and Measurement of Soft Skill Development, Time Management–Concept, Essentials, Tips. Decision-Making, Conflict Management: Conflict-Definition, Nature, Types and Causes; Methods of Conflict Resolution.

Suggested Readings

- Simon Sweeny, “English for Business Communication”, CUP, First South Asian Edition, 2010.
- Ashraf Rizvi, “Effective Technical Communication”, TataMcGraw-Hill Publishing Company Ltd. 2005.
- Sunita Mishra & C. Muralikrishna, “Communication Skills for Engineers”, Pearson Education, 2007.
- Meenakshi Raman & Sangeeta Sharma, “Technical Communication”, Oxford University Press, 2011.
- R.C. Sharma, Krishna Mohan, “Business Correspondence and Report writing”, 4th Edition, Tata Mcgraw-Hill Publishing Co. Ltd., 2010.