Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Computer Applications

Name of the Program: MCA in No Branch

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

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, Elsvier, 2003
5. Trivedi K. S., Probability and Statistics with Reliability, Queuing and Computer Science Applications, Second edition, Wiley, 2002.

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COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	THEORY END SEM University Exam	THEORY Two Term Exam	THEORY Teachers Assessment*	PRACTICAL END SEM University Exam	PRACTICAL Teachers Assessment*
MCA101	COMPULSORY	Programming with C Language	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 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): Students 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.

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: $X - X^3/3! + X^5/5! - X^7/7! + \ldots$

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.

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. KanitkarYashwant, 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; 2 edition (2015), PHI.
4. Schildt "C:The Complete reference" McGraw Hill Education; 4th edTMH, 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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SUBJECT CODE	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
		THEORY			PRACTICAL		L	T	P	CREDITS
		END SEM University Exam	Two Term Exam	Teachers Assessment *	END SEM University Exam	Teachers Assessment				
MBAAI103	Accounting for Managers	60	20	20	0	0	4	0	0	4

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

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

Course Objectives

The objective of this course is to acquaint the students with the basic concept of Financial, Cost and Management Accounting and also to develop understanding of Accounting for Managers which helps them in decision making.

Examination Scheme

The internal assessment of the students' performance will be done out of 40 Marks. The semester Examination will be worth 60 Marks. The question paper and semester exam will consist of two sections A and B. Section A will carry 24 Marks and consist of three questions, out of which student will be required to attempt any two questions. Section B will comprise of five questions, out of which student will be required to attempt any three cases / problems worth 36 marks.

Course Outcomes

1. Understand the role of accounting inbusiness.
2. Develop an understanding of the basic accountingframework.
3. Record basic business events culminating into a balancesheet.
4. Apply the financial accounting concepts using any standard accountingpackage.

COURSE CONTENT

Unit I: Introduction to Financial Accounting

1. Basic Accounting Concepts and FundamentalConventions

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Vishwavidyalaya, Indore	Vishwavidyalaya, Indore		

2. Concept of Double EntrySystem
3. Basic knowledge of Accounting Process: Journal,Ledger, TrialBalance

Unit II: **PreparationofFinalAccounts withoutAdjustments**

Statement of Profitand LossandBalance Sheet as per Schedule-III – Companies Act, 2013

Unit III: Basics of Depreciation
1. Depreciation and its importance in DecisionMaking
2. Methods of Depreciation i.e. Straight Line Method and Written Down ValueMethod

Unit IV: Cost Accounting
1. Concept,
2. Elements of Cost
3. Classification of Costs
4. Cost Control and Cost Reduction

Unit V: Management Accounting
1. Basic Management AccountingConcepts
2. Relationship with Financial Accounting and Cost Accounting
3. Variance Analysis
4. Uses of Variance in decision making.

Suggested Readings

1. TulsianP.C.(2002). *Financial Accounting*. Pearson Education, India, LatestEdition.
2. Maheshwari S.N.(2013**). *Introduction to Accountancy*. Vikas Publishing House, New Delhi, LatestEdition.
3. Hansen (2002). *Management Accounting*. Cengage Learning, India, LatestEdition.
4. N. Ramchandran and KakaniRamkumar(2005). *Financial Accounting for Management*. Tata- Mac Graw-Hill Education, New Delhi, LatestEdition.
5. Paresh Shah (2007). *Basic Financial Accounting for Management*. Oxford University, New Delhi, Latest edition.

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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*
MCA102	Compulsory	Computer Organization and Design	3	1	0	4	60	20	20	0	0

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Course Objectives:
- To create basic understanding of Computer System Organization.
- To understand basic concept of Computer System architecture.
- To understand internal working, structuring, and implementation of a computer system.

Course Outcomes: After completion of this syllabus students will be able

- To understand computer organization structure and behaviour of a computer system.
- To understand how exactly all the units in the system are arranged and interconnected.
- To understand functionalities of a Computer System Architecture in terms of instructions, addressing modes and registers.
- To understand internal working, structuring, and implementation of a computer system.

UNIT - I : Digital Computer and it types, Configuration(functional units) of Computer System, basic operational concepts, Capabilities, Limitations and applications of computers. Introduction of

Number Systems like Binary, Octal and Hexadecimal number systems, Character Codes (BCD, ASCII, EBCDIC.

UNIT – II: Instruction formats, Instruction Cycle, Organization of Central Processing Unit, Hardwired & micro programmed control unit, Single Organization, General Register Organization, Addressing modes, data transfer &Manipulation, I/O Organization, Bus Architecture. Digital logic circuits: digital computer Logic gates, Boolean Algebra and its examples, K-map simplification.

UNIT – III Combinational circuit: Half Adder, Full Adder, concept of Flip-Flop. Digital components: integrated circuits, Decoders, Encoders, Multiplexer, De-multiplexers, Registers, Counters (synchronous& asynchronous), ALU, Micro Operation.

UNIT-IV Memory Organization: introduction to Memory units, memory Hierarchy design and its characteristics, types of main memory (RAM/ROM chips), types of RAM and ROM, Auxiliary memory (Hard Disk Drive), Associative memory, Cache memory, Virtual Memory.

UNIT-V Peripheral devices, I/O interface, Modes of Transfer, Priority Interrupt, Direct Memory Access, Input- Output Processor and Serial Communication. I/O Controllers, Asynchronous data transfer. Concept of 8-bit micro Processor (8085) and 16-bit Micro Processor (8086).

Text Books:
1. David Patterson and John Hennessy, Computer Organization and Design: The Hardware/Software Interface, RISC-V Edition, Morgan Kaufmann / Elsevier, 13th April 2017.
2. Stallings, Computer Organization & Architecture :Designing for performance, Tenth Edition, Pearson Education, 2016.
3. Carl Hamacher, ZvonkoVranesic, SafwatZaky and NaraigManjikian, Computer Organization and Embedded Systems, Sixth Edition, Tata McGraw Hill, 2012.

Reference Books:

1. John P. Hayes, Computer Architecture and Organization, Third Edition, Tata McGraw Hill, 2012.
2. John L. Hennessey and David A. Patterson, Computer Architecture – A Quantitative Approach, Morgan Kaufmann / Elsevier Publishers, Fifth Edition, 2012.
3. William Stallings, Computer Organization and Architecture – Designing for Performance, Eighth Edition, Pearson Education, 2010.

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							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teacher Assessment*	END SEM University Exam	Teacher Assessment*
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;
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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.

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 Practical:
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 Duckett," Javascript and Jquery:Interactive Front-End Web Development",1[st]Edition,Wiley,July 2014

Reference Books:

1. Craig Granell ,"The Essential Guide to CSS and HTML Web Design", 3[th]Edition,Apress,March 2008
2. Jon Duckett, "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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							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teacher Assessment*	END SEM University Exam	Teacher Assessment*
HUPG101	COMPULSORY	Technical Communication and Soft Skills	3	1	0	4	60	20	20	0	0

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***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 coherentlyin 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.

COURSECONTENTS:

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

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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.

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 objectiveInterview 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 Significanceof Soft Skills; Process, Importance andMeasurement ofSoft 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 forEngineers", Pearson Education, 2007.
- Meenakshi Raman &Sangeeta Sharma, "TechnicalCommunication", Oxford University Press, 2011.
- R.C. Sharma, Krishna Mohan, "Business Correspondence andReport writing", 4th Edition, Tata Mcgraw-Hill Publishing Co.Ltd., 2010.