Shri Vaishnav Vidyapeeth Vishwavidyalaya Shri Vaishnav Institute of Computer Applications -MCA

(Banking Technology) Choice Based Credit System (CBCS)

Name of Program: MCA

COURSE CODE							TE	ACHING	& EVALUA	EVALUATION SCHEME PRACTICAL END SEM Ceache SEM Teache r Univ r Assess ersity Assess nent* Exa ment* 20 0 0	
								THEORY	Y	PRAC	TICAL
	CATEGORY	ORY COURSE L T I	Р	CRE DITS	END SEM Univ ersity Exa m	T w o Te r Ex a m	Teache r Assess ment*	END SEM Univ ersity Exa m	Teache r Assess ment*		
MCAM A101	COMPUL SORY	Mathem atical Foundati on of Comput er 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.
- know the degree of the dependence among the variables.

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- 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.

$\mathbf{UNIT} - \mathbf{IV}$

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:

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

Name of Program: MCA

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COU RSE CO DE						ITS	THE	IEORY PRAC		PRACTI	CAL
	CATEGOR Y	COURSE NAME	L	r .	I P	115	END SEM Univer sity Exa m	Tw o T e r m E x a m	Teache rs Assessme nt*	END SEM Univer sity Exa m	Teache rs Assessme nt*
MCA10 1	COMPULS ORY	Program ming with C Language	(1)		1 2	6	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.

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Course Objective: The languages that programmers use are constantly changing, and the popular languages of today will surely be replaced by new ones. The objective of this course is to provide students with a working knowledge of the basic principles underlying the design of all computer programming languages.

Course Outcome: Students completing this course should be able to quickly learn to effectively use new computer programming languages. In particular, after taking this course students should be able to do the following:

- Evaluate programming language features and designs.
- Solve problems using the functional, object-oriented, and declarative paradigms.
- Describe the strengths and limitations of the imperative, functional and object-oriented paradigms for solving different kinds of problems (or in different application domains), especially in relation to each other.
- Explain and answer questions about specific languages that illustrate different paradigms, including questions about relevant concepts and major features.
- Design, define, and evaluate parts of programming languages or similar systems and justify your design decisions.

Unit I:

Concept of problem solving, Problem definition, Flowcharting, Decision table, Algorithm. Introduction to Programming, Program Development Life Cycle, 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 Types of errors in programming Debugging.

UNIT II:

Overview of C: History of C, Features of C, Structure of C program. Elements of C: C character set, identifiers and keywords, data types: primitive and user defined, Constants and variables. Operators and Expressions: Arithmetic, relational, logical, bitwise, unary, assignment and conditional operators and their precedence and associatively, Type modifiers and type casting. Control Structures – Statement Level, Compound Statements, Selection, Iteration. Input/ Output: Unformatted and Formatted I/O functions in C.

Unit III:

Functions: Definition, prototype, Function call, parameters, parameters passing – call by value, call by reference. Return value. Storage Classes in C: auto, extern, register and static storage class, their scope, storage and lifetime of variable, design issues for functions, 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, comparison, conversion and arithmetic of pointers. pointer to pointer. pointer and arrays, Array of pointers and its limitation, Dynamic memory management using functions like malloc(), calloc(), realloc(), free() etc.. Function returning pointers; Pointer to function, Function as parameter.

Structure: Structure –basic, declaration, membership operator, pointer to structure, referential operator, self-referential structures, 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:

- Define an algorithm and flowchart. Draw algorithm and flow chart for a program that converts an input Fahrenheit degree into Celsius equivalent.
- Write an algorithm and a C program to find the greatest among three numbers.
- WAP to print an input string in lower case, upper case and mixed case using library function.
- WAP a C program to reserve an input number.
- Draw a flow chart to find prime number from 1 to 100.

- Write a C program to obtain the sum of first n terms of the following series: X $X^{3/3!}$ + $X^{5/5!}$ - $X^{7/7!}$ +
- WAP to calculate factorial of a number using different loops.
- WAP to calculate factorial of a number using recursion.
- WAP in C to generate Fibonacci series.
- WAP in C to generate Pascal triangle.
- WAP in C to swap value and address of two variables.
- WAP in C to search a given element in an array using linear and binary search.
- WAP to sort an integer array in ascending and descending order according to user's choice.
- Write a menu driven program to perform matrix addition, subtraction and multiplication.
- Write a program to sum diagonal elements of two matrices.
- WAP a C program to reverse a string by recursion.
- 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:

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

Name of Program: MCA (Banking Technology)

							1	TEACHIN	G & EVALUA	TION SCHEM	Æ
								THEORY	DRY PRACTICAL		
COUR SE CODE	CATEGOR Y	COURSE NAME	L	Т	Р	CRED ITS	END SEM Univer sity Exam	Tw o Te rm Ex am	Teacher s Assessm ent*	END SEM Univer sity Exam	Teacher s Assessm ent*
MCB T 101	Compuls ory	Banking Technol ogy and Payment Systems	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 on following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks

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

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:

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

Reference Books:

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

Name of Program: MCA (BANKING TECHNOLOGY)

							TEACHING & EVALUATION SCHEME THEORY PRACTICAL END T END Teache SEM Te rs Unive Teache Unive Te rs Unive Ts rsity Ex ment* Tsity Assess Exam am Image: Colspan="2">Output				
COURSE CODE											
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MCBT 102	Compul sory	IT Infrastru cture Manage ment for Banks	3	1	0	4	60	20	20	0	0

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

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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 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:

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

Name of Program: MCA

COURS E CODE							TE	ACHING	6 & EVALUA	TION SCHE	ME
							TEACHING & EVALUA THEORY END o Teache Univ r Assess Exa Ex ment* m a m 60 20 20	PRAC	TICAL		
	CATEGORY	COURSE NAME	L	Т	Р	CRE DITS	END SEM Univ ersity Exa m	T w o Te r m Ex a m	Teache r Assess ment*	END SEM Univ ersity Exa m	Teache r Assess ment*
MCA 103	COMPUL SORY	Internet Web Program ming	3	1	4	6	60	20	20	30	20

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

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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, Threads, Multithreading, String Handling, Streams and I/O, 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, CSS Id and Class, CSS Advanced (Grouping, Dimension, Display, Positioning, Floating, Align, Pseudo class, Navigation Bar, Image Sprites, Attribute sector), CSS Color, Creating page Layout and Site Designs.

UNIT-IV

XML: Creating XML documents, Working with elements, Working with attributes, Creating DTD to validate XML documents, Creating XSLT Stylesheet for formatting data, Using XPath functions

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:

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

Reference Books:

- Craig Granell ,"The Essential Guide to CSS and HTML Web Design", 3th Edition, Apress, March 2008
- Jon Duckett, "HTML and CSS: Design and Build Websites", 1st Edition, Wiley, November 2011

• Michael Kay," XSLT Programmer's Reference", Wrox Press Ltd, 1 April 2000