

Name of Program: BCA + MCA/ BCA+MCA (Banking Technology)

				TEACHING & EVALUATION SCHEME							
							-	ГНЕОRY	7	PRAC	TICAL
COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA501	DCC	Java programming and Technology (Core Java)	3	0	0	3	60	20	20	0	0

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

Course Education Objectives (CEOs):

- Students must be able to understand fundamentals of programming such as variables, conditional and iterative execution, methods etc.
- Students must be able to understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods using class libraries etc.
- Students must have the ability to write a computer program to solve specified problems.
- Students must be able to use the Java SDK environment to create, debug and run simple Java programs.

Course Outcomes (COs):

After the successful completion of the course students will be able to perform the following tasks:

- Write, compile, and execute Java programs that may include basic data types and control flow constructs using Integrated Development Environments (IDEs) such as Eclipse, NetBeans, and JDeveloper.
- Write, compile and execute Java programs using object oriented class structures with parameters, constructors, utility and calculations methods including inheritance, test classes and exception handling.
- Write, compile and execute Java programs using arrays and recursion, manipulating Strings and text documents.

Chairperson Board of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore Chairperson Faculty of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore Controller of Examinations Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore Joint Registrar Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

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 exceed 10 Marks)



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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment *	END SEM University Exam	Teachers Assessment *
BCCA501	DCC	Java programming and Technology (Core Java)	3	0	0	3	60	20	20	0	0

- Write, compile and execute Java programs that include GUIs and event driven programming.
- Write a final project that may be selected from among the following: applets for inclusion in web pages; applets to access enterprise data bases in robust, enterprise three level applications; secure communications over the internet; or an approved project chosen by the student.

Syllabus:

UNIT – I

Importance and features of Java, Language Construct of java including Keywords, constants, variables, looping and decision making construct, Classes and their implementation, Introduction to JVM and its architecture including set of instructions. Overview of JVM Programming. Internal and detailed explanation of a valid .class file format. Instrumentation of a .class file, Byte code engineering libraries, Overview of class loaders and Sandbox model of security.

UNIT-II

Introducing classes, objects and methods: Defining a Class, Adding Variables and Methods, Creating Objects, Access Protection, Constructors, Inheritance. Arrays and String: Creating An Array, One and Two Dimensional Arrays, String Array And Methods, Classes: String and String Buffer Classes, Wrapper Classes: Basic Types, Using Super, Multilevel Hierarchy Abstract and Final Classes, Object Class, Packages and Interfaces, Extending Interfaces.

UNIT – III

Exception Handling: Fundamentals Exception Types, Uncaught Exceptions, Throw, Final, Built In Exception, Creating Your Own Exceptions,



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BCCA501	DCC	Java programming and Technology (Core Java)	3	0	0	3	60	20	20	0	0

Multithreaded Programming: Fundamentals, Java Thread Model: Priorities, Synchronization, Messaging, Thread Classes, Runnable Interface, Inter Thread Communication, Suspending, Resuming and Stopping Threads.

Input/ Output Programming: Basics, Streams, Byte and Character Stream, Predefined Streams, Reading and Writing from Console and Files.

UNIT – IV

Event Handling: Different Mechanism, the Delegation Event Model, Event Classes, Event Listener Interfaces, Adapter and Inner Classes, Working with windows, Graphics and Text, use of AWT controls, Layout managers and menus, handling Image, animation, sound and video, Java Applet.

The Collection Framework: The Collection Interface, Collection Classes, Working with Maps & Sets.

UNIT - V

JDBC: Introduction to DBMS & RDBMS, DBC API, JDBC Application Architecture, Obtaining a Connection, JDBC Models: Two Tier and Three Tier Model, ResultSet, Prepared Statement, Callable Statement.

RMI (Remote Method Invocation): Introduction, Steps in creating a Remote Object, Generating Stub & Skeleton, RMI Architecture, RMI packages.



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BCCA501	DCC	Java programming and Technology (Core Java)	3	0	0	3	60	20	20	0	0

Text Books:

- 1. Java: A Beginner's Guide, Herbert Schildt, McGraw-Hill Education, 8th Edition.
- 2. Head First Java, Kathy Sierra & Bert Bates, Shroff/O'Reilly, 2nd Edition.
- 3. Programming with Java, E. Balagurusamy, McGraw-Hill Education, 3rd Edition.
- 4. Paul Dietel and Harvey Deitel, "Java How to Program", PHI, 8th edition, 2010.

Reference Books:

- Head First Object-Oriented Analysis and Design, Brett McLaughlin, Gary Pollice, David West, O'Reilly Media, 2009.
- 2. Horstmann, "Computing Concepts with Java 2 Essentials", John Wiley.
- 3. Decker and Hirshfield, "Programming Java: A Introduction to Programming Using JAVA", Vikas Publication, 2000.
- 4. Daniel Liang, "Introduction to Java Programming", Pearson, 7th edition, 2010.



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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA502	BS	Operations Research	3	0	0	3	60	20	20	0	0

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

Course Objective

• To introduce the students with the Fundamentals of the Operations Research.

Course Outcomes

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

- Apply the methods of the OR and the LPP.
- Understand and design the graphical test of the LPP with conclusions.
- Know the fundamental principles of the simplex method and the duality.
- Solve the transportation problems.
- Find the solution of the assignment problems.

Unit-I

Introduction to Operations Research & Linear Programming: Introduction, Historical Background, Scope of Operations Research, Features of Operations Research, Phases of Operations Research, Types of Operations Research Models, Operations Research Methodology, Operations Research Techniques and Tools, Structure of the Mathematical Model, Limitations of Operations, Introduction, Linear Programming Problem, Requirements of LPP, Mathematical Formulation of LPP, Case Studies of LPP, Graphical Methods to Solve Linear Programming Problems, Applications, Advantages, Limitations.

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

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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA502	BS	Operations Research	3	0	0	3	60	20	20	0	0

Unit-II

Graphical Analysis of Linear Programming Problems: Introduction, Graphical Analysis, Some Basic Definitions, Graphical Methods to Solve LPP, Some Exceptional Cases, Important Geometric Properties of LPP

Unit-III

Simplex Method & Duality in Linear Programming Problem: Introduction, Standard Form of LPP, Fundamental theorem of LPP, Solution of LPP – Simplex Method, The Simplex Algorithm, Penalty Cost Method or Big M-method.

Unit-IV

Transportation Problem: Introduction, Formulation of Transportation Problem (TP), Transportation Algorithm (MODI Method), the Initial Basic Feasible Solution, Moving Towards

Unit-V

Assignment Problem: Introduction, Mathematical Formulation of the Problem, Hungarian Method Algorithm, Routing Problem, Travelling Salesman Problem

TEXT BOOKS:

- 1. Hillier FS and Liberman GJ; Introduction to Operations Research concept and cases; TMH
- 2. Srinivasan G; Quantitative Models In Operations and SCM; PHI Learning
- 3. Taha H; Operations research; PHI
- 4. Sen RP; Operations Research-Algorithms and Applications; PHI Learning
- 5. Sharma JK; Operations Research; Macmillan
- 6. Ravindran, Philips and Solberg; Operations research; Wiley India



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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDIT	END SEM Universi	Two Term Exam	Teachers Assessm ent*	END SEM Universi	Teachers Assessm ent*
BCCA503	AEC	Web Designing	3	0	0	3	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.

Course Educational Objectives (CEOs):

- To provide an introduction to the fundamental concepts of HTML and CSS.
- To familiarize with XML and web designing.

Course Outcomes (COs): The student will be able to:

- Learn about basics of Web Designing.
- Understand how to develop static webpage.
- Learn to develop a static Website using HTML and CSS.
- Understand the concepts of XML.

Syllabus:

UNIT-I

Web Essentials: Clients, Servers and Communication, The Internet, Basic Internet protocols, World wide web, HTTP Request Message, HTTP Response Message, Web Clients, Web Servers, Types of Websites (Static and Dynamic Websites)

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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA503	AEC	Web Designing	3	0	0	3	60	20	20	0	0

UNIT-II

Introduction to HTML

History of HTML, HTML Attributes, HTML Basic Tags, HTML Formatting Tags, Head Tags, Title Tags, Body Tags, Horizontal Lines, Page Formatting Div, Headings, Comments, Anchor tag, List tag: Ordered List, Unordered List, Adding images

UNIT-III

Advanced HTML

Tables: Inserting a Table, Table Borders, Table Headers, Frames: Inserting frames, Setting Height and Width, Forms: Text Boxes, Text Areas, Check Boxes, Menu Lists, Radio Buttons, Submit Button, Video and Audio tags.



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BCCA503	AEC	Web Designing	3	0	0	3	60	20	20	0	0

UNIT-IV

CSS (Cascading Style Sheet)

CSS Introduction: CSS Syntax, Tag structure, CSS Selectors (ID, Class, Tags, Attributes), CSS Styling, Styling Backgrounds, Styling Text, Styling Fonts, Styling Links, Styling Lists, Styling Tables, CSS Box Model, CSS Border, CSS Outline, CSS Margin, CSS Positioning, CSS Image Gallery, Borders, Border Images, Backgrounds, Text, Fonts.

UNIT-V

XML: Basic XML, Objectives of XML, Advantages of XML, Well-formed and valid XML Documents, Document Type Definition- Presenting XML, XML Schema, DOM Document Object Model), DTD (Document Type Definitions), XML Namespaces, XSLT (Extensible Stylesheet Language Transformation)

Reference Books:

- 1. HTML & CSS Design and Build Websites -Jon Ducket, 18 November 2011
- 2. The Essential Guide to CSS and HTML Web Design-Craig Grannell, Apress, Third Edition, 9 March 2008
- 3. HTML & CSS: The Complete Reference-Thomas A Powell, Mcgraw Hill, Fifth Edition.
- 4. HTML 5 Black Book-DT Editorial Services, Second Edition, 2016.



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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA504	DCC	IT Infrastructure Management	3	1	0	4	60	20	20	0	0

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

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

Course Educational Objectives (CEOs):

- To understand basics of IT infrastructure and management and technical & management issues in current infrastructure.
- To pick up information technology, business administration, and electronic commerce management.
- To get acquainted knowledge about storage management and recovery.
- To demonstrate knowledge of data center technology and virtualization.
- To provide understanding of information security, ethical hacking, and computer forensics.

Course Outcomes (COs): After the successful completion of this course students will be able to:

- Acquire a wealth of information about IT infrastructures.
- Understand IT and management techniques and how to build more reliable, faster applications that are better manageable.
- Understand concepts and methods of storage management.
- Get more insight in to the data center technology.
- Get more understanding with security concepts and its management in IT.

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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA504	DCC	IT Infrastructure Management	3	1	0	4	60	20	20	0	0

Syllabus:

UNIT-I

IT infrastructure: introduction, infrastructure management activities, evolutions of systems and their management, growth of internet, information system design, IT service management process, current business demands and IT system issue, IT infrastructure management, attributes and benefits of IT service management

UNIT-II

Information Technology Infrastructure Library (ITIL), Introduction to the design process for information systems, IT service continuity management, capacity management, availability management, approaches for organization Management, Models in IT system design, IT management systems

UNIT-III

Introduction to storage, storage archive and retrieve, types of storage management, benefits of storage management, space management, hierarchical storage management, network attached storage, storage area network, disaster recovery, space management, database and application protection, Bare Machine Recovery (BMR), data retention, backup and recovery.

UNIT-IV

Data center infrastructure design and architecture, elements and functions of data center, data center design models, network management, data center security, packet filtering, access layer, security for multi-tier server farms, virtual data center, virtual data center management, remote management



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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA504	DCC	IT Infrastructure Management	3	1	0	4	60	20	20	0	0

UNIT-V

Security management, computer security, internet security, physical security, identity management, access control, intrusion detection, IT ethics, intellectual property, privacy and law, computer forensics, ethics and internet, cyber crimes

Text Books:

- 1. Phalguni Gupta, Surya Prakash, Umarani Jayaraman, "IT Infrastructure and Its Management", Tata McGraw Hill Education, 2010
- **2.** Sjaak Laan, "IT Infrastructure Architecture Infrastructure Building Blocks and Concepts", Lulu Press Inc., 2nd Edition, 2013
- **3.** Manoj Kumar Choubey, Saurabh Singhal, "IT Infrastructure and Management", Pearson Education, 1st Edition, 2012
- **4.** Munesh Chandra Trivedi, Ashish N. Jani, Kamaljit I. Lakhtaria, Amit B. Kalyani, "Information Technology Infrastructure & Its Management", Khanna Publishing, 1st Edition, 2014
- 5. Anita Sengar, "IT Infrastructure Management", S.K. Kataria and Sons, 4th Edition, 2012



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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
		Recent									
		Information									
BCCA511	DSE	Technology	4	0	0	4	60	20	20	0	0
		Trends									

Course Educational Objectives (CEOs):

Objective of the course is to help the students to acquire knowledge regarding the current trends in Information Technology.

Course Outcomes (Cos): Students will be able to

- Develop knowledge about the recent technologies, their applications and working.
- Enhance the knowledge about various technologies such as, Cloud Computing, Wireless Computing, e-Business, AI, robotic, virtual reality etc.
- Understand importance of green computing.

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		Recent									
		Information									
BCCA511	DSE	Technology	4	0	0	4	60	20	20	0	0
		Trends									

Syllabus:

UNIT -I

Cloud Computing: Introduction, Components, Working of Cloud Computing and various models used in cloud computing.

Wireless Computing: Introduction, Wireless Computing Fundamentals and applications of Wireless Computing.

UNIT -II

E-Commerce: Fundamentals, Architecture and Models (B2B, B2C, C2C, C2B), Electronic Payment System: Types and Process, Introduction and advantage of Internet Advertising

UNIT-III

Artificial Intelligence -Introduction to AI and types of techniques involved into it, Robotics. **Virtual Reality**: Introduction and its applications with examples.



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		Recent									
		Information									
BCCA511	DSE	Technology	4	0	0	4	60	20	20	0	0
		Trends									

UNIT-IV

Green Computing: Introduction to Green Computing, Saving Energy on a Machine, Networking Components, Clusters and Data Centers,

UNIT-V

Major Green Initiatives: Sustainable IT, Green Business, Smarter Plant, Computing Technology for Energy Efficiency of other Physical Systems, Open Challenges, Major Players etc.

Text Books

- Denis Rothman, Artificial Intelligence By Example: Develop machine intelligence from scratch using real artificial intelligence use cases, Packt Publishing Limited (31 May 2018)
- Pankaj Arora, Raj Biyani, Salil Dave, To the Cloud: Cloud Powering an Enterprise, McGraw-Hill Education; 1 edition, January 20, 2012.
- Bud E. Smith, Green Computing: Tools and Techniques for Saving Energy, Money, and Resources, Auerbach Publications1st Edition, September 18, 2018
- Gaurav Gupta, Sarika Gupta, E-Commerce, Khanna Publishing; Second edition (2015)
- Jim Blascovich And Jeremy Bailenson, Infinite Reality: The Hidden Blueprint of Our Virtual Lives, Harper Collins Publications, 2011
- Howard Rheingold, Virtual Reality: The Revolutionary Technology of Computer-Generated Artificial Worlds- and How It Promises to Transform, Touchstone, 2008



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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA521	DSE	Information Systems for Management	4	0	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.

Course Educational Objectives (CEOs):

- To develop an understanding among the students about and the role of Information System with its importance and role in society and organizations
- To develop an understanding among the students about MIS, its architecture with importance and various stages involved in MIS development.
- To understand the concept of Systems development life cycle (SDLC), BPR and ERP.
- To introduce about virtual organization concept, information security and cyber law.
- Make the students capable to identify, conceptualize, and develop solutions as a group for successful information systems management and present them.
- Make the students aware about concept of data mining, Business Intelligence (BI), Data Warehousing, Online Analytical Processing (OLAP) and Online transaction processing (OLTP).

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



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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA521	DSE	Information Systems for Management	4	0	0	4	60	20	20	0	0

Course Outcomes (Cos): At the end of the course, it is expected that students will be able to

- Understand the activities that are undertaken in acquiring an Information System in an organization.
- Understand Management Information Systems (MIS) and their role in today's organizations.
- Identify how MIS shapes and controls current (or prospective) jobs and how to use this insight to improve your own job performance and satisfaction and enhance future career prospects.
- Become familiar with the concept of BPR and ERP.
- Identify importance of data mining, Business Intelligence (BI), Data Warehousing, Online Analytical Processing (OLAP) and Online transaction processing (OLTP).

Syllabus:

UNIT-I

Introduction to Information Systems: Introduction to basic system concepts and its types, Data Vs Information, definition and Concept of an information system, Characteristics and Value of Information, Information System Resources, Importance of Information system for decision making and strategy building, Role of Information Systems in Society and organization, Constraints and Limitations of Information System.



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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA521	DSE	Information Systems for Management	4	0	0	4	60	20	20	0	0

UNIT-II

Introduction to MIS: Management, Information, System, Concepts of management information system, MIS evolution, MIS architecture, Need for MIS, functions of MIS, Planning techniques of MIS, Limitations of MIS, Types of Information System: Transaction Processing Systems, Office Automation Systems, Decision Support Systems, Executive Information System.

UNIT-III

Development of Information System: Different steps in Systems development life cycle (SDLC) like Planning, Analysis, Design, Implementation, maintenance and review.

Management of Enterprise Resources: Enterprise Resource Planning (ERP): Introduction and Implementation of ERP. Business process reengineering (BPR): Introduction and Process of BPR.

UNIT-IV

Management Trends: Trends in management and organizations, movement towards flexible, virtual organizations with advantages and disadvantages, MIS and mobile computing, MIS and social media. Information security and cyber law: Introduction.



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BCCA521	DSE	Information Systems for Management	4	0	0	4	60	20	20	0	0

UNIT-V

Data Mining: Introductions and name of its applications. Business Intelligence (BI): introduction, features and name of tools used for decision making, Data Warehouse: Introduction, features and name of applications, Introduction of Online Analytical Processing (OLAP) and online transaction processing (OLTP).

Text Books:

- 1. Kenneth C. Laudon & Jane P. Laudon (2019), 'Essentials of Management Information Systems', Pearson Prentice-Hall, 13th Edition.
- 2. James, A. O'Brien (2017). "Introduction to Information Systems", Tata McGraw Hill, 1 2thEdition.
- 3. Goyal, D.P. (2014). "Management Information Systems: Managerial Perspectives", Macmillan India Ltd.
- 4. McNurlin, Sprague &Bui(2009), "Information Systems Management in Practice", Prentice Hall, 8 th Edition.
- 5. Jawadekar, W. S. (2004). "Management Information Systems", Tata McGraw Hill.



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							TEAC	CHING &	EVALUA	TION SCH	IEME
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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA531	DSE	Data Mining and Warehousing	4	0	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.

Course Educational Objectives (CEOs):

- To familiarize the students with the need and scope of the subject to build the mental makeup of the students for the field of data mining.
- Using simple and well drawn illustrations develop students skills to discover knowledge to support the decision making process.
- To make the students well versed with the latest trends in data warehousing and data mining.

Course Outcomes (Cos): The student will be able to

- Understand the basic principles, concepts and applications of data warehousing and data mining.
- Introduce the task of data mining as an important phase of knowledge recovery process.
- Ability to do Conceptual, Logical and Physical design of Data Warehouses, OLAP applications and OLAP deployment.
- Have a good knowledge of the fundamental concepts that provide the foundation of data mining.
- Design and implement a data warehouse or data mart to present information needed by management in a form that is usable for management client.
- Design and implement the data preprocessing solutions for different applications.
- Identify and use suitable data mining techniques for Knowledge Discovery.
- Develop dashboard solutions for presentation of knowledge.
- Explore the subject to start as a researcher

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							TEAC	CHING &	EVALUA	TION SCI	HEME
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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA531	DSE	Data Mining and Warehousing	4	0	0	4	60	20	20	0	0

UNIT – I

Data Mining: Introduction, Motivation, importance, Data type for Data Mining: relation Databases, Data Warehouses, Transactional databases, advanced database system and its applications, Data mining Functionalities: Concept/Class description, Association Analysis, classification & Prediction, Cluster Analysis, Outlier Analysis, Evolution Analysis, Classification of Data Mining Systems.

UNIT – **II**Data Warehouse and OLAP Technology for Data Mining: Differences between Operational Database Systems and Data Warehouses, a multidimensional Data Model, Data Cube, Data Warehouse Architecture, data warehouse servers.

UNIT- III

Data Preprocessing: Introduction and need of data preprocessing, data preprocessing as a process, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation. Data Mining Primitives, Concept Description: Characterization and Comparison, Analytical Characterization.

UNIT – IV

Association Rule Mining: Market Basket Analysis, Basic Concepts, Mining Single-Dimensional Boolean Association Rules from Transactional Databases: different algorithms, the Apriori Partition, Dynamic Item set Counting, Generating Association rules from Frequent items.

UNIT - V

Classification and Prediction and Cluster Analysis: Issues regarding classification and prediction, Major Issues in Data Mining, Applications and Trends in Data Mining: Data Mining Applications, currently available tools.



Name of Program: BCA + MCA/ BCA + MCA (Banking Technology)/ BCA (BDA)

							TEAC	CHING &	EVALUA	TION SCI	HEME
								THEORY	7	PRAC	TICAL
COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA531	DSE	Data Mining and Warehousing	4	0	0	4	60	20	20	0	0

Text Books:

- 1. J. Han and M. Kamber, *Data Mining: Concepts and Techniques*, Morgan Kaufmann Pub., III Edition, 2011
- 2. Berson, Data Warehousing, Data Mining and OLAP, TMH, I Edition, 1997.
- 3. W.H. Inmon, Building the Data Warehouse, Wiley India, III Edition, 2005.
- 4. Anahory, Data Warehousing in Real World, Pearson Education, II Edition, 2012.
- 5. Adriaans, Data Mining, Pearson Education, I Edition, 2002.
- 6. A.K. Pujari, Data Mining Techniques, University Press, Hyderabad, IV Edition, 2016



Name of Program: BCA + MCA/ BCA+MCA (Banking Technology)

							TEAC	CHING &	EVALUA	TION SCH	IEME
						y v	-	THEORY	7	PRAC	TICAL
COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA506	DCC	JAVA Lab	0	0	4	2	0	0	0	30	20

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

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

Course Education Objectives (CEOs):

- Students must be able to understand fundamentals of programming such as variables, conditional and iterative execution, methods etc.
- Students must be able to understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries etc.
- Students must have the ability to write a computer program to solve specified problems.
- Students must be able to use the Java SDK environment to create, debug and run simple Java programs.

<u>Course Outcomes (COs)</u>: After the successful completion of the course students will be able to perform the following tasks:

- Write, compile, and execute Java programs that may include basic data types and control flow constructs using Integrated Development Environments (IDEs) such as Eclipse, NetBeans, and JDeveloper.
- Write, compile and execute Java programs using object oriented class structures with parameters, constructors, utility and calculations methods including inheritance, test classes and exception handling.
- Write, compile and execute Java programs using arrays and recursion, manipulating Strings and text documents.
- Write, compile and execute Java programs that include GUIs and event driven programming.
- Write a final project that may be selected from among the following: applets for inclusion in web pages; applets to access enterprise data bases in robust, enterprise three level applications; secure communications over the internet; or an approved project chosen by the student.

Chairperson Board of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore Chairperson Faculty of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore Controller of Examinations Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore Joint Registrar Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

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



Name of Program: BCA + MCA/ BCA+MCA (Banking Technology)

							TEAC	CHING &	EVALUA	TION SCH	IEME
						y v	-	THEORY	7	PRAC	TICAL
COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA506	DCC	JAVA Lab	0	0	4	2	0	0	0	30	20

List of Experiments:

- 1. Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.
- **2.** Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.
- **3.** Write a Java program for sorting a given list of names in ascending order.
- **4.** Write a Java Program that reads a line of integers, and then displays each integer, and sum of all the integers (use StringTokenizer class).
- **5.** Write a Java program that reads a file and displays the file on the screen, with a line number before each line.
- **6.** Write a Java program that displays the number of characters, lines and words in a text file.
- 7. Write a Java program for creating multiple threads
 - a) Using Thread class.
 - b) Using Runnable interface.
- **8.** Write a Java program that illustrates how run time polymorphism is achieved.
- 9. Write a java program that illustrates the following
 - a) Creation of simple package.
 - b) Accessing a package.
 - c) Implementing interfaces.
- 10. Write a java program that illustrates the following
 - a) Handling predefined exceptions.
 - b) Handling user defined exceptions.

11. APPLETS

- a) Working with Frames and various controls.
- b) Working with Dialogs and Menus.
- c) Working with Panel and Layout.
- d) Incorporating Graphics.
- e) Working with colours and fonts.



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COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	TEACHING & EVALUATION SCHEME					
							-	ГНЕОRY	PRACTICAL			
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	
BCCA506	DCC	JAVA Lab	0	0	4	2	0	0	0	30	20	

12. SWINGS

Jpanel- Jframe – Jtoolbar—Jwindow Framework

Text Books:

- 1. Patrick Naughton and HerbertzSchildt, "Java-2: The Complete Reference", TMH, 5theditio, 2002.
- 2. Bill Venners, "Inside Java Virtual Machine", TMH, 2nd edition.
- 3. Rick Darnell, "HTML 4 unleashed", Techmedia Publication, 2000
- **4.** Shelley Powers, "Dynamic Web Publishing", 2nd edition, Techmedia, 1998.
- **5.** Paul Dietel and Harvey Deitel, "Java How to Program", PHI, 8th edition, 2010.

Reference Books:

- 1. E. Balagurusamy, "Programming with Java: A Primer", TMH, 1998.
- 2. Horstmann, "Computing Concepts with Java 2 Essentials", John Wiley.
- **3.** Decker and Hirshfield, "Programming Java: A Introduction to Programming Using JAVA", Vikas Publication, 2000.
- 4. N.P. Gopalan and J. Akilandeswari, "Web Technology- A Developer's Perspective", PHI, 2nd edition
- **5.** Eric Jendrock, Jennifer Ball, Debbei Carson, "The Java EE5 Tutorial", Pearson, 3rd edition, 2007.
- **6.** Daniel Liang, "Introduction to Java Programming", Pearson, 7th edition, 2010.



Name of Program: BCA + MCA/ BCA+MCA (Banking Technology)

COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	TEACHING & EVALUATION SCHEME					
							THEORY			PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	
BCCA507	AEC	Web Designing Lab	0	0	2	1	0	0	0	30	20	

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

Course Educational Objectives (CEOs):

- To provide an introduction to the fundamental concepts of HTML and CSS.
- To familiarize with XML and web designing.

Course Outcomes (COs): The student will be able to:

- Learn about basics of Web Designing.
- Understand how to develop static webpage.
- Learn to develop a static Website using HTML and CSS.
- Understand the concepts of XML.

List of Practical:

- 1. How to develop a simple webpage.
- 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 webpage using Form tag
- **6.** Develop a static website using HTML tags.
- 7. Create an HTML page, which has properly aligned paragraphs with image along with it.
- **8.** Write a program to display list of items in different styles.
- 9. Create your own style sheets and use them in your web page.
- 10. Create a web page using XML.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidvalava, Indore

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Name of Program: BCA + MCA/ BCA+MCA (Banking Technology)

COURSE CODE	CATEGORY	COURSE NAME	L	Т	P	CREDITS	TEACHING & EVALUATION SCHEME					
							THEORY			PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	
BCCA507	AEC	Web Designing Lab	0	0	2	1	0	0	0	30	20	

Reference Books:

- 1. HTML & CSS Design and Build Websites -Jon Ducket, 18 November 2011
- 2. The Essential Guide to CSS and HTML Web Design-Craig Grannell, Apress, Third Edition, 9 March 2008
- 3. HTML & CSS: The Complete Reference-Thomas A Powell, Mcgraw Hill, Fifth Edition.
- 4. HTML 5 Black Book-DT Editorial Services, Second Edition, 2016