Shri Vaishnav Vidhyapeeth Vishwavidhyalaya, Indore

Shri Vaishnav Institute of Computer Applications

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							sity END SEM	xam Two Term	nent* Teachers	sity END SEM	nent* Teachers
BCCA601	Compulsory	Advanced Java	3	1	0	4	60	20	20	0	0

Name of Prgram: BCA+MCA

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 exceed 10 Marks)

Course Education Objectives (CEOs):

This course covers the implementation of advanced program designs with the tools available in the Java programming language. After a detailed review of the fundamentals, advanced topics will include the Graphical User Interface (GUI) for applications, 2D graphics, multimedia, multithreading and client-server models for networking and database connectivity. If time and interest permits, the class may introduce the Java tools for generics and collections.

Course Outcomes (COs):

Students will build on their understanding of Object-Oriented Design (OOD) and Programming (OOP) in Java and learn to write robust, Graphical User Interface (GUI) applications and applets. Students will gain a practical familiarity with 2D graphics, multimedia, programming for concurrency, networking and database connectivity. Students may investigate programming for Web Services, if time and interest permits.

Syllabus:

UNIT – I
Java Networking: Network Basics and Socket overview, TCP/IP client sockets, URL, TCP/IP server sockets, Datagrams, java.net package Socket, ServerSocket, InetAddress, URL, URLConnection.
JDBC Programming: The JDBC Connectivity Model, Database Programming: Connecting to the Database, Creating a SQL Query, Getting the Results, Updating Database Data, Error Checking

and the SQLException Class, Statement Interface, PreparedStatement, CallableStatement, ResultSet Interface, Updatable Result Sets, JDBC Types, Executing SQL Queries, Executing SQL Updates.

UNIT - II

Servlet API and Overview: Servlet Model: Overview of Servlet, Servlet Life Cycle, HTTP Methods Structure and Deployment descriptor ServletContext and ServletConfig interface, Attributes in Servelt, Request Dispatcher interface The Filter API: Filter, FilterChain, Filter Config Cookies and Session Management: Understanding state and session, Understanding Session Timeout and Session Tracking, URL Rewriting.

UNIT – III

Java Server Pages: JSP Overview: The Problem with Servlets, Life Cycle of JSP Page, JSP Processing, JSP Application Design with MVC, JSP Directives, JSP Action, JSP Implicit Objects, JSP Form Processing, JSP Session and Cookies Handling, JSP Session Tracking JSP Database Access, JSP Standard Tag Libraries, JSP Custom Tag, JSP Expression Language, JSP Exception Handling, JSP XML Processing.

UNIT – IV

Java Server Faces2.0: Introduction to JSF, JSF request processing Life cycle, JSF Expression Language, JSF Standard Component, JSF Facelets Tag, JSF Convertor Tag, JSF Validation Tag, JSF Event Handling and Database Access.

UNIT – V

Hibernate4.0: Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Hibernate O/R Mapping, Hibernate Annotation.
Java Web Frameworks: Spring MVC: Overview of Spring, Spring Architecture, bean life cycle, XML Configuration on Spring, Aspect – oriented Spring, Managing Database, Managing Transaction

Text Books:

1. Patrick Naughton and HerbertzSchildt, "Java-2: The Complete Reference", TMH, 7th edition, 2002.
2. Jim Keogh, "J2EE: The complete Reference", McGraw-Hill Education (India) Pvt Limited, Edition 1.
3. Rick Darnell, "HTML 4 unleashed", Techmedia Publication, 2000

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4. 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. N.P. Gopalan and J. Akilandeswari, "Web Technology- A Developer's Perspective", PHI, 2nd edition
3. Eric Jendrock, Jennifer Ball, Debbei Carson, "The Java EE5 Tutorial", Pearson, 3rd edition, 2007.

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BCBT602. MANAGERIAL ECONOMICS AND INDIAN BUSINESS ENVIORMENT

SUBJECT CODE	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
		THEORY			PRACTICAL		L	T	P	CREDITS
		ityEND SEM	m Two Term	ent*Teachers	ityEND SEM	ent*Teachers				
BCBT602	Managerial Economics and Indian Business Environment	60	20	20	-	-	4	-	-	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 Objective
Objectives of this course are to help the students gain understanding of the transformation and dimension of the Indian Economy, and provide them tools and techniques to be used in the performance in dynamic Business Environment situations and enable them to analyze and understand the environment of the organization.

Course Outcomes
1. The objective of the course is to familiarize the students with the business environment prevailing in India

2. With the help of the course the students are expected to understand implications of business environment in global business structure.

COURSE CONTENT

Unit I: Business Environment
1. Nature and Scope of Business Environment
2. Factors effecting environment of Business– Internal and External
3. Dimensions of International Business Environment

Unit II: Globalization and Indian Business Environment
1. Meaning, Implications and Phases of Globalization

2. Impact on Indian Economy across Sectors
 3. Modes of entry strategies
4. India's Foreign Trade Policies – Recent Developments, Global outsourcing
4. Management by objectives
.
Unit III: Economic Policies
1.   Fiscal Policy and Tax System in India
2.   Monetary Policy and Banks Reforms in India
3.   Foreign Trade Policy
4.   Industrial Policy of the Government and Challenges of Indian Economy
.

Unit IV: International Trades
1.   Balance of Payments, Concepts, Disequilibrium in BOP: Methods of Correction
2.   Trade Barriers and Trade Strategy
3.   Free Trade vs. Protection

Unit V: Economics
1.   General overview of microeconomics.
2.   General overview of macroeconomics.
3.   Demand and Supply

Suggested Readings
1.   Harold Koontz, O'Donnell and Heinz Weihrich, *"Essentials of management"*, New Delhi, Tata McGraw Hill, 1992
2.   Robbins and Coulter (2007). *Management. Prentice Hall of India,* Latest Edition.
3.   Hillier Frederick S. and Hillier Mark S(2008). *Introduction to Management Science: A Modeling and Case Studies Approach with Spreadsheets*. McGraw Hill, India, Latest Edition.
4.   Weihrich Heinz and Koontz Harold (2011). Management: *A Global and Entrepreneurial Perspective*. McGraw-Hill Education, New Delhi, India, Latest Edition.
5.   Harold Koontz, O'Donnell and Heinz Weihrich, *"Management: A Global Perspective"*, New Delhi, Tata McGraw Hill, Xth edition, 1994.
6.   Robert Krienter, *"Management"*, Houghton miffin Co, 7th edition 1994.
7.   Stephen P. Robbins and Merry Coulter, *"Management"*, New Delhi, Prentice Hall of India, 2002
8.   Yogesh Maheswari, Managerial Economics, Phi Learning, Newdelhi, 2005 Gupta G.S.
9.   Managerial Economics, Tata Mcgraw-Hill, New Delhi Moyer &Harris

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10. Anagerial Economics, Cengage Learning, Newdelhi, 2005 Geetika, Ghosh & Choudhury
11. Managerial Economics, Tata Mcgrawhill, Newdelhi, 2011
12. Adhikary, M: Economic Environment of Business, Sultan Chand & Sons, New Delhi
13. Ahluwalia, I.J: Industrial Growth in India, Oxford University Press, Delhi
14. Alagh, Yoginder K: Indian Development Planning and Policy, Vikas Publication, New Delhi

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Name of Program: BCA + MCA (BT)

Subject Code	Category	Subject Name	Teaching & Evaluation Scheme								
			Theory			Practical		L	T	P	CREDITS
			End SEM University Exam	Two Term Exam	Teacher Assessment	End SEM University Exam	Teacher Assessment				
BCBT 604	Compulsory	Smart Banking Technologies and Payment Systems	60	20	20	---	---	4	1	0	5

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 smart banking
- Using simple and well drawn illustrations develop students skills to use the new banking technologies.
- To make the students well versed with the latest trends and developments in banking technology.

Course Outcomes (Cos): The student will be able to
- Have a good knowledge of the fundamental concepts that provide the foundation of smart banking systems.
- Understand the basic principles, concepts and applications of banking specially smart banking.
- Introduce the task of E-Banking in Indian and Global context.
- Ability to do Conceptual, Logical and Physical design of smart banking products, applications and their deployment
- Understand and apply the security measures in E banking.
- Understand the process of system audit and recovery and disaster management.
- Explore the subject to start as a researcher

Unit-I

Banking Technology, Smart Banking: Introduction, Smart Banking environments-Characteristics, Components and Technologies, Technology Distribution Channels. Teller machines at the bank counters, Cash Dispensers, ATMs, Anywhere Any Time banking, home banking, (corporate and personal), electronic payment systems, Issues in Smart Banking

Unit-II

RFID: Introduction, Components of RFID system, Operating frequency, RFID security considerations, RFID Applications – Short range RFID applications, Long range RFID applications.

Online banking, Online enquiry and update facility, personal identification numbers and their use in consumption with magnetic cards of both credit and debit cards, smart cards, Smart cards with different couplings, signature storage and display by electronic means.

 Unit-III

Software Agents: Introduction, Fundamentals, Agents as Tools of the Information Society, Fundamental Concepts of Intelligent Software Agents, Base Modules of Agent Systems, Development Methods and Tools, Application Areas for Intelligent Software Agents

Unit IV

Electronic fund transfer systems, plain messages (telex or data communication), structured messages (SWIFT etc.), RTGS, Information Technology, Current Trends, Banknet, RBI net, Datanet and Nienet, I-net, Internet, E-mail etc.

Unit V

Computerized accounting in electronic environment- methods, procedures, security, rectification. Core banking environment, maintaining different accounts electronically. Global developments in banking technology, IT in finance and service delivery. Impact of technology on banks, System Audit. Audit measures in computerized environment.

Text Books:

1. Intelligent Software Agents: Foundations and Applications, Walter Brenner, Rudiger Zarnekow, Hartmut Wittig, springer verlag 1998

2. RFID, Steven Shepard, Mc Graw Hill 2004

3. Context-Aware Pervasive Systems: Architectures for a New Breed of Applications, Seng Loke, Auerbach, 2006

Reference Books:

1. Agent Technology Handbook, Dimitris N. Chorafas, Mc Graw Hill 1997

2. RFID Implementation, Dennis Brown, Mc Graw Hill Osborne Media, 2006

3. Fast and Efficient Context-Aware Services (Wiley Series on Communications Networking & Distributed Systems) Danny Raz, Arto Tapani Juhola, Joan Serrat Fernandez, Alex Galis

Name of Program : BCA + MCA

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			End Sem University Exam	Exam Two Term	Teachers Assessment*	University End Sem	Teachers Assessment*				
BCCA603	COMPULSORY	Software Engineering	60	20	20	0	0	4	1	0	5

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 Education Objectives (CEOs):

- To provide knowledge about system development.
- To impart knowledge about software process models.
- To provide detailed knowledge about software design.
- To acquaint students with software quality and testing.

Course Outcomes (COs): Students will be having:

- An ability to understand system design and its constraints.
- An ability to apply knowledge of software engineering.
- An ability to design a system, a component or process to meet desired needs.
- An ability to identify, formulate and solve engineering Problems
- An ability to measure and to understand quality issues.

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Unit I

Introduction: Definition of software and software engineering – Software myths – Software Engineering paradigms: Linear Sequential Model & Prototyping Model Software Project Management – Software Metrics – Software Cost Estimation – Software Project Planning.

UNIT II

Software Requirement Analysis: Software Risks – Software Configuration Management System Analysis – Modeling the System Architecture – System Specification – Fundamentals of Requirement Analysis – Software Prototyping – Prototyping method sand tools specification – Software requirements Specifications

UNIT III

Structured Analysis: Introduction – the elements of the analysis model – data objects, attributes and relationships – Cardinality and Modality – ERD – DFD – Classical Analysis Methods : DSSD, JSD, SADT..

UNIT IV

Software Design: Design principles: Problem partitioning and hierarchy, Abstraction, Modularity, Top-down and Bottom-up strategies. Effective Modular design: functional independency, Cohesion and Coupling.

UNIT V

Software Testing Methods: Software Testing Fundamentals – White Box Testing – Black Box Testing – Debugging – Software Quality: McCall's Quality Factors.

Text Books:

1. Roger S. Pressman, Software Engineering – A Practioner's Approach, McGraw Hill, 7th Edition.
2. PankajJalote, An Integrated Approach to Software Engineering, Third Edition.

Reference books:

1. Richard Fairley , Software Engineering – Design Reliability and Management.
2. Sommerville, Software Engineering, Pearson Education, 7th Edition.
3. Elis Awad, "System Analysis & Design", Galgotia publications

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Name of Program: BCA + MCA

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			University End Sem Exam	Two Term Exam	Teacher Assessment*	University End Sem	Teacher Assessment*				
BCCA615	ELECTIVE	Advanced DBMS	60	20	20			4	-	-	4

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 the need and scope of the subject.
- to prepare the students so that they can handle the need of data of different organizations
- To develop a better understanding of the recent advancements in the field of Database Management System.
- Using simple and well drawn illustrations develop students skills to store and retrieve data to support the decision making process.

Course Outcomes (Cos): The student will be able to
- Understand the different issues involved in the design and implementation of a database system.
- Understand and use the concepts of physical and logical database designs, database modeling, relational, hierarchical and network models for real world problems
- use data manipulation language to query, update, and manage a database
- To develop an understanding of essential DBMS concepts such as: database security, integrity, concurrency, distributed database and intelligent

database, Client/Server (Database Server), Data Warehousing.
- To apply the concepts of transaction processing for safe and secure transactions in different scenarios
- Design and demonstrate the different kind of databases and use backup and recovery provisions
- design and build simple and complex database systems and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

UNIT-I

Advanced Transaction Processing: Advanced transaction models: Save points, Nested and Multilevel Transactions, Compensating Transactions and Saga, Long Duration Transactions, Weak Levels of Consistency, Transaction Work Flows, Transaction Processing Monitors, Shared disk systems.

UNIT-II

Objected Oriented and Object Relational Databases: Modeling Complex Data Semantics, Specialization, Generalization, Aggregation and Association, Objects, Object Identity and its implementation, Clustering, Equality and Object Reference, Architecture of Object Oriented and Object Relational databases, Persistent Programming Languages, Cache Coherence. Case Studies: Gemstone, O2, Object Store, SQL3, Oracle xxi, DB2.

UNIT-III

Deductive Databases: Data log and Recursion, Evaluation of Data log program, Recursive queries with negation.

Parallel and Distributed Databases: Parallel architectures, shared nothing/shared disk/shared memory based architectures, Data partitioning, Intra-operator parallelism, pipelining. Distributed Data Storage – Fragmentation and Replication, Location and Fragment Transparency, Distributed Query Processing and Optimization, Distributed Transaction Modeling and concurrency Control, Distributed Deadlock, Commit Protocols, Design of Parallel Databases, and Parallel Query Evaluation.

UNIT-IV

Active Database and Real Time Databases: Issues with Real time databases,Triggers in SQL, Event Constraint and Action: ECA Rules, Query Processing and Concurrency Control, Recursive query processing, Compensation and Databases Recovery, multi-level recovery.

UNIT-V

Image and Multimedia Databases: Modeling and Storage of Image and Multimedia Data, Data Structures – R-tree, k-d tree, Quad trees, Content Based Retrieval: Color Histograms, Textures

etc., Image Features, Spatial and Topological Relationships, Multimedia Data Formats, Video Data Model, Audio and Handwritten Data, Geographic Information Systems (GIS).

WEB Database: Accessing Databases through WEB, WEB Servers, XML Databases, Commercial Systems – Oracle xxi, DB2.

Text Books:
1. A Silberschatz, H.F Korth, Sudersan "Database System Concepts", MGH Publication.
2. C.J. Date "An introduction to Database Systems"
3. Elmasri and Navathe "Fundamentals of Database systems", Morgan Kaufman.
4. B.C. Desai. "An introduction to Database systems" BPB
5. R. Ramakrishnan, "Database Management Systems", McGraw Hill
6. Elmagarmid. A.K. "Database Transaction Models For Advanced Applications",
7. "Transaction Processing, Concepts and Techniques", J. Gray and A. Reuter, Morgan Kauffman.
8. S. Abiteboul, R. hull and V. Vianu, "Foundations of Databases", Addison – Wesley
9. W. Kim, "Modern Database Systems", ACM Press, Addison – Wesley.
10. D. Maier, "The Theory of Relational Databases", Computer Science Press, Rockville,

Name of Program: BCA+MCA

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			University End Sem	Exam Two Term	Teachers ment*	University End Sem	ment* Teachers				
BCCA625	ELECTIVE	Organization Structure	60	20	20			4	-	-	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 purpose of the course is to give the students an introduction to the field of organization design and structure so as to have a better adaptability to new technologies, markets and challenges.

Course Outcomes

- Understand the major elements of Organisational Structure

- Understand the interrelationship between Management and Organizational design.

Unit I: Role of Management in Organizational Structuring

1. What Is Management?
2. What Is the Role of Management in Organizations?
3. Who Are Managers Responsible to?
4. Who Should Monitor the Actions of Executives?
5. What Is Corporate Governance?

Unit II:Environment of Organizations

1. The Process of Value Creation
2. Critical Elements of Organizational Design
3. Critical Elements of a Business Model
4. Industry Life Cycle

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Unit III: Organization Design
1. Differentiation in Organizational Design
2. Organization Design and Design Effectiveness
3. The Core Parts of Organizational Structure
4. Designing Organizations for Efficiency versus Flexibility?
5. Types of Organizational Design viz.Functional Design, Divisional Design, Generic Hybrid Designs.

Unit IV: Integration of Elements in Organizational Design

1. Main Elements of Integration in Organization Design
2. What Is Coordination?
3. Vertical and Horizontal Coordination Mechanisms
4. Coordination and Teamwork
5. How Do We Achieve Efficiency and Flexibility?

Unit V: Controlling Systems in Organizational Design

1. Traditional Control Systems
2. Contemporary Control Systems
3. Critical Issues Associated with Control Systems
4. How Do We Know Our Design Is Effective?

Text Books:
1. Organization and Development: Strategies, Structures and Process by R. Dale, Sage Publications.
2. Organization and Management by R.D. Agrawal, Tata McGraw Hill.
3. Organization Development: Interventions and Strategies by S. Ramnarayan, T.V. Rao, K. Singh & S. Ramnarayan, Response Books.
4. Think Like a Manager: Mastering the Secrets of Motivating Yourself and Others by R. Fritz, Jaico Books.

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SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teachers Assessment*	End Sem University	Teachers Assessment*				
BBAI104	ELECTIVE	Principles of Micro Economics	60	20	20	-	-	4		-	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

1. To become familiar with the basics of Economic system and the process of economic reforms.
2. To Guide students importance of Economics in Modern Business

Course Outcomes

- Understand microeconomics concepts like demand, consumer behavior and consumption function.

- Understand the relationships across different microeconomic variables.

Unit I: Nature and Scope of Managerial Economics
1. Meaning and Characteristics
2. Scope of Micro Economics for Managerial purpose
3. Economics in Business Decision Making

Unit II: Demand
1. Determinants of Demand
2. Law of Demand-Demand Curve
3. Elasticity of Demand and its types and Measurement

Unit III: Theory of Consumer Behavior
1. Cardinal and Ordinal Utility Theory
2. Consumer's equilibrium, income consumption curve
3. Price consumption curve, income and substitution effects of normal goods

Unit IV: Demand Forecasting and Theory of Production
1. Purpose, Techniques
2. Production Function (meaning)
3. Law of Diminishing Returns
4. Three stages of Production in Short Run

Unit V Theory of Cost and Market Structure
1. Types of Cost Curves
2. Economies and Diseconomies of scale
3. Perfect Competition
4. Monopoly
5. Monopolistic Competition

Text Books:

1. Dwivedi, D. N(2009). Managerial Economics. Vikas Publishing House: New Delhi.Latest Edition.
2. VarshneyandMaheshwari(2009). Managerial Economics. Sultan Chand and Sons: New Delhi.Latest Edition.
3. DholakiaandOza(2012). Microeconomics for Management Students.Oxford University Press:New Delhi. Latest Edition.
4. Udipto Roy. Managerial Economics. Asian Book: Kolkata.Latest Edition.
5. Samuelson andNordhaus(2009).Economics .Tata-McGraw Hill: New Delhi.Latest Edition.

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Name of Prgram: BCA+MCA

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							sity END SEM	xam Two Term	nent* Teachers	sity END SEM	nent* Teachers
BCBT607	Compulsory	Lab - II (Advanced Java Lab)	0	0	4	2	0	0	0	30	20

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

The goal of this course is to know & understand concepts of internet programming.

Course Outcomes (Cos): Students will be able to understand:.

- Java programming concepts
- JAVA and HTML tools for Internet programming.
- Scripting languages – Java Script.
- Dynamic HTML programming.
- Server Side Programming tools.

List of Experiments:
1. Java classes and objects
2. Inheritance, Polymorphism
3. Interfaces and Exception Handling, Packages
4. Socket Programming in Java
5. RMI
6. Client side scripting using
   - XHTML,
   - JavaScript/DOM
   - CSS

7. XML DTD, Parsers, XSLT
8. Java Applets, AWT, Swings
9. Server Side programming (implement these modules using any of the server side
scripting languages like PHP, Servlets, JSP etc.,)

- Gathering form data
- Querying the database
- Response generation
- Session management
10. Application development

Text Books:
1. Cay S. Horstmann and Gary Cornell, "Core Java™, Volume I – Fundamentals" 8th
Edition, Prentice Hall, 2007.

2. Cay S. Horstmann and Gary Cornell, "Core Java, Vol. 2: Advanced Features", 8th
Edition, Prentice Hall, 2008.

3. Robert W. Sebesta, "Programming the World Wide Web", Addison-Wesley, 6th
Edition,2010.
4. Elliotte Rusty Harold, "Java Network Programming", Third Edition, O'Reilly, 2004.
5. Uttam K. Roy, "Web Technologies", Oxford University Press, 1stEdition, 2010.
6. Leon Shklar and Rich Rosen, "Web Application Architecture: Principles.