School of Mathematical & Computer Sciences

Department of Computer Sciences

Syllabus of Courses offered by the Department having focus on Employability/ Entrepreneurship/ Skill Development.

BABA GHULAM SHAH BADSHAH UNIVERSITY, RAJOURI,

J&K-185234

Website: www.bgsbu.ac.in

Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-144	**Principles of Programming & Problem Solving using C**	3	40	60	100	5	0	0	4

Objective:

The objective of the course is to develop logical ability and basic programming skills in students to pave the way for problem solving.

Unit-I
Problem Solving: Introduction, Steps in Problem Solving, Problem Solving Techniques (Trial & Error, Brain Storming, Divide & Conquer), Flowcharts and Algorithms (Definition, Symbols & Characteristics), Simple Examples of Flowcharts and Algorithms (Real Life Examples), Concept of Programming Languages, Categories of Languages.

Unit-II
Introduction to C- Language: History, Features, Structure & Life Cycle of a C- Program Data types and sizes, Variables, Constants, Keywords, Storage Classes, Operators (Unary, Arithmetic, logical, Bitwise, Assignment, Ternary), Expressions, Control statements (if-else, switch, break, continue, go to), Loops (for, while, do-while).

Unit-III
Arrays, Functions & Sorting: Arrays (Linear and Multi-dimensional); String handling; Functions (built-in and user defined), declaration, definition, and function call, parameter passing and return types, Recursion, Sorting: Bubble Sort, Insertion Sort and Selection Sort.

Unit-IV
Structures and Union: Declaration, Accessing structure and union elements, difference, Array of structures, Nested structures, passing Arrays and Structures to functions; Pointers, Array of pointers, Call by Value and Call by Reference.

Unit-V
File Handling: Introduction to file handling in C, File Access Modes, Text vs. Binary Files, File I/O Operations, and Error Handling in Files, Formatted Input/output, and Random Access to Files, Reading & Writing File Records with Sorting, Searching and Merging Operations, Command Line Arguments.

COURSE OUTCOMES:

On the successful completion of the course, students will be able to

CO1. Defineproblem, outline solution, develop the algorithm and test the algorithm for correctness. Acquire knowledge about the basic concept of writing a program.

CO3. Understand the role of constants, variables, identifiers, operators, type conversion and why different constructs are available for iteration, such as "for" loops, "do...while" loops.

CO5. Identify the difference between iteration and recursion in terms of C programming.

CO6. Understand the application of Arrays (Linear & Multi-dimensional), Strings, Functions, Pointers, Recursive Functions.

CO7. Develop C programs for different sorting techniques (Bubble Sort, Insertion Sort and Selection Sort).

CO8. Understand role of Functions involving the idea of modularity, User defined data types like Structures and Union, Pointers, Array of pointers, Call by Value and Call by Reference.

CO9. Develop C programs for File Management

Note for Paper Setting:

The question paper will be divided into two sections. **Section A** will include 10 compulsory objective-cum-short answer type questions from each unit, each carrying 1 mark. **Section B** will have ten (10) long answer questions, two from each unit. The student will have to attempt one (01) question from each unit. Each question will carry 10 marks.

Text Books:

1. **Balagurusamy. E (2005)**, "Programming in ANSI C", **TMH, New Delhi**.
2. **Kanetkar Y (2004)**,"Let Us C", **BPB, New Delhi .**

References:

1. **Mulish**, **C (2004)**,"The Spirit of C", **Jaico Publications, New Delhi**.
2. **Keringhan, B. W &Ritche, D.M (2005)**, "C Programming language", **PHI New Delhi.**
3. **Schildt,H (2004)**, "A Complete Reference in C", **TMH**, **New Delhi**.
4. **Shrivastav(2002)**,"C in Depth", **BPB, New Delhi**.
5. **Gottfried (2004)**, "Programming with C", **Schaum Series, TMH, New Delhi**.

Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-172	Lab 2: C Programming	3	40	60	100	5	0	0	4

COURSE OUTCOMES:

On the successful completion of the course, students will be able to
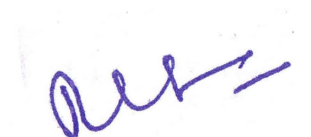
CO1: Design algorithms for the given problem specifications.

CO2: Write C programs for the designed algorithm specification.

CO3: Write C programs to implement Arrays (Linear & Multi-dimensional), Strings, Functions, Pointers, Recursive Functions.

CO4: Write C programs to implement using Functions, User defined data types likeStructures and Union, Pointers, Array of pointers, Call by Value and Call by Reference.

CO5 Write C programs for File Management

Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-241	Software Engineering	3	40	60	100	5	0	0	4

Objective:

This paper aims to help students to comprehend the role and scope of software engineering and equip them with the ability to apply Software Engineering practices.

Unit I
Basic Concepts of System Analysis and Design: System Concept, Characteristics and Elements of System, Types of System, System Development Life Cycle, Role of System Analyst, Information Gathering Techniques, Feasibility Study, Feasibility Considerations, Feasibility Report.
Introduction to Software Engineering: Software Myths, Software Characteristics, Software Engineering Challenges (Scale, Quality Productivity, Consistency and Repeatability, Change).

Unit II
Software Process Management: Characteristics of Software Process, Introduction to Software Process Models: Waterfall model, Prototyping model, Iterative model, Spiral Model; Planning:Cost Estimation, Uncertainties in Cost Estimation, COCOMO Model for Cost Estimation; Project Scheduling: Average Duration Estimation, Project Scheduling and milestones; Introduction to Staffing.

Unit III
System Analysis: Introduction to Software Requirement Analysis and Specification, Software Requirements: Need for SRS, Requirement Process, Problem Analysis: Analysis Issues, Informal Approach, Structured Analysis (Data Flow Modeling), Object Oriented Modeling, Prototyping, Requirement Specification (Characteristics, Components), Metrics (Size & Quality).

Unit IV
Software Design-I: Function Oriented Design:Design Principles (Problem Partitioning and Hierarchy, Abstraction, Modularity, Top-Down and Bottom-Up Approaches), Module level Concepts (Coupling and Cohesion), Design Notations & Specifications (Structured Charts, Specification), Structured Design Methodology.

Unit V
Software Design-II: Object Oriented Design: OO Analysis and OO Design, Concepts of OOAD: Encapsulation, Abstraction, Inheritance and Polymorphism. Design Concepts. Design Notations & Specifications, Design Methodology: Dynamic Modeling, Functional Modeling, Defining Internal Classes and Operations.

Introduction to Software Testing: Testing Fundamentals: Error, Fault and Failure, Test Oracles, Test Cases and Criteria, Psychology of Testing. Test Strategies for Conventional Software testing (Unit Testing, Integration Testing)

COURSE OUTCOMES:

CO 1: This unit explains basic concepts of System Analysis and Design and at the same time introduces Software Engineering along with its challenges. The student shall be acquainted with the difference, similarities and relation among the two subjects.

CO 2: The student shall be able to know various software process models and the scenarios during which these models suit the best. The student would also be able to perform Software Project Cost Estimation, Project Scheduling and Project Staffing.

CO 3: The goal of this unit is to acquaint the student to design and develop Software Requirement Specification Document and various techniques of Problem analysis.

CO 4: The Students will be able to know various concepts of Function oriented approach of System Design along with Module level concepts and notations and charts that are used for developing a function oriented design.

CO 5: This unit enables the student to develop Object Oriented Software Design and notations and charts that are used for developing the same. This unit also introduces various Software Test Techniques that are used for testing the newly software.

Note for Paper Setting:

The question paper will be divided into two sections. **Section A** will include 10 compulsory objective-cum-short answer type questions from each unit, each carrying 1 mark. **Section B** will have ten (10) long answer questions, two from each unit. The student will have to attempt one (01) question from each unit. Each question will carry 10 marks.

Textbooks:

1. **Pressman, R S (2006), "**Software Engineering – A Practitioner's Approach", Sixth edition, **TMH.**
2. **Jalote, P(2005),** "An Integrated Approach to Software Engineering", 3Rd Edition, **Narosa Publication.**

References:

1. **SCHAUM'S Outlines(2005),** "Software Engineering", **TMH**.
2. **Sommmerville(2000)**, "Software Engineering", **Addison Wesley**.

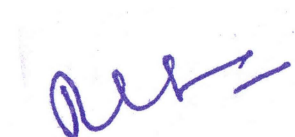| Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-271	**Lab 3: C++**	3	40	60	100	0	0	6	4

Course Outcomes:

CO1. Understanding of Object Oriented concepts with knowledge of differentiation between C++, ANSI & standard C.

CO2. To demonstrate the concept of class, object constructor, destructor, abstraction, inheritance, andpolymorphism. And also different types of variables, functions and operators.

CO3. Students will be able to develop programs for implementing different data structures

CO4. Gain knowledge of file, streams, Template and exception handling and implement the same.

Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-343	Relational Database Management System	3	40	60	100	5	0	0	4

Objective:

The aim of the course is to introduce students to the fundamental concepts necessary for designing, using and implementing database systems. It emphasizes relational database modeling & design and the languages and facilities provided by the relational database management systems.

Unit-I
Database System Concepts & Architecture: Concept, Characteristics of database, Database system Vs file system, Introduction to DBMS, Advantages, Disadvantages of DBMS, Database users.
Database System Concept & Architecture: Concept, schemas and instances, DBMS architecture & data independence, Components of DBMS, Database Languages & Interfaces, Centralized & Client/Server Architectures of DBMSs.

Unit-II
Data models: Data modeling using ER-Approach (Concept, ER-Notations, Entities, Entity types, Attributes, Attribute types, Relationships Keys concept).
Conventional Data Models & Systems: Network data model concept, Hierarchical model concept.
Relational Data Model: Concept, Relational model Constraints (Entity Integrity, Referential Integrity, Key Constraints, Domain Constraints), Codd's Rules, Relational Algebra (Fundamental Operations).

Unit-III
Relational Database Design & Normalization: Concept of Functional dependencies (Fully, partial, Transitive), Normalization of relational database, Closure of Attribute Set, Canonical Cover, Norm forms (1NF, 2NF, 3NF, BCNF, 4NF), Join dependencies.

Unit-IV

Concurrency: Concept, Transaction states, Transaction properties (ACID Test), Serializability, Recoverability.

Concurrency Control & Recovery Techniques:Concurrency controlconcept, Concurrency control techniques, Locking (concept, types), Time stamp ordering, Granularity of data items, Dead lock & its Resolution.

Recovery Concepts, Recovery Techniques (Log based, Shadow paging, Checkpoint)

Introduction to Database Security.

Introduction to Object Oriented & Multimedia Databases.

Unit-V

PL/SQL: Introduction, Concept, Characteristics of SQL, Advantages of SQL, Data definition in SQL, literals, Operators, Specifying Constraints in SQL, Data manipulation in SQL, Views & Queries, Insert, Update & Delete Operations, Creating users, Gra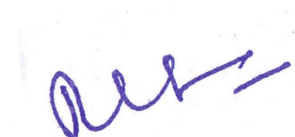nt and revoke object privileges. Introduction to PL/SQL: variable, constants, data types, Pl/SQL block structure, Condition and iterative control statements, Concept of cursors & trigger.

COURSE OUTCOMES:

CO1: Distinguish database systems from file systems by enumerating the features provided by database systems and describe each in both function and benefit. The student shall also be able to define the terminology, features, classifications, and characteristics embodied in database systems.

CO2: Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model and also demonstrate an understanding of the relational data model anD also Formulate, using relational algebra, solutions to a broad range of query problems.

CO3: Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database. The students shall know why normalization and what role it plays in the database design process and also its various normal forms 1NF, 2NF, 3NF, BCNF, and 4NF.

CO4: Determine the Acid properties (Atomicity, Consistency, Isolation and Durability) of a given Transaction and also explore the various locking protocols and database backup and recovery mechanisms so as to implement the same in the real world.

CO5: write various DDL/DML/DCL SQL commands to insert/update/delete data, and query data in a relational DBMS. Students shall solve a broad range of query and data update problems.

Note for Paper Setting:

The question paper will be divided into two sections. **Section A** will include 10 compulsory objective-cum-short answer type questions from each unit, each carrying 1 mark. **Section B** will have ten (10) long answer questions, two from each unit. The student will have to attempt one (01) question from each unit. Each question will carry 10 marks.
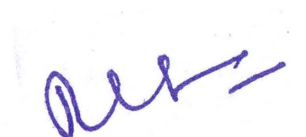
Text Books:

1. **Elmarsi, Navathe, S B (2004)**, "Fundamentals of database Systems", **Pearson Education**.
2. **Silbebschatz, A. Korth, H,F. Sudarshan ,S (2006)** , "Database System Concepts", **TMH .**

References:

1. **Date, C J(2005)**, "An Introduction to Database Systems", **Addison Wesley**.
2. **Desai, B C (2002)**, "An introduction to database Systems", **Galgotia Publications**.
3. **Leon(2004)**, "Database Management Systems", **VikasPublications.**
4. **BayrossI.,** "Commercial Application Development using Oracle Developer 2000", **BPB.**

Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-344	Java Programming	3	40	60	100	5	0	0	4

Objective:

This course acquaints students with object oriented programming concepts and other advanced features and their implementation in Java language.

Unit-I
Introduction: An overview to Java, Comparison with other languages (C & C++), Java and Internet, Features of Java, Introduction to Java Virtual machine, Object Oriented Programming Concepts: Abstraction, Encapsulation, Inheritance and Polymorphism.
Data types: Integers, Floating point, Character type and Boolean.
Variables: Assignment, Initialization, type conversion & Casting.
Operators: Arithmetic, Assignment, Modulus, Relational, Boolean and Bitwise.

Unit-II
Arrays: Concept, Single and Multidimensional arrays.
Control statements: Conditional statements, Iteration Statements and Jump Statements.
Classes & Methods: Class Fundamentals, Declaring Objects, Creating Methods, Constructors, Command Line Arguments & Argument Passing.Static variables and methods.

Unit-III
Inheritance: Basics Of Inheritance, Super Class, Member Access, Creating a Multilevel Hierarchy, Method Overriding, Dynamic Method Dispatch & Abstract Class.
Packages & Interfaces: Defining and Importing Packages, Understanding Classpath, Access Protection, Defining and Implementing Interfaces.
Exception Handling: Fundamentals of Exceptions, Exception Types, Using Try and Catch, Throwing Exceptions, Built-In Exceptions in Java, User Defined Exceptions.

Unit-IV
Multithreaded Programming: Java Thread Model, Creating & Working with Threads, Thread Priorities, Introduction to Synchronization and Dead Locks.
String Handling: String Constructor, String Operations, Character Extraction, String Searching & Comparison, String Buffer Class, String Buffer V/s String Class.
Lang Package: Simple Type Wrappers, Runtime & Introduction To Memory Management.

Unit-V
I/O Streams: Stream Classes, Reading & Writing to Console, Accessing files & Directories, File Input and Output Stream, Byte Array Input & Output Stream.

Applets: Overview, Life cycle of an Applet, HTML tag, Parameter Passing, Applet vs. Applications.

COURSE OUTCOMES:

CO1. Students will be able to understand the features of java and how does work with data types, variables and operators in Java Virtual Machine (JVM) Environment.

CO2. Students shall be able to work with Arrays, Use of Control Statements and Fundamentals of Class & Objects.

CO3. Students will be to implement the features of Inheritance, Packages, Interfaces and Exception Handling in Java programming.

CO4. Studentsshallt be able to program with multithreading programming style, Lang Package and Handling of Strings in Java.

CO5. Students shall be able to program with Input Output (I/O) Streams and development of Applets.
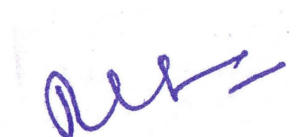
Note for Paper Setting:

The question paper will be divided into two sections. **Section A** will include 10 compulsory objective-cum-short answer type questions from each unit, each carrying 1 mark. **Section B** will have ten (10) long answer questions, two from each unit. The student will have to attempt one (01) question from each unit. Each question will carry 10 marks.

Text Books:

1. **Schildt, H (2004),** "The Complete Reference Java-2 ", Sixth Edition,**TMH.**

References:

1. **Dietel&Dietel (2006),** "Java: How to Program Java 2", Sixth Edition, **Pearson Education.**
2. **Horstmann& Cornell (2006),** "Java2 Vol-1 & Vol-2", Seven Indian Reprint, **Pearson Education.**

Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-371	Lab 5: Relational Database Management System	3	50	50	100	0	0	6	4

COURSE OUTCOMES:

CO1: Student shall be able to write various DDL/DML/DCL SQL commands to insert/update/delete data in/from thetable(s).

CO2: Student shall be able to write various queries to extract the data from the table(s) based on the problem in hand.

CO3: Student shall be able to Implement locking techniques on the databases.

CO4: Student shall be able to write various Pl/ SQL Blocks to work on Functions, Cursors, and Triggers.

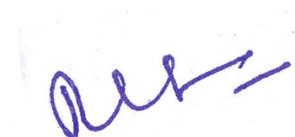| Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-372	Lab 6: Java Programming	3	40	60	100	0	0	6	4

COURSE OUTCOMES:

CO1. The Technical and Programming skills of students will develop in java programming.

CO2. Students will be able to develop the Application Software.

CO3. Students will be able to work with pure object oriented programming environment.

CO4. Students will be able to develop multi-threaded Application Programs.

CO5. Students will be able to work with Applets.

Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-442	Dot Net Technologies using C#	3	40	60	100	5	0	0	4

Objective:
The course is designed to introduce students to the concept the .Net framework. The course shall cover Visual C# .Net as well as ADO.Net. Emphasis of the course is on enhancing programming skills of students for developing projects.

Unit-I
.Net Framework and IDE : Introduction To .Net Framework, .Net Architecture, Advantages of Dot Net Frame Work, Common Language Runtime, MSIL And JIT, Class Library, Integrated **Development Environment (IDE)**: IDE Components, Windows Forms and Basic Controls, Windows Forms And Events, Message Box, Basic Controls like Command Buttons, Text Box, List Box, Radio Buttons, Labels, Link Labels, Combo Box, Building Small Applications.

Unit-II
C# Basics: C# Literals, Variables & Data Types, Operators and Expressions.
Working with Events and Event Driven programming. Conditional Logic, Looping Logic, Branching Logic.
Classes and Objects: Introduction, Methods: Argument Passing, Passing Objects and Lists.
Constructors, constructor overloading.
Inheritance: introduction Single and Multiple, Polymorphism- Method Overloading and Operator Overloading.

Unit-III
Interfaces: Introduction, Defining an Interface, Extending an Interface, Implementing Interfaces, Interfaces and Inheritance, Abstract Class and Interfaces.
Delegates and Events: Introduction, Delegates, Delegate Declaration, Delegate Methods, Delegate Instantiation, Delegate Invocation, Using Delegates. Array Lists, Hash Tables and Dictionaries.

Unit-IV
Manipulating Strings: Introduction, Creating Strings, String Methods, Inserting Strings Using System, Comparing Strings, Finding Substrings, Mutable Strings, and Arrays of Strings.
Generics, Generic collection classes.
Error and Exception Handling: Introduction, Types of Errors, Exceptions, Syntax of Exception Handling Code, Multiple Catch Statements. Working with Date and Time.

Threading: Applications with multiple threads, Manipulating Threads, Creating Threads with Thread pool.

Unit-V

Data Base Connectivity: Architecture of ADO .Net, Working with ADO .Net, Data Access with ADO .Net, Using Databases, Server Explorer, Data Adapter and Datasets,

Data controls: Data Grid, Data Binding, and Creating New Data Connection in Code. Managing data and relationship: XML schemas, Populating a Dataset, Persisting Dataset Changes, windows forms , viewing .Net data. Reporting in .Net

COURSE OUTCOMES:

CO1. Student will able to understand the concept of .NET Framework and its architecture.Student will able to develop small application using controls present in Visual Studio.

CO2. Student will be able to understand the basic concepts of C# programming language and implement OOPs concepts in C#.

CO3. Students will be able to understand and implement the concept of event handling usingdelegates in C#.

CO4. Student will be familiarizing with the concept of String manipulations, Generics andthreading in C#. Student will also able to handle exceptions generated by different errors**.**

CO5. Student will able to work with different databases, retrieve, manipulate and view data in different data controls using ADO.Net.
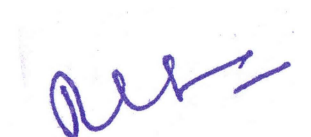

Note for Paper Setting:

The question paper will be divided into two sections. **Section A** will include 10 compulsory objective-cum-short answer type questions from each unit, each carrying 1 mark. **Section B** will have ten (10) long answer questions, two from each unit. The student will have to attempt one (01) question from each unit. Each question will carry 10 marks.

Text Books:

1. **Platt ,D S (2005),** "Introducing Microsoft .Net", **Microsoft Press,PHI.**
2. **Simon et. al(2005),** " C# for Begineers", **Wrox Publications.**
3. **Simon et. al(2005),** "Professional C#", **Wrox Publications.**

References:

1. **Schildt,H(2005),** "The Complete Reference C #",**TMH.**

Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-443	Minor Project	3	50	150	200	5	0	0	8

Objective:

The aim is the minor project is to prepare students by giving them a feel of how the project is done. The project will be assigned at the start of the fourth semester and will be evaluated by both the concerned Internal teacher & External Examiner.

Course Outcomes.

CO1. The students will be carrying out the project within the department.

CO2. The students will be able to learn and have a feel on hands-on Project in which he will be made based on his/her underdstanding on the Analysis and design of the problem.

CO3. This exercise will help the student to be ready for the Major Project in 6th Semester of MCA Programme.

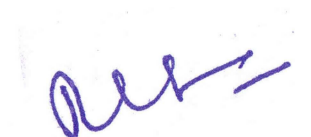| Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-471	Lab 7: Dot Net Technologies using C#	3	40	60	100	5	0	0	4

COURSE OUTCOMES:

CO1. Student will able to develop small application using Standard controls present in Visual Studio.

CO2. Student will be able to create simple programs and implement OOPs concepts (Classes, objects, inheritance) in C#.

CO3. Students will be able to create programs on interfaces and create event handlers using delegates in C#.

CO4. Student will be able to create programs on string manipulations, creating and handling threads. Students will also able to implement exception handling in different programs.

CO5. Student will able to create window application and establish connection to database using ADO.NET, perform data retrieval and manipulations. Students will also able to display different reports.

Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-542	Artificial Intelligence	3	40	60	100	5	0	0	4

Objective:

The objective of the course is to introduce students to the basic concept of Artificial Intelligence. The course is appropriate both, for students of computer science & engineering who wish to acquire general understanding of Artificial Intelligence as well as for students preparing for more advanced courses and research in Artificial Intelligence.

Unit-I
Introduction to Artificial Intelligence: Foundation and History of Artificial Intelligence, Agents, types of Agents, Intelligent Agents, Structure of Intelligence Agents; Knowledge Based Agent, Environments and its types, Relationship between Environment and Agent.

Unit-II
Knowledge Acquisition and Representation: Introduction to Knowledge Acquisition; Introduction to Knowledge representation, Hypothesis, Knowledge Levels, Knowledge Classification, Knowledge Representation Schemas; Logic Based, Procedural, Network and Structural Representations.

Unit-III
LISP Programming: Introduction to LISP, Syntax and Numeric Functions, Basic List Manipulation Functions in LISP, Functions, Predicate and Conditionals, Input, Output and Local Variables, Iteration and Recursion.

Unit-IV
Searching and Problem Solving: Searching in Problem Solving, Problem Solving Agents; Uninformed Search Strategies, Breadth First Search, Iterative Deepening Search, Bidirectional Search, Informed Search Strategies; Action and Path Costs, Heuristic Functions, Greedy Best First Search, A* Search, IDA* Search.

Unit-V
Machine Learning and Neural Networks: Introduction to Machine Learning, Comparison of Traditional and Machine learning Algorithms, Applications of Machine learning, Introduction to Learning Rules (Supervised, Unsupervised, Reinforcement Learning). Introduction to Biological Neural Network, Comparison of ANN with Biological Neural Network, Neuron Model and Architecture: Single-Input Neuron, Transfer functions, Multiple-input Neuron, A Layer of Neurons, Multiple Layer of Neurons, Recurrent Neural Network, Perceptron with two Input case, Applications of Artificial Neural Networks.

COURSE OUTCOMES:

CO1. Understand basic concepts of Artificial intelligence, early developments in this field, basic knowledge representation, problem solving, and learning methods of Artificial Intelligence.

CO2. Understand the applicability, strengths, and weaknesses of the basic knowledge representation, problem solving, and learning methods in solving particular problems, game playing as problem solving.

CO3. Write Programs in LISP.

CO4. Implement a search problem as a state space, and how different types of search algorithms work like state space search, heuristic search, Greedy Best First Search, A* Search, IDA* Search.

CO5. Understanding the concepts of Machine Learning and Neural Networks, Applications of Machine learning.

CO6. Understanding the concept of Biological Neural Network, Neuron Model and Architecture, and Applications of Artificial Neural Networks.
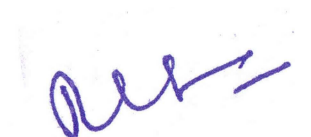

Note for Paper Setting:

The question paper will be divided into two sections. **Section A** will include 10 compulsory objective-cum-short answer type questions from each unit, each carrying 1 mark. **Section B** will have ten (10) long answer questions, two from each unit. The student will have to attempt one (01) question from each unit. Each question will carry 10 marks.

Text Books:

1.**Russel,S and Norvig, P (2006)**,"Artificial Intelligence, A Modern Approach", **PHI**.

References:

1. **Night, R (2005)**, "Introduction to Artificial Intelligence", **TMH.**
2. **Patterson, D W (2005)**,"Introduction to Artificial Intelligence and Expert Systems", Indian Reprint, **PHI**.
3. **Martin T. Hagan, Howard B. Demuth, Mark Beale, Orlando De Jesús (2014),**"Neural Network design", 2nd Edition,**China Machine Press.**
4. **Tom Mitchell (1997), "**Machine Learning", 1st Edition, **McGraw- Hill**.

Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-543	Web Technologies	3	40	60	100	5	0	0	4

Objective
The course is designed to acquaint the students the basic concepts about WWW, it also aims at imparting basic skills of creating, modifying and handling web pages and web portals and its deployment.

Unit-I
Introduction to Internet: Domain & Host Names, DNS server, Introduction to WWW, role of Web Server and Web Browser, introduction to HTTP protocol, HTTP Request structure, HTTP Response Structure. HTTP Request Methods(Get &Post), introduction to IIS, configuring IIS. Deploying a web Application.

Unit-II
Introduction to HTML and CSS: HTML tags, Formatting text, Controlling fonts, Tables, Adding pictures, adding links, creating forms working with text boxes, radio buttons, check boxes, dropdown menu, submit button setting up frames, creating web pages, Page Navigation in HTML, introduction to CSS and its properties

Unit-III
Introduction to ASP.NET: Architecture, Application Domain, Life cycle of a Web Form.
Standard Controls in ASP.NET :(Text Box, Button, Label, Image Control, Drop Down List, Check Box Control), Navigation control (Tree view Control, Menu Control), Validation Controls, Login Controls, HTML controls in ASP.NET.

Unit-IV
ASP.Net Objects: Request Object, Response Object, Cookies, Working with OLEDBConnection Class, OLEDBCommand Class, OLEDBTransaction Class, OLEDBDataAdapter Class, Data Set Class.
Connecting with SQL server Database. Manipulating Data in SQL Server Database, Retrieving Data from SQL Server Database.

Unit-V
Working with Data: Data Bound Controls(List Control, Iterative Controls, View Controls), Working Data Controls. State Management in Asp.NET (Hidden Field ,View State, Cookies, Query Strings, Session Application). Introduction to AJAX. Reporting in ASP.NET. Introduction to MVC framework.

COURSE OUTCOMES:

CO1. Student will able to understand the concept of DNS Server and HTTP Request and Response Header formats. Students will able to configure IIS and deploying a web application.

CO2. Student will be able to understand the basic principles of web designing and design web pages using HTML and Cascading Style sheets.

CO3. Students will be able to understand ASP.NET architecture. For a given domain students will able to create interactive web applications and implement validation and authentication using ASP.Net controls.

CO4. Student will able to understand the concept of Request and Response objects in ASP.NET. Student will able to work with different databases, retrieve and manipulate data using ADO.Net.

CO5. Student will able to build small AJAX applications and implement state management in web applications.
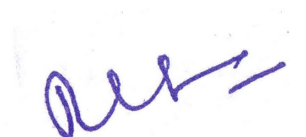
Note for Paper Setting:

The question paper will be divided into two sections. **Section A** will include 10 compulsory objective-cum-short answer type questions from each unit, each carrying 1 mark. **Section B** will have ten (10) long answer questions, two from each unit. The student will have to attempt one (01) question from each unit. Each question will carry 10 marks.

Text Books:

1. **Deitel&Deitel,** "Internet & WWW HOW to Program," 3rd Edition, 2005, **PHI**.
2. **Dino Esposito, "**Programming Microsoft ASP.NET 4", 1st Edition,2011, **Dreamtech Press.**

References:

1. **Kogent Learning Solutions Inc (2009)***,* **"**Black BookASP.NET 3.5", Beginners Edition, **Dreamtech Press.**
2. **ImarSpaanjaars, "**Beginning ASP.NET 4: in C# and VB", **WROXpublication.**

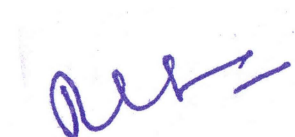| Course Code	Title	Scheme of Examination				Hrs/Week			Credits
		Duration (hrs)	IA	UE	Total Marks	L	T	P	
MC-571	Lab 8: Web Technology	3	50	50	100	0	0	6	4

CO1. Student will able to configure IIS and deploying a web application.

CO2. Student will be able design web pages using HTML and Cascading Style sheets.

CO3. Students will be able to create interactive web applications and implement validation and authentication using ASP.Net controls.

CO4. Student will able to work with Request and Response objects in ASP.NET. Student will able to work with different databases, retrieve and manipulate data using ADO.Net.

CO5. Student will able to build small AJAX applications and implement state management in web applications.

Course Code	Course Title (Core Courses)	Credits	Scheme of Examination				
			Duration	Marks			
			Hours	IA	UE	Total	
MC-641	Major Project	24	--	200	400	**600**	

The components and bifurcation of marks of the course code MC-641 in Semester VI shall be as follows:

Components	IA	UE
Project Work	-	100
Presentation	100	150
Viva Voce	100	150
Total	**200**	**400**

IA – Internal Assessment
UE – University Examination

COURSE OUTCOMES:

CO1: Students will have hands of experience of system development life cycle.

CO2: The students will learn to apply the technologies learnt during the course in real life projects.

CO3: Students will learn to work in real life project development environments involving deadlines and teamwork.

CO4: Students will learn to pick up and apply upcoming technologies in project development not covered during the course.