MCA-201 Software Engineering

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
3	0	0	3	40	60	100	3 hours

Course Type: Core Theory

Objective: The main objective of this course is to provide knowledge about various methodologies used in software engineering, various models used in software development. After completing the course the student should be competent in all the phases of software development life cycle, able to develop software by following software engineering principles, and proficiently write reports for software project.

UNIT-I

Software Process Models: Software Process, Generic Process Model – Framework Activity, Task Set and Process Patterns; Process Lifecycle, Prescriptive Process Models, Project Management, Component Based Development, Aspect-Oriented Software Development, Formal Methods, Agile Process Models – Extreme Programming (XP), Adptive Software Development, Scrum, Dynamic System Development Model, Feature Driven Development, Crystal, Web Engineering.

(10-L,3-T=13)

UNIT-II

Software Requirements: Functional and Non-Functional Requirements, Eliciting Requirements, Developing Use Cases, Requirement Analysis and Modelling, Requirements Review, Software Requirment and Specification (SRS) Document. **Software Design:** Abstraction, Architecture, Patterns, Separation of Concerns, Modularity, Information Hiding, Functional Independence, Cohesion and Coupling; Object-Oriented Design, Data Design, Architectural Design, User Interface Design, Component Level Design. **(10-L,3-T=13)**

UNIT-III

Software Quality: McCall's Quality Factors, ISO 9126 Quality Factors, Quality Control, Quality Assurance, Risk Management, Risk Mitigation, Monitoring and Management (RMMM); Software Reliability. **Estimation and Scheduling of Software Projects:** Software Sizing, LOC and FP based Estimations; Estimating Cost and Effort; Estimation Models, Constructive Cost Model (COCOMO), Project Scheduling and Staffing; Time-line Charts. (10-L,3-T=13)

UNIT-IV

Software Testing: Verification and Validation; Error, Fault, Bug and Failure; Unit and Integration Tesing; White-box and Black-box Testing; Basis Path Testing, Control Structure Testing, Deriving Test Cases, Alpha and Beta Testing; Regression Testing, Performance Testing, Stress Testing. **(10-L,3-T=13)**

Text Books:

1. Pankaj Jalote, "An Integrated Approach to Software Engineering", Narosa Publishing House.
2. K.K. Aggrawal and Yogesh Singh, "Software Engineering", New Age International (P) Ltd.

Reference Books:

1. Pressman, R.S., "Software Engineering – A Practitioner's Approach", McGraw Hills.
2. Mall Rajib, "Fundamentals of Software Engineering", PHI, New Delhi.

MCA 202- Data Structures Using C

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
3	1	0	3	40	60	100	3 hours

Course Type: Core Theory

Objective: The main objective of this course is to provide conceptual as well as practical knowledge of Programming approach and data structures along with C language. After completing the course the student should be competent in data structures, and able to use these tools and methodologies to solve real life problems on C platform.

UNIT-I

Data Structure: Definition, Basic Concepts, ADT **Array:** Definition, Memory Allocation, Single and Multidimensional Array, Addressing Scheme, Sparse Matrices, Polynomial representation. **Link List:** Dynamic memory Allocation, Single Linked and multiply linked list- Different operations, Circular linked lists, Linked lists as an ADT. **Stack and Queue**: Definition and implementation using arrays.

(10-L,3-T=13)

UNIT-II

Trees: Forest, Binary Tree, Threaded Binary Tree, Binary Search Tree, AVL Tree, B Tree, B+ Tree, B* Tree, Data Structure for Sets, **Graphs:** Sorting and Searching Algorithms.

UNIT-III

File organization: Structure and Processing of Sequential files, Indexed Sequential and Direct files, Hashing. Algorithm complexity, time-space trade-off between algorithms, **Asymptotic notations:** Big- O, omega, theta. **(10-L,3-T=13)**

UNIT-IV

Sorting and Searching: Selection sort, Bubble sort, Merge sort, Radix sort, Quick sort, Sequential search, Linear search and their complexity **Design Techniques:** Divide and Conquer; Dynamic Programming, Greedy Algorithms, Backtracking, Branch and Bound. **(10-L,3-T=13)**

Text books:

1. T. H. Cormen, C. E. Leiserson, R. L. Rivest, Clifford Stein. "Introduction to Algorithms,Prentice Hall India.
2. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C++," Pearson .

References Books:

1.. T. H. Cormen, C. E. Leiserson, R. L. Rivest, Clifford stein, "Introduction to Algorithms", second edition, Prentice Hall India, 2009.
2. Sara. Basse, Allen Van Gelder, "Computer Algorithms: Introduction to Design and Analysis", Pearson,
3. R. Motwani and P. Raghavan, "Randomized Algorithms," Cambridge University Press.

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MCA 203 Java Programming

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
3	1	0	4	40	60	100	3 hours

Course Type: Core Theory

Objective: The main objective of this course is to provide conceptual as well as practical knowledge of Object Oriented Programming approach and data structures along with Java programming language tools. After completing the course the student should be competent in Object Oriented programming tools and data structures, and able to use these tools and methodologies to solve real life problems on Java platform.

UNIT-I

Introduction: Object Oriented Programming, History and Basics of Java, Java Data Types, Variables, and Operators, Control Structure and looping, Array and String, **Introduction of Classes:** Fundamental of Classes and Methods, Constructors, Overloading Methods **Exception Handling in Java:** Exception Handling basics, try, catch and finally, throw and throws clause, re-throwing of exceptions, handling user defined exceptions. **(10-L,3-T=13)**

UNIT-II

Extending Classes and Inheritance: Fundamental of Inheritance, Packages and Interfaces, Multithreading Programming. **Working with Abstract Windows Toolkit:** Creating Applets in Java, Working with Graphics and Text, GUI Components, Menus and Layout Managers. **(10-L,3-T=13)**

UNIT-III

Java Swings: Java Foundation Classes, Hierarchy of Java Swing classes, Swing components, **Multimedia Applications:** Multimedia, Images **Look-and-Feel:** Look-and-Feel of Swing GUI Components, Swing's pluggable look-and-feel (PLAF), standard look-and-feels (Nimbus, Motif, Windows). **(10-L,3-T=13)**

UNIT-IV

Event Handling: Introduction, Event Classes and Listener Interfaces. **Accessing Databases with JDBC:** Installing MySQL, Setting up a MySQL User Account, Manipulation Databases with JDBC, RowSet Interface, ResultSet

Text books:

1. R. Nageswara Rao, "Core Java an integrated approach", Dreamtech Press.
2. Paul Deitel, Harvery Deitel, "Java How to Program", PHI New Delhi.
3. . The Complete Reference JAVA by Herbert Schildt, TMH Publication.
4. Beginning JAVA, Ivor Horton, WROX Public.

References Books:

1. Java 2 UNLEASHED, Tech Media Publications.
2. Java 2 API Documentations.

MCA-204 Web Technology (CSS, Java Script and PHP)

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
3	1	0	3	40	60	100	3 hours

Course Type: Core Theory

Objective: The main objective of this course is to provide conceptual as well as practical knowledge of web-development Languages and web-designing tools. After completing the course the student should be competent in basic web-development as well as web-designing tools, and able to use these tools and to design and develop web-pages professionally.

UNIT-I

Introduction: Internet, Internet Protocol, HTML, HTML Tags, Introduction to HTML5, New elements, Video/DOM, Audio, Drag and Drop, Canvas/SVG, App Catch, SSE and Tags. Styling Pages (CSS), CSS Properties, Box Model. **Introduction to Dreamweaver:** Dreamweaver tools, Image Processing Tools. **(10-L,3-T=13)**

UNIT-II

Styling Pages (CSS): Introduction, CSS Properties, Box Model, **XML: XML Schema, Custom Markup Language**. **Introduction to server:** Types of Servers, Types of virtual server, Installing and configuring Web server(Apache/Tomcat/Glassfish/IIS). **(10-L,3-T=13)**

UNIT-III

Introduction to Java Script: Basic functions, Validating form using JavaScript, Enhancing form with JavaScript, JavaScript Libraries. **(10-L,3-T=13)**

UNIT-IV

PHP: Overview of server side scripting, phpinfo(), Form handling, File handling, cookies, Session Tracking; Database access using PHP and **MySQL:** Connecting to database-server, Selecting database, creating query, reading records from database, storing records in database. **(10-L,3-T=13)**

Text Books:

1. Robert Sebesta, "Programming with World Wide web " Pearson.
2. John Duckett, "Beginning with HTML, XHTML, CSS and JavaScript" Wiley Wrox.

References Books:

1. Deitel and Deitel, "XML How to Program", Pearson.
2. Shroff, "Dreamweaver CS6 the Missing Manual", Publishers and Distributors.
3. "Adobe Dreamweaver CS room In a Book", Person.
4. "Photoshop CC The Missing Manual", Shroff Publishers and Distributors.

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MCA-205 Computer Networks

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
3	1	0	4	40	60	100	3 hours

Course Type: Core Theory

Objective: The main objective of this course is to provide knowledge about various protocols and layers used in Computer Networks and basics of various communication mechanisms used to send and receive data. After completing the course the student should be competent in basics of computer networking and communication system, and understand the significance of various protocols and layers used in computer Networks.

UNIT-I

Introduction: Data Communication, Network Components. **OSI Reference Model:** Layered architecture, Functions of layers, TCP/IP reference model, Comparison of OSI & TCP/IP models. Internet, frame relay, ATM, Ethernet, Wireless LAN. **Physical layer:** Theoretical basis for data communications, bandwidth limited signals, maximum data rate of a channel, Public switched telephone networks, mobile telephone system. **(10-L, 3- T=13)**

UNIT-II

Data Link and Mac Layer: Design issues, Framing techniques, Flow control, Error Control, **Data link Control and Protocols:** Simplest Protocol, Stop-and-Wait Protocol, Stop-and-Wait ARQ, Go-Back-N ARQ, and Selective Repeat ARQ Protocol, HDLC Protocol, and PPP Protocol, Multiple Access Random Access, Controlled Access, Channelization, **IEEE standards:** 802.3, 802.4, 802.5, 802.11, 802.15.

(10-L,3-T=13)

UNIT-III

Network and transport Layer: Network layer design issues, Routing algorithms-shortest path routing, flooding, distance vector routing, link state routing, hierarchical routing, broadcast routing, multicast routing, routing for mobile hosts, **Congestion Control algorithms**: congestion prevention policies, congestion control in virtual circuit and datagram sub-networks, definition of quality of service.

(10-L,3-T=13)

UNIT-IV

Internetworking: Tunneling, internet-work routing, fragmentation, **Network layer in Internet**: IP protocol, IP Address, OSPF, BGP, Internet multicasting, Mobile IP, Ipv6.**Transport Layer:** Concept of transport service, elements of transport protocols, a simple transport protocol, Remote procedure call, **Application layer services protocols:** DNS, SMTP, FTP, TELNET, HTTP, WWW. **Case study:** Study of various network simulators, Network performance analysis using NS2. **(10-L,3-T=13)**

Text books:

1. B.A. Forouzan, "Data Communication & Networking", Tata Mcgraw Hill.
2. A.S. Tanenbaum, "Computer Networks", Prentice Hall.

References Books:

1. William Stallings, "Data and Computer Communication", McMillan Publishing Co.
2. Black, Data Networks, PHI.
3. Fred Halsall, "Data Communications, Computer Networks", Pearson Education.

MCA- 206(A) Artificial Intelligence

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
3	1	0	4	40	60	100	3 hours

Course Type: Elective

Objective: The main objective of this course is to provide conceptual as well as practical knowledge of Artificial Intelligence and related technologies. After completing the course the student should be competent in Prolog Programming tools and also able to understand the Artificial Intelligence and its applications for real life problems.

UNIT-I

Approaches to AI: Turing Test and Rational Agent Approaches; State Space Representation of Problems, Heuristic Search Techniques, Game Playing, Min-Max Search, Alpha Beta Cutoff Procedures. **Knowledge Representation:** Logic, Semantic Networks, Frames, Rules, Scripts, Conceptual Dependency and Ontologies, Expert Systems, Handling Uncertainty in Knowledge.

(10-L,3-T=13)

UNIT-II

Planning: Components of a Planning System, Linear and Non Linear Planning; Goal Stack Planning, Hierarchical Planning, STRIPS, Partial Order Planning. **Natural Language Processing:** Grammar and Language; Parsing Techniques, Semantic Analysis and Prgamatics. **(10-L,3-T=13)**

UNIT-III

Multi Agent Systems: Agents and Objects; Agents and Expert Systems; Generic Structure of Multi-agent System, Semantic Web, Agent Communication, Knowledge Sharing using Ontologies, Agent Development Tools. **Fuzzy Sets:** Notion of Fuzziness, Membership Functions, Fuzzification and Defuzzification; Operations on Fuzzy Sets, Fuzzy Functions and Linguistic Variables; Fuzzy Relations, Fuzzy Rules and Fuzzy Inference; Fuzzy Control System and Fuzzy Rule Based Systems.

(10-L,3-T=13)

UNIT-IV

Genetic Algorithms (GA): Encoding Strategies, Genetic Operators, Fitness Functions and GA Cycle; Problem Solving using GA. **Artificial Neural Networks (ANN):** Supervised, Unsupervised and Reinforcement Learning; Single Perceptron, Multi Layer Perceptron, Self Organizing Maps, Hopfield Network. **(10-L,3-T=13)**

Text Book:

1. Dr. Pawan Thakur, Susheela Pathania, "Artificial Intelligence", Satya Prakashan", New Delhi.
2. M. Ganesh, "Introduction to Fuzzy Sets and Fuzzy Logic", PHI Publication.
3. B. Yegnanrayana, "Artificial Neural Networks", PHI Publication.

Reference Books:

1. E. Rich and K. Knight," Artificial Intelligence", Tata McGraw Hill.
2. E. Charnaik and D. McDermott," Introduction to artificial Intelligence", Addison- Wesley Publishing.
3. Nils J. Nilson, "Principles of Artificial Intelligence", Narosa Publishing Co.

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MCA- 206(B) Software Quality Assurance

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
3	1	0	4	40	60	100	3 hours

Course Type: Elective

Objective: The main objective of this course is to provide conceptual as well as practical knowledge to assure quality of software. After completing the course the student should be competent in handling various quality assurance issues practically and able to these methodologies in software development.

UNIT-I

Software and Quality Concept: overview, Software perspective, Software Quality, Software Quality Assurance, Software Quality models, Software Quality measurement and metrics. **Assuring Software Quality Assurance (SQA):** life cycle, SQA planning, SQA monitoring and controlling, testing, setting standards and procedures, Developing and controlling relevant metrics, SQA activities revision, process evaluation, software standards. **(10-L,3-T=13)**

UNIT-II

Software Quality Meterics: Objectives, Software metrics, Software Quality metrics framework, Software Quality metrics features, Development of software quality metrics- SATC's approach, Kitchenham's approach, Abreu's approach, Victor's approach, Selection of Software Quality metrics- Size related metrics, complexity metrics, Halstead metrics, quality metrics. **Software Quality Models:** McCall's model, Boehm model, ISO 9126 model, Dromey's Quality model, Non-hierarchical model- Bayesian belief networks, star model, capability maturity models. **(10-L,3-T=13)**

UNIT-III

Software Testing: Introduction, Definition (testing, fault, error, failure, bug, mistake), test oracle, test case, Process, Limitations of Testing. Functional Testing: Boundary Value Analysis- Introduction &Definition, Generalising, limitations, Robustness testing, Worstcase testing, Test cases. Equivalence Class Testing - Introduction & Definition, Weak normal, strong normal, Weak robust, Strong robust, Test cases. Decision Table Based Testing- Introduction & Definition, technique, test cases. **(10-L,3T=13)**

UNIT-IV

Structural Testing: Path testing, DD-path, Test coverage metrics, McCabe's basis path method **Data Flow Testing**: Definition, data flow graphs, data flow model, Data flow testing strategies. **Levels of Testing:** Traditional view of testing levels, Integration Testing (Decomposition based integration), Unit Testing, System Testing. **Metrics and Complexity:** Halstead's Metrics, Token count. Structural Metrics - Definition, Cyclomatic complexity, Hybrid Metrics. **(10-L,3-T=13)**

Text Books:

1. R A Khan, K Mustafa, SI Ahson, "Software Quality- Concepts and Practices", Narosa Publishing House,
2. Boris Beizer, "Software Testing Techniques", Dreamtech press.
3. Paul C. Jorgensen "Software Testing- A Craftsman Approach", CRC Press

Reference Books:

1. Alan C Gillies, "Software Quality: Theory and Management", Cengage Learning, India.
2. Nina S Godbole, "Software Quality Assurance: Principles and Practice", Narosa Publishing House.
3. K.K. Aggarwal and Yogesh Singh, "Software Engineering", New Age International Publishers.

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MCA- 206(C) Computer Graphics

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
3	1	0	4	40	60	100	3 hours

Course Type: Elective

Objective: The main objective of this course is to provide conceptual as well as practical knowledge to assure quality of software. After completing the course the student should be competent in handling various quality assurance issues practically and able to these methodologies in software development.

UNIT-I

Review of basic concepts: Antialiasing techniques, 2D viewing, 2D Transformations, **Clipping** : Line clipping ,Polygon Clipping, 3D display methods, 3D Object Representation ,Three-Dimensional Viewing , Projections , 3D Transformations. **(10-L,3-T=13)**

UNIT-II

Fractals: Classification of Fractals, Calculation of fractal dimension. Shape grammars. Visible surface detection algorithms, Surface Rendering Methods, Basic illumination Models, Polygon rendering Methods, Ray-Tracing Methods, Texture Mapping. **(10-L,3-T=13)**

UNIT-III

Computer vision: applications, photometric image formation, digital camera. **Feature-based alignment:** 2D and 3D feature-based alignment, Pose estimation, Geometric intrinsic calibration. Structure from motion: Triangulation, Two-frame structure from motion, Factorization, Bundle adjustment, constrained structure and motion. **(10-L,3T=13)**

UNIT-IV

Stereo correspondence: Epipolar geometry, sparse correspondence, dense correspondence, Local methods, Global optimization, Multi-view stereo. Recognition: Object detection, Face recognition, Instance recognition, Category recognition, Context and scene understanding. **(10-L,3-T=13)**

Text Books:

1. D Hearn and M. P. Baker, "Computer Graphics C version", Pearson Education.
2. Richard szeliski ,"Computer Vision: Algorithms and applications ", Springer.
3. David A Forsynth and Jean Ponce, "Computer Vision- A modern approach", Pearson education series.

Reference Books:

1. Milan Sonka, Vaclav Hlavac and Roger Boyle," Digital image processing and computer vision", Cengage learning.
2. Schalkoff R. J., "Digital Image Processing and Computer Vision," John Wiley.
3. E. S. Angel, "Interactive Computer Graphics, A top-down approach with OpenGL," (5e), Pearson Education.

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MCA- 206(D) Image Processing

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
3	1	0	4	40	60	100	3 hours

Course Type: Elective

Objective: The main objective of this course is to provide conceptual as well as practical knowledge of basic Images, Digital Images and various Image Processing Techniques. After completing the course the student should be competent in Image Processing Techniques and can use these techniques to process real Images.

UNIT-I

Introduction: Image Processing, Applications of Image Processing, Elements of Image Processing Systems—Image Acquisition, Processing, Communication, Display Digital Image Processing, Goals of Image Processing, Sources of Images, Image Classification and Formation, Image Representation and Sampling, Basic operations on Images. **Digital Image Fundamentals:** Uniform and Non-uniform Sampling and Quantization, Basic Relationships between pixels— Neighbours of a pixel, Connectivity, Distance Measures, Imaging Geometry—Perspective transformations, Camera Model, Stereo Imaging.

(10-L,3-T=13)

UNIT-II

Image Transforms: Introduction to Fourier Transform, Discrete Fourier Transform, Properties of the Two - Dimensional Fourier Transform, The Fast Fourier Transform (FFT), Inverse FFT, Walsh, Hadamard and Discrete Cosine Transforms. **Image Enhancement:** Histogram Processing, Image Averaging, Smoothing Filters, Sharpening Filters, Low Pass and High Pass Filtering, Generation of Spatial Masks from frequency Domain Specifications.

(10-L,3-T=13)

UNIT-III

Colour Image Processing: Colours Fundamentals, Colour Models, Pseudo-Colour image processing. **Image Restoration:** Degradation Model, Circulant and Non-circulant Matrices, Algebraic Approach to Restoration, Inverse Filtering, Wiener Filter, Constrained Least Square Restoration, Geometric Transformations.

(10-L,3-T=13)

UNIT-IV

Image Compression: Fundamentals, Image Compression models, Low Compression, Image Compressions standards. **Image Segmentation:** Detection of Discontinuities, Edge Linking and Boundary Detection, Hough Transform, Thresholding, Region Oriented Segmentation. Representation, Description, recognition and Interpretation Fundamentals.

(10-L,3-T=13)

Text Book:

1. Gonzalez and Woods, "Digital Image Processing", Pearson Publishing Company Ltd.
2. Jain , Anil K. "Fundamentals of Digital Image Processing", Pearson.

Reference Books:

1. Jensen, John R. "Introductory Digital Image Processing", Prentice Hall.
2. Dougherty, Edward R. "Image Processing Digital Techniques".

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MCA- 207 Lab IV : Data Structures

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
0	0	3	1	50	50	100	3 hours

Course Type: Practical Labs

INSTRUCTIONS:

For External Examiner: 50% marks (25 marks) will be awarded on the basis of practical implementation and lab performance in final practical examination, and remaining 50% marks (25 marks) will be awarded on the basis of vive-voice and written script.

Objective: The main objective of this course is to cover practical implementation part of **MCA-202**. After completing the course the student should be competent in handling various data structures and different operations on these data structures using C language.

Total Lab Hours: 40

Suggested List of Practical Topics:

1. Array
2. Stack
3. Link Lists(linear, circular, doubly linked, inverted)
4. Queues (Simple, Circular Queue, Priority Queue)
5. Different Trees, Binary Search Trees
6. Heap Sort
7. Graph Implementation, Graph traversals
8. Different File Organization
9. Sorting and Searching

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MCA- 208 Lab V : Java Programming

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
0	0	3	1	50	50	100	3 hours

Course Type: Practical Labs

INSTRUCTIONS:

For External Examiner: 50% marks (25 marks) will be awarded on the basis of practical implementation and lab performance in final practical examination, and remaining 50% marks (25 marks) will be awarded on the basis of vive-voice and written script.

Objective: The main objective of this course is to cover practical implementation part of MCA-203. After completing the course the student should be competent in Applets and Swing components, AWT, Event Handling and JDBC connectivity.

Total Lab Hours: 40

Suggested List of Practical Topics:

1. Operators, Control Structure and looping, Array and String
2. Classes and Methods, Constructors, Overloading Methods
3. Exception Handling
4. Extending Classes and Inheritance
5. Working with Abstract Windows Toolkit
6. Java Swings
7. Multimedia Applications
8. Event Handling
9. Event Classes and Listener Interfaces
10. Accessing Databases with JDBC

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MCA-209 Lab VI: Web Technology

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P	C	Sessional	End Semester Exam	Total	
0	0	2	1	50	50	100	3 hours

Course Type: Practical Labs

INSTRUCTIONS:

For External Examiner: 50% marks (25 marks) will be awarded on the basis of practical implementation and lab performance in final practical examination, and remaining 50% marks (25 marks) will be awarded on the basis of vive-voice and written script.

Objective: The main objective of this course is to cover practical implementation part of **MCA-204**. After completing the course the student should be competent in designing web pages by using HTML , JavaScript, CSS and PHP.

Total Lab Hours: 40

1. Basic to design Form in HTML
2. Styling Pages
3. XML Schema
4. Custom Markup Language.
5. Server Programming
6. Validating form using JavaScript
7. Enhancing form with JavaScript, JavaScript Libraries
8. PHP File handling, cookies, Session Tracking
9. Database access using PHP
10. Connecting to database-server
11. Selecting database, creating query
12. reading records from database

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