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| **Master of Computer Applications Semester – IV  (2016-18)** | | | | | | | |
| **Subject Code** | **Title** | **L** | **T** | **P** | **Int.** | **Ext.** | **Credits** |
| CAT-751 | Advanced Java Programming | 4 | - |  | 40 | 60 | 4 |
| CA\*-752 | Elective-I | 3 | - |  | 40 | 60 | 3 |
| CAT-753 | Network Security & Cryptography | 3 |  |  | 40 | 60 | 3 |
| CAT-754 | Software Project Management | 3 |  |  | 40 | 60 | 3 |
| CAR-755 | Project Based on Web Technologies | - |  | 6 | 60 | 40 | 3 |
| CAP-756 | Advanced Java Programming Lab |  |  | 4 | 60 | 40 | 2 |
| CA\*-757 | Elective-I Lab |  |  | 4 | 60 | 40 | 2 |
| CAS-758 | Seminar-I | 2 | - | - | 100 | - | 2 |
| **Total** | | | | | | | **22** |

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| **Elective I** | **Subjects** |
| CAA-752 | Computer Graphics |
| CAB-752 | Web Technologies |

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| **Elective I Lab** | **Subjects** |
| CAA-757 | Computer Graphics Lab |
| CAB-757 | Web Technologies Lab |

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| **CAT- 751** | | **ADVANCED JAVA PROGRAMMING** | | **L** | **T** | **P** | **C** |
| Total Contact Hours :60 | | **4** | **-** |  | **4** |
| Applicable to which branch: MCA | |
| Prerequisite: Basic Knowledge of C & C++ | | | | | |
| **Marks** | | | | | | | |
| Internal :40 | | | External:60 | | | | |
| **Course Objective** | | | | | | | |
| The students to understand the concept and underlying principles of Object-Oriented Programming. The students also develop problem-solving and programming skills using OOP concept | | | | | | | |
| **Unit** | **Course Outcome** | | | | | | |
|  | To understand the concept of classes, methods, objects, arrays, exception handling, Inheritance, Interfaces and Multithreading. | | | | | | |
|  | Understanding Graphics, GUIs, Events, Exceptions. | | | | | | |
|  | Understanding the Java features for secure communications over the internet | | | | | | |

**Content of the Syllabus**

**Unit-I**

**Introduction to Packages:** Understanding Packages, Defining a Package, Packaging up Your Classes, Adding Classes from a Package to Your Program, Understanding CLASSPATH, Standard Packages, Access Protection in Packages.

**Exception Handling:** The Idea behind Exceptions, Types of Exceptions, Dealing with Exceptions, Exception Objects, Defining Your Own Exceptions, Checked and unchecked Exceptions

**Arrays and Strings and String Buffer** : Arrays, Arrays of Characters, String Handling Using String Class, Operations on String Handling Using, String Buffer Class.

**UNIT-II**

**Multithreading Programming**: The Java Thread Model, Understanding Threads, The Main Thread, Creating a Thread: extending Thread and implementing Runnable, Creating Multiple Threads, Thread Priorities.

**Input/output in Java**: I/O Basic, Byte and Character Structures, I/O Classes, Reading Console Input, Writing to Console Output, Reading and Writing on Files, Storing and Retrieving Objects from File, Stream Benefits.

**Collections:** Collection Interfaces, Collections Framework , ArrayList ,HashSet ,TreeSet ,Hash Map.

**UNIT-III**

**Java Data Base Connectivity (JDBC): JDBC** Introduction, JDBC Driver, Database Connectivity – Relational Databases, JDBC API.

**Servlets:**  Servlet  Overview  and  Architecture,  Interface  Servlet  and  the  Servlet  Life  Cycle, HTTP  get  Requests,  Handling  HTTP  post  Requests,  Redirecting  Requests  to  Other  Resources,  Session Tracking, Cookies, Session Tracking with HttpSession.

**Text Books:**

* Java-2, the Complete Reference by Patrick Naughton and Herbert Schlitz, TMH, New Delhi.
* Beginning Java 2 (JDK1.3 Edition), Ivor Horton, WROX Publications, New Delhi.

**Reference Material:**

* Introduction to Java Programming, Y. D. Liang, , Pearson Education.
* JAVA 2 Unleashed, Tech Media Publications, New Delhi.
* JAVA 2(1.3) API Documentations.
* Programming with Java, by E Balaguruswamy, TMH, New Delhi.

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| **CAT-751** | **Master of Computer Application** | | | | | | | | | | | | | | | | |
| **Department Teaching the Subject** | **University Institute of Computing** | | | | | | | | | | | | | | | | |
| Program Outcome | a | b | | c | d | e | | f | g | | h | i | | j | | k | |
| Mapping of Course outcome with Program outcome | I, II, III | I, II, III | | II, III | II, III | I,II, III | |  |  | |  |  | | I, II, III | |  | |
| Category | BS | | ES | | PS | | PC | | | PE | | | OE | | Project/Training | | |
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| Approval | Date of meeting of the Board of Studies | | | | | | | | | | | | | | | | |

Subject Outcomes:

1. Develop the individual as entrepreneur in the software fields as software programmer, software engineer, software architect, software developer etc.
2. Demonstrate the technical knowledge in fields of Computer Applications.
3. Implement the creative and problem solving skills in various real time problems.
4. Design and develop software to meet out the customer requirements.
5. Designate as a Team member and render efficient skills to climb the hierarchy of an organization.
6. Understand and dispatch his professional and ethical responsibilities.
7. Pursue and embark a career in research.
8. Communicate effectively both in verbal and formal means.
9. Post graduate students are capable to work in leading computer application areas of different sectors such as service division, hardware production & system integration.
10. Capable to become successful professional in all the phases of development.
11. Possess ability to function a multi-disciplinary team.

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| **CAA- 752** | | **COMPUTER GRAPHICS** | | **L** | **T** | **P** | **C** |
| Total Contact Hours 45 | | **3** | **-** | **-** | **3** |
| Applicable to which branch MCA | |
| Prerequisite C Language , Higher Level Mathematics ,  Computer Hardware | | | | | |
| **Marks** | | | | | | | |
| Internal: 40 | | | External: 60 | | | | |
| **Course Objective** | | | | | | | |
| This course is designed to provide a comprehensive introduction to computer graphics techniques, focusing on 3D modeling, image synthesis & rendering. | | | | | | | |
| **Unit** | **Course Outcome** | | | | | | |
| 1 | Students will have an understanding of critical and aesthetic issues in computer graphics and mixed-media. They will know basic aesthetic principles and concepts, and the production process. | | | | | | |
| 2 | The program will produce students that will develop conceptual principles, processes, and techniques essential to all areas of computer graphics and digital media production. | | | | | | |
| 3 | The students will work and interact, through hands-on experiences, to design, develop, produce, and edit electronically generated imagery using a wide range of sophisticated graphical tools and techniques. | | | | | | |

**Content of the Syllabus**

**Unit-I**

**Introduction:** What is Computer Graphics? Computer Graphics Applications.

**Video Display Devices:** Refresh Cathode Ray Tube, Raster Scan displays, Random Scan Displays, Architecture of Raster and Random Scan Monitors, Color CRT-monitors, Color Generating Techniques (Shadow Mask, Beam Penetration), Direct View Storage Tube, Flat Panel Display, Graphics monitors and Workstations.

**Two dimensional Graphics primitives**: Points and Lines, Point plotting Techniques: Coordinate system, Increment method, Line drawing algorithm: DDA, Bresenham’s line drawing, Bresenham‘s circle drawing algorithm: Using polar coordinates, Mid-point circle drawing algorithms. Filled area algorithm: Scan line, Polygon filling algorithms, Boundary filled algorithms.

**Unit-II**

**Two Dimensional Viewing**: Viewing pipeline, Window to view port transformation, Window to view port mapping.

**Two Dimensional Geometric transformations**: Two Dimensional Transformations: Transformations, Translation, Scaling, Rotation, Other Transformations Reflection, shear, Homogenous Coordinate System

**Unit-III**

**Three-Dimensional Transformations:** Scaling, Translation, Rotation, Shear Transformations, Reflection, World Coordinates and Viewing Coordinates, Projection, Parallel Projection, Perspective Projection

**Three Dimensions Viewing:** Three-Dimensional Viewing Transformations, Text ClippingIntroduction to Solid Area Scan-Conversion, Seed Fill Algorithm, Halftoning

**Text Books:**

* Computer Graphics, 2nd Ed., Hern & Baker –PHI, New Delhi.
* Graphics Programming with C By Yashwant Kanetkar, BPB Publications, New Delhi.
* Computer Graphics, Schaum’s Outline Series, MGH Publications.

**Reference Material:**

* Computer Graphics - A Programming Approach, Harrington.
* Principles of Computer Graphics- Rogers- MGH Pub New Delhi.

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| **CAA-752** | **Master of Computer Application** | | | | | | | | | | | | | | | | |
| **Department Teaching the Subject** | **University Institute of Computing** | | | | | | | | | | | | | | | | |
| Program Outcome | a | b | | c | d | e | | f | g | | h | i | | j | | k | |
| Mapping of Course outcome with Program outcome |  | I, II, III | |  |  | I,II, III | |  |  | |  |  | |  | |  | |
| Category | BS | | ES | | PS | | PC | | | PE | | | OE | | Project/Training | | |
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| Approval | Date of meeting of the Board of Studies | | | | | | | | | | | | | | | | |

Subject Outcomes:

1. Develop the individual as entrepreneur in the software fields as software programmer, software engineer, software architect, software developer etc.
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4. Design and develop software to meet out the customer requirements.
5. Designate as a Team member and render efficient skills to climb the hierarchy of an organization.
6. Understand and dispatch his professional and ethical responsibilities.
7. Pursue and embark a career in research.
8. Communicate effectively both in verbal and formal means.
9. Post graduate students are capable to work in leading computer application areas of different sectors such as service division, hardware production & system integration.
10. Capable to become successful professional in all the phases of development.
11. Possess ability to function a multi-disciplinary team.

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| **CAB- 752** | | **WEB TECHNOLOGIES** | | **L** | **T** | **P** | **C** |
| Total Contact Hours 45 | | 3 | - | - | 3 |
| Applicable to which branch MCA | |
| Prerequisite:Basic Knowledge of Web | | | | | |
| **Marks** | | | | | | | |
| Internal : 40 | | | External :60 | | | | |
| **Course Objective** | | | | | | | |
| This course is designed to provide a comprehensive introduction to web techniques, focusing on WWW, HTML, CSS, JavaScript & XML. | | | | | | | |
| **Unit** | **Course Outcome** | | | | | | |
| 1 | Students will learn basics of Internet and web applications and will learn how to develop basic static web page. | | | | | | |
| 2 | Students will learn Web Designing and interacting with web pages. | | | | | | |
| 3 | Student will learn XML to develop interactive web page. | | | | | | |

**Content of the Syllabus**

**Unit-I**

**Internet And World Wide Web:** Introduction, Internet Addressing, ISP, types of Internet Connections, Introduction to WWW, WEB Browsers, WEB Servers, URLS, http, WEB applications, Tools for WEB site creation.

**HTML:** What is HTML? HTML Documents, Basic structure of an HTML document, creating an HTML document, Mark up Tags, Heading-Paragraphs, and Line Breaks HTML Tags

**Introduction to elements of HTML:** Working with Text, Working with Lists, Tables and Frames, Working with Hyperlinks, Images and Multimedia, Working with Forms and controls.

**Unit-II**

**Introduction to Cascading Style Sheets:** Concept of CSS, Creating Style Sheet, Types of style sheets, CSS Properties, CSS Styling(Background, Text Format, Controlling Fonts), Working with block elements and objects, Working with Lists and Table, CSS Id and Class, Box Model (Introduction, Border properties, Padding Properties, Margin properties), CSS Advanced (Grouping, Dimension, Display, Positioning, Floating, Align, Pseudo class, Navigation Bar, Image Sprites, Attribute sector), CSS Color, Creating page Layout and Site Designs.

**Introduction to Java Script:** Introduction, programming constructs: variables, operators and expressions, conditional checking, functions and dialog boxes, JavaScript DOM, creating forms, introduction to Cookies

**Unit-III**

**Introduction** **XML**: Why XML, identifying Structure of XML document. Advantages of XML, Future of XML, Various components of XML documents used for representation of data in hierarchical order.

**Components of XML**: XML Schema, Attributes and Namespaces. Create groups of elements and attribute in XML Schema.

Transform XML document using Cascading Style Sheets.

**Text Books:**

* Professional XML, Wrox Publications.

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| **CAB-752** | **Master of Computer Application** | | | | | | | | | | | | | | | | |
| **Department Teaching the Subject** | **University Institute of Computing** | | | | | | | | | | | | | | | | |
| Program Outcome | a | b | | c | d | e | | f | g | | h | i | | j | | k | |
| Mapping of Course outcome with Program outcome | II, III | I, II, III | |  |  |  | |  |  | |  |  | | III | |  | |
| Category | BS | | ES | | PS | | PC | | | PE | | | OE | | Project/Training | | |
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| Approval | Date of meeting of the Board of Studies | | | | | | | | | | | | | | | | |

Subject Outcomes:

1. Develop the individual as entrepreneur in the software fields as software programmer, software engineer, software architect, software developer etc.
2. Demonstrate the technical knowledge in fields of Computer Applications.
3. Implement the creative and problem solving skills in various real time problems.
4. Design and develop software to meet out the customer requirements.
5. Designate as a Team member and render efficient skills to climb the hierarchy of an organization.
6. Understand and dispatch his professional and ethical responsibilities.
7. Pursue and embark a career in research.
8. Communicate effectively both in verbal and formal means.
9. Post graduate students are capable to work in leading computer application areas of different sectors such as service division, hardware production & system integration.
10. Capable to become successful professional in all the phases of development.
11. Possess ability to function a multi-disciplinary team.

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| **CAT- 753** | | **NETWORK SECURITY** & CRYPTOGRAPHY | | **L** | **T** | **P** | **C** |
| Total Contact Hours: 50 hours | | 3 | - | - | 3 |
| Applicable to which branch: MCA | |
| Prerequisite: None | | | | | |
| **Marks** | | | | | | | |
| Internal:- 40 | | | External :- 60 | | | | |
| **Course Objective** | | | | | | | |
| * To understand the concepts of data communication and to study the functions of different layers used in communication the data over network. * To introduce IEEE standards employed in computer networking. To make the students to get familiarized with different protocols and network components. | | | | | | | |
| **Unit** | **Course Outcome** | | | | | | |
| 1 | Analyze and implement some of the most advanced routing and congestion control algorithms. | | | | | | |
| 2 | Understand basics and principles of new generation of computer networks (VPN, wireless networks, mobile network | | | | | | |
| 3 | Understand network applications. | | | | | | |

**Content of the Syllabus**

**UNIT-I**

**Network Security:** Introduction, Basic concepts: confidentiality, integrity, availability, security policies, Security Attacks, Integrity check, Hash Algorithm.

**Hash Functions and Message Digests**: Algorithm (Padding, checksum, passes.) MD4 and 5: algorithm (padding, stages, digest computation.

**UNIT-II**

**Authentication:** Introduction, Security Handshake pitfalls, Online vs. offline password guessing, Key distribution centers and certificate authorities

**Cryptography:** Introduction, Secret Key Cryptography, Block Encryption, DES rounds, S-Boxes, Comparison with DES, Key expansion, Uses of Secret key Cryptography.

**Public key Cryptography**: RSA: Generating keys, encryption and decryption. Other Algorithms: Digital Signature (Algorithm), El-Gamal signatures, Zero-knowledge signatures.

**UNIT-III**

**Firewalls and Web Security:** Packet filters, Application level gateways, Encrypted tunnels, Cookies, Web security problems.

**Electronic Mail Security:** Distribution lists, Establishing keys, Privacy, source authentication, message integrity, non-repudiation, proof of submission, proof of delivery, message flow confidentiality, anonymity, Pretty Good Privacy (PGP).

**Text Books:**

* Douglas Stinson, "Cryptography Theory and Practice", 2 nd Edition, Chapman & Hall/CRC.
* B. A. Forouzan, "Cryptography & Network Security", Tata Mc Graw Hill.
* W. Stallings, "Cryptography and Network Security", Pearson Education.

**Reference Materials:**

* Kaufman, c., Perlman, R., and Speciner, M., Network Security, Private Communication in a public world, 2nd ed., Prentice Hall PTR., 2002.
* Cryptography and Network Security; McGraw Hill; Behrouz A Forouzan.
* Information Security Intelligence Cryptographic Principles and App. Calabrese Thomson

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| **CAT-753** | **Master of Computer Application** | | | | | | | | | | | | | | | | |
| **Department Teaching the Subject** | **University Institute of Computing** | | | | | | | | | | | | | | | | |
| Program Outcome | a | b | | c | d | e | | f | g | | h | i | | j | | k | |
| Mapping of Course outcome with Program outcome |  | II, III | |  |  |  | | II, III |  | |  |  | |  | |  | |
| Category | BS | | ES | | PS | | PC | | | PE | | | OE | | Project/Training | | |
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| Approval | Date of meeting of the Board of Studies | | | | | | | | | | | | | | | | |

Subject Outcomes:

1. Develop the individual as entrepreneur in the software fields as software programmer, software engineer, software architect, software developer etc.
2. Demonstrate the technical knowledge in fields of Computer Applications.
3. Implement the creative and problem solving skills in various real time problems.
4. Design and develop software to meet out the customer requirements.
5. Designate as a Team member and render efficient skills to climb the hierarchy of an organization.
6. Understand and dispatch his professional and ethical responsibilities.
7. Pursue and embark a career in research.
8. Communicate effectively both in verbal and formal means.
9. Post graduate students are capable to work in leading computer application areas of different sectors such as service division, hardware production & system integration.
10. Capable to become successful professional in all the phases of development.
11. Possess ability to function a multi-disciplinary team.

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| **CAT-754** | | **SOFTWARE PROJECT MANAGEMENT** | | **L** | **T** | **P** | **C** |
| Total Contact Hours : 60 | | 3 | 0 | 0 | 3 |
| Applicable to which branch: MCA | |
| Prerequisite: Object oriented knowledge | | | | | |
| **Marks** | | | | | | | |
| Internal :40 | | | External:60 | | | | |
| **Course Objective** | | | | | | | |
| This subject imparts knowledge to the students on software project management and the project planning. It also covers the Step Wise framework in project planning and how to evaluate and assess the projects and to find the cost of the project using cost benefit evaluation techniques | | | | | | | |
| **Unit** | **Course Outcome** | | | | | | |
| 1. | Students will able to understand the concept of software project management and how to evaluate them. | | | | | | |
| 2. | Will be able to understand the project planning and cover risk under the projects. | | | | | | |
| 3. | Will able to monitor and control the situations arises during SPM. | | | | | | |

**Content of the Syllabus**

**UNIT-I**

**Software Project Management:** Introduction, Importance, Projects, Software Project versus other type of projects, Activities, Plans, Methods, Methodologies, Stakeholders, Project Success and Failure, Management Control,.

**Project Evaluation :** Introduction, Project Portfolio Management, Evaluation of Individual Projects, Cost Benefit Evaluation Techniques, Risk Evaluation, Strategic Programme Management.

**UNIT-II**

**Project Planning**: Steps of Project Planning

**Activities Planning:** Introduction, Objective, Project Schedules, Project & Activities, Sequencing & Scheduling Activities, Network Planning Model, Forward and Backward Pass, Identifying Critical Path, Activity Float, Activity on Arrow Networks.

**Risk Management:** Introduction, Categories of Risk, Risk Identification, Assessment, Planning and Risk Management.

**UNIT-III**

**Resource Allocation:** Nature, Resource Requirements, Scheduling Resources, Cost Schedules, Sequence.

**Monitoring and Control:** Introduction, Data Collection, Visualizing Progress, Cost Monitoring, Earned Value Analysis.

**Managing Contracts:** Introduction, Types, Stages, Contract Management, Acceptance.

**Text Books:**

* Bob Hughes, Mike Cotterell, “Software Project Management”, Third Edition, Tata McGraw Hill, 2004.

**Reference Materials:**

* Ramesh, Gopalaswamy, "Managing Global Projects", Tata McGraw Hill, 2001.
* Royce, “Software Project Management”, Pearson Education, 1999.
* Jalote, “Software Project Management in Practice”, Pearson Education, 2002.

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| **CAT-754** | **Master of Computer Application** | | | | | | | | | | | | | | | | |
| **Department Teaching the Subject** | **University Institute of Computing** | | | | | | | | | | | | | | | | |
| Program Outcome | a | b | | c | d | e | | f | g | | h | i | | j | | k | |
| Mapping of Course outcome with Program outcome | I, II |  | | II | II | III | |  |  | |  |  | |  | |  | |
| Category | BS | | ES | | PS | | PC | | | PE | | | OE | | Project/Training | | |
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| Approval | Date of meeting of the Board of Studies | | | | | | | | | | | | | | | | |

Subject Outcomes:

1. Develop the individual as entrepreneur in the software fields as software programmer, software engineer, software architect, software developer etc.
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| **CAP-756** | | **JAVA PROGRAMMING LAB** | | **L** | **T** | **P** | **C** |
| Total Contact Hours : 60 | | 0 | 0 | 4 | 2 |
| Applicable to which branch: MCA | |
| Prerequisite: Object oriented knowledge | | | | | |
| **Marks** | | | | | | | |
| Internal :60 | | | External:40 | | | | |
| **Course Objective** | | | | | | | |
| The students to understand the concept and underlying principles of Object-Oriented Programming. The students also develop problem-solving and programming skills using OOP concept | | | | | | | |
| **Unit** | **Course Outcome** | | | | | | |
| 1. | To understand the concept of classes, methods, objects, arrays, exception handling, Inheritance, Interfaces and Multithreading | | | | | | |
| 2. | Understanding Graphics, GUIs, Events, Exceptions. | | | | | | |
| 3. | Understanding the Java features for secure communications over the internet | | | | | | |

**Content of the Syllabus**

**List of Experiments not limiting to:**

1. (a) Make a program to implement an integer stack, which can hold 10 values.

(b) Implement Function overloading concept.

2.(a) Write a program to implement the concept of inheritance having a base class representing a person, derived from this class make two classes, one about the students and other about employees. Input & output this information about students & employees.

(b) Make a program to implement the concept of Package.

3. Make a program to copy the contents of source file into destination file, properly handling the exceptions.

4. Make a program to implement the buffering concept in which producer produces the data and consumer consumes it using the threading concept.

5. Make a program to implement the matrix multiplication & copying a file using Multithreading concept.

6. Create an Applet Creating Thread which will move a String Continuously.

7. Make a program using applets which will handle mouse events on client side.

8. Make a program using applets which will handle key events on client side.

9. Make a program which will hold end to end communications between client & server using connection less service. (Use sockets to make TCP server & clients).

10. Implement UDP server & UDP clients establish connection between them using ports.

11. Make a program using servlets and a web page using HTML so as to print the dynamic response from the servlets when the web page is submitted.

12. Create a database using MS-Access and access this database in your program using JDBC.

13. Make a Frame window having fields regarding user information & extract the values from the database in that field on the click event of button next.

14. Make a program using JSP & a WEB page using HTML so as to print the dynamic response from the JSP when the web page is submitted. (Using any web server)

15. Make a program which creates a cookie on the server side using servlets & when server returns a response to the user also send cookies to clients for later retrieve its data from that client.

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| **CAP-756** | **Master of Computer Application** | | | | | | | | | | | | | | | | |
| **Department Teaching the Subject** | **University Institute of Computing** | | | | | | | | | | | | | | | | |
| Program Outcome | a | b | | c | d | e | | f | g | | h | i | | j | | k | |
| Mapping of Course outcome with Program outcome |  |  | |  |  |  | |  |  | |  |  | |  | |  | |
| Category | BS | | ES | | PS | | PC | | | PE | | | OE | | Project/Training | | |
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| Approval | Date of meeting of the Board of Studies | | | | | | | | | | | | | | | | |

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10. Capable to become successful professional in all the phases of development.
11. Possess ability to function a multi-disciplinary team.

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| **CAA-757** | **COMPUTER GRAPHICS LAB** | | **L** | **T** | **P** | **C** |
| Total Contact Hours **60 hrs** | | - | - | 4 | 2 |
| Applicable to which branch: MCA | |
| Prerequisite: C , C++ Language , Computer Hardware | | | | | |
| **Marks** | | | | | | |
| Internal 40 | | External 60 | | | | |
| **Course Objective** | | | | | | |
| This course is designed to provide a comprehensive introduction to computer graphics techniques, focusing on 3D modeling, image synthesis & rendering.  The course will make the students able to carry out computer graphics and to evaluate software and hardware for that use. The course is a foundation for a master´s thesis within computer graphics. | | | | | | |

1. DDA Line drawing algorithm
2. Bresenham line drawing algorithm
3. Midpoint Circle Drawing
4. Bresenham Circle Drawing
5. Mid Point Ellipse Drawing
6. Scanfill
7. Boundary Fill(8 Connected Point)
8. Character Generation
9. Floodfill
10. Rotate About Origin
11. Rotate about Reference Point
12. Scaling About Origin
13. Scaling About Reference Point
14. Translation
15. Reflection along x Axis
16. Reflection along x Axis
17. Reflection along y Axis

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| **CAA-757** | **Master of Computer Application** | | | | | | | | | | | | | | | | |
| **Department Teaching the Subject** | **University Institute of Computing** | | | | | | | | | | | | | | | | |
| Program Outcome | a | b | | c | d | e | | f | g | | h | i | | j | | k | |
| Mapping of Course outcome with Program outcome |  |  | |  |  |  | |  |  | |  |  | |  | |  | |
| Category | BS | | ES | | PS | | PC | | | PE | | | OE | | Project/Training | | |
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| Approval | Date of meeting of the Board of Studies | | | | | | | | | | | | | | | | |

Subject Outcomes:

1. Develop the individual as entrepreneur in the software fields as software programmer, software engineer, software architect, software developer etc.
2. Demonstrate the technical knowledge in fields of Computer Applications.
3. Implement the creative and problem solving skills in various real time problems.
4. Design and develop software to meet out the customer requirements.
5. Designate as a Team member and render efficient skills to climb the hierarchy of an organization.
6. Understand and dispatch his professional and ethical responsibilities.
7. Pursue and embark a career in research.
8. Communicate effectively both in verbal and formal means.
9. Post graduate students are capable to work in leading computer application areas of different sectors such as service division, hardware production & system integration.
10. Capable to become successful professional in all the phases of development.
11. Possess ability to function a multi-disciplinary team.

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| **CAB-757** | **WEB TECHNOLOGIES LAB** | | **L** | **T** | **P** | **C** |
| Total Contact Hours 60 hrs | | **-** | **-** | **4** | **2** |
| Applicable to which branch: MCA | |
| Prerequisite: C , C++ Language , Computer Hardware | | | | | |
| **Marks** | | | | | | |
| Internal 40 | | External 60 | | | | |
| **Course Objective** | | | | | | |
| This course is designed to provide a comprehensive introduction to computer graphics techniques, focusing on 3D modeling, image synthesis & rendering.  The course will make the students able to carry out computer graphics and to evaluate software and hardware for that use. The course is a foundation for a master´s thesis within computer graphics. | | | | | | |

1. WAP to Demonstrate anchor control.
2. WAP to Create form to submit user records.
3. WAP to Demonstrate Images Map.
4. WAP to Demonstrate user of Video Controls and Audio Controls.
5. WAP to Demonstrate External and internal style sheets.
6. WAP to Demonstrate frames.
7. Design a webpage using HTML and External Style sheets.
8. WAP to Demonstrate Table Tag.
9. WAP to Demonstrate Dialog Boxes in java script
10. WAP to Demonstrate Cookies in JavaScript.
11. WAP to Demonstrate XML Schema.
12. WAP to Demonstrate XML namespace and Attributes.
13. WAP to Demonstrate XML Groups.
14. WAP to Demonstrate XSLT.
15. WAP to Demonstrate XML file using Style Sheet.

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| **CAB-757** | **Master of Computer Application** | | | | | | | | | | | | | | | | |
| **Department Teaching the Subject** | **University Institute of Computing** | | | | | | | | | | | | | | | | |
| Program Outcome | a | b | | c | d | e | | f | g | | h | i | | j | | k | |
| Mapping of Course outcome with Program outcome |  |  | |  |  | I,II, III | |  |  | |  |  | |  | |  | |
| Category | BS | | ES | | PS | | PC | | | PE | | | OE | | Project/Training | | |
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| Approval | Date of meeting of the Board of Studies | | | | | | | | | | | | | | | | |

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| **CAR-755** | | **PROJECT BASED ON WEB TECHNOLOGIES** | | **L** | **T** | **P** | **C** |
| Total Contact Hours :80 | | **-** |  | **6** | **3** |
| Applicable to which branch: MCA | |
| Prerequisite: HTML Tags | | | | | |
| **Marks** | | | | | | | |
| Internal :40 | | | External:60 | | | | |
| **Course Objective** | | | | | | | |
| How to allocate resources to different activities while planning a project; “crashing” (expedite) certain project activities to speed up a project; you will experience the dynamic effects of crashing by simulating a real life project | | | | | | | |
| **Unit** | **Course Outcome** | | | | | | |
|  | To know about the environment of framework. | | | | | | |
| To understand how to work in framework. | | | | | | |

**Content of the Syllabus**

**Tools for Minor Projects**

**Frontend: Eclipse/visual studio framework etc.**

**Backend: Sql Server or My Sql or Oracle etc.**

**Text Books** –

* Microsoft.Net Framework 3.5 Windows Form Application Development by Matthew Stoecker and Steve Stein , PUBLISHED BY Microsoft Press

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| **CAR-755** | **Master of Computer Application** | | | | | | | | | | | | | | | | |
| **Department Teaching the Subject** | **University Institute of Computing** | | | | | | | | | | | | | | | | |
| Program Outcome | a | b | | c | d | e | | f | g | | h | i | | j | | k | |
| Mapping of Course outcome with Program outcome |  |  | |  |  | I,II, III | |  |  | |  |  | |  | |  | |
| Category | BS | | ES | | PS | | PC | | | PE | | | OE | | Project/Training | | |
|  | |  | |  | |  | | |  | | |  | |  | |
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