TECNIA INSTITUTE OF ADVANCED STUDIES
NAAC ACCREDITED GRADE "A" INSTITUTE

MCA Program

Program Educational Objectives:

- To progress their career productively in software industry, academia, research, entrepreneurial pursuit, government, consulting firms and other Information Technology enabled services.
- To achieve peer-recognition; as an individual or in a team; by adopting ethics and professionalism and communicate effectively to excel well in cross culture and inter-disciplinary teams.
- To continue a lifelong professional development in computing that contributes in self and societal growth.

Program Outcomes:

- Apply the knowledge of mathematics and computing fundamentals to various real life applications for any given requirement
- Design and develop applications to analyze and solve all computer science related problems
- Design applications for any desired needs with appropriate considerations for any specific need on societal and environmental aspects
- Analyze and review literatures to invoke the research skills to design, interpret and make inferences from the resulting data
- Integrate and apply efficiently the contemporary IT tools to all computer applications
- Solve and work with a professional context pertaining to ethics, social, cultural and cyber regulations
- Involve in perennial learning for a continued career development and progress as a computer professional

Course Specific Objectives and Outcomes

MCA I SEMESTER

COURSE CODE: MCA 101
PAPER NAME: Fundamental in Information Technology
COURSE OBJECTIVE:

To provide knowledge in hardware, software, data, basics of graphics, systems development, database design and networking and an overview of the use of information technology in organizations.

COURSE OUTCOME:
- Describe the major components of information technology applications:
- Hardware, computer networks, software, data, processes, and people.
- Describe the different components of a computer network.
- Demonstrate an understanding of different types of networks.
- Demonstrate an understanding of the importance of algorithms in the development of IT applications.
- Discuss the role of databases in IT applications.

COURSE CODE: MCA 103
PAPER NAME: Programming in   C

COURSE OBJECTIVE:
- Passing by value and pass by reference
- Difference between array names and pointers
- Allocate memory over the heap to two dimensional array (Matrices application could be taken as a case study)
- Pointer and pointer operations
- Pointers to functions and call back functions
- Bitwise operations and a case based upon these operations
- MACROs and their pitfalls
- An application making extensive handling of binary files.

COURSE OUTCOME:
- Data Types, Pointers, Dynamic Memory Allocation and Dynamic Structures, Advanced
- Pointers
- C Preprocessor
- File Accessibility and Directories

COURSE CODE: MCA 105
PAPER NAME: Discrete Mathematics

COURSE OBJECTIVE:
To develop the understanding of mathematical topics most directly related to computer science.

COURSE OUTCOME:
To prepare students to take courses related with Data Structure, Algorithm analysis and Cryptography. This course develops ability to write independent mathematical Proofs.

COURSE CODE: MCA 107

PAPER NAME: Computer Organization

COURSE OBJECTIVE:
- To make students understand the relevance of Computer Organization in the software oriented course.
- To introduce basic digital concepts and then use them to explain details of computer organization.

COURSE OUTCOME:
- Describe computer architecture, organization, computer arithmetic, and CPU design
- Describe I/O system and interconnection structures of computer
- Identify high performance architecture design
- Develop independent COURSE skills and be able to learn more about different computer architectures and hardware

COURSE CODE: MCA 109
PAPER NAME: Principles and practices of Management

COURSE OBJECTIVE:
To expose the student to the basic concepts of management in order to aid the student in understanding how an organization functions, and in understanding the complexity and wide variety of issues managers face in today's business firms.

COURSE OUTCOME:
- Understand Meanings of basic concepts of Management
- Develop an understanding of Concept, Nature, Process and Significance of Management
- Development of Management Thoughts
- Develop an understanding of organization & technology related issues involved.

COURSE CODE: MCA 151
PAPER NAME- Fundamental in Information Technology Lab

COURSE OBJECTIVE: This course is an introductory course in information technology.
To bring expertise in MS Office in details with Disk Operating System.

COURSE OUTCOME:
- Describe the major components of information technology applications.
- Demonstrate an understanding of the importance of algorithms in the development of IT applications.
- Work on MS-office software completely

COURSE CODE: MCA 153
PAPER NAME: Programming in C Lab

COURSE OBJECTIVE:

- Passing by value and pass by reference
- Difference between array names and pointers
- Allocate memory over the heap to two dimensional array (Matrices application could be taken as a case study)
- Pointer and pointer operations
- Pointers to functions and call back functions
- Bitwise operations and a case based upon these operations
- MACROs and their pitfalls
- An application making extensive handling of binary files.

COURSE OUTCOME:

- Data Types, Pointers, Dynamic Memory Allocation and Dynamic Structures, Advanced Pointers
- C Preprocessor
- File Accessibility and Directories

COURSE CODE: MCA 155
PAPER NAME: Computer Organization Lab

COURSE OBJECTIVE:

- To make students understand the relevance of Computer Organization in the software oriented course.
- To introduce basic digital concepts and then use them to explain details of computer organization.

COURSE OUTCOME:

- Describe computer architecture and organization, computer arithmetic, and CPU design
- Describe I/O system and interconnection structures of computer
- Identify high performance architecture design
- Develop independent learning skills and be able to learn more about different computer architectures and hardware

COURSE CODE: MCA 161
PAPER NAME: General proficiency -I

COURSE OBJECTIVE:

- To develop communication skills as well as positive personality traits
- To acquire a language suitable for technical communication
- To inculcate the habit of regular reading and writing
- Self-Awareness, Personal Development, and Life Skills

- Leadership and Communication

COURSE OUTCOME:
- Projecting the Right First Impression
- Polishing manners to behave appropriately in social and professional circles
- Enhancing the ability to handle casual and formal situations in terms of personal grooming, dining and entertaining etiquette
- Developing and maintaining a positive attitude and being assertive
- Social Justice and Responsibility
- Handling difficult situations with grace, style, and professionalism

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MCA II SEMESTER

COURSE CODE: MCA 102
PAPER NAME: Data & File Structures

COURSE OBJECTIVE*:* In this course student will become familiar with Algorithm analysis: Trees, Graphs, searching and sorting and files.

COURSE OUTCOME:
- Understand a variety of techniques for designing algorithms.
- Understand a wide variety of data structures and should be able to use them appropriately to solve problems
- Understand some fundamental algorithms
- Various kind of structure to store data on secondary storage devices.
- Difference between File Structure approach and the data base approach.
- Understand different sorting & searching algorithms.

COURSE CODE: MCA-104
PAPER NAME- Object Oriented Programming in C++

COURSE OBJECTIVE:
- Copy constructor, Deep and shallow coping, assignment operator and destructors, when the programmer must implement these.
- Static and late binding. Run time and compile time polymorphism, virtual functions and VTABLE
- Implementing ADT with C++ classes. Stacks Queues and Linked Lists as cases
- Implementing Trees and Graph and all comparison based sorting algorithms
- Function objects and call backs

- Templates and Generics Stack Queues should be implemented in the practicals
- Extensive coverage of all the three components of STL namely containers, iterators and algorithms through suitable practical case Letts
- Final case study could be an application making extensive handling files streams classes

COURSE OUTCOME:

- Think logically and critically to solve problems, explain conclusions, and evaluate evidence or critique the thinking of self and others.
- Identify, analyze, and document the requirement specifications for typical software projects and design techniques to create a solution to the problem.
- Apply software development techniques that use the correct syntax and semantics of a programming language to write the source code to implement and test/debug a specified design.

COURSE CODE: MCA 106
PAPER NAME: Operating System

COURSE OBJECTIVE:

- Help students become familiar with the fundamental concepts of operating system.
- Help students become competent in recognizing operating systems features and issues.
- Provide students with sufficient understanding of operating system design and how it impacts application systems design and performance.

COURSE OUTCOME:
- Develop an understanding of Real time working of operating system as basic system software for the working of a computer system.
- Exhibit familiarity with the fundamental concepts of operating systems.
- Exhibit competence in recognizing operating systems features and issues.
- Apply a mature understanding of operating system design and how it impacts application Systems design and performance.

COURSECODE: MCA108
PAPER NAME: DBMS

COURSE OBJECTIVE: The purpose of this course is to enable the students know about the fundamental concepts necessary for designing, using and implementing database systems and applications. It also covers advanced techniques and technologies.

COURSE OUTCOME:
- Develop an understanding of Database
- Developing the projects using DBMS.

- Develop an understanding of organization & technology related issues involved in implementing ideas, which would lead to optimize their decision making process.

COURSE CODE: MCA 110
PAPER NAME: Software Engineering

COURSE OBJECTIVE:
Course is intended to help students to develop skills that will enable them to construct software of high quality – software that is reliable, and that is reasonably easy to understand, modify and maintain.

COURSE OUTCOME:
• The software development process.
• Software requirements and specifications.
• Software design techniques.
• Techniques for developing large software systems.
• CASE tools and software development environments.
• Software testing, documentation and maintenance.

COURSE CODE: MCA 152
PAPER NAME: Data & File Structures Lab

COURSE OBJECTIVE*:* In this course student will become familiar with Practical approach of Trees, Graphs, searching and sorting and files.

COURSE OUTCOME:
- Understand a variety of techniques for making program.
- Understand a wide variety of data structures and should be able to use them appropriately to solve practical problems
- Understand some fundamental programming techniques
- Various kind of structure to store data on secondary storage devices.
- Difference between File Structure approach and the data base approach.
- Understand different sorting & searching programming problems.

COURSE CODE: MCA-154
PAPER NAME: Object Oriented Programming in C++ Lab

COURSE OBJECTIVE:

1. To strengthen their problem solving ability by applying the characteristics of an object oriented approach
2. To introduce object oriented concepts in C++.

COURSE OUTCOME:

- Explain what constitutes an object-oriented approach to programming and identify potential benefits of object-oriented programming over other approaches.
- Apply an object-oriented approach to developing applications of varying complexities.

COURSE CODE: MCA 156
PAPER NAME: DBMS Lab

COURSE OBJECTIVE: The purpose of this course is to enable the students know about the fundamental concepts necessary for designing, using and implementing database systems and applications. It also covers advanced techniques and technologies.

COURSE OUTCOME:
- Develop an understanding of Database
- Developing the projects using DBMS.
- Develop an understanding of organization & technology related issues involved in implementing ideas, which would lead to optimize their decision making process.

COURSE CODE: MCA 158
PAPER NAME: Software Engineering Lab

COURSE OBJECTIVE:
Course is intended to help students to develop skills that will enable them to construct software of high quality – software that is reliable, and that is reasonably easy to understand, modify and maintain.

COURSE OUTCOME:
• The software development process.
• Software requirements and specifications.
• Software design techniques.
• Techniques for developing large software systems.
• CASE tools and software development environments.
• Software testing, documentation and maintenance.

COURSE CODE: MCA 162
PAPER NAME: General proficiency –II

COURSE OBJECTIVE:

- To help the students in building interpersonal skills.
- To develop skill to communicate clearly.
- To enhance team building and time management skills.
- To learn active listening and responding skills.

COURSE OUTCOME:

- Make use of techniques for self-awareness and self-development.
- Apply the conceptual understanding of communication into everyday practice.
- Understand the importance of teamwork and group discussions skills.
- Develop time management and stress management.
- Apply business etiquette skills effectively an engineer requires.

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MCA III SEMESTER

COURSE CODE: MCA 201
PAPER NAME: Theory of Computation

COURSE OBJECTIVE: To understand the extensive and theoretical treatment of issues in Computability and Complexity with focus on Automata and Language Theory, Computability Theory and Complexity Theory.

COURSE OUTCOME:
COURSE outcome of this course will be theoretical treatment of following:
- What can be computed and how fast it can be done?
- Use of Automata and Language theory in the development of different modules of a compiler as a case study.

COURSE CODE: MCA 203
PAPER NAME: Computer Graphics

COURSE OBJECTIVE: Computer graphics is used in diverse applications from the visualization of complex scientific data to the special effects in computer games. The objective of this course is to introduce the programming principles of computer graphics. The course will cover Practical programming through C, and mathematical and theoretical foundations.

COURSE OUTCOME:

At the end of this course students should:

- Have a basic understanding of the core concepts of computer graphics.
- Have made pictures with their computer.

COURSE CODE: MCA 205

PAPER NAME: JAVA PROGRAMMING

COURSE OBJECTIVE:
- To become familiar with features of Java language
- To learn to write Java code according to Object-Oriented Programming principles
- To understand the designing of GUI applications and Applets using AWT
- To understand the development of multithreaded and networking applications and to create dynamic pages.

COURSE OUTCOME:
To prepare students to learn core java, GUI applications, Applets using AWT, multithreaded, networking applications and to create dynamic pages.

COURSE CODE: MCA 207
PAPER NAME: Data Communications & Networking

COURSE OBJECTIVE:
- To understand about the data communication between computing devices.
- To learn about network architecture and topology, basics of networking and protocols, OSI network layered models and application layer protocols.

COURSE OUTCOME:

- Be familiar with the electrical interface and the basics of digital data communication.
- Appreciate the need for Data Communication standards
- Acknowledge the importance of the ISO 7-layer reference model.
- Have a broad knowledge of the protocols used in various types of computer networks.
- Understand the principles of Open Systems and the Transport/Application protocols, which facilitate them and concept of communication protocols and give an overview of Data Communication Standards.
- Examine and comprehend the following networking concepts -basic computer networking concepts including Circuit-switching and Packet-switching, Protocol layer stack, Client-Server paradigm, and Packet-switched network delay calculation -application-layer applications including Telnet, FTP, DNS, HTTP, SMTP -Other state of arts topics including Wireless and Bluetooth, and Security in Computer Network.

COURSE CODE: MCA 209
PAPER NAME: C# Programming

COURSE OBJECTIVE: To expose students to C# programming
- understanding Console, Web and Windows Programming
- Exposure for developing the DOTNET based project.

COURSE OUTCOME:
- Develop an understanding of NAMESPACE, BOXING AND UNBOXING, and DELEGATES etc.

- Develop an understanding of computer Graphics, concepts and application areas
- Developing the projects using new technology.
- Develop an understanding of organization & technology related issues involved in implementing ideas, which would lead to optimize their decision making process.

COURSE CODE: MCA 251
PAPER NAME: Computer Graphics Lab

COURSE OBJECTIVE: Computer graphics is used in diverse applications from the visualization of complex scientific data to the special effects in computer games. The objective of this course is to perform programming principles of computer graphics. The course will cover Practical programming through C.

COURSE OUTCOME:

- Develop an understanding of computer Graphics, concepts and application areas
- Use C/C++ language to draw various objects like kite, face

COURSE CODE: MCA 253
PAPER NAME: JAVA PROGRAMMING LAB

COURSE OBJECTIVE:
- To understand Console, Web and Windows Programming
- To understand the java concepts by practical implementation
- To give exposure for developing the Java based project

COURSE OUTCOME:
- Develop practical's based on java concepts.
- Develop the Console Windows projects using Java Language.
- Develop GUI applications and Applets using AWT
- Develop multithreaded and networking applications and create dynamic pages.

COURSE CODE: MCA 255
PAPER NAME: C# Programming Lab

COURSE OBJECTIVE: To expose students to C# programming
- understanding Console, Web and Windows Programming
- Exposure for developing the DOTNET based project.

COURSE OUTCOME:

- Develop an understanding of the concepts of DOTNET technology.
- Developing the Console and Windows projects using c# Language.

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COURSE CODE: MCA 261
PAPER NAME: General   proficiency –III

COURSE OBJECTIVE:

- To develop communication skills and Creative Content Writing as well as positive personality traits

- To acquire a language suitable for technical communication and writing

- To inculcate the habit of regular reading and writing.

COURSE OUTCOME:
- You will be able to write simple and correct sentences.

- You will be able to develop your personality through effective communication skills.

- You will be able to handle the difficulty in communication in diverse environments.

- You will able to write papers, proposals, reports etc.

- You will be able to appreciate any piece of writing and comprehend it.

- You will be able to adopt the traits of leaders, management and good Communicator/Creative content writer.

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MCA IV SEMESTER

COURSE CODE: MCA 202
PAPER NAME: Design and Analysis of Algorithm

COURSE OBJECTIVE: In this course, students will learn how:
- To design new algorithms based on standard algorithm-design strategies.
- To analyze the time and space usage and correctness of new algorithms based on standard algorithm-analysis techniques.
- To apply and adapt fundamental algorithms (sorting, searching, order statistics, graph algorithms) to new situations.
- To solve problems and to express your solutions using the language and concepts of algorithms and its mathematical tools.

COURSE OUTCOME:

Students who complete the course will have demonstrated the ability to do the following:
- Argue the correctness of algorithms using inductive proofs and invariants.
- Analyze worst-case running times of algorithms using asymptotic analysis.
- Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it.
- Recite algorithms that employ this paradigm. Synthesize divide-and-conquer algorithms. Derive and solve recurrences describing the performance of divide-and-conquer algorithms.

COURSE CODE: MCA 204

PAPER NAME: Data Warehousing & Data Mining

COURSE OBJECTIVE: To develop understanding of Data Warehousing concepts. Course would help students in understanding of
- Basics of data warehousing
- Creation of data warehouse
- Data Mining Algorithms

COURSE OUTCOME:

Upon successful completion of this course, the student will be able to:
- Explain data warehouse architecture
- Design a dimensional model for data warehousing
- Design a physical model for data warehousing
- Comprehend extract, transform and load strategies
- Identify Online Analytical Processing (OLAP) databases
- Design and develop business intelligence applications
- Gather requirements for data warehousing

COURSE CODE: MCA 206
PAPER NAME: Advanced Computer Networks

COURSE OBJECTIVE:
- To grasp the current directions of computer networks research.
- To fill in gaps in students' networking knowledge.
- To better understand experimental methodology.

COURSE OUTCOME:

After completing this course the student must demonstrate the knowledge and ability to:

1. Independently understand basic computer network technology.
2. Understand and explain Data Communications System and its components.
3. Identify the different types of network topologies and protocols.
4. Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.
5. Identify the different types of network devices and their functions within a network.
6. Understand and building the skills of subnetting and routing mechanisms.
7. Familiarity with the advanced protocols of computer networks, and how they can be used to assist in network design and implementation.

COURSE CODE: MCA-208
PAPER NAME: Object Oriented Analysis and Design

COURSE OBJECTIVES: The objective of the course is to give students a detailed understanding of processes and techniques for building large object-oriented software systems. To develop skills to evolve object-oriented systems from analysis, to design, to implement and to understand most of the major object-oriented technologies including basic OO concepts, processes, languages, databases, user interfaces, frameworks, and design patterns.

COURSE OUTCOME:
At the end of this course students should be able to:

- Distinguish between various system development methodologies.
- Understand Object Oriented concepts, terms and principles.
- Develop a project scope, and a project plan with feasibility analysis.
- Recognize the importance of good requirement gathering and risk management.
- Gain knowledge of object oriented systems analysis and design techniques and models.
- Work with and use UML for object oriented modeling.
- Develop use cases - both diagrams and narratives.
- Model an overall system using UML class diagrams.
- Model system functionality using UML sequence and collaboration diagrams.
- Use cases, class diagram, and sequence and activity diagrams.

COURSE CODE: MCA 210
PAPER NAME: Web Technology

COURSE OBJECTIVE: In this course student will learn how to design and develop a dynamic website. This course also provides some basic knowledge of web services which are useful for the same.

COURSE OUTCOME:
- Develop an understanding of Static as well as Dynamic Web Page.
- Developing the projects using web technology.
- Understand the various steps in designing a creative and dynamic website.
- They will able to write html, JavaScript, CSS and applet codes.
- They will have clear understanding of hierarchy of objects in HTML and XML.

- Design dynamic and interactive web pages by embedding Java Script code in HTML. Use Java Script to validate user input.
- Know the advantages and use of different types of CSS.
- Understand the HTML and XML DOM. Know how to use Dynamic HTML.
- Use CGI and Perl.
- Efficiently write Java applets.
- Understand the fundamentals of VB Script.

COURSE CODE: MCA 252
PAPER NAME: Design and Analysis of Algorithm Lab

COURSE OBJECTIVE: To solve problems and to express your solutions using the language and concepts of algorithms and its mathematical tools.

COURSE OUTCOME:

• To design new algorithms based on standard algorithm-design strategies.
• To analyze the time and space usage and correctness of new algorithms based on standard algorithm-analysis techniques.
• To apply and adapt fundamental algorithms (sorting, searching, order statistics, graph algorithms) to new situations.
• To solve problems and to express your solutions using the language and concepts of algorithms and its mathematical tools.

COURSE CODE: MCA 254
P**APER NAME: Data Warehousing & Data Mining Lab**

COURSE OBJECTIVE: To develop understanding of DW concepts. Course would help students in
- Basics of data warehousing
- Creation of data warehouse
- Data Mining Algorithms

COURSE OUTCOME:

• To design Data Warehouse.
• To analyze dimensional model.
• To apply Data Mining Algorithms.

COURSE CODE: MCA 256
PAPER NAME: Advanced Computer Networks Lab

COURSE OBJECTIVE:

- To grasp the current directions of computer networks research.
- To fill in gaps in students' networking knowledge.
- To better understand experimental methodology.

COURSE OUTCOME:
- Understand the different protocols required for networking and the working of the Internet.
- Form an understanding of the principles upon which the global Internet was designed.
- Understand basic terminology so that students can understand networking research papers.

COURSE CODE: MCA-258
PAPER NAME: Object Oriented Analysis and Design Lab

COURSE OBJECTIVES: The objective of the course is to give students a detailed understanding of processes and   techniques for building large object-oriented software systems. To develop skills to evolve object-oriented systems from analysis, to design, to implement and to understand most of the major object-oriented technologies including basic OO concepts, processes, languages, databases, user interfaces, frameworks, and design patterns

COURSE OUTCOME:

1. Understand how to build a object oriented software system.
2. Learn to analyze the requirements of object oriented software system.
3. Learn to show the diagrammatical representation of Object Oriented Software system using UML Diagrams.

COURSE CODE: MCA 260
PAPER NAME: Web Technology Lab

COURSE OBJECTIVE: In this course student will learn how to design and develop a dynamic website. This course also provides some basic knowledge of web services which are useful for the same.

COURSE OUTCOME:
- Develop an understanding of Static as well as Dynamic Web Page.
- Developing the projects using web technology.
- Develop an understanding of organization & technology related issues involved in implementing ideas, which would lead to optimize their decision making process.

COURSE CODE: MCA 262
PAPER NAME: General   proficiency –IV

COURSE OBJECTIVE:
- A Process Model is a graphical representative of the process created to promote understanding and to facilitate analysis, improvement, etc.

- To improve the efficiency, effectiveness, and adaptability of business processes one ought to: Identify opportunities, Eliminate Bureaucracy, Eliminate non-value added steps, Simplify process, Error-proof process, Reduce process time, Standardize, Automate, Train People.
- Recent research has explored the validity of frameworks from an ontological point of view A general process is applicable for process modeling. Alternate ways of evaluating processes are available Development in modeling approaches and languages is continuing.

COURSE OUTCOME:
- As-Is process modeling leads to a better understanding collection of data in support of the as-is process modeling step is a major effort but yields invaluable insights and information later needed in the to-be stages.
- Alternate ways of evaluating processes are available Development in modeling approaches and languages is continuing
- To understand that one key to understanding other peoples is an understanding that the language they acquire when children shapes their fundamental thought processes

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MCA V SEMESTER

COURSE CODE: MCA-301
PAPER NAME: Linux Programming

COURSE OBJECTIVES: The main objective of this course is to provide Students
- A comprehensive overview of the Linux operating system along with Shell commands and shell scripting
- Implementation of Linux System programmes through GCC compiler.
- Understanding of basic concept of Socket programming (TCP and UDP)

COURSE OUTCOME:
- Understand the basic structure of unix/Linux operating system.
- Learn to implement the functionalities of operating system using system calls.
- Learn to implement networking between the client and server computer with linux os.

COURSE CODE: MCA-303
PAPER NAME: Software Testing

COURSE OBJECTIVES:

- To appreciate the fundamentals of software testing and its application through the software life cycle.

- To develop skills in designing and executing software tests suitable for different stages in the software life cycle.
- To understand and appreciate the role of software testing in systems development, deployment and maintenance.
- To develop a continuing interest in software testing, and obtain satisfaction from its study and practice.
- To appreciate the responsibilities of software testers within software projects, the profession and the wider community.

COURSE OUTCOME:

- Have an ability to apply software testing knowledge and engineering methods.
- Have an ability to design and conduct a software test process for a software testing project.
- Have an ability to identify the needs of software test automation, and define and develop a test tool to support test automation.
- Have an ability to understand and identify various software testing problems, and solve these problems by designing and selecting software test models, criteria, strategies and methods.
- Have an ability to use various communication methods and skills to communicate with their teammates to conduct their practice-oriented software testing projects.
- Have basic understanding and knowledge of contemporary issues in software testing, such as component-based software testing problems.
- Have an ability to use software testing methods and modern software testing tools for their testing projects.

COURSE CODE: MCA 305
PAPER NAME: Enterprise Computing with Java

COURSE OBJECTIVE:

- To learn about J2EE technology
- To develop dynamic websites.
- To understand the Enterprise JavaBeans (EJBs) containing the application's business logic and business data

COURSE OUTCOME:
- Understand the J2EE Technology focusing mainly on Java Servlet & JSP
- Distinguish between Java Servlet & JSP Programming Concept.
- Develop the website using J2EE concept.
- Understand the advantage and application of struts.
- Understand and implement the concept of Enterprise JavaBeans (EJBs) to create application's business logic

COURSE CODE: MCA 313
PAPER NAME: Multimedia Technologies

COURSE OBJECTIVE:
• To study the graphics techniques and algorithms.
• To study the multimedia concepts and various I/O technologies.
• To enable the students to develop their creativity

COURSE OUTCOME:

Develop an understanding of Why, When and Where Multimedia is appropriate and beneficial through the study of the graphics techniques and algorithms, the multimedia concepts and various I/O technologies, and enable the students to develop their creativity.

COURSE CODE: MCA 333
PAPER NAME: Software Quality Management

COURSE OBJECTIVE:
- To understand the issues and techniques related to the Quality Management of software.
- To get acquaint with the industry perspective towards software Quality.
- To learn about:
  • Basic Concepts of Software Quality.
  • Software Quality Assurance.
  • Formal Technical Reviews.
  • How it can be implemented.
  • How to conduct formal technical reviews and why they are the most important SQA activity.

COURSE OUTCOME:
- Basic Concepts of Software Quality.
- Software Quality Assurance & Quality Control
- Formal Technical Reviews of software
- Describe how to conduct formal technical reviews and why they are the most important SQA activity.

COURSE CODE: MCA-351
PAPER NAME: Linux Programming Lab

COURSE OBJECTIVES: The main objective of this course is to provide Students

- A comprehensive overview of the Linux operating system along with Shell commands and shell
- A comprehensive overview of the Linux operating system along with Shell commands and shell scripting
- Implementation of Linux System programmes through GCC compiler.
  scripting
- Implementation of Linux System programmes through GCC compiler.
- Understanding of basic concept of Socket programming (TCP and UDP)

COURSE OUTCOME:
- Students will be able to manage application using Linux Environment
- Student will be able to create network application using Linux

COURSE CODE: MCA-353
PAPER NAME: Software Testing Lab

COURSE OBJECTIVES:

- To appreciate the fundamentals of software testing and its application through the software life cycle.
- To develop skills in designing and executing software tests suitable for different stages in the software life cycle.
- To understand and appreciate the role of software testing in systems development, deployment and maintenance.
- To develop a continuing interest in software testing, and obtain satisfaction from its study and practice.
- To appreciate the responsibilities of software testers within software projects, the profession and the wider community

COURSE CODE: MCA 355
PAPER NAME: Enterprise Computing with Java Lab

COURSE OBJECTIVE:
- To learn about J2EE technology
- To develop dynamic websites.
- To understand the Enterprise JavaBeans (EJBs) containing the application's business logic and business data.

COURSE OUTCOME:
- Understand the J2EE Technology focusing mainly on Java Servlet & JSP .
- Distinguish between Java Servlet & JSP Programming Concept.
- To develop the website using J2EE concept.
- Understand the advantage and application of struts.

- Understand and implement the concept of Enterprise JavaBeans (EJBs) to create application's business logic.

COURSE CODE: MCA 357
PAPER NAME: Multimedia Technologies Lab

COURSE OBJECTIVE:
• To study the graphics techniques and algorithms.
• To study the multimedia concepts and various I/O technologies.
• To enable the students to develop their creativity

COURSE OUTCOME:
Develop an understanding of Why, When and Where Multimedia is appropriate and beneficial through the study of the graphics techniques and algorithms, the multimedia concepts and various I/O technologies, and enable the students to develop their creativity.

COURSE CODE: MCA 361
PAPER NAME: General   proficiency –V

COURSE OBJECTIVE:
- To acquaint the students with basics of intellectual property rights with special reference to Indian Laws and its practices.
- To compare and contrast the different forms of intellectual property protection in terms of their key differences and similarities.
- To provide an overview of the statutory, procedural, and case law underlining these processes and their interplay with litigation.
- To encourage and protect innovation in the form of intellectual property rights.
- To provide a superior environment to students for commercialization of intellectual property.
- To encourage research, scholarship, and a spirit of inquiry, thereby generating new Knowledge.

COURSE OUTCOME:
- Skill to understand the concept of intellectual property rights.
- Develops procedural knowledge to Legal System and solving the problem relating to intellectual property rights.
- Skill to pursue the professional programs in Company Secretary ship, Law, Business(MBA),
- International Affairs, Public Administration and Other fields.
- Employability as the Compliance Officer, Public Relation Officer and Liaison Officer.
- Establishment of Legal Consultancy and service provider

COURSE CODE: MCA 302
PAPER NAME: Dissertation

COURSE OBJECTIVE:

Students of Semester VI are to carry out a software project as part of curriculum of MCA. At the end of the semester the students are to submit a written project report to be forwarded to GGSIP University. The objective of this Teaching Note is to standardise the format of submission of the project report and to lay guidelines to conduct the project.

COURSE OUTCOME:

- Describe a relevant area of career development, career coaching, coaching or work-related learning studies.
- Identify research methods.
- State research questions.
- Identify literature for review.
- Critically analyses and evaluate the knowledge and understanding in relation to the agreed area of study.
- Integrate theory and practice.
- Develop responses on the basis of the evaluation and analysis undertake.
- Apply knowledge and understanding in relation to the agreed area of study.
- Communicate in written form by integrating, analysing and applying key texts and practices.
- Demonstrate advanced critical research skills in relation to career development or work-related learning studies.

COURSE CODE: MCA 362
PAPER NAME: General   proficiency –VI

COURSE OBJECTIVE:

- They give learners a better understanding of the specific knowledge and skills they will acquire during the seminar
- Focusing on outcomes from the beginning places greater emphasis on the relevant, practical knowledge and skills to be gained.
- This makes learning more effective because learners have a clear sense of what the desired outcome looks like.
- Clear learning outcomes also help learners see why content and assessments are relevant to them.

COURSE OUTCOME:

- Presentation Skills
- Critical Thinking
- Information Literacy
- Building Academic Skills
- Develop a plan that demonstrates their responsibility for their own education