Master of Computer Applications

Program Outcomes:(PO's) the programmed is targeted at developing the following competencies, skills and abilities amongst students. They shall be able to:

1. Apply knowledge of computing fundamentals, mathematics and domain knowledge appropriate for computing models from defined problems and requirements.

2. Identify, formulate, and solve complex computing problems and reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

3. Design and evaluate solutions for complex computing problems that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental issues.

4. Use research methods, analysis, and interpretation of data and synthesis of the information to provide valid conclusions.

5. Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

6. Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

7. Communicate and function effectively as member of multi disciplinary team with the computing community, and with society at large, being able to comprehend and write effective reports, design documentation, make effective presentations, give and understand clear instructions.

8. Function as member or leader of team and to understand computing and management principles & finance to manage projects in multidisciplinary environments.

9. A sense of professional, ethical, legal, security and social issues and responsibilities.

10. To use the techniques, skills, and modern tools necessary for complex computing techniques.

11. To apply and commit professional ethics and cyber regulations in a global economic environment.

Course Outcomes: (CO's)

MCA-101   Software Engineering

This course expose students to the concepts and issues of software engineering , application of software design and facilitate students with the idea of SDLC cycle models, Requirement analysis, Software project planning, Software design, Software reliability and testing.

MCA-102 Mathematical Foundations of Computer Science

This course exposes students to the concepts of mathematical logics, recurrence relations, Algebraic structures, Elementary combinatory, functions, Relations and Graph Theory.

MCA 103 C Programming

'C' is system programming language and also structured programming language, In 'C' programming language we consider various syntax used in programming. By having good knowledge of 'C', students can write modular application and system programs. 'C' is mainly used in software developments, projects involving compiler design, operating system design, system software etc. By acquiring a sound knowledge of 'C' students will be able to understand the concept of all the Application areas. Students of MCA course are expected to gain adequate knowledge of numerical method and computation, optimization techniques. Numerical Methods and Techniques are widely useful in the various problems solving in Scientific and Engineering application optimization techniques are essential in industry in project management, inventory system and resources management.

MCA–104 Linux Operating System

The objective of this course is to facilitate the students with the basics use Linux utilities to create and manage simple file processing operations, organize directory structures with appropriate security, and   develop shell scripts to perform more complex tasks. Effectively use the Linux system to accomplish typical personal, office, technical, and software development tasks. Monitor system performance and network activities.

MCA-105   Accounting and Financial Management

The objective of this course is to facilitate the students with the basics of Accounting and Financial Management. After undergoing this course the students will have the understanding of various activities of finance and accounting.

MCA -201 Data Structure Algorithms

The objective of this course is to facilitate the students with the basics of Data structure and different applications. After undergoing this course the students will have the understanding of various data structures either linear or non linear, their applications, related algorithms (sorting and searching)

MCA- 202 Computer Architecture

The objective of the course is to facilitate the student with the basics architecture of Computer Organization and mother board. Study the I/O interaction, ALU, CPU and Interpretation

MCA – 203 Object Oriented Programming through C++

The objective of the course is to facilitate the student with the knowledge of object oriented system development and programming in C++. After undergoing this course students have basic knowledge of encapsulation, Inheritance and Streams and Formatted I/O and know the knowledge of programming with object oriented concepts.

MCA-204 Data Base Concept

The objective of the course is to facilitate the student with the basics of Database management system. The scope of the subject is to acquire skills in the field of database Concept and Architecture, Relational models, database design theory and methodology, Data storage, Indexing and query processing, Transaction Concepts and Security.

MCA – 205 Numerical Techniques

This course covers the application of different computational techniques for solving and analyzing the Computing problems.

MCA – 301 Analyses and Design of Algorithms

To know the components of a design and analysis of algorithm. An overview of different types of algorithms. A thorough knowledge of different tree and searching.

MCA -302 Data Communication and Network

For the transmission and reception of signals in industry and domestic life the basic knowledge of communication engineering is essential. The study of the subject provides the basic knowledge of various modulations, demodulation technique which further provide the fundamentals to understand the operation of communication systems.

MCA – 303 Operating System

To know the components of an operating system, An overview of different types of operating systems, A thorough knowledge of process management, Knowledge of storage management and the concepts of I/O and file systems, To know basics of Unix system and Windows NT and get an overview of distributed system, Multiprocessor operating system and database operating system.

MCA – 304 Operation Research

The objective of the paper is to facilitate the student with the basics of Operation Research used in communication. The scope of the subject is to acquire skills to apply the stochastic processes in engineering problems and solve the mathematical problem.

MCA – 305 Java Programming

To know the basic concept of java programming. Abstract class in java and data types. Application of java in website design

MCA – 401 .Net Framework and C# Programming

.NET has evolved as an important framework in the recent times for developing windows, web and enterprise, applications. The objective of the subject is to introduce .NET technology which provides a multi-language environment to, develop windows based software. The main focus is on .NET framework, development environment as VB.NET, ASP.NET.

MCA-402 Artificial Intelligence and Expert Systems

To expose students to the concept and issues of Artificial intelligence, the objective of the course is to facilitate the student with the idea of how AI work and role of human interaction

MCA-403 Theory of Computing

The objective is to facilitate the student with the basics of soft computing and its application. The scope of the subject is to acquire skills to apply the computing and its process.

MCA-404 Wireless Network and Mobile Computing

To provide basic for various techniques in mobile networks/Adhoc networks and sensor based networks. The objective of the course is to facilitate the student with the understanding of

Infrastructure less networks and their importance in the future directions for wireless communications. The prerequisites are to have basic understanding of infra-structured networks, Basic protocols used on computer networking.

MCA – 405 Computer Graphics

To expose students to the concepts and issues of computer graphics, Its basics, Graphic algorithms, Digital image fundamentals, Techniques of Viewing, Bezier Curve ,B spline Curve , 2D & 3D transformation techniques .

MCA-501 Software Project Management

The objective of the course is to facilitate the student with the basics Operation of Software Project Management and role of software engineering. The scope of the subject is to acquire skills and understand different types of model

MCA-502 Compiler Construction

To expose students to the concepts and issues of compiler design in computer science. Application of Compiler tools, Concepts of languages and grammar.

MCA-503 Cryptography and Network Security

The objective of the course is to facilitate the student with the understanding of various cryptographic techniques for secure data transfer. The prerequisites are to have basic understanding of network security, Probability and stochastic processes.

MCA-504 Web Technology

The objective of the course is to facilitate the student with the basics knowledge web sites design and application of website. Study of HTML, XHTML, DHTML and XML language, Java Scripts,

MPJ-501 Minor Project

In this course student perform all subject knowledge, skill and prepare any one project on given problem.

Seminar

Students will be able to show competence in identifying relevant information, defining and explaining new emerging field topic. They will demonstrate depth of understanding, use primary and secondary sources; they will demonstrate complexity, insight, cogency, independent thought, relevance, and persuasiveness

MJPJ-601 Technical Project and Training

Each student is expected to undergo one complete semester of industrial/field/Lab training in order to connect the class room teaching with real time practical applications. A supervisor (faculty from the Department) shall be assigned to the student approved by the competent authority. The training and placement officer (TPO) will facilitate the students for the purpose with the consent of his/her supervisor and also considering the interests of the student. During training the student will undertake a project involving design/experimental/analytical/computational work including case studies etc. The progress of the project work will be evaluated by the concerned supervisor and TPO by visiting the site/industry/lab etc.

The student will complete the training/project by the end of the semester and a comprehensive training/project report will be submitted by the student under the signature of his/her supervisor. The external examination shall be taken by a panel of examiners comprising of concerned supervisor, the training and placement officer and an external examiner (from the relevant field) nominated/ approved by the competent authority. Hard copies of report are required to be submitted by the student before the external examination. The candidate shall appear before the evaluation committee for oral examination and presentation on the scheduled date.

Seminar

In this course student present their training report through presentation so that supervisor/TPO shall be evaluate student and take viva-voce.

Program Specific Outcomes(PSO's) :

Students will be able to attain the following program specific outcomes:-

1. Develop competence in basic technical subjects in computer applications like Programming Languages, Data Structures, Databases, Operating Systems, Software Engineering.

2. Identify, analyze, formulate and develop computer applications.

3. Map real life scenarios to various theoretical optimal solutions.

4. Provide simplest automated solutions to various legacy systems.

5. Use modern computing tools and techniques with confidence.

6. Work professionally with positive attitude as an individual or in multidisciplinary teams and communicate effectively.

7. Appreciate the importance of goal setting and to recognize the need for life-long learning.

BCA+MCA(Integrated)

Program Outcomes:(PO's) the programmed is targeted at developing the following competencies, skills and abilities amongst students. They shall be able to:

1. Apply knowledge of computing fundamentals, mathematics and domain knowledge appropriate for computing models from defined problems and requirements.

2. Identify, formulate, and solve complex computing problems and reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

3. Design and evaluate solutions for complex computing problems that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental issues.

4. Use research methods, analysis, and interpretation of data and synthesis of the information to provide valid conclusions.

5. Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

6. Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

7. Communicate and function effectively as member of multi disciplinary team with the computing community, and with society at large, being able to comprehend and write effective reports, design documentation, make effective presentations, give and understand clear instructions.

8. Function as member or leader of team and to understand computing and management principles & finance to manage projects in multidisciplinary environments.

9. A sense of professional, ethical, legal, security and social issues and responsibilities.

10. To use the techniques, skills, and modern tools necessary for complex computing techniques.

11. To apply and commit professional ethics and cyber regulations in a global economic environment.

Course Outcomes: (CO's)

BCA-101 Digital Electronics

The objective of the course is to facilitate the student with the basics knowledge of digital components, Different behaviours of gates, Designing using gates and latches & their applications.

BCA-102 Business Systems and Applications

The objective of the course is to help management students to get familiar with the modern computing techniques. Students will get familiarity with the computers and computing facilities including the techniques to use different office management software systems, underline functioning and working of hardware.

BCA-103 Introduction to programming

'C' is system programming language and also structured programming language, In 'C' programming language we consider various syntax used in programming. By having good knowledge of 'C', students can write modular application and system programs. 'C' is mainly used in software developments, projects involving compiler design, operating system design, system software etc. By acquiring a sound knowledge of 'C' students will be able to understand the concept of all the Application areas. Students of BCA+MCA(Int) course are expected to gain adequate knowledge of numerical method and computation, optimization techniques. Numerical Methods and Techniques are widely useful in the various problems solving in various application optimization techniques are essential in industry in project management, inventory system and resources management. Hence this course is introduced to teach the students, the above concepts and also learn about the application of the same to various problems solving. Computer programs should also be developed for solving the numerical problems by way of introducing the algorithms and programming using 'C

BCA-104 PC software and Computer fundamentals

The objective of the course is to introduce the concepts of computer fundamental & their applications for the efficient use of office technology in a business environment.

BM-101 Mathematics

Mathematics concepts and notations are useful in studying and describing objects and problems in computer algorithms and programming languages and have applications in cryptography, automated theorem proving and software development. The objective of combinatorial

mathematics is to demonstrate an understanding of the theory underlying exact approaches to combinatorial optimization problems, prove & interpret standard results in graph theory & develop, implement & critically evaluate the correctness and performance of standard graph algorithms and recurrence relations of different orders.

ELGA-101 English and General Awareness

The course is specifically focused on laying a firm foundation for English language proficiency by helping students build a strong base in Grammar and vocabulary.

BCA-201 Computer Architecture and System Software

The objective of the course is to facilitate the student with the basics architecture of Computer Organization and mother board. Study the I/O interaction, ALU, CPU.

BCA- 202 Information System Analysis &Design

The objective of this paper is to familiarize the participants with concepts, tools and techniques of System Analysis, Design and Software Engineering and their applications in business.

BCA-203 Computer Programming

.NET has evolved as an important framework in the recent times for developing windows, web and enterprise applications. The objective of the subject is to introduce .NET technology which provides a multi-language environment to, develop windows based software. The main focus is on .NET framework, development environment as VB.NET, ASP.NET.

BM-201 Mathematics

To develop an understanding of Differential Equations concepts and To enable application of mathematical reasoning in solving problems through sequence and series.

ELGA-102 ENGLISH AND GENERAL AWARENESS- II

The course aims at helping the students enhance their quality of English communication by developing an understanding of correct usage of words and phrases. It also helps them frame grammatically as well as logically correct sentences.

BMA-301 Management & Accounting

The objective of the course is to strengthen the fundamentals of accounting and provide strong foundation for other accounting courses. The course will intensify knowledge on all the basic components by using double entry book keeping perspective

BCA-301 Operating System

To know the components of an operating system, An overview of different types of operating systems, A thorough knowledge of process management, Knowledge of storage management and the concepts of I/O and file systems, To know basics of Unix system and Windows NT and get an overview of distributed system, Multiprocessor operating system and database operating system.

BCA-302 Data Structure with C

The objective of this course is to facilitate the students with the basics of Data structure and different applications. After undergoing this course the students will have the understanding of various data structures either linear or non linear, their applications, Related algorithms (sorting and searching) etc.

BCA-303 Computer Networks and Web Development

The objective is to facilitate the student with the fundamentals of Computer Networks and basic web designing with the help of HTML, Java Scripts & CSS.

BM-301 Mathematics for Computing

The objective is to facilitate the student with the basics of soft computing and its application. The scope of the subject is to acquire skills to apply the computing and its process.

BCA-304B Artificial Intelligence

To expose students to the concept and issues of Artificial intelligence, the objective of the course is to facilitate the student with the idea of how AI work and role of human interaction

ELGA-201 English Language and General Awareness-III

The course is designed to help students develop effective communication skills, and hence, it lays emphasis on their spoken and listening skills.

BCA-401 Data Base Management System

This course objective is to expose the students to the theoretical concepts of introduction to data base, physical and logical data base, schema design, study of entity, rational diagram, different type of data base modules, also involves the principle of designing relational data bases, normalization process, storing and retrieval of data, securities, features of locking. An elementary introduction to the distributed data bases will be covered apart from this the students will be completely exposed to the practical applications of dbase III, development of application software by getting exposures to the commands, program development, After completion of the course the students will achieve full competence in the area of application software development using data base.

BCA-402 Object Oriented Programming with C++

Today whole application software is developed using object-oriented technology. It helps in reusability of the code, sharing of various resources. The user works in real world environment. This paper give knowledge of object oriented, technology. C++ covers the practical implementation of OOPs. Various features like inheritance, encapsulation etc. are covered.

BCA-403 Introduction to Software Engineering

To expose students to the concepts and issues of software engineering and application of software design. The objective of the course is to facilitate the student with the idea of SDLC cycle models, Requirement analysis, Software project planning, Software design, Software reliability and testing.

BCA-404 Linux and Shell Programming

The objective of this course is to facilitate the students with the basics use Linux utilities to create and manage simple file processing operations, organize directory structures with appropriate security, and   develop shell scripts to perform more complex tasks. Effectively use the Linux system to accomplish typical personal, office, technical, and software development tasks. Monitor system performance and network activities

BCA-405 Computer Oriented Numerical Techniques

The objective of this course is to provide conceptual understanding of various numerical methods, in particular, with reference to numerical solution of non linear equations and system of linear equations, interpolation, numerical differentiation and integration and numerical solution of ordinary differential equations. Important theorems and different formulae for various numerical methods to be covered with an aim of helping the students to understand the fundamentals, concepts and practical use of these methods in the field of computer sciences and applications

ELGA-202 English Language and General Awareness-IV

The course deals with clause analysis, sentence classification based on clauses, time and tense and common errors in sentence structure. The purpose is to familiarize students with all kinds of sentences and their use.

BMI-501 Advanced Data Structure

A successful student will be able to Describe and implement a variety of advanced data structures (hash tables, priority queues, balanced search trees, graphs). Analyze the space and time complexity of the algorithms studied in the course. Identify different solutions for a given problem; analyze advantages and disadvantages to different solutions. Demonstrate an understanding of external memory and external search and sorting algorithms. Demonstrate an understanding of simple Entity-Relationship models for databases. Construct programs of significant length that require modularization in order to be understood. Generate source code that is easy to read, well organized, well commented. Employ debugging techniques to assist in problem solving.

BCA-504 E-Business

This course exposes students to the problems and methods of strategic management of large scale e-business systems. These are systems whose continuing operation and evolution is vital for the business or organisation that they serve. IT managers and CIOs must ensure that systems are effective and cost-effective, that new projects give a good return, and that emerging technologies are evaluated and, where appropriate, adopted in an orderly manner. Similarly,

emerging risks such as security threats must be evaluated and addressed using appropriate and cost-effective techniques.

PGD-104 Information Security & Cyber Crime Handling

The ubiquity of computers and internet in the life of human beings has enabled chance, motive and means to do harm. With such endangers in front of us, it becomes necessary security for security professionals, to learn about how manage computer and information security aspects. Understand the main theoretical and cross-disciplinary approaches (criminological, legal and information security/management) in the study of cybercrime and the regulation of the Internet. Understand the structure and evolution of the Internet and its basic operations in the context of the emerging crime threats and trends in cyberspace. Hence this course provides methods to develop new framework for information security, overview of security risk assessment and management, an overview of cyber crimes and security planning in an organization.

BCA-505 Multimedia System

This course exposes students describe different realisations of multimedia tools and the way in which they are used. Analyse the structure of the tools in the light of low-level constraints imposed by the adoption of various QoS schemes (i.e. bottom up approach). Analyse the effects of scale and use on both presentation and lower level requirements. Plan experiments to test user perception of multimedia tools. State the properties of different media streams compare and contrast. Different multicast protocols, describe mechanisms for providing QoS guarantees in the network and to propose experiments to analyse their performance.

ELGA-301 English Language and General Awareness-V

The course facilitates the learning of the principles of effective formal and business communication.

Seminar-I

Students will be able to show competence in identifying relevant information, defining and explaining new emerging field topic. They will demonstrate depth of understanding, use primary and secondary sources; they will demonstrate complexity, insight, cogency, independent thought, relevance, and persuasiveness.

BMI-601 Advanced Software Engineering

The primary objective of these courses is to train CS majors with skills in programming to become information technology professionals able to undertake complex development projects in a modern distributed computing environment. Understand and adhere to professional ethical standards in the system development and modification process, especially by accepting

responsibility for the consequences of design decisions and design implementations, the ability to build and configure major operating system components, the ability to analyze and implement solutions to complex problems involving computers and networks, the ability to work effectively in teams, a solid understanding to the methods of modern software engineering.

BCA-601 Data Ware Housing and Mining

This course gives an introduction to methods and theory for development of data warehouses and data analysis using data mining. Data quality and methods and techniques for pre-processing of data. Modelling and design of data warehouses. Algorithms for classification, clustering and association rule analysis. Practical use of software for data analysis and Learning outcomes are Data pre-processing and data quality, Modelling and design of data warehouses and Algorithms for data mining.

BMI-602 Cloud Computing and Services

This course focuses on learning emerging issues related to Cloud computing technology. Understand various basic concepts related to cloud computing technologies. Understand the architecture and concept of different cloud models: IaaS, PaaS, and SaaS. Understand big data analysis tools and techniques. Understand the underlying principle of cloud virtualization, cloud storage, data management and data visualization. Understand different cloud programming platforms and tools. Be familiar with cloud programming using Google's 'Go' programming language. Have details knowledge on reading and writing in cloud storage. Be familiar with application development and deployment using cloud platforms. Create application by utilizing cloud platforms such as Google app Engine and Amazon Web Services (AWS).

PGD-201 E-Governance and Web Technologies

This course introduces the technology of e-government with an in-depth examination of current government development and management challenges in the delivery of services and information, electronically, to their constituents' 24 hours a day seven days a week. Several topics are covered like as current E-government challenges and trends, Web presence development , statutes affecting development and management, constituent needs assessment, service delivery application and transaction package, how to develop effective E-government administrators, long/short range planning and budgeting.

MCA-401 Mathematical Foundations for Computer Science

This course exposes students to the concepts of mathematical logics, recurrence relations, Algebraic structures, Elementary combinatory, functions, Relations and Graph Theory.

ELGA-401 English Language and General Awareness-VI

The course aims at helping the students enhance their quality of English communication by developing an understanding of correct usage of words and phrases. It also helps them frame grammatically as well as logically correct sentences.

MCA-301 Analysis and Design of Algorithms

To know the components of a design and analysis of algorithm. An overview of different types of algorithms. A thorough knowledge of different tree and searching.

MCA-302 Data Communication and Networks

For the transmission and reception of signals in industry and domestic life the basic knowledge of communication engineering is essential. The study of the subject provides the basic knowledge of various modulations, demodulation technique which further provide the fundamentals to understand the operation of communication systems.

MCA-303 Operating System

To know the components of an operating system, An overview of different types of operating systems, A thorough knowledge of process management, Knowledge of storage management and the concepts of I/O and file systems, To know basics of Unix system and Windows NT and get an overview of distributed system, Multiprocessor operating system and database operating system.

MCA-304 Operation Research

The objective of the paper is to facilitate the student with the basics of Operation Research used in communication. The scope of the subject is to acquire skills to apply the stochastic processes in engineering problems and solve the mathematical problem.

MCA-305 Java Programming (Core)

To know the basic concept of java programming. Abstract class in java and data types. Application of java in website design

MCA-401 .Net Framework and C# Programming

.NET has evolved as an important framework in the recent times for developing windows, web and enterprise, applications. The objective of the subject is to introduce .NET technology which provides a multi-language environment to, develop windows based software. The main focus is on .NET framework, development environment as VB.NET, ASP.NET.

MCA-402 Artificial Intelligence and Expert Systems

To expose students to the concept and issues of Artificial intelligence, the objective of the course is to facilitate the student with the idea of how AI work and role of human interaction

MCA-403 Theory of Computation

The objective is to facilitate the student with the basics of soft computing and its application. The scope of the subject is to acquire skills to apply the computing and its process.

MCA-404 Wireless Network and Mobile Computing

To provide basic for various techniques in mobile networks/Adhoc networks and sensor based networks. The objective of the course is to facilitate the student with the understanding of Infrastructure less networks and their importance in the future directions for wireless communications. The prerequisites are to have basic understanding of infra-structured networks, Basic protocols used on computer networking.

MCA-405 Computer Graphics

To expose students to the concepts and issues of computer graphics, Its basics, Graphic algorithms, Digital image fundamentals, Techniques of Viewing, Bezier Curve ,B spline Curve , 2D & 3D transformation techniques .

MCA-501 Software Project Management

The objective of the course is to facilitate the student with the basics Operation of Software Project Management and role of software engineering. The scope of the subject is to acquire skills and understand different types of model

MCA-502 Compiler Construction

To expose students to the concepts and issues of compiler design in computer science. Application of Compiler tools, Concepts of languages and grammar.

MCA-503 Cryptography and Network Security

The objective of the course is to facilitate the student with the understanding of various cryptographic techniques for secure data transfer. The prerequisites are to have basic understanding of network security, Probability and stochastic processes.

MCA-504B Web Services

The objective of the course is to facilitate the student with the basics knowledge web sites design and application of website. Study of HTML, XHTML, DHTML and XML language, Java Scripts.

PJ 504 Minor Project Lab

In this course student perform all subject knowledge, skill and prepare any one project on given problem.

Seminar-II

Students will be able to show competence in identifying relevant information, defining and explaining new emerging field topic. They will demonstrate depth of understanding, use primary and secondary sources; they will demonstrate complexity, insight, cogency, independent thought, relevance, and persuasiveness.

MJPJ-601 Technical Project and Training

Each student is expected to undergo one complete semester of industrial/field/Lab training in order to connect the class room teaching with real time practical applications. A supervisor (faculty from the Department) shall be assigned to the student approved by the competent authority. The training and placement officer (TPO) will facilitate the students for the purpose with the consent of his/her supervisor and also considering the interests of the student. During training the student will undertake a project involving design/experimental/analytical/computational work including case studies etc. The progress of the project work will be evaluated by the concerned supervisor and TPO by visiting the site/industry/lab etc.

The student will complete the training/project by the end of the semester and a comprehensive training/project report will be submitted by the student under the signature of his/her supervisor. The external examination shall be taken by a panel of examiners comprising of concerned supervisor, the training and placement officer and an external examiner (from the relevant field) nominated/ approved by the competent authority. Hard copies of report are required to be submitted by the student before the external examination. The candidate shall appear before the evaluation committee for oral examination and presentation on the scheduled date.

Viva-voce & Seminar-III

In this course student present their training report through presentation so that supervisor/TPO shall be evaluate student and take viva-voce.

Program Specific Outcomes(PSO's) :

Students will be able to attain the following program specific outcomes:-

1. Develop competence in basic technical subjects in computer applications like Programming Languages, Data Structures, Databases, Operating Systems, Software Engineering.

2. Identify, analyze, formulate and develop computer applications.

3. Map real life scenarios to various theoretical optimal solutions.

4. Provide simplest automated solutions to various legacy systems.

5. Use modern computing tools and techniques with confidence.

6. Work professionally with positive attitude as an individual or in multidisciplinary teams and communicate effectively.

7. Appreciate the importance of goal setting and to recognize the need for life-long learning.

Bachelor's of Computer Applications

Program Outcomes: (PO's) The Programme is targeted at developing the following competencies, skills and abilities amongst students. They shall be able to

1. Apply knowledge of computing fundamentals, mathematics and domain knowledge appropriate for computing models from defined problems and requirements.

2. Identify, formulate, and solve complex computing problems and reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

3. Design and evaluate solutions for complex computing problems that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental issues.

4. Use research methods, analysis, and interpretation of data and synthesis of the information to provide valid conclusions.

5. Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

6. Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

7. Communicate and function effectively as member of multi disciplinary team with the computing community, and with society at large, being able to comprehend and write effective reports, design documentation, make effective presentations, give and understand clear instructions.

8. Function as member or leader of team and to understand computing and management principles & finance to manage projects in multidisciplinary environments.

9. A sense of professional, ethical, legal, security and social issues and responsibilities.

10. To use the techniques, skills, and modern tools necessary for complex computing techniques.

11. To apply and commit professional ethics and cyber regulations in a global economic environment.

12. Ability to go for higher education like MCA

Course Outcome : (CO's)

BCA-101   Digital Electronics
The objective of the course is to facilitate the student with the basics knowledge of digital components, Different behaviors of gates, Designing using gates and latches & their applications.

BCA-102   Business Systems and Applications
The objective of the course is to help students to get familiar with the modern computing techniques. Students will get familiarity with the computers and computing facilities including the techniques to use different office management software systems, underline functioning and working of hardware.

BCA-103   Introduction to programming
'C' is system programming language and also structured programming language, In 'C' programming language we consider various syntax used in programming. By having good knowledge of 'C', students can write modular application and system programs. 'C' is mainly used in software developments, projects involving compiler design, operating system design, system software etc. By acquiring a sound knowledge of 'C' students will be able to understand the concept of all the Application areas. Students of BCA course are expected to gain adequate knowledge of numerical method and computation, optimization techniques. Numerical Methods and Techniques are widely useful in the various problems solving in various application optimization techniques are essential in industry in project management, inventory system and resources management. Hence this course is introduced to teach the students, the above concepts and also learn about the application of the same to various problems solving. Computer programs should also be developed for solving the numerical problems by way of introducing the algorithms and programming using 'C

BM-101   Mathematics
Mathematics concepts and notations are useful in studying and describing objects and problems in computer algorithms and programming languages and have applications in cryptography, automated theorem proving and software development. The objective of combinatorial mathematics is to demonstrate an understanding of the theory underlying exact approaches to combinatorial optimization problems, prove & interpret standard results in graph theory & develop, implement & critically evaluate the correctness and performance of standard graph algorithms and recurrence relations of different orders.

BCA-104   PC software and Computer fundamentals
The objective of the course is to introduce the concepts of computer fundamental & their applications for the efficient use of office technology in a business environment.

ELGA-101   English and General Awareness
The course is specifically focused on laying a firm foundation for English language proficiency by helping students build a strong base in Grammar and vocabulary.

BCA-201   Computer Architecture and System Software
The objective of the course is to facilitate the student with the basics architecture of Computer Organization and mother board. Study the I/O interaction, ALU, CPU.

BCA-202   Information System Analysis Design
The objective of this paper is to familiarize the participants with concepts, tools and techniques of System Analysis, Design And Software Engineering and their applications in business.

BCA-203   Computer Programming
.NET has evolved as an important framework in the recent times for developing windows, web and enterprise applications. The objective of the subject is to introduce .NET technology which provides a multi-language environment to, develop windows based software. The main focus is on .NET framework, development environment as VB.NET, ASP.NET.

BM-201   Mathematics
1. To develop an understanding of Differential Equations concepts and To enable application of mathematical reasoning in solving problems through sequence and series**.**

EGA-102   ENGLISH AND GENERAL AWARENESS- II
The course aims at helping the students enhance their quality of English communication by developing an understanding of correct usage of words and phrases. It also helps them frame grammatically as well as logically correct sentences.

BMA-301   Management Accounting
The objective of the course is to strengthen the fundamentals of accounting and provide strong foundation for other accounting courses. The course will intensify knowledge on all the basic components by using double entry book keeping perspective

BCA-301   Operating System
To know the components of an operating system, An overview of different types of operating systems, A thorough knowledge of process management, Knowledge of storage management and the concepts of I/O and file systems, To know basics of Unix system and Windows NT and get an overview of distributed system, Multiprocessor operating system and database operating system.

BCA-302   Data Structure with C
The objective of this course is to facilitate the students with the basics of Data structure and different applications. After undergoing this course the students will have the understanding of various data structures either linear or non linear, their applications, Related algorithms (sorting and searching) etc.

BCA-303   Computer networks and Web Development
The objective is to facilitate the student with the fundamentals of Computer Networks and basic web designing with the help of HTML, Java Scripts & CSS.

BM-301   Mathematics for Computing
The objective is to facilitate the student with the basics of soft computing and its application. The scope of the subject is to acquire skills to apply the computing and its process.

BCA-304   Artificial Intelligence
To expose students to the concept and issues of Artificial intelligence, the objective of the course is to facilitate the student with the idea of how AI work and role of human interaction

ELGA-201   English Language and General Awareness-III
The course is designed to help students develop effective communication skills, and hence, it lays emphasis on their spoken and listening skills.

BCA-401   Data Base Management System
This course objective is to expose the students to the theoretical concepts of introduction to data base, physical and logical data base, schema design, study of entity, rational diagram, different type of data base modules, also involves the principle of designing relational data bases, normalization process, storing and retrieval of data, securities, features of locking. An elementary introduction to the distributed data bases will be covered apart from this the students will be completely exposed to the practical applications of dbase III, development of application software by getting exposures to the commands, program development, After completion of the course the students will achieve full competence in the area of application software development using data base.

BCA-402   Object Oriented Programming with C++
Today whole application software is developed using object-oriented technology. It helps in reusability of the code, sharing of various resources. The user works in real world environment. This paper give knowledge of object oriented, technology. C++ covers the practical implementation of OOPs. Various features like inheritance, encapsulation etc. are covered.

BCA-403   Introduction to Software Engineering
To expose students to the concepts and issues of software engineering and application of software design. The objective of the course is to facilitate the student with the idea of SDLC cycle models, Requirement analysis, Software project planning, Software design, Software reliability and testing.

BCA-404   Linux and Shell Programming
The objective of this course is to facilitate the students with the basics use Linux utilities to create and manage simple file processing operations, organize directory structures with appropriate security, and   develop shell scripts to perform more complex tasks. Effectively use the Linux system to accomplish typical personal, office, technical, and software development tasks. Monitor system performance and network activities.

BCA-405   Computer Oriented Numerical Techniques
The objective of this course is to provide conceptual understanding of various numerical methods, in particular, with reference to numerical solution of non linear equations and system of linear equations, interpolation, numerical differentiation and integration and numerical solution of ordinary differential equations. Important theorems and different formulae for various numerical methods to be covered with an aim of helping the students to understand the

fundamentals, concepts and practical use of these methods in the field of computer sciences and applications

ELGA-202   English Language And General Awareness-IV
The course deals with clause analysis, sentence classification based on clauses, time and tense and common errors in sentence structure. The purpose is to familiarize students with all kinds of sentences and their use.

BCA-501   Computer Networks
Students will learn from this subject these measure parts of the computer networks. Analyze, design and document computer network specifications to meet client needs. Install and troubleshoot system hardware. Install, configure and troubleshoot client operating systems. Effectively communicate, orally and in writing. Use proper computer system and networking terminology. Perform help desk functions to answer user questions and provide user training on application software and fundamental operating systems functions. Disassemble, troubleshoot/debug, upgrade, replace basic components, and reassemble servers and client systems. Implement Local Area Networks using both static and dynamic addressing techniques . Install and configure domain-based local area networks. Use computer systems and networks in a responsible and ethical manner. Work as an effective member of a workgroup.

BCA-502   Optimization Techniques
After successful completion of the course, student will be able to understand importance of optimization of industrial process management apply basic concepts of mathematics to formulate an optimization problem analyze and appreciate variety of performance measures for various optimization problems.

BCA-503   .Net Frameworks
.NET has evolved as an important framework in the recent times for developing windows, web and enterprise, applications. The objective of the subject is to introduce .NET technology which provides a multi-language environment to develop windows based software. The main focus is on .NET framework, development environment as VB.NET, ASP.NET.

BCA-504C Web Services
The objective of the course is to facilitate the student with the basics knowledge web sites design and application of website. Study the HTML, DHTML and XML language

BCA-505C Wireless Communication
To provide basic for various techniques in mobile networks/Adhoc networks and sensor based networks. The objective of the course is to facilitate the student with the understanding of Infrastructure less networks and their importance in the future directions for wireless communications. The prerequisites are to have basic understanding of infra-structured networks, Basic protocols used on computer networking.

ELGA-301   English Language And General Awareness-V

The course facilitates the learning of the principles of effective formal and business communication.

MJPJ-601 Industrial Training/ Major Project

Each student is expected to undergo one complete semester of industrial/field/Lab training in order to connect the class room teaching with real time practical applications. A supervisor (faculty from the Department) shall be assigned to the student approved by the competent authority. The training and placement officer (TPO) will facilitate the students for the purpose with the consent of his/her supervisor and also considering the interests of the student. During training the student will undertake a project involving design/experimental/analytical/computational work including case studies etc. The progress of the project work will be evaluated by the concerned supervisor and TPO by visiting the site/industry/lab etc.

The student will complete the training/project by the end of the semester and a comprehensive training/project report will be submitted by the student under the signature of his/her supervisor. The external examination shall be taken by a panel of examiners comprising of concerned supervisor, the training and placement officer and an external examiner (from the relevant field) nominated/ approved by the competent authority. Hard copies of report are required to be submitted by the student before the external examination. The candidate shall appear before the evaluation committee for oral examination and presentation on the scheduled date.

VV-602 Viva-Voce

In this course student present their training report through presentation so that supervisor/TPO shall be evaluate student and take viva-voce.

Programme Specific Outcomes (PSOs) :

At the end of the Programme, the graduates will have

1. clarity on both conceptual and application-oriented skills of IT Applications in Business context.

2. To develop and manage policies related to organizations' IT systems.

3. In-depth knowledge & sustained learning leading to innovation& research to fulfill global interest.