



B.L.D.E. Association's
Vachana Pitamaha Dr. P.G. Halakatti College of Engineering & Technology,
Bijapur.

Program Outcomes
Department: Computer Applications (MCA)

List of Program Outcomes (POs)

MCA Graduates will be able to:

1. **Computational Knowledge:** Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.

2. **Problem Analysis:** Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

3. **Design /Development of Solutions:** Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

4. **Conduct Investigations of Complex Computing Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

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

6. **Professional Ethics:** Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practices

7. **Life-long Learning:** Engage in lifelong learning independently for continual development to improve knowledge and competence as a computing professional

8. **Project management and finance:** Demonstrate knowledge and understanding of management principles and apply these to multidisciplinary software development as a team member and manage projects

9. **Communication Efficacy:** Understand and communicate effectively with the computing community and with society at large, regarding complex computing systems activities confidently and effectively by writing effective reports and design documentations by adhering to appropriate standards, make effective presentations and give / receive clear instructions

10. **Societal and Environmental Concern:** Understand responsibilities and consequences based on societal, environmental, health, safety, legal and cultural issues within local and global contexts relevant to professional computing practices

11. **Individual and Team Work:** Function effectively as an individual, as a member or leader in diverse teams in multidisciplinary environments

12. **Innovation and Entrepreneurship:** Identify a timely opportunity for entrepreneurship and use innovation to pursue and create value addition for the betterment of the individual and society at large.



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Program Specific Outcomes
Department: Computer Applications (MCA)

List of Program Specific Outcomes (PSO)

By the time of graduation, MCA students can

PSO1: Apply the theoretical and practical knowledge of computer science in formulating, modeling and developing solutions to the real-world problems.

PSO2: Analyze Design and implement the application software systems that meet the automation requirement of society and industry.

PSO3: Ability to apply knowledge of layered network Models, their protocols and technologies in building network and Internet based applications.

PSO4: Design, test, develop and maintain desktop, web, mobile and cross platform software applications using modern tools and technologies.

BLDEA's
V.P.Dr. P.G.Halakatti College of Engg. & Tech., Vijayapur -586103
Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2020
Data Analytics using Python (20MCA31):CO 231
Course Outcomes (CO)

CO 231.1	Demonstrate basic data analytics principles and techniques
CO 231.2	Apply control structures to the given problems
CO 231.3	Apply the concepts of inheritance and overloading for a given problem.
CO 231.4	Demonstrate the concepts of learning and decision trees for a given problem.
CO 231.5	Demonstrate the concepts of neural networks and genetic algorithms for a given problem.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2020
INTERNET OF THINGS (20MCA32):CO 232
Course Outcomes (CO)

CO 232.1	Analyse the IoT architecture and design along with functional/compute stack and data management.
CO 232.1	Apply IOT architecture for a given problem
CO 232.1	Analyse the application protocol, transport layer methods for the given business case.
CO 232.1	Analyse the application of data analytics for IOT for a given use case
CO 232.1	Analyse the architecture and develop programming using modern tools for the given use case

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications

Scheme:2020

Advances in Java (20MCA33):CO 233

Course Outcomes (CO)

CO 233.1	Apply the concept of Servlet and its life cycle to create web application
CO 233.2	Apply JSP tags and its services to web application.
CO 233.3	Create packages and interfaces in the web application context.
CO 233.4	Build Database connection for the web applications
CO 233.5	Develop enterprise applications using Java Beans concepts for the given problem.

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Department of Computer Applications (M.C.A)
Program: Master of Computer Applications
Scheme:2020

Cloud Computing (20MCA342):CO 234

Course Outcomes (CO)

CO 234.1	Demonstrate the system & software models and mechanisms that support cloud computing
CO 234.2	Classify various cloud services and their providers
CO 234.3	Compare various cloud deployment models
CO 234.4	Differentiate various types of computing environments
CO 234.5	Identify enabling technologies of cloud computing.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2020

Software Project Management (20MCA354):CO 235
Course Outcomes (CO)

CO 235.1	Understand the practices and methods for successful software project management
CO 235.2	Identify techniques for requirements, policies and decision making for effective resource management
CO 235.3	Apply the evaluation techniques for estimating cost, benefits, schedule and risk
CO 235.4	Devise a framework for software project management plan for activities, risk monitoring and control
CO 235.5	Devise a framework to manage people

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2020
Data Analytics Lab (20MCA32):CO 236
Course Outcomes (CO)

CO 236.1	Develop python program to perform search/sort on a given data set
CO 236.2	Demonstrate object-oriented principles
CO 236.3	Demonstrate data visualization using Numpy for a given problem
CO 236.4	Demonstrate regression model for a given problem
CO 236.5	Design and develop an application for the given problem

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2020
Mini project with IOT Lab (20MCA37):CO 237
Course Outcomes (CO)

CO 237.1	Demonstrate the IoT architecture design for a given problem
CO 237.2	Apply IOT techniques for a given problem
CO 237.3	Analyse the application protocol, transport layer methods for the given business case.
CO 237.4	Design and develop an application for the given problem for the societal/industrial problems
CO 237.5	Develop python program by applying suitable feature for the given problem and verify the output

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2020
Advances in Java Lab (20MCA38):CO 238
Course Outcomes (CO)

CO 238.1	Apply the concept of Servlet and its life cycle to create web application.
CO 238.2	Apply JSP tags and its services to web application.
CO 238.3	Create packages and interfaces in the web application context.
CO 238.4	Build Database connection for the web applications.
CO 238.5	Develop application programs using beans concept.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2020
ADVANCES IN WEB TECHNOLOGIES (20MCA41):CO 241

Course Outcomes (CO)

CO 241.1	Build the Web Applications using JQuery, PHP, XML for the given problem
CO 241.1	Design the Web Pages using AJAX for the given problem.
CO 241.1	Analyse the advances in Web 2.0 and demonstrate its usage for the problem considered.
CO 241.1	Analyse the web services and demonstrate its usage for the problem considered.
CO 241.1	Design responsive web applications using Bootstrap for the given problem.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2020
PROGRAMMING USING C# & .NET(20MCA42):CO 242

Course Outcomes (CO)

CO 242.1	Understand C# Basics and ASP.Net Framework and its Components
CO 242.2	Working with Object Oriented Programming Concepts of C#.Net.
CO 242.3	Apply delegates, event and exception and Data handling to incorporate with ASP.Net
CO 242.4	Analyze the use of .Net Components of Windows Forms and WPF depending on the problem statement.
CO 242.5	Implement & develop a web based and Console based application with Database connectivity

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2022

Mathematical Foundation for Computer Applications (22MCA11):CO 111
Course Outcomes (CO)

CO 111.1	Apply the fundamentals of set theory and matrices for the given problem.
CO 111.2	Apply the types of distribution, evaluate the mean and variance for the given case study/problem.
CO 111.3	Solve the given problem by applying the Mathematical logic concepts.
CO 111.4	Model the given problem by applying the concepts of graph theory.
CO 111.5	Design strategy using gaming theory concepts for the given problem.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2022

Operating System Concepts (22MCA12):CO 112
Course Outcomes (CO)

CO 112.1	Analyse the basic Operating System Structure and concept of Process Management
CO112.2	Analyse the given Synchronization/ Deadlock problem to solve and arrive at valid conclusions.
CO 112.3	Analyse OS management techniques and identify the possible modifications for the given problem context.
CO 112.4	Ability to design and solve synchronization problems.
CO 112.5	Ability to simulate and implement operating system concepts such as scheduling, Deadlock management, file management, and memory management.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications

Scheme:2022

Data Structures (22MCA13):CO 113

Course Outcomes (CO)

CO 113.1	Demonstrate different data structures, its operations using C programming.
CO 113.2	Apply control structures the concepts of inheritance and overloading for a given problem
CO 113.3	Perform essential operations using NumPy and Pandas
CO 113.4	Structuring the data in the dataset for a given problem
CO 113.5	Demonstrate the concepts of data visualization

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2022
Computer Networks (22MCA14):CO 114

Course Outcomes (CO)

CO 114.1	Apply the basic concepts of networks like protocol, internet and OSI layers
CO 114.2	Analyze the Physical Layer of 1 and 2
CO 114.3	Demonstrate the various Switching networks
CO 114.4	Analyze the Data Link Layer of 1 and 2
CO 114.5	Demonstration about various framing techniques

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Department of Computer Applications (M.C.A)
Program: Master of Computer Applications
Scheme:2022
Design and Analysis of Algorithms (22MCA15):CO 115

Course Outcomes (CO)

CO 115.1	Describe the basic algorithm design strategies and use them for devising new solutions to various problems
CO 115.2	Analyse algorithms for time/space complexity
CO 115.3	Differentiate between deterministic and probabilistic algorithms and use the probabilistic algorithms in appropriate scenarios
CO 115.4	Describe different searching and sorting algorithms
CO 115.5	Describe different Probabilistic and Randomized Algorithms

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2022
Data Structures with Algorithms Lab(22MCAL16):CO 116

Course Outcomes (CO)

CO 116.1	Implement the techniques for evaluating the given expression.
CO 116.2	Implement sorting / searching techniques, and validate input/output for the given problem.
CO 116.3	Implement data structures (namely Stacks, Queues, Circular Queues, Linked Lists, and Trees), its operations and algorithms.
CO 116.4	Implement the algorithm to find whether the given graph is connected or not and conclude on the performance of the technique implemented.
CO 116.5	Implement the techniques for evaluating the given expression.

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Program: Master of Computer Applications
Scheme:2022

Computer Networks Laboratory (20MCAL17):CO 117
Course Outcomes (CO)

CO 117.1	To understand the working principle of various communication protocols.
CO 117.2	To understand the network simulator environment and visualize a network topology and observe its performance.
CO 117.3	To analyze the traffic flow and the contents of protocol frames.
CO 117.4	Describe different encryption and decryption techniques
CO 117.5	Describe different framing mechanism

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Program: Master of Computer Applications

Scheme:2022

Research Methodology and IPR (22RMI18):CO 118

Course Outcomes (CO)

CO 118.1	Identify the suitable research methods and articulate the research steps in a proper sequence for the given problem.
CO 118.2	Carry out literature survey, define the problem statement and suggest suitable solution for the given problem and present in the format of the research paper (IEEE).
CO 118.3	Analyse the problem and conduct experimental design with the samplings.
CO 118.4	Perform the data collection from various sources segregate the primary and secondary data.
CO 118.5	Apply some concepts/section of Copy Right Act /Patent Act /Cyber Law/ Trademark to the given case and develop –conclusions

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Program: Master of Computer Applications
Scheme:2022
Basics of Programming & CO (22MCA110):CO 119

Course Outcomes (CO)

CO 119.1	Demonstrate the key concepts introduced in C programming by writing and executing the programs.
CO 119.2	Demonstrate the key concepts introduced in C programming by writing and executing the programs.
CO 119.3	Implement the single/multi-dimensional array for the given problem.
CO 119.4	Demonstrate the application of logic gates in solving some societal/industrial problems.
CO 119.5	Analyse how memory organization, operations, instruction sequencing and interrupts are useful in executing the given program.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2022
Database Management System (22MCA21):CO 121

Course Outcomes (CO)

CO121.1	Identify, analyze and define database objects, enforce integrity constraints on a database using RDBMS
CO 121.2	Use Structured Query Language (SQL) for database manipulation and also demonstrate the basic of query evaluation.
CO 121.3	Design and build simple database systems and relate the concept of transaction, concurrency control and recovery in database
CO 121.4	Develop application to interact with databases, relational algebra expression.
CO 121.5	Develop applications using tuple and domain relation expression from queries.

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Program: Master of Computer Applications
Scheme:2022

Object Oriented Programming Using Java (20MCA22):CO 122

Course Outcomes (CO)

CO 122.1	Use object-oriented programming concepts to solve real world problems.
CO 122.2	Explain the concept of class and objects with access control to represent real world entities
CO 122.3	Demonstrate the implementation of inheritance (multilevel, hierarchical and multiple) by using extend and implement keywords.
CO 122.4	Demonstrate the user defined exceptions by exception handling keywords (try, catch, throw, throws and finally)
CO 122.5	Use different layouts (Flow Layout, Boarder Layout, Grid Layout, Card Layout) to position the controls for developing graphical user interface.

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Program: Master of Computer Applications
Scheme:2022
SOFTWARE ENGINEERING (20MCA23):CO 123

Course Outcomes (CO)

CO 123.1	Design a software system, component or process to meet desired needs within realistic constraints
CO 123.2	Assess professional and ethical responsibility
CO 123.3	Function on multi-disciplinary teams
CO 123.4	Use the techniques, skills, and modern engineering tools necessary for engineering practice
CO 123.5	Analyze, design, implement, verify, validate, implement, apply, and maintain software systems or parts of software systems

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications

Scheme:2022

Web Technologies (22MCA24):CO 124

Course Outcomes (CO)

CO 124.1	Apply the features jQuery for the given web-based problem
CO 124.2	Demonstrate the development of XHTML documents using JavaScript and CSS.
CO 124.3	Demonstrate applications of Angular JS and jQuery for the given problem.
CO 1244	Apply the concept and usages web-based programming techniques.
CO 124.5	Learning and Developing XHTML documents using JavaScript and CSS.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2022
Enterprise Resource Planning (22MCA253):CO 125

Course Outcomes (CO)

CO 125.1	Analyse the essentials of supply chain management in ERP.
CO 125.2	Analyse the implementation of ERP in the context of business of the different organization
CO 125.3	Analyse and apply ERP for different business modules for the given problem.
CO 125.4	Analyse the given case study of ERP marketing.
CO 125.5	Analyse the design of ERP with future E-commerce and internet.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications

Scheme:2022

Artificial Intelligence (22MCA262):CO 126

Course Outcomes (CO)

CO 126.1	Identify problems that are amenable to solution by AI methods.
CO 126.2	Identify appropriate AI methods to solve a given problem.
CO 126.3	Formalize a given problem in the language/framework of different AI methods
CO 126.4	Implement basic AI algorithms for the given problem.
CO 126.5	Design and carry out an empirical evaluation of different algorithms on a problem formalization, and state the conclusions that the evaluation supports.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications

Scheme:2022

DBMS Laboratory (22MCAL27):CO 127

Course Outcomes (CO)

CO 127.1	Create SQL queries for the small projects
CO 127.2	Create database objects that include tables, constraints, indexes, and sequences.

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Department of Computer Applications (M.C.A)

Program: Master of Computer Applications
Scheme:2022
Java Programming Laboratory (22MCAL28):CO 128
Course Outcomes (CO)

CO 128.1	Using java programming to develop programs for solving real-world problems.
CO 128.2	Reinforce the understanding of basic object-oriented programming concepts