

Department of Master of Computer Applications

MCA Subject List AY 2020-21

Subject Code	Subject Name
<b>ODD Semester</b>	
20MCA11	Data Structures with Algorithms
20MCA12	Operating System with Unix
20MCA13	Computer Networks
20MCA14	Mathematical Foundation for Computer Applications
20MCA15	Research Methodology and IPR
20MCA16	Data Structures with Algorithms Lab
20MCA17	Unix Programming Lab
20MCA18	Computer Networks Lab
18MCA31	Database Management System (DBMS)
18MCA32	Programming using Python (PYTHON)
18MCA33	Design and Analysis of Algorithms (DAA)
18MCA34	System Software (SS)
18MCA354	Management Information Systems (MIS)
18MCA36	DBMS Lab
18MCA37	Python Programming Lab
18MCA38	Algorithms Lab
18MCA51	Programming using C# .net (DOTNET)
18MCA52	Mobile Applications (MA)
18MCA53	Machine Learning (ML)
18MCA541	Multimedia Systems (MS)
18MCA551	System Simulation and Modelling (SSM)
18MCA56	C# .NET Lab
18MCA57	Mobile Applications Lab
18MCA58	Mini Project
<b>EVEN Semester</b>	
20MCA21	Database Management System
20MCA22	Object Oriented Programming with Java
20MCA23	Web Technologies
20MCA24	Software Engineering
20MCA253	Enterprise Resource Planning
20MCA262	Artificial Intelligence
20MCA27	DBMS Lab
20MCA28	Java Programming Lab.
20MCA29	Web Technologies Lab with Mini-project
18MCA41	Advanced Java Programming (Ad.Java)
18MCA42	Advanced Web Programming (Ad. Web)
18MCA43	Object Oriented Modelling and Design (OOMD)
18MCA442	Cyber Security (CS)
18MCA451	Enterprise Resource Planning (ERP)
18MCA46	Professional Communication & Report Writing (PC&RW)
18MCA47	Advanced Java Programming Lab (Ad.Java Lab)
18MCA48	Advanced Web Programming Lab (Ad. Web Lab)
18MCA49	Object Oriented Modeling and Design Lab (OOMD Lab)



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**Course Outcome**

**Subject: Data Structures and Algorithms**

**Subject Code: 20MCA11**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA11.1	Present the comprehension of Data Structure and Algorithm concepts like Stack, Queues, Lists, Trees, Searching and sorting to solve problems.
20MCA11.2	Apply the working nature of different types of data structures and their applications.
20MCA11.3	Analyze the given problem using various data structures and algorithm techniques.
20MCA11.4	Design the solutions for real world problems using data structure and algorithms.
20MCA11.5	Evaluate data structures and algorithms on real world applications

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA11.1	3							3		
20MCA11.2	3									
20MCA11.3		3	3							
20MCA11.4		3	3							
20MCA11.5			3							
CO Average	3	3	3					3		

## Course Outcome

**Subject: Data Structures and Algorithms**

**Subject Code: 20MCA11**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA11.1	Present the comprehension of Data Structure and Algorithm concepts like Stack, Queues, Lists, Trees, Searching and sorting to solve problems.
20MCA11.2	Apply the working nature of different types of data structures and their applications.
20MCA11.3	Analyze the given problem using various data structures and algorithm techniques.
20MCA11.4	Design the solutions for real world problems using data structure and algorithms.
20MCA11.5	Evaluate data structures and algorithms on real world applications

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA11.1	3							3		
20MCA11.2	3									
20MCA11.3		3	3							
20MCA11.4		3	3							
20MCA11.5			3							
CO Average	3	3	3					3		





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### Course Outcome

**Subject: Data Structures and Algorithms**

**Subject Code: 20MCA11**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA11.1	Present the comprehension of Data Structure and Algorithm concepts like Stack, Queues, Lists, Trees, Searching and sorting to solve problems.
20MCA11.2	Apply the working nature of different types of data structures and their applications.
20MCA11.3	Analyze the given problem using various data structures and algorithm techniques.
20MCA11.4	Design the solutions for real world problems using data structure and algorithms.
20MCA11.5	Evaluate data structures and algorithms on real world applications

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA11.1	3							3		
20MCA11.2	3									
20MCA11.3		3	3							
20MCA11.4		3	3							
20MCA11.5			3							
CO Average	3	3	3					3		





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### Course Outcome

**Subject: Operating Systems with UNIX**

**Subject Code: 20MCA12**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA12.1	Understand the Operating System concepts, Unix Architecture, Unix environment (Commands and its options), Process management, Shell Scripting, AWK scripting.
20MCA12.2	Apply the Unix commands and scripting language constructs for file processing.
20MCA12.3	Analyze the problem scenario and identify the commands and options required to solve the problem.
20MCA12.4	Evaluate the correctness of solution for a given problem written through shell scripts/AWK scripts.

CO No	PONo									
	1	2	3	4	5	6	7	8	9	10
20MCA12.1							2			
20MCA12.2	3		2	3	2					2
20MCA12.3		3	2	3	3					
20MCA12.4		2	3		3					
CO Average	3	2.5	2.33	3	2.66		2			2



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### Course Outcome

Subject: Computer Networks

Subject Code: 20MCA13

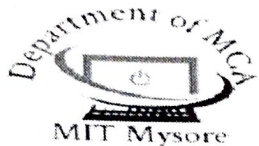
CO's	DESCRIPTION OF THE OUTCOMES
20MCA13.1	Present the comprehension of fundamentals of networking concepts such as layers, protocols, frame works / architecture, working principles of various layer protocols and associated concepts
20MCA13.2	Apply the appropriate algorithm for error control, flow control and reliable transmission of data over the network.
20MCA13.3	Analyze the performance of a network as affected through different network layers.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA13.1							3	3		
20MCA13.2	3									
20MCA13.3		3								
CO Average	3	3					3	3		









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### Course Outcome

**Subject: Data Structures and Algorithms Lab**

**Subject Code: 20MCA16**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA16.1	Apply Data Structure concepts like Stack, Queues, Lists, Trees, Searching and sorting to solve problems.
20MCA16.2	Apply the working nature of different types of data structures and their applications.
20MCA16.3	Analyze the given problem using various algorithm techniques.
20MCA16.4	Design the solutions for real world problems using data structure and algorithms.
20MCA16.5	Conduct experiments either individually or in a team and present its corresponding outcomes and process both orally and in a written form.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA16.1	3							3		
20MCA16.2	3			3						
20MCA16.3		3	3	3						
20MCA16.4		3	3	3						
20MCA16.5				3						
CO Average	3	3	3	3				3		



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**Course Outcome**

**Subject: UNIX Programming Laboratory**

**Subject Code: 20MCA17**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA17.1	Apply the Unix commands and scripting language constructs for file processing.
20MCA17.2	Code, debug and demonstrate the working nature of Shell scripts and AWK scripts.
20MCA17.3	Analyze the problem scenario and identify the commands and options required to solve the problem.
20MCA17.4	Evaluate the correctness of solution for a given problem written through shell scripts/AWK scripts.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA17.1							2			
20MCA17.2	3		2	3	2					2
20MCA17.3		3	2	3	3					
20MCA17.4		2	3		3					
CO Average	3	2.5	2.33	3	2.66		2			2





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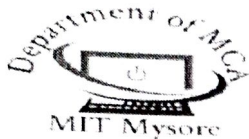
### Course Outcome

Subject: Computer Networks Laboratory

Subject Code: 20MCA18

CO's	DESCRIPTION OF THE OUTCOMES
20MCA18.1	Apply suitable methodology for building familiar networks and associated algorithms with C/C++ and TCL scripting language.
20MCA18.2	Analyze given problem scenario, infer the <b>correctness</b> of the selected parameters based on efficacy of solution and document the same.
20MCA18.3	Design network topology with different protocols for better performance using NS2.
20MCA18.4	Conduct experiments either individually or in a team and present its corresponding outcomes and process both orally and in written form.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA18.1	3									
20MCA18.2		3								
20MCA18.3			3							
20MCA18.4				3	3					
CO Average	3	3	3	3	3					



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### Course Outcome

**Subject: Basics of Programming and Computer Organization**

**Subject Code: 20MCA19-BC**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA19-BC.1	Present the Comprehension of basic C Programming concepts like functions, looping and pointers.
20MCA19-BC.2	Apply the C concepts to solve problems.
20MCA19-BC.3	Analyze the various C programming concepts for solving various real world problems.
20MCA19-BC.4	Apply the concepts to get understand the basics of computer organization
20MCA19-BC.5	Analyze number system, combinational logic circuits and assembly language programs, design and construct logic circuits and assembly programs.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA19-BC.1	3							3		
20MCA19-BC.2	3									
20MCA19-BC.3		3	3							
20MCA19-BC.4		3	3							
20MCA19-BC.5			3							
CO Average	3	3	3					3		



### Course Outcome

**Subject: Database Management Systems**

**Subject Code: 20MCA21**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA21.1	Understand the ER-Model, Schema Design, Writing of Queries ,Views ,Procedures, Triggers and Transaction management concepts in DBMS.
20MCA21.2	Apply the Database concepts in designing and writing queries for the problem .
20MCA21.3	Analyze the given problem scenario using DBMS concepts.
20MCA21.4	Evaluate the suitability of ER-model, Database schema design, optimality of Queries, Views, Procedures and Triggers for efficient data transactions.
20MCA21.5	Create ER-model, Database, queries on relations, views, procedures and triggers for a given real world problem.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA21.1										
20MCA21.2	3		3	3	2					2
20MCA21.3		3	2	3	3					
20MCA21.4		3	3	2	3					
20MCA21.5			3		3					2
CO Average	3	3	2.75	2.66	2.75					2





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Course Outcome

Subject: Object Oriented Programming with Java

Subject Code: 20MCA22

CO's	DESCRIPTION OF THE OUTCOMES
20MCA22.1	Understand the Core OOP concepts in Java, Usage of Packages, interfaces, exception handling, multithreading and Java Networking.
20MCA22.2	Apply the JAVA Object oriented concepts in writing java programs
20MCA22.3	Analyze the given problem statement using Core java concepts.
20MCA22.4	Develop the Java Application for a given scenario.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA22.1	2									
20MCA22.2	3									
20MCA22.3		3								
20MCA22.4			3		3					
CO Average	2.5	3	3		3					



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**Department of MCA**

**Date:**

**Course Outcome**

**Subject: Web Technologies**

**Subject Code: 20MCA23**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA23.1	Present the comprehension of the basic knowledge of HTML,CSS, client side technologies such as javascript, JQuery, Bootstrap and angularJS .
20MCA23.2	Apply HTML5 syntax and semantics to compose forms and tables using CSS.
20MCA23.3	Apply Object Oriented concepts in JavaScript to build dynamic web pages.
20MCA23.4	Analyze the correctness of the scripts, code and protocols that ensures a qualitative web page.
20MCA23.5	Design a dynamic web portal by using HTML5 and client side scripting language for real world scenarios.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA23.1							3	3		
20MCA23.2	3									
20MCA23.3	3									
20MCA23.4		3								
20MCA23.5			3							
CO Average	3	3	3				3	3		



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**Course Outcome**

**Subject: Software Engineering**

**Subject Code: 20MCA24**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA24.1	Present the comprehend of software engineering terminologies, ethics and practices.
20MCA24.2	Identify the different system models and architectural designs for software.
20MCA24.3	Apply process activities as different process models.
20MCA24.4	Analyze software engineering practice over the entire system life cycle.
20MCA24.5	Adopt project management skills including planning, scheduling, object-oriented design and risk assessment.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA24.1	3									
20MCA24.2		3	3	3	2					2
20MCA24.3	2		2	3	3					
20MCA24.4		3	3		3					
20MCA24.5			3		3					2
<b>CO Average</b>	<b>2.5</b>	<b>3</b>	<b>2.75</b>	<b>3</b>	<b>2.75</b>					<b>2</b>





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**Course Outcome**

**Subject: ENTERPRISE RESOURCE PLANNING**

**Subject Code: 20MCA253**

CO's	DESCRIPTION OF THE OUTCOMES
CO1	Present the comprehension of important business concepts in ERP and SCM.
CO2	Analyze the various ERP solutions and its implementation process.
CO3	Justify the need of ERP solution and its impact on organization.
CO4	Evaluate different ERP vendor's products and solutions for their features and performance.
CO5	Identify suitable and effective ERP products for an organization.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
CO1		3						3		
CO2		3								
CO3		3			3					
CO4			3	3	3					
CO5			3	3	3					
CO Average		3	3	3	3			3		

Course Outcome

Subject: Artificial Intelligence

Subject Code: 20MCA262

CO's	DESCRIPTION OF THE OUTCOMES
20MCA262.1	Identify problems that are amenable to solution by AI methods
20MCA262.2	Analyze a given problem in the language/framework of different AI methods.
20MCA262.3	Implement basic AI algorithms for the given problem.
20MCA262.4	Design and carry out an empirical evaluation of different algorithms on problem formalization.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA262.1	2	-	-	-	-	-	-	-	-	-
20MCA262.2	-	3	-	-	-	-	-	-	-	-
20MCA262.3	-	-	-	3	-	-	-	-	-	-
20MCA262.4	-	-	2	-	-	-	-	-	-	-
CO Average	2	3	2	3	-	-	-	-	-	-



**Course Outcome**

**Subject: Database Management Systems Lab**

**Subject Code: 20MCA27**

CO's	DESCRIPTION OF THE OUTCOMES
20MCA27.1	Understand the ER-Model, Schema Design, Writing of Queries ,Views ,Procedures, Triggers and Transaction management concepts in DBMS.
20MCA27.2	Apply the Database concepts in designing and writing queries for the problem .
20MCA27.3	Analyze the given problem scenario using DBMS concepts.
20MCA27.4	Evaluate the suitability of ER-model, Database schema design, optimality of Queries, Views, Procedures and Triggers for efficient data transactions.
20MCA27.5	Create ER-model, Database, queries on relations, views, procedures and triggers for a given real world problem.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA27.1										
20MCA27.2	3		3	3	2					2
20MCA27.3		3	2	3	3					
20MCA27.4		3	3	2	3					
20MCA27.5			3		3					2
CO Average	3	3	2.75	2.66	2.75					2





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**Department of MCA**

Date:

**Course Outcome**

Subject: Web Technologies *Lab*

Subject Code: 20MCA28

CO's	DESCRIPTION OF THE OUTCOMES
20MCA28.1	Apply HTML5 syntax and semantics to compose forms and tables using CSS.
20MCA28.2	Apply Object Oriented concepts in JavaScript to build dynamic web pages.
20MCA28.3	Analyze the correctness of the scripts, code and protocols that ensures a qualitative web page.
20MCA28.4	Design a dynamic web portal by using HTML5 and client side scripting language for real world scenarios.
20MCA28.5	Conduct experiments either individuals or in a team and present its corresponding outcomes and process the both orally and in a written form.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
20MCA28.1	3									
20MCA28.2	3									
20MCA28.3		3								
20MCA28.4			3							
20MCA28.5				3	3					
CO Average	3	3	3	3	3					



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### Course Outcome

**Subject: Database Management Systems**

**Subject Code: 18MCA31**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA31.1	Understand the ER-Model, Schema Design, Writing of Queries ,Views ,Procedures, Triggers and Transaction management concepts in DBMS.
18MCA31.2	Apply the Database concepts in designing and writing queries for the problem .
18MCA31.3	Analyze the given problem scenario using DBMS concepts.
18MCA31.4	Evaluate the suitability of ER-model, Database schema design, optimality of Queries, Views, Procedures and Triggers for efficient data transactions.
18MCA31.5	Create ER-model, Database, queries on relations, views, procedures and triggers for a given real world problem.

CO No	PONo									
	1	2	3	4	5	6	7	8	9	10
18MCA31.1										
18MCA31.2	3		3	3	2					2
18MCA31.3		3	2	3	3					
18MCA31.4		3	3	2	3					
18MCA31.5			3		3					2
CO Average	3	3	2.75	2.66	2.75					2



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### Course Outcome

Subject: Programming Using Python

Subject Code: 18MCA32

CO's	DESCRIPTION OF THE OUTCOMES
18MCA32.1	Present the comprehension of the fundamental concepts of python programming
18MCA32.2	Apply the Python programming for control statements, loops and functions to write programs for a wide variety problem in mathematics, science, and games.
18MCA32.3	Analyze the adoptability of OOPs concepts on python platform.
18MCA32.4	Design python programs using core data structures like Lists, Dictionaries; use Regular expressions and GUI based Applications

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA32.1							2	2		
18MCA32.2	3									
18MCA32.3		3								
18MCA32.4			3							
CO Average	3	3	3				2	2		



## Course Outcome

Subject: Design and Analysis of Algorithms

Subject Code: 18MCA3

CO's	DESCRIPTION OF THE OUTCOMES
18MCA33.1	Present the comprehension fundamental steps for problems solving, of the performance of recursive and non recursive algorithms and use of asymptotic notations to measure the performance of algorithms.
18MCA33.2	Apply prior knowledge of mathematics and standard algorithm techniques to solve given problems.
18MCA33.3	Analyze the computational complexity of different algorithms and infer the results.
18MCA33.4	Design algorithms for different types of problems by using various design techniques.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA33.1	-	-	-	-	-	-	3	3	-	-
18MCA33.2	3	-	-	-	-	-	-	-	-	-
18MCA33.3	-	3	-	-	-	-	-	-	-	-
18MCA33.4	-	-	3	-	-	-	-	-	-	-
CO Average	3	3	3	-	-	-	3	3	-	-



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Department of Master of Computer Applications

Date: / /

### Course Outcome

Subject: System Software

Subject Code: 18MCA34

CO's	DESCRIPTION OF THE OUTCOMES
18MCA34.1	Present <b>the</b> comprehension of different types of machine architectures such as SIC, SIX/XE machine architecture
18MCA34.2	Present <b>the</b> comprehension of working procedure of assemblers, loaders and linkers, Macros and compilers.
18MCA34.3	Apply a grammar for matching the input pattern for designing compilers.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA34.1							3	2		
18MCA34.2							3	2		
18MCA34.3	3									
CO Average	3						3	2		



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Course Outcome

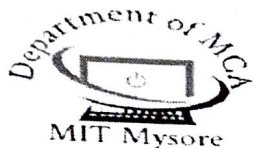
Subject: Management Information System

Subject Code: 18MCA354

CO's	DESCRIPTION OF THE OUTCOMES
18MCA354.1	Present the comprehend of leadership role of Management Information Systems in achieving business competitive advantage through informed decision-making and business applications & E-commerce initiatives.
18MCA354.2	Apply Management Information Systems knowledge and skills learned to facilitate the acquisition, development, deployment, and management of information systems.
18MCA354.3	Analyze business information needs to facilitate evaluation of strategic alternatives.
18MCA354.4	Assess communicate strategic alternatives in terms of their efficacy to facilitate decision-making.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA354.1	2									
18MCA354.2	2			3						
18MCA354.3		3								
18MCA354.4		3						3		2
CO Average	2	3		3						2





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**Course Outcome**

**Subject: Database Management Systems Laboratory**

**Subject Code: 18MCA36**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA36.1	Understand the ER-Model, Schema Design, Writing of Queries ,Views ,Procedures, Triggers and Transaction management concepts in DBMS.
18MCA36.2	Apply the Database concepts in designing and writing queries for the problem .
18MCA36.3	Analyze the given problem scenario using DBMS concepts.
18MCA36.4	Evaluate the suitability of ER-model, Database schema design, optimality of Queries, Views, Procedures and Triggers for efficient data transactions.
18MCA36.5	Create ER-model, Database, queries on relations, views, procedures and triggers for a given real world problem.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA36.1										
18MCA36.2	3		3	3	2					2
18MCA36.3		3	2	3	3					
18MCA36.4		3	3	2	3					
18MCA36.5			3		3					2
CO Average	3	3	2.75	2.66	2.75					2



**MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE**  
**BELAWADI, SRIRANGAPATNA TQ, MANDYA-571477**  
**Department of Master of Computer Applications**



**Course Outcome**

**Subject: Programming Using Python Lab**

**Subject Code: 18MCA37**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA37.1	Apply the Python programming for control statements, loops and functions to write programs for a wide variety problem in mathematics, science, and games.
18MCA37.2	Analyze the adoptability of OOPs concepts on python platform.
18MCA37.3	Design python programs using core data structures like Lists, Dictionaries; use Regular expressions and GUI based Applications
18MCA37.4	Conduct experiments either individually or in a team and present its corresponding outcomes and process both orally and in written form.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA37.1	3									
18MCA37.2		3								
18MCA37.3			3							
18MCA37.4				3	3					
CO Average	3	3	3	3	3					



**MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE**  
**BELAWADI, SRIRANGAPATNA TALUK, MANDYA-571477**  
**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**Course Outcome**

**Subject: Algorithms Laboratory**

**Subject Code: 18MCA38**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA38.1	Apply the appropriate design techniques (brute-force, greedy, dynamic programming, etc.) on various problems.
18MCA38.2	Analyze the time based performance of algorithms using language features like Time() function in C/C++.
18MCA38.3	Design an application to <b>solve real</b> world problem using an appropriate algorithm using C/C++.
18MCA38.4	Conduct experiments either <b>individually</b> or in a team and <b>present</b> its corresponding outcomes and process both orally and in a written form.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA38.1	3	-	-	-	-	-	-	-	-	-
18MCA38.2	-	3	2	-	-	-	-	-	-	-
18MCA38.3	-	-	3	-	-	-	-	-	-	-
18MCA38.4	-	-	-	3	3	-	-	-	-	-
CO Average	3	3	2.5	3	3	-	-	3	-	-



### Course Outcome

Subject: Advanced Java Programming

Subject Code: 18MCA41

CO's	DESCRIPTION OF THE OUTCOMES
18MCA41.1	Comprehend the concept of Servlets , JSP, JDBC Architecture, Database interactions and EJBs.
18MCA41.2	Apply the usage of Servlets, JSP, Java beans, JDBC concepts in the development of Java Web and Enterprise Applications.
18MCA41.3	Analyze the usage of Servlets, JSP, Java beans and JDBC in Web application development.
18MCA41.4	Evaluate the suitability of Servlets, JSP, Java beans and JDBC concepts in the development of an efficient application.
18MCA41.5	Create the Java Database web application using Servlets, JSP, Java beans and JDBC concepts.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA41.1										
18MCA41.2	3		3	3	2					2
18MCA41.3		3	2	3	3					2
18MCA41.4		3	3		3					
18MCA41.5			3		3					2
CO Average	3	3	2.75	3	2.75					2



Department of Master of Computer Applications

Date:

Course Outcome

Subject: Advanced Web Programming

Subject Code: 18MCA42

CO's	DESCRIPTION OF THE OUTCOMES
18MCA42.1	Present the comprehension of the basic knowledge of Client side and server side scripting languages such as Bootstrap, Ruby on Rails, PHP and AJAX.
18MCA42.2	Apply the Bootstrap and semantics to compose simple programs.
18MCA42.3	Apply PHP and Ruby syntax and semantics to design dynamic web portals.
18MCA42.4	Analyze the correctness of the scripts, code and protocols that ensures a qualitative web page.
18MCA42.5	Design a dynamic web portal by using client side and server side scripting language for real world scenarios.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA42.1							3	3		
18MCA42.2	3									
18MCA42.3	3									
18MCA42.4		3								
18MCA42.5			3							
CO Average	3	3	3				3	3		



MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE  
 BELAWADI, SRIRANGAPATNA TALUK, MANDYA-571477  
 DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



### Course Outcome

Subject: Object Oriented Modeling & Design

Subject Code: 18MCA43

CO's	DESCRIPTION OF THE OUTCOMES
18MCA43.1	Present the comprehend of object oriented concepts and apply UML notations to model objects of applications.
18MCA43.2	Apply the fundamentals of object oriented concepts to differentiate between various object relationships and associations.
18MCA43.3	Analyze the structural and behavioral models and hence a software system.
18MCA43.4	Estimate performance and design a reuse plan through domain and application analysis.
18MCA43.5	Evaluate the design patterns and its variants and assess the effectiveness in solving recurring programming problems.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA43.1	3									
18MCA43.2	2									
18MCA43.3		3		2						
18MCA43.4				3						
18MCA43.5				3						3
<b>CO Average</b>	<b>2.5</b>	<b>3</b>		<b>2.6</b>						<b>3</b>



## Course Outcome

Subject: CYBER SECURITY

Subject Code: 18MCA442

CO's	DESCRIPTION OF THE OUTCOMES
18MCA442.1	Present the comprehension of the basic concepts of cyber security and their importance in the cyber world.
18MCA442.2	Apply the appropriate techniques to solve cyber security threats
18MCA442.3	Analyze various vulnerabilities and security flaws in the operating systems, web servers, network equipment and incorporate the same in cyber law.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA442.1	-	-	-	-	-	-	3	3	-	-
18MCA442.2	3	-	-	-	-	-	-	-	-	-
18MCA442.3	-	3	-	-	-	-	-	-	-	-
CO Average	3	3	-	-	-	-	3	3	-	-



**MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE**  
**BELAWADI, SRIRANGAPATNA TALUK, MANDYA-571477**  
**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**Course Outcome**

**Subject: Professional Communication and Report Writing**

**Subject Code: 18MCA46**

CO's	DESCRIPTION OF THE OUTCOMES
<b>18MCA46.1</b>	Understand the different roles of communication in workplace, process of human communication and standard of grammar.
<b>18MCA46.2</b>	Apply appropriate etiquettes of writing skills to compose letters precisely and effectively.
<b>18MCA46.3</b>	Analyze the importance of communication through group discussion, presentation and IT ethics.
<b>18MCA46.4</b>	Asses the different communication modes in terms of their suitability according for a given business scenario.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA46.1	-	-	-	-	-	-	3	3	-	-
18MCA46.2	-	3	-	-	2	3	-	3	-	-
18MCA46.3	-	3	-	-	-	3	-	-	-	-
18MCA46.4	-	-	-	-	-	-	-	3	-	-
<b>CO Average</b>	-	3	-	-	2	3	3	3	-	-

## Course Outcome

Subject: Advanced Java Programming Laboratory

Subject Code: 18MCA47

CO's	DESCRIPTION OF THE OUTCOMES
18MCA47.1	Apply the fundamental concepts of Servlets , JSP, JDBC Architecture, Database interactions and EJBs.
18MCA47.2	Code, debug and demonstrate the working nature of Servlets, JSP, Java beans, JDBC concepts in the development of Java Web and Enterprise Applications.
18MCA47.3	Identify the given problem and design the Java Web application using advanced Java concepts.
18MCA47.4	Evaluate the suitability of Servlets, JSP, Java beans and JDBC concepts in the development of an efficient application.
18MCA47.5	Create the Java Database web application using Servlets, JSP, Java beans and JDBC concepts.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA47.1										
18MCA47.2	3		3	3	2					2
18MCA47.3		3	2	3	3					2
18MCA47.4		3	3	3	3					
18MCA47.5			3		3					2
CO Average	3	3	2.75	3	2.75					2





MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE  
BELAWADI, SRIRANGAPATNA TQ, MANDYA-571477



Department of Master of Computer Applications

Date: \_\_\_\_\_

Course Outcome

Subject: Advanced Web Programming

Subject Code: 18MCA48

CO's	DESCRIPTION OF THE OUTCOMES
18MCA48.1	Apply the JQuery syntax and semantics to compose simple programs.
18MCA48.2	Apply PHP and Ruby syntax and semantics to design dynamic web portals.
18MCA48.3	Analyze the correctness of the scripts, code and protocols that ensures a qualitative web page.
18MCA48.4	Design a dynamic web portal by using client side and server side scripting language for real world scenarios.
18MCA48.5	Conduct experiments either individuals or in a team and present its corresponding outcomes and process the both orally and in a written form.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA48.1	3									
18MCA48.2	3									
18MCA48.3		3								
18MCA48.4			3							
18MCA48.5				3	3					
CO Average	3	3	3	3	3					



**MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE**  
**BELAWADI, SRIRANGAPATNA TALUK, MANDYA A-571477**  
**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**Course Outcome**

**Subject: Object Oriented Modeling and Design Lab**

**Subject Code: 18MCA49**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA49.1	Comprehend the fundamental principles of Object-Oriented analysis, design, development and programming
18MCA49.2	Demonstrate and represent the UML model elements, to enable visual representation of the system being developed
18MCA49.3	Implement object oriented design model with the help of modern tool, Rational software Architect.
18MCA49.4	Evaluate various design patterns for applicability, reasonableness, and relation to other design criteria.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA49.1	3									
18MCA49.2				3						
18MCA49.3					3					
18MCA49.4				2						3
<b>CO Average</b>	<b>3</b>			<b>2.5</b>	<b>3</b>					<b>3</b>



MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE  
BELAWADI, SRIRANGAPATNA TQ, MANDYA-571477  
Department of Master of Computer Applications



Date: / /

Course Outcome

Subject: PROGRAMMING USING C#&.NET

Subject Code: 18MCA51

CO's	DESCRIPTION OF THE OUTCOMES
18MCA51.1	Present the comprehension of the .Net Framework architecture and its components.
18MCA51.2	Apply OOPs concepts to develop console applications, using C# programming language.
18MCA51.3	Apply the knowledge of ADO.net, MySQL, ASP.NET for creating different applications.
18MCA51.4	Analyze the use of .Net Components depending on the problem statement.
18MCA51.5	Create web based and Windows based application with Database connectivity using ASP.NET, ADO.NET

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA51.1							3	3		
18MCA51.2	3									
18MCA51.3	3									
18MCA51.4		3								
18MCA51.5			3							
CO Average	3	3	3				3	3		





**MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE**  
**BELAWADI, SRIRANGAPATNA TALUK, MANDYA-571477**  
**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**Course Outcome**

**Subject: Mobile Applications Development**

**Subject Code: 18MCA52**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA52.1	Present the comprehension of the fundamental concepts of mobile applications and all associated concepts within the purview of mobile applications.
18MCA52.2	Apply the principles of mobile applications to device programs suitable for known mobile operating systems such as Android, ios and Windows Phone.
18MCA52.3	Analyze the performance of the programs in terms of efficacy on different OS.
18MCA52.4	Design UI for mobile applications.
18MCA52.5	Create mobile applications for real world scenarios.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA52.1	3							3		
18MCA52.2	3									
18MCA52.3		3	3							
18MCA52.4		3	3							
18MCA52.5			3							
CO Average	3	3	3					3		



### Course Outcome

Subject: Machine Learning

Subject Code: 18MCA53

CO's	DESCRIPTION OF THE OUTCOMES
18MCA53.1	Apply the fundamentals of concept learning, algorithms, and associated procedures of machine learning.
18MCA53.2	Apply the basic concepts of mathematics and machine learning to understand Supervised, unsupervised and reinforcement learning algorithms.
18MCA53.3	Analyze the usage of neural networks, Bayes classifier and k nearest neighbor for given problem under study to infer its efficacy.
18MCA53.4	Evaluate the statistics to infer the correctness of the written machine learning algorithm for a given application.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA53.1	2	-	-	-	-	-	-	-	-	-
18MCA53.2	2	-	-	-	-	-	-	-	-	-
18MCA53.3	-	2	-	-	-	-	-	-	-	-
18MCA53.4	-	-	-	2	-	-	-	-	-	-
CO Average	2	2	-	2	-	-	-	-	-	-



**MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE**  
**BELAWADI, SRIRANGAPATNA TALUK, MANDYA-571477**  
**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**Course Outcome**

**Subject: Multimedia Systems**

**Subject Code: 18MCA541**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA541.1	Present the comprehend of technical aspect of Multimedia Systems, their characteristics.
18MCA541.2	Apply various file formats for audio, video and text media.
18MCA541.3	Analyze issues in representing, processing, and transmitting multimedia data.
18MCA543.4	Assess key components of multimedia technologies including text, graphics, voice, video and animation in terms of their suitability for a given problem.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA541.1	3									
18MCA541.2		3	3	2						
18MCA541.3							2		3	
18MCA543.4	2	3	2							2
<b>CO Average</b>	<b>2.5</b>	<b>3</b>	<b>2.5</b>	<b>2</b>			<b>2</b>		<b>3</b>	<b>2</b>





### Course Outcome

Subject: System Simulation and Modeling

Subject Code: 18MCA552

CO's	DESCRIPTION OF THE OUTCOMES
18MCA552.1	Understand the basic knowledge of discrete event simulation models.
18MCA552.2	Apply functional modeling methods for statistical system activities to conceptualize real world situation.
18MCA552.3	Analyze different types of random numbers and random variate generation techniques for solving problem through statistical functions, the performance of different system simulation model by verification, validation, and optimization techniques.

CO No	PONo									
	1	2	3	4	5	6	7	8	9	10
18MCA552.1	-	-	-	-	-	-	3	3	-	-
18MCA552.2	3	-	-	-	-	-	-	-	-	-
18MCA552.3	-	3	-	-	-	-	-	-	-	-
CO Average	3	3	-	-	-	-	3	3	-	-



MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE  
BELAWADI, SRIRANGAPATNA TQ, MANDYA-571477  
Department of Master of Computer Applications



Date: / /

Course Outcome

Subject: NET LABORATORY

Subject Code: 18MCA56

CO's	DESCRIPTION OF THE OUTCOMES
18MCA56.1	Apply OOPs concepts using C# programming language to develop console applications.
18MCA56.2	Apply the knowledge of ADO.net, MySQL, ASP.NET for creating different applications.
18MCA56.3	Analyze the use of .Net Components depending on the problem statement.
18MCA56.4	Create a web based and Windows based application with Database connectivity using ASP.NET, ADO.NET
18MCA56.5	Conduct experiments either individuals or in a team and present its corresponding outcomes and process the both orally and in a written form.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA56.1	3									
18MCA56.2	3									
18MCA56.3		3								
18MCA56.4			3							
18MCA56.5				3	3					
CO Average	3	3	3	3	3					



### Course Outcome

**Subject: Mobile Applications Lab**

**Subject Code: 18MCA57**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA57.1	Apply the fundamental concepts of mobile applications to solve problems.
18MCA57.2	Code, debug and demonstrate the working nature of mobile applications to device programs suitable for known mobile operating systems such as Android, ios and Windows Phone.
18MCA57.3	Identify the given problem and design the mobile application using various mobile application concepts.
18MCA57.4	Design solutions to solve real world problems using mobile applications.
18MCA57.5	Create mobile applications to solve the real world problems, infer the efficacy of the solution and document them suitably.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA57.1	3							3		
18MCA57.2	3			3						
18MCA57.3		3	3	3						
18MCA57.4		3	3	3						
18MCA57.5				3						
CO Average	3	3	3	3				3		





**MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE**  
**BELAWADI, SRIRANGAPATNA TQ, MANDYA-571477**  
**Department of Master of Computer Applications**



### Course Outcome

**Subject: Mini Project**

**Subject Code:**

**18MCA58**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA58.1	Apply the technical knowledge gained from previous courses with the awareness of impact of technology on the society and their ethical responsibilities to identify suitable problem.
18MCA58.2	Analyze the use of appropriate tools to form team, segregate work and execute/implement project
18MCA58.3	Evaluate the findings of complex problems through critical thinking and decision making capabilities to propose project based solutions
18MCA58.4	Develop skills to disseminate technical and general information by means of oral as well as written presentation skills with professionalism.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA58.1	3		2	3	1	2				
18MCA58.2		3			3					3
18MCA58.3				3						
18MCA58.4						2		3		3
CO Average	3	3	2	3	2	2		3		3



**MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE**  
**BELAWADI, SRIRANGAPATNA TALUK, MANDYA-571477**  
**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**Course Outcome**

**Subject: Internship**

**Subject Code: 18MCA61**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA61.1	Understand the key concerns, practices, standard operating procedures protocols & new concepts of the particular company/industry in which they have worked.
18MCA61.2	Apply hands on experience, communication, interpersonal & other critical skills to integrate theory & practice in multidisciplinary area.
18MCA61.3	Manage time, analyze the skills which are transferable to new contexts & identify which appropriate technology could be used to solve given problem.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA61.1		2		2						
18MCA61.2					3			3	2	3
18MCA61.3		3							2	3
<b>CO Average</b>		<b>2.5</b>		<b>2</b>	<b>3</b>			<b>3</b>	<b>2</b>	<b>3</b>



**MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE**  
**BELAWADI, SRIRANGAPATNA TALUK, MANDYA-571477**  
**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**Course Outcome**

**Subject: Project Work**

**Subject Code: 18MCA62**

CO's	DESCRIPTION OF THE OUTCOMES
18MCA62.1	Apply the technical and knowledge gained from previous courses with the awareness of impact of technology on the society and their responsibilities to identify suitable problem.
18MCA62.2	Analyze the use of appropriate tools, segregate work and execute / implement project.
18MCA62.3	Evaluate the findings of complex problems through critical thinking and decision making capabilities to propose project based solutions.
18MCA62.4	Develop skills to disseminate technical and general information by means of oral as well as written presentation skills with professionalism.

CO No	PO No									
	1	2	3	4	5	6	7	8	9	10
18MCA62.1	3		2	3	1	2				
18MCA62.2		3			3					3
18MCA62.3				3						
18MCA62.4						2		3		3
<b>CO Average</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>2</b>		<b>3</b>		<b>3</b>