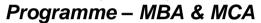
# ZEAL INSTITUTE OF BUSINESS ADMINISTRATION. COMPUTER APPLICATION AND RESEARCH (ZIBACAR) NARHE | PUNE -41 | INDIA





Revision: 00 Date:01/09/2023 Doc. No:-

MCA Course Outcomes (COs): At the end of the every course the learner will possess the following Course Outcome:

Sr. No	Course Code	Course Name	Course Objective	Course Outcome
			SEMESTER -I	
1	IT-11	Java Programming	<ol> <li>To familiarize students with the concepts of OOPs.</li> <li>To enable the students to understand the core principles of the Java Language and use AWT tools to produce well designed, effective applications.</li> <li>Students will be able to develop server-side applications with database handling using servlets, JSP, JDBC</li> </ol>	CO1 Understand Basic Concepts of OOPs, Java, Inheritance, Package. (Understand) CO2: Understand Exception handling, arrays and Strings and multi-threading in Java (Understand.) CO3: Understand collection framework (Understand) CO4: Develop GUI using Abstract Windows Toolkit (AWT) and event handling (Apply) CO5: Develop Web application using JSP and Servlet, JDBC (Apply)
2	IT-12	Data Structure and Algorithms	<ol> <li>To understand basics data structure and algorithms</li> <li>To solve problems using data structures such as linked lists, stacks, queues, hash tables, trees, heaps and graphs</li> <li>To understand various programming techniques such as brute force, greedy, dynamic programming, divide-conquer and backtracking</li> </ol>	CO1: demonstrate linear data structures linked list, stack and queue (apply) CO2: implement tree, graph, hash table and heap data structures (apply) CO3: apply brute force and backtracking techniques (apply) CO4: demonstrate greedy and divide-conquer approaches (apply) CO5: implement dynamic programming technique (apply)
3	IT-13	Object Oriented	1. To study basic concepts of software engineering	CO1: Distinguish different process model for a software development. (Understand)

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## Programme – MBA & MCA

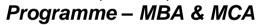


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		Software Engineering	<ul> <li>2. To study phases of SDLC and different process models</li> <li>3. To learn &amp; understand the Requirement analysis and system Design.</li> <li>4. To get acquainted with the agile software development methodology</li> </ul>	CO2: Design software requirements specification solution for a given problem definitions of a software system. (Analyze) CO3: Apply software engineering analysis/design knowledge to suggest solutions for simulated problems (Analyze) CO4: Design user interface layout for different types of applications (Apply) CO5: Recognize and describe current trends in software engineering (Understand)
4	IT-14	Operating Systems Concepts	<ol> <li>To learn the fundamentals of Operating Systems and handle processes and threads and their communication</li> <li>To learn the mechanisms involved in memory management in contemporary OS</li> <li>To know the functionality of Multiprocessor OS and Mobile OS.</li> <li>To gain knowledge on distributed operating system concepts.</li> <li>To learn about Basics of Linux.</li> <li>To learn programmatically to implement Linux OS mechanisms.</li> </ol>	CO3: explain Real-time and embedded OS (Understand) CO4: understand Windows and Linux OS fundamentals and administration. (Understand)
5	IT-15	Network Technologies	<ol> <li>To understand various computer networks and technologies behind networks</li> <li>To study TCP/IP protocol suite, IP addressing schemes and link layer communication</li> <li>To study routing concept along with Routing protocols</li> <li>To study application layer protocols</li> </ol>	principle of layering (Understand) CO2: Apply the error detection and correction techniques used in data transmission (Apply)

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			5. To understand basics of socket programming	cryptography and		: Apply the socket programming basics to create a simple chat ication (Apply)
6	IT-11L	Practical's			CO1: Demonstrate Collection framework (Apply) CO2: Develop GUI using awt and swing (Apply) CO3: Develop Web application using JSP and Servlet, JI (Apply) CO4: Apply Data Structure to solve problems using JavaS (Apply)	
7	ITC11	Mini Project			CO1: Create working project using tools and techniques learnt in this semester (Create)	
				SEMESTER-II	[	
8	IT-21	Python Programming	<ol> <li>To understand and use the second state of apply it for solving the solving the second state of through file handling.</li> <li>To understand the react through file handling.</li> <li>To understand basic day the second state of the second state o</li></ol>	oncepts of python and he complex problems. ding and writing data atabase concepts in hinking and analytical	mod CO2 (App CO3 and CO4 data CO5	: Understand Demonstrate the concepts of python and ular programming. (Understand) 2: Apply the concepts of concurrency control in python ply) 3: Solve the real-life problems using object-oriented concepts python libraries (Apply) 4: Demonstrate the concept of IO, Exception Handling, base (Apply) 5: Analyze the given dataset and apply the data analysis cepts and data visualization. (Analyze)
9	IT-22	Software Project Management	<ol> <li>To learn process of Management.</li> <li>To Study role of Project Management.</li> </ol>	Ç .	CO1 Fran CO2	: Understand the process of Software Project Management nework and Apply estimation techniques. (Apply) 2: Learn the philosophy, principles and lifecycle of an agile ect. (Understand)

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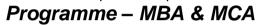
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			<ul> <li>3. To learn Agile Project Management Framework.</li> <li>4. To study various role of Agile Team and Tools.</li> <li>5. To understand project planning and tracking.</li> </ul>	CO3: Demonstrate Agile Teams and Tools and Apply agile project constraints and trade-offs for estimating project size and schedule (Apply) CO4: Explain Project Tracking and Interpretation of Progress Report (Understand) CO5: Analyze Problem statement and evaluate User Stories (Analyze)
10	MT-21	Optimization Techniques	<ol> <li>To understand the role and principles of optimization techniques in business world.</li> <li>To understand the process of problem statement formulation of the business scenario.</li> <li>To understand the implementation of various decision-making techniques in the process of decision making.</li> <li>To gain the techniques and skills on how to use optimization techniques to support the decision making in business world.</li> </ol>	CO1: Understand the role and principles of optimization techniques in business world (Understand) CO2: Demonstrate specific optimization technique for effective decision making (Apply) CO3: Apply the optimization techniques in business environments (Apply) CO4: Illustrate and infer for the business scenario (Analyze) CO5: Analyze the optimization techniques in strategic planning for optimal gain. (Analyze)
11	IT-23	Advanced Internet Technologies	<ol> <li>To impart the design, development and implementation of Dynamic Web Pages.</li> <li>To implement the Latest properties of CSS3</li> <li>To implement the Concept of NodeJS.</li> <li>To develop programs for Web using Angular and SPA.</li> <li>To design and implement dynamic websites with good sense of designing and latest technical aspects.</li> </ol>	CO1: Outline the basic concepts of Advance Internet Technologies (Understand) CO2: Design appropriate user interfaces and implements webpage based on given problem Statement (Apply) CO3: Implement concepts and methods of NodeJS (Apply) CO4: Implement concepts and methods of Angular (Apply) CO5: Build Dynamic web pages using server-side PHP programming with Database Connectivity (Apply)

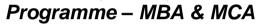
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12	IT-24	Advanced DBMS	1. To understand core concepts of database management system and its types 2. To provide database design approaches us. E-R model and normalization 3. To discuss transaction management and concurrency control 4. To gain an awareness of the structure of object oriented database and its applications 5. To gain familiarization of Database crash, recovery concepts and security issues 6. To Demonstrate SQL, XML schema and I SQL database	ect- (C	CO1: Describe the core concepts of DE used in real applications (Understand) CO2: Design relational database normalization (Apply) CO3: Demonstrate XML database and query languages for data access (Apply CO4: Explain concepts of Parallel, Oriented Databases and their application CO5: Apply transaction management backup and security – privacy concepts (Apply)	using E-R model and d nonprocedural structural v) Distributed and Objectons (Understand) t, recovery management,
13	IT-21L	Practical's		1	CO1: implement python programming ife problems. (Apply) CO2: Implement Advanced Internet Te	
14	ITC21	Mini Project			CO1: Create working project using too his semester (Create)	ls and techniques learnt in
	1		SEMESTEI	R-III		
15	IT-31	Mobile Application Development	<ol> <li>To understand the different mobile applicat Architectures.</li> <li>To understand different types of widgets l buttons, views, layout etc.</li> <li>To know the ways of application handling l intents, adapters, Notifications, Web Servi and Web View.</li> </ol>	ike (Cost)	CO1: Understand Various Mobile App Understand) CO2: Apply different types of widgets CO3: Describe Web Services and Wapplications. (Understand) CO4: Implement data storing and retrications)	and Layouts. (Apply) leb Views in mobile

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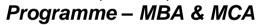


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16	IT-32	Data Warehousing and Data Mining	4. To learn and know about and sharing in android. 5. To explore cross platfor development framework, Flutter. 1. To introduce the concapplications of data warning. 2. To understand how to Prand analyze various kinds and analyze various kinds architectures, OLAP and the aspects in building a data warchitecture, of the concepts of the concepts of Text Mining in data mining	rm mobile application React Native and repts, techniques and arehousing and data re-process, understand of data varehouse Concepts, ne project planning varehouse to understand and ues of association, g in data mining to understand and Web mining and	CO1 mod CO2 varid CO3 Data CO4 (Ap)	5: Demonstrate Hybrid Mobile App  1: Understand Data warehouse conclels (Understand)  2: Learn and understand techniques ous kinds of data (Understand)  3: Apply association Mining and Clara Sets (Apply)  4: Apply Clustering Techniques and ply)  5: Understand other approaches of I	cepts, architecture and of pre-processing on assification Techniques on Web Mining on Data Sets
17	IT-33	Software Testing and Quality Assurance	1. To understand the processes and activities of 2. To study fundamental testing, including softwar process, strategies and met 3. To understand test design functionality and structure	quality assurance concepts in software re testing objectives, hods. n techniques based on	CO2 obje	1: Understand the role of software tributing to the efficient delivery derstand) 2: Demonstrate specific software ectives and targets. (Apply) 3: Apply the software testing to tronments. (Apply)	y of software solutions.  tests with well-defined

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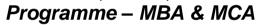
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			4. To understand test planning, monitoring and	CO4: Construct test strategies and plans for software testing.
			control process	(Analyze)
			5. To gain the techniques and skills on how to use	CO5: Demonstrate the usage of software testing tools for test
			software testing tools to support software testing	effectiveness, efficiency and coverage (Apply)
			activities	
18	IT-34	Knowledge		CO1: Understand basic building block of Artificial Intelligence
		Representation		and Knowledge representation. (Understand)
		and Artificial		CO2: Apply Propositional Logic for knowledge representation.
		Intelligence:		(Apply)
		ML, DL		CO3: Design various models based on Machine Learning
		,		methodology (Apply)
				CO4: Design various models based on Deep Learning
				methodology (Apply)
				CO5: Understand various hardware and software aspect used for
				AI and its application.(Understand)
19	IT-35	Cloud	1. To introduce the fundamentals of cloud	CO1: Describe the concepts of Cloud Computing and its Service
		Computing	computing, its technologies, Challenges and	Models& Deployment Models. (Understand)
			Applications	CO2: Classify the types of Virtualization. (Understand)
			2. To give Insights into the virtualization	CO3: Describe the Cloud Management and relate Cloud to SOA.
			technologies and Architecture	(Understand)
			3. To know the relationship between Cloud and	CO4: Interpret Architecture and Pharrell Programing of Cloud
			SOA	Computing. (Apply)
			4. To classify and evaluate Cloud Security Issues	CO5: Demonstrate practical implementation of Cloud computing.
			5. To apply theory to practical knowledge	(Apply)
			through case Studies	
20	IT-31L	Practical's		CO1: Develop mobile application. (Apply)
20	11-31L	Tractical S		
				CO2: Develop ML, DL models using Python (Apply)
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21	ITC31	Mini Project		CO1: Create working project using tools and techniques learnt in this semester (Create)
	•		SEMESTER-I	V
22	IT-41	DevOps		CO1: describe the evolution of technology & timeline (Understand) CO2: explain Introduction to various Devops platforms (Remember) CO3: demonstrate the building components / blocks of Devops and gain an insight of the Devops Architecture. (Understand) CO4: apply the knowledge gain about Devops approach across various domains (Apply) CO5: build DevOps application (Apply)
23	BM-41	PPM & OB	understanding of Management & human behavior	CO1: Describe and analyze the interactions between multiple aspects
24	ITC41	Project		CO1: Create working project using tools and techniques learnt in the programme (Create)