Khandesh College Education Society's

Institute of Management and Research, Jalgaon

(An Autonomous Institute affiliated to Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and Recognized by AICTE, New-Delhi)

NEP-2020 Based CBCS

PROGRAM STRUCTURE AND SYLLABUS

Of

Master of Computer Application [Integrated]

MCA (Integrated)

(2024-2029)

Department of MCA (Integrated)

School of Computer Applications

KCES's Institute of Management and Research, Jalgaon									
An Autonomous Institute, Affiliated to KBC, North Maharashtra University, Jalgaon									
Course: MCA(Integrated)									
Academic Year: 2025-26									
MCA(Integrated) – Second Year, SEMESTER – III, Level – 5.0									
Class	**Sem**	**Type**	**Course Code**	**Title**	**Credit**	**Teaching Hours per week**		**Marks(Total 100)**		**Common Subjects**
						T	**P**	**Internal**	**External**	
SY	III	DSC	IMCA-DSC-231	Data & File Structures	2	2	--	20	30	
		DSC	IMCA-DSC-232	Lab on Data & File Structures	2	--	2	20	30	
		DSC	IMCA-DSC-233	Computer Networks	4	4	--	40	60	
		Minor	IMCA-MIN-234	Management Information System	4	4	--	40	60	
		OE	IMCA-OE-235-A	Entrepreneurship Development	2	2	--	20	30	
			IMCA-OE-235-B	Ecommerce & M-Commerce						
		VSC	IMCA-VSC-236	Web Technology-III	2	--	2	20	30	
		AEC	IMCA-AEC-237	Office Automation Tools	2	2		20	30	
		FP	IMCA-FP-238	Minor Field Project using GitHub	2	--	2	20	30	
		CC	CC-300	NSS/Sports/Cultural Activities	2	--	2	20	30	Same as BCA and BBA
				Total Credits	**22**	**14**	**8**	**550**		

MCA(Integrated) – Second Year, SEMESTER – IV, Level – 5.0									
Class	**Sem**	**Type**	**Course Code**	**Title**	**Credit**	**Teaching Hours per week**		**Marks(Total 100)**		**Comman Subjects**
						T	**P**	**Internal**	**External**	
SY	**IV**	DSC	IMCA-DSC-241	Database Management Systems	2	2	--	20	30	
		DSC	IMCA-DSC-242	Lab on Database Management Systems	2	--	2	20	30	
		DSC	IMCA-DSC-243	Java Programming	2	2	--	20	30	
		DSC	IMCA-DSC-244	Lab on Java Programming	2	--	2	20	30	
		Minor	IMCA-MIN-245	Software Engineering	4	4	--	40	60	
		OE	IMCA-OE-246-A	Basics of Tally	2	2	--	20	30	
			IMCA-OE-246-B	Advanced Excel						
		SEC	IMCA-SEC-247	Cyber Security	2	2	--	20	30	
		AEC	IMCA-AEC-248	Personality Development	2	2	--	20	30	
		CEP	CEP-401	Community Engagement and Service	2	2	--	20	30	Same as BCA and BBA
		CC	CC-400	NSS/Sports/Cultural Activities	2	--	2	20	30	Same as BCA and BBA
				Total Credits	**22**	**16**	**6**	**550**		

Semester III

KCES's Institute of Management and Research (Autonomous), Jalgaon

FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application
M.C.A. (Integrated) PROGRAMME BATCH 2024-29

SEMESTER: III

IMCA-DSC-231 - Data & File Structure

Course Title: Data & File Structure
Course Code: IMCA-DSC-231
Lectures: Tutorials: Practical: 2:0:0
Lecture Hours: 24 Hours

Course Type: DSC
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description:

This course offers a comprehensive introduction to data structures, covering both linear and non-linear structures essential for efficient data management and algorithm development. It begins with foundational concepts such as data types, abstract data types (ADTs), and algorithm design techniques. Students will explore arrays, sorting and searching methods, stacks, queues, and various types of linked lists. The course further delves into non-linear structures like trees and graphs, including traversal techniques and algorithms such as Kruskal's for minimum spanning trees. Practical applications and memory representations are emphasized to strengthen problem-solving skills.

Course Objectives:

1. To understand the concepts of data structures and algorithm design methods.
2. To implement and use of sequential data structures such as arrays, searching and sorting.
3. To understand and implement data structure like stack, queue and link list.
4. To learn non-linear data structures Tree and Graph, their algorithms and applications.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Demonstrate understanding of fundamental data structures and algorithm design techniques, Sorting and Searching.
CO2	Implement and apply linear data structures such as stacks, queues, and linked lists in solving computational problems.
CO3	Analyze and implement non-linear data structures like trees and graphs, along with their associated algorithms and real-world applications.

SN	*Contents of Module*	*Hrs*	***COs***
1.	**UNIT -I: Introduction to Data Structure:** Data, Data Structure Concepts, Types of data structures, Data types, ADT (Abstract Data Type), Algorithm, Algorithm Design Techniques. Array, Representations of Array in memory and Operations on array. **Sorting:** Bubble Sort, Selection Sort, Insertion Sort. Merge sort. Quick sort. **Searching:** Linear and Binary search.	8	CO1
2.	**UNIT –II: Linear Data Structure**	8	CO2

SN	*Contents of Module*	*Hrs*	***COs***
	Stack: Introduction, Operations on stack – PUSH, POP, Traverse, Applications of Stack- Infix to Postfix, Evaluation of Postfix expression, Recursion. **Queue:** Introduction, Operations on queue – Insert, Delete, Traverse, Types of Queues - Circular Queue, Priority Queue and DeQueue. **Linked List:** Introduction, Dynamic representation, Types – Singly, doubly, singly circular, doubly circular.		
3.	**UNIT –III: Non-Linear Data Structure** **Tree:** Concept, Tree Data Structure, Tree Terminology, Binary Tree – Representation in memory. Types of tree: Full, Complete. Traversal: Non-Recursive - Inorder, Preorder, Postorder, **Graph:** Concept, Graph Terminologies, Representation in memory: Adjacency List, Adjacency Matrix, Path Matrix, Weighted Matrix. Spanning Tree, Minimum Spanning Tree Problem-Kruskal's Algorithm.	8	CO3

REFERENCE BOOKS:

1. Horowitz, Sahni, Mehta, (2008), Fundamentals of Data Structures in C++, 2nd Edition, Universities Press, , ISBN 10: 8173716064 ISBN 13: 9788173716065
2. Schaum's Outline of Data Structures with C++ ISBN-10: 0071353453
3. Data Structure:Balucha ISBN: 978-93-833-0383-0 4

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	0	0	2	0	0	0	0	0	0	0
CO2	3	3	0	2	3	0	0	0	0	0	2	0
CO3	3	3	2	3	3	0	0	0	0	1	2	1

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (20)	✓	✓	✓	✓		
End Semester Examination (30)	✓	✓	✓	✓		

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FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application
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SEMESTER: III

IMCA-DSC-232 – Lab on Data & File Structures

Course Title: Lab on Data & File Structure	Course Type: DSC
Course Code: IMCA-DSC-232	Total Credits: 02
Lectures: Tutorials: Practical: 0:0:2	CIE Marks: 20
Lecture Hours: 24 Hours	ESE Marks: 30

Course Description:

This course offers a comprehensive introduction to data structures, covering both linear and non-linear structures essential for efficient data management and algorithm development. It begins with foundational concepts such as data types, abstract data types (ADTs), and algorithm design techniques. Students will explore arrays, sorting and searching methods, stacks, queues, and various types of linked lists. The course further delves into non-linear structures like trees and graphs, including traversal techniques and algorithms for minimum spanning trees. Practical applications and memory representations are emphasized to strengthen problem-solving skills.

Course Objectives:

1. To understand the concepts of data structures and algorithm design methods.
2. To implement and use of sequential data structures such as arrays, searching and sorting.
3. To understand and implement data structure like stack, queue and link list.
4. To learn non-linear data structures Tree and Graph, their algorithms and applications.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Demonstrate understanding of fundamental data structures and algorithm design techniques, Sorting and Searching.
CO2	Implement and apply linear data structures such as stacks, queues, and linked lists in solving computational problems.
CO3	Analyze and implement non-linear data structures like trees and graphs, along with their associated algorithms and real-world applications.

Practical Assignments:

1	Build a console-based student grade management system project that handles student records, grades, and provides various sorting and searching capabilities. **Sample Data Structure** Student Record: - ID: Integer - Name: String - Subjects: Array of grades [Math, Science, English, History] - Total: Float - Average: Float a) Implementation of Array Operations Insertion, Deletion and Display. o Add new student records (ID, Name, Grades) o Delete student records o Display all students o Search for specific students b) Implementation of Linear Search using array. o Search students by ID/Name/ specific grade range. c) Implementation of Binary Search using array. o Search students by ID/Name/ specific grade range. d) Implementation of Bubble sorting. e) Implementation of Selection sorting. f) Implementation of Insertion sorting. g) Implementation of Merge sorting. h) Implementation of Quick sorting.
2	Implementation of Stack. o Array-based stack for operators o Push/pop operations o Stack overflow/underflow handling o Convert infix expressions to postfix
3	Implementation of Queue using array. o Simple Queue o Circular Queue
4	Implementation of Linear Link List. o Singly Link List o Doubly Link List
5	Implementation of Binary Search Tree.
6	Implementation of In-order, Pre-order and Post-order Traversals.
7	Implement the program for graph representation in memory.

REFERENCE BOOKS:

1. Horowitz, Sahni, Mehta, (2008), Fundamentals of Data Structures in C++, 2nd Edition, Universities Press, , ISBN 10: 8173716064 ISBN 13: 9788173716065
2. Schaum's Outline of Data Structures with C++ ISBN-10: 0071353453

3. Data Structure: Balucha ISBN: 978-93-833-0383-0 4

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (20)	✓	✓	✓	✓		✓
End Semester Examination (30)	✓	✓	✓	✓		✓

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FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application
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SEMESTER: III

IMCA-DSC-233-Computer Networks

Course Title: Computer Networks
Course Code: IMCA-DSC-233
Lectures: Tutorials: Practical: 4:0:0
Lecture Hours: 48 Hours

Course Type: DSC
Total Credits: 04
CIE Marks: 40
ESE Marks: 60

Course Description

This course introduces students to the fundamental concepts and principles of computer networks. It covers key topics including network architecture, data communication techniques, transmission media, network protocols, error handling mechanisms, addressing schemes, and network devices. Students will gain a comprehensive understanding of layered network models such as OSI and TCP/IP.

Course Objectives:

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the fundamental concepts, transmission modes, signals, and models of computer networks.
CO2	Analyze the characteristics of physical transmission media, switching techniques, and signal encoding..
CO3	Apply error detection and correction techniques to ensure reliable data communication.
CO4	Compare OSI and TCP/IP models and explain the roles and functions of each layer and associated protocols.
CO5	Identify and evaluate network topologies, addressing schemes, and key network devices.
CO6	Explore application layer protocols and apply basic network security mechanisms for secure communication.

SN	*Contents of Module*	*Hrs*	***COs***
1.	**UNIT-I: Introduction to Computer Networks** Introduction Concepts: Representation of data and its flow Networks, Goals and Applications of Networks, Network structure and architecture, The OSI reference model, services, Network Topology Design, Physical Layer Transmission Media, Analog Transmission: Modulation Digital data, telephone modem, Modulation of Analog signals.	10	**CO1**

SN	*Contents of Module*	*Hrs*	***COs***
	Digital Transmission: Line coding scheme, switching methods (circuit switching, Packet switching), Multiplexing: FDM, WDM, TDM		
2.	**UNIT-II: Medium Access sub layer**: Medium Access Sublayer - Channel Allocations, LAN protocols - ALOHA protocols, CSMA, CSMA/CD, Overview of IEEE standards	7	**CO2**
3.	**UNIT-III: Data Link Layer** - Error Detection and Error Correction - Fundamentals, Block coding, Hamming Distance, CRC; Flow Control and Error control protocols - Stop and Wait, Go back – N ARQ, Selective Repeat ARQ, Sliding Window	7	**CO3**
4.	**UNIT-IV: Network Layer:** Network Layer -IP addressing – IPV4, IPV6, subnet, CIDR, Internetworking, Address mapping – ARP, RARP, BOOTP, DHCP–Delivery, Forwarding and Unicast Routing protocols.	10	**CO4**
5.	**UNIT-V: Transport Layer:** - Design issues, connection management, Flow control, TCP window management, congestion control-slow start algorithm, TCP, UDP	7	**CO5**
6.	**UNIT-VI: Application Layer**: Data compression, Data Encryption, File Transfer, DNS, HTTP, SMTP, TELNET.	7	**CO6**

REFERENCE BOOKS:

1. Behrouz A. Forouzan (2006), Data communication and Networking, 4th Edition, Mc Graw-Hill, India. 2. Kurose, Ross (2010), Computer Networking: A top down approach, Pearson Education, India.
2. Tanenbaum, A.S. (2012). Computer Networks (5th ed.). Pearson.
3. Stallings, W. (2009). Data and Computer Communications (8th ed.). Pearson.
4. Agrawal, R. (2005). Data Communication and Computer Networks. S. Chand.

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	-	1	-	-	-	-	-	-	-	-
CO2	3	2	2	1	1	-	-	-	-	-	-	-
CO3	3	2	2	-	2	-	-	-	-	-	-	-
CO4	2	3	2	2	1	-	-	-	-	-	-	-
CO5	2	2	3	1	2	1	-	-	-	-	-	-
CO6	2	-	2	-	-	3	2	1	2	2	1	1

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	✓	✓	✓	✓
End Semester Examination (60)	✓	✓	✓	✓	✓	✓

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FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application
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SEMESTER: III

IMCA-MIN-234-Management Information System

Course Title: Management Information System
Course Code: IMCA-MIN-234
Lectures: Tutorials: Practical: 4:0:0
Lecture Hours: 48 Hours

Course Type: Minor
Total Credits: 04
CIE Marks: 40
ESE Marks: 60

Course Description:

This course introduces the fundamentals of Management Information Systems (MIS), focusing on their role in business operations, decision-making, and the use of IT in functional areas and e-business.

Course Objectives:

1. To enable students to apply MIS concepts in solving real-world business problems.
2. To familiarize students with key components and technologies used in MIS environments.
3. To develop skills in managing data resources and using database structures effectively.
4. To understand how IT helps build competitive, agile, and customer-focused enterprises.
5. To analyze emerging trends in MIS including e-business, virtualization, and knowledge systems.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Describe the basic concepts of MIS and its significance in business organizations.
CO2	Explain the structure and components of information systems and their classifications.
CO3	Apply MIS knowledge to enhance decision-making in various business functions.
CO4	Understand the strategic role of IT in creating virtual and knowledge-driven companies.
CO5	Understand CRM concepts, phases, benefits, challenges, failures, and trends.
CO6	Understand ERP systems, benefits, challenges, costs, failures, and trends.

SN	*Contents of Module*	*Hrs*	***COs***
1	**UNIT -I Introduction to MIS**: Data vs. Information, Information System Concept, Definition and Purpose of MIS, Role of MIS in Business Organizations, Types of Information System, Managerial Challenges of Information Technology	8	CO1
2	**UNIT –II Components and Types of MIS:** What is System? Types of Systems: Open, Closed, Feedback and Control, Components of Information Systems, Information System Resources: People Resources, Hardware Resources, Software Resources, Data Resources, Network Resources, TPS, DSS, EIS, KMS	8	CO2
3	**UNIT –III MIS in Functional Areas:** MIS in Finance, MIS in Human Resources, MIS in Production	8	CO3

4	**UNIT –IV Competing with Information Technology:** The Role of Information Technology in MIS, Becoming an Agile Company, creating a Virtual Company, Virtual Company Strategies, building a Knowledge Creating Company	8	CO4
5	**UNIT –V Enterprise Business Systems:** What is CRM? The Three Phase of CRM, Benefits and Challenges of CRM , CRM Failures Trends in CRM	8	CO5
6	**UNIT –VI Enterprise Resource Planning:** What is ERP? Benefits and Challenges of ERP, The Costs of ERP, Causes of ERP Failures , Trends in ERP	8	CO6

REFERENCE BOOKS:

1. O'Brien, James A., "Management Information System", Tata McGraw Hill, 2003 ISBN 81-203-1282- 1
2. Javadekar, W.S."Management Information System", Tata Mac Graw Hill Publication,2003. ISBN0-07-282256-2
3. Basandra,Suresh K., "Management Information System", Wheeler Publishing, New Delhi,999.
4. Arora,Ashok &Bhatia,Akshaya, "Management Information System", Excel Books, NewDelhi, 2001 ISBN: 978-81-7446-781-2

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	1	2	2	1	2	2	2	1	2
CO2	2	2	2	1	2	2	1	2	2	2	1	1
CO3	2	3	3	2	3	2	2	3	2	2	1	2
CO4	2	3	3	2	3	2	2	3	2	2	2	3
CO5	3	3	2	3	3	2	1	2	2	2	1	2
CO6	2	2	3	2	3	2	2	2	3	2	2	3

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓		✓		
End Semester Examination (60)	✓	✓		✓		

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SEMESTER: III

IMCA-OE-235-A Entrepreneurship Development

Course Title: Entrepreneurship Development	Course Type: OE
Course Code: IMCA-OE-235-A	Total Credits: 02
Lectures: Tutorials: Practical: 02:0:0	CIE Marks: 20
Lecture Hours: 24 Hours	ESE Marks: 30

Course Description:

Entrepreneurship plays an influential role in the economic growth and development of the country. As the world economy is changing so is the dynamism of the business world. The aim of this course is to in still and kindle the spirit of Entrepreneurship amongst students. The idea of this course is to create "job providers rather than job seekers". By the end of the course, students will have gained insights into both the challenges and opportunities of entrepreneurship, preparing them to pursue entrepreneurial ventures or contribute effectively to entrepreneurial environments.

Course Objectives:

1. **To understand** the fundamental concepts, evolution, and roles of entrepreneurs in business and society.
2. **To analyze** the significance, challenges, and contributions of women entrepreneurs in the economic landscape.
3. **To explore** the psychological and motivational factors that drive entrepreneurial behavior.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the concept, evolution, characteristics, and types of entrepreneurs and differentiate them from managers.
CO2	**Evaluate** the role, growth, and problems faced by women entrepreneurs in India and globally.
CO3	**Analyze** registration processes, advantages, and challenges of Small Scale Industries (SSIs)

SN	*Contents of Module*	*Hrs*	***COs***
1	**UNIT -I Introduction to Entrepreneur** **1.1** Evolution of the concept of Entrepreneur **1.2** Meaning and Characteristics of an Entrepreneur **1.3** Distinction between an Entrepreneur and a Manager **1.4** Functions and Types of Entrepreneur	8	**CO1**

2	**UNIT –II Women Entrepreneurship** **2.1** Concept of Women Entrepreneurship **2.2** Functions of Women Entrepreneurship **2.3** Growth of Women Entrepreneurship **2.4** Problem of Women Entrepreneurship	8	**CO2**
3	**UNIT –III Small Business** **3.1** Concept & Definition, Role of Small Business in the Modern Indian Economy **3.2** Steps for starting a small industry, **3.3** Registration as SSI, advantages and problems of SSIs **3.4** Govt. Policies for SSI	8	**CO3**

REFERENCE BOOKS:

1. Entrepreneurial Development– Dr. S. S. Khanka, S. Chand and Company Ltd.
2. Entrepreneurial Development and Project Development-Text and Cases – Neeta Baporikar-Himalaya Publishing House
3. Entrepreneurial Development- S.L.Gupta and Arun Mittal- International Book House Pvt. Ltd.
4. Entrepreneurial Development – Dr. C. B. Gupta, Dr. N. P. Srinivasan – Sultans Chand and Sons
5. Dynamics of Entrepreneurial Development and Management- Vasant Desai- Himalaya Publishing House.

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	2	-	-	2	2	2	2	3	1	3
CO2	1	2	2	-	-	3	2	1	2	3	2	3
CO3	2	3	3	1	2	2	2	2	2	2	2	3

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	✓	✓	✓	
End Semester Examination (60)	✓	✓	✓	✓	✓	

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SEMESTER: III

IMCA-OE-235-B Ecommerce & M-Commerce

Course Title: Ecommerce & M-Commerce
Course Code: IMCA-OE-235-B
Lectures: Tutorials: Practical: 02:0:0
Lecture Hours: 24 Hours

Course Type: OE
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description:

This course provides a comprehensive understanding of E-commerce and its strategic impact on modern business models. Students will explore the fundamental concepts of E-commerce, assess its role in shaping organizational strategies, and evaluate the effectiveness of various digital commerce models. The course also covers the implementation of online marketing strategies, mobile commerce, and the use of emerging technologies in E-commerce ecosystems.

Course Objectives:

1. **To introduce** the fundamental concepts of E-commerce and its role in transforming traditional business models and strategies.
2. **To develop** the ability to critically analyze how digital technologies, including mobile commerce, impact business operations and consumer behavior.
3. **To evaluate** various E-commerce strategies used by modern organizations to achieve competitive advantage and customer engagement.
4. **To provide** practical knowledge on implementing marketing and promotional strategies in digital commerce platforms.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Analyse** the impact of E-commerce on business models and strategy.
CO2	Capable to **evaluate** the effectiveness of e-commerce strategies.
CO3	**Implement** marketing strategies for e-commerce businesses.

SN	*Contents of Module*	*Hrs*	***COs***
1.	**UNIT –I: Introduction** Overview of E- Commerce, Applications of E-Commerce, Types of E-Commerce, Introduction to Online Auctions, Electronic Data Interchange, Electronic Payment Systems	10	**CO1**
2.	**UNIT –II: Blog and Searching Fundamentals** Concept of Blog, Characteristics of Blog, Search Engine ,Multilingual Search ,Translation of search results	8	**CO2**
3.	**UNIT –III: Mobile Commerce (M-Commerce)** Introduction to M-Commerce, Types of M-Commerce, Services of M-Commerce, Benefits and Limitations of M-Commerce	6	**CO3**

SN	*Contents of Module*	*Hrs*	***COs***
	Mobile Business Services, Wireless Application Protocol		

REFERENCE BOOKS:

1. E-Commerce 2023: Business, Technology, and Society by Kenneth C. Laudon & Carol Guercio Traver
2. Mobile Commerce: Technology, Theory and Applications by Brian Mennecke & Troy Strader
3. Introduction to E-Commerce by Amir Manzoor
4. M-Commerce: Global Experiences and Perspectives by Nansi Shi.
5. Kenneth C. Laudon, E-Commerce: Business, Technology, Society, 4th Edition, Pearson.
6. S. J. Joseph, E-Commerce: An Indian perspective, PHI.

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	1	2	2	1	3	2	3	1	3
CO2	2	2	3	2	3	2	1	2	2	2	1	3
CO3	1	2	3	1	3	2	1	2	1	2	1	3

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	✓	✓	✓	
End Semester Examination (60)	✓	✓	✓	✓	✓	✓

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SEMESTER: III

IMCA-VSC-236 Web Technology-III

Course Title: Web Technology-III
Course Code: IMCA-VSC-236
Lectures: Tutorials: Practical: 0:0:2
Lecture Hours: 24 Hours

Course Type: VSC
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description: This course introduces students to React.js, a powerful and widely-used JavaScript library for building dynamic, component-based user interfaces. The course covers the fundamentals of React including JSX, components, props, state, hooks, event handling, and routing, as well as integration with APIs and basic deployment techniques.

Course Objectives:

1. **Introduce** React.js fundamentals and building dynamic SPAs using components.
2. **Develop** skills in state management, event handling, routing, and reusable components in React.
3. **Enable** backend development using Node.js, Express.js, and MongoDB integration with Mongoose.
4. **Implement** full-stack CRUD operations with data flow from React frontend to MongoDB backend.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓	✓		✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the fundamentals of React.js for building dynamic and component- based front-end web applications**.**
CO2	**Develop and manage** stateful and reusable components using React features such as props, state, hooks, and routing**.**
CO3	**Design and build** RESTful APIs using Node.js and Express, integrating MongoDB as a backend database via the Mongoose library**.**

SN	*Contents of Module*
1	Setting Up React Environment and Creating a Basic React Application .(Install Node.js, NPM, Create React App).
2	JSX and Component Creation Using Props.
3	State Management in React Using use State: Building a Counter App.
4	Event Handling in React: Managing Button Clicks and Input Changes.
5	Rendering Dynamic Lists in React Using Array Mapping by using (.map()) and Key Props
6	Building Controlled Forms in React: Managing Hooks(Usestate ,UseEffect) and Implementing Basic Validation.
7	Styling React Components: Implementing CSS Modules and Inline Styles

SN	*Contents of Module*
8	Conditional styling in React **using both** CSS Modules **and** inline styles**.** (Toggle Button with Conditional Styling).
9	Developing a Personal Portfolio Website with React and Bootstrap.
10	Setting Up a Node.js and Express.js Development Environment: A Practical Guide
11	Implementing Basic Routing in Express.js: Creating Multiple GET Endpoints.
12	Building a RESTful API with Express.js: A Hands-On Guide to HTTP Methods on (Customer details).
13	Building RESTful APIs: Managing JSON POST Requests in Express.js (Employee Post Method).
14	Implementing CRUD Operations (Students)Using RESTful API and HTTP Methods.
15	Setting up Mongo DB Environment: Teachers API with MongoDB by using MongoDB Compass.
16	Mini Project on Inventory Management System.

REFERENCE BOOKS:

1. "Full Stack Development With MongoDB" by Shama Naz.
2. "REACTJS DEVELOPMENT" by Sandeep Bisht.
3. "Full-Stack React, TypeScript, and Node" by David Choi.

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	1	3	1	2	1	2	1	1	2
CO2	2	3	3	2	3	1	2	2	2	1	2	2
CO3	2	3	3	2	3	2	2	3	2	2	2	3

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	-	✓	✓	-
End Semester Examination (60)	✓	✓	-	✓	✓	-

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FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application
M.C.A. (Integrated) PROGRAMME BATCH 2024-29

SEMESTER: III

IMCA-AEC-237 Office Automation Tools

Course Title: Office Automation Tools
Course Code: IMCA-AEC-237
Lectures: Tutorials: Practical: 2:0:0
Lecture Hours: 24 Hours

Course Type: AEC
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description:

This course introduces students to essential office productivity tools—Microsoft Word, Excel, and PowerPoint—augmented by modern AI-powered assistants. It focuses on enhancing document creation, data handling, and presentation skills while integrating automation tools such as Grammarly, Notion AI, Yippity, Cognii, and GitHub Copilot to boost efficiency and output quality.

Course Objectives:

- **To develop** proficiency in using Microsoft Word, Excel, and PowerPoint for professional document creation, data analysis, and presentation design.
- **To introduce** AI-powered tools (e.g., Grammarly, Notion AI, GitHub Copilot) that enhance productivity and automate routine office tasks.
- **To enable** students to integrate AI tools with traditional office applications to improve content quality, data insights, and workflow efficiency.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Apply** word processing tools and AI-based writing assistants (e.g., Grammarly, Notion AI) to create and enhance professional documents.
CO2	**Analyze *and* interpret** data using spreadsheet functions, charts, and AI-based tools like Cognii or Yippity to generate automated insights.
CO3	**Create** engaging multimedia presentations and *evaluate* the use of AI tools like Tome and GitHub Copilot for automating presentation tasks..

SN	*Contents of Module*	*Hrs*	***COs***
1	**UNIT -I: Word Processing using Microsoft Word** **1.1 Introduction to Word Processing**- Features and advantages of word processors, MS Word interface: Ribbon, Tabs, Groups, Creating, opening, saving, and closing documents **1.2 Text Formatting, Page Layout and Design** **1.3 Document Tools**- Mail Merge, Linking and embedding objects, Headers and footers, Reviewing tools: Track Changes, Comments, Spell Check	6	**CO1**

2	**UNIT –II: Spreadsheets using Microsoft Excel** **2.1 Introduction to Spreadsheet Tools**- Overview of spreadsheet**,** Data Entry and Formattin**g** cells **2.2 Formulas and Functions-** Understanding formula syntax and order of operations, Basic arithmetic operations, Common functions- Mathematical, Logical, Date/Time **2.3 Working with Data**- Sorting and filtering data, Data validation (drop-down lists, restricted inputs), Removing duplicates, Flash Fill and AutoFill **2.4 Charts and Data Visualization-** Creating and editing charts: Column, Pie, Line, Bar, Pivot Tables, Chart elements.	9	**CO2**
3	**UNIT –III : Presentations using Microsoft PowerPoint** **3.1 Presentation Basics**- Introduction to presentations, Creating and managing slides, Slide design and layout **3.2 Enhancing Slides**- Inserting and formatting text, images, shapes, and tables, Using Organizational Charts and Excel Charts, Applying Word Art, SmartArt, and layering objects **3.3 Multimedia Integration**- Inserting animations and transitions, Adding sound effects: built-in and recorded, Inserting and manipulating videos and animated pictures.	5	**CO3**

REFERENCE BOOKS:

1. Microsoft Office 2019 Step by Step, Joan Lambert, 1st Edition (2018), Microsoft Press, ISBN: 9781509307685.
2. Exploring Microsoft Office 2019 Volume 1, Mary Anne Poatsy, Keith Mulbery, and Jason Davidson, 1st Edition (2020), Pearson Education, ISBN: 9780135446999
3. Official Websites & Help Centers for AI Tools
    - Grammarly Help Center
    - Notion AI Docs
    - Tome AI
    - GitHub Copilot Documentation
    - [Cognii/Yippity – Use their official demos/tutorials]

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
CO1	2	1	1	1	3	1	1	1	3	2	1	1
CO2	3	3	2	3	3	1	2	1	2	2	1	1
CO3	1	1	3	1	3	2	1	3	3	3	3	2

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (20)	✓	✓	✓	✓	✓	✓
End Semester Examination (30)	✓	✓	✓	✓	✓	✓

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FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application
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SEMESTER: III

IMCA-FP-238 Minor Field Project using GitHub

Course Title: Minor Field Project using GitHub
Course Type: FP
Course Code: IMCA-FP-238
Total Credits: 02
Lectures: Tutorials: Practical: 0:0:02
CIE Marks: 20
Lecture Hours: 24 Hours
ESE Marks: 30

Course Description:

To enable students to gain practical exposure by assessing and analysing real-time IT projects implemented in the industry or public domain. This project aims to enhance students' research, analytical, and presentation skills through field-based investigation and reporting.

Course Objectives:

1. **To enable** students to assess real-time IT systems and understand their design, implementation, and user impact.
2. **To develop** students' ability to conduct field-based research using primary data collection and analytical tools.
3. **To encourage** innovation and problem-solving through observation and evaluation of existing IT infrastructure.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓	✓		✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Students will be able to critically analyse and assess existing IT systems in real world settings.
CO2	Students will gain hands-on experience in collecting, analysing, and interpreting primary data using different tools.
CO3	Students will enhance their report writing, presentation, and communication skills through structured documentation and viva voce.

SN	*Contents of Module*
1	**Field Work Participation:** • Each student must undergo fieldwork during the 3rd semester. • It may be carried out individually or in a group of two students.
2	**Project Theme:** • The project must be based on the assessment of an IT project already implemented in real time. • It must be research-oriented, innovative, and problem-solving. • The topic must be finalized in consultation with an internal faculty guide

SN	*Contents of Module*
3	**Suggested Project Areas:** Field work must focus on live and functional IT systems, such as (For example): • E-Commerce Websites • E-Governance Platforms • University IT Services • Government Digital Portals • E-Banking Systems • Railway Reservation Systems • Bus Ticketing Systems • Online Travel Booking Platforms
4	**Data Collection & Analysis:** • The project must be based on primary data collected directly from users/stakeholders. • A minimum sample size of 100 respondents is mandatory. Written in formal academic language Include all sections such as Introduction, Objectives, Methodology, Data Analysis, Findings, and Conclusion Certified by the internal guide • Use of tools such as Advanced Excel or SPSS is encouraged for data analysis.
5	**Report Submission:** • A detailed typed report must be prepared, certified by the guide, and submitted in two copies to the Head/Principal of the Institute.
6	**Presentation & Viva Voce:** • At the end of the semester, a Viva Voce will be conducted. • Each student must prepare and present a PowerPoint presentation summarizing their fieldwork. • Project title and objective • Brief on data collection and methodology • Key findings and analysis • Conclusion and recommendations • Viva duration will be a minimum of 15 minutes per student.

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	2	2	1	2	2	2	2	2	2
CO2	2	2	2	3	2	1	2	2	2	1	2	2
CO3	1	2	2	1	2	1	2	1	3	1	2	2

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	✓	✓		
End Semester Examination (60)	✓	✓	✓	✓		

KCES's Institute of Management and Research (Autonomous), Jalgaon

UNDER-GRADUATE PROGRAMME BATCH 2024-25

SEMESTER: III

CC-300 A) NSS

Course Title: NSS
Course Code: CC-300
Lectures: Tutorials: Practical: 0:0:2
Lecture Hours: 30 Hours

Course Type: CC
Total Credits: 02
CIE Marks: 50

Course Objectives:

- To groom youth as social centric by applying her/his knowledge towards improvement of the community.
- To develop among themselves a sense of social and civic responsibility and act as agents of social change towards India as a developed Country.

Course Outcomes:

- Understand social responsibility.
- Awareness about social issues.

Course Content:

Name of the Activities	Hours
• Shramdaan (Campus cleanliness, Plantation) • Important Day celebration (Any five) • Literacy Awareness Programs/Digital Literacy programmes • Health and Nutrition programme • Beti Bachav-Beti Padhav awareness campaign (Street Play, Raley, etc.) • Participation in Blood donation awareness • Traffic rule awareness • Water conservation • Survey based studies (Any one)	
Total Hours	**30**

Reference Books:

- National Service Scheme Manual 2006, Govt. of India, Ministry of Youth Affairs.
- Annual Report of NSS, Published by Dept. of Higher Education.
- https://nss.gov.in

Note:

1. Awareness programs can be conducted through rally, street plays, posters, slogans, etc.
2. Survey based studies should be carried out on social issues.

Evaluation and Assessment (College Assessment 50 Marks) for CC – III (B):

Sr. No.	Activity	Marks
1.	Attendance to Important day celebration (any five), (Independence Day is compulsory)	10
2.	Attendance	10 (Above 90 %) 08 (Between 80 to 90 %) 06 (Between 75 to 80 %)
3.	Shramdaan	10
4.	Awareness Campaign (Any Three)	10
5.	Survey based studies	10
	Total	**50**

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UNDER-GRADUATE PROGRAMME BATCH 2024-25

SEMESTER: III

CC-300 B) Sports

Course Title: Sports
Course Code: CC-300
Lectures: Tutorials: Practical: 0:0:2
Lecture Hours: 30 Hours

Course Type: CC
Total Credits: 02
CIE Marks: 50

Course Objectives:

To enable the students:

- To create interest in sports among students.
- To develop the sports knowledge among students.
- To explain the importance of sports to the students.
- To develop physical and mental health through sports.

Course Outcomes:

- Increase in the physical and mental fitness of students through sports.
- The student may develop better grasping power.
- Development of student's personality through sports.
- The students be encouraged for better competition in sports.

Course Content:

Name of the Topic	Hours
Unit 1: Olympic Movement ● Introduction ● Ancient Olympic ● Modern Olympic ● Types of Olympic – Summer, Winter, Para and Youth Olympic ● Olympic medal winners of India	
Unit 2: Minor Game ● Introduction ● Throwing event ● Jumping event ● Running event	
Total Hours	**30**

Reference Books:

1. Bucher, C. A., Foundation of Physical Education, St. Louis: The C. V. Mosby Co.
2. सुरेशच ा ाद्र न डकरणी, क्रीड ज्ञ नकोर्, मेहत पद्धलके शन, भ रत
3. प्र. के. एन. ग ा ादगे, श रीरक द्दशक्षण च प य , समर्ष पद्धलके शन, न ा ादेड, भ रत
4. प्र . डॉ. गोद्दव ा ाद एस. म रतळे, मैद नी खेळ चे प्रद्दशक्षण, अवर्ष पद्धलके शन, जळग व

Evaluation and Assessment for (College Assessment 50 Marks) for CC – III (C):

Sr. No.	Description	Mark	
1.	Attendance sports practices	10	Any three from Sr. No. 1 to 5 for 30 Marts.
2.	Sportsmanship and Behaviour	10	
3.	Participation in any one Intercollegiate tournament/College Annual Gathering sports	10	
4.	Participation in any one Zonal/Open state level tournament	10	
5.	Participation in any one University/All India inter university/Open National level tournament	10	
6.	Assignments	20	
	Total Mark	**50**	

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UNDER-GRADUATE PROGRAMME BATCH 2024-25

SEMESTER: III

CC-300 C) Cultural Activities

Course Title: Cultural Activities
Course Code: CC-300
Lectures: Tutorials: Practical: 0:0:2
Lecture Hours: 30 Hours

Course Type: CC
Total Credits: 02
CIE Marks: 50

Course Objectives:

- नृत्य, नकला, पाककला, मेहंदी रेखाटन, कथाकथन, काव्य सादरीकरण, वक्तृत्व, चित्रकला, फलक रेखाटन, सूत्रसंचाालन, वादन, एकपात्री, वादिववाद, अचिवाचान इत्यादी कलांचाा स्वरूप, प्रकार, प्रयोजन समजून घेणे
- फॅशन शो िविचव लोककला, सांस्कृचिक स्ाा, सजावट, साहित्य संमेलन इत्यादीचाा स्वरूप प्रकार, प्रयोजन समजून घेणे.

Course Outcomes:

- नृत्य, नकला, पाककला, मेहंदी रेखाटन, कथाकथन, काव्य सादरीकरण, वक्तृत्व, चित्रकला, फलक रेखाटन, सूत्रसंचाालन, वादन, एकपात्री, वादिववाद, अचिवाचान इत्यादी कलांचाा स्वरूप, प्रकार, प्रयोजन िविद्याथथयाांना समजून येईल
- फॅशन शो िविचव लोककला, सांस्कृचिक स्ाा, सजावट, साहित्य संमेलन इत्यादीचाा स्वरूप प्रकार, प्रयोजन िविद्याथथयाांना लक्षाचा येईल

Course Content:

Name of the Topic	Hours
1) सूत्रसंचाालनाचाा स्वरूप, कौशल्य	
2) कथा - स्वरूप प्रकार	
3) वादयकला - एक कौशल्य वाद्याचाा प्रकार.	
4) एकपात्री प्रयोग - स्वरूप प्रयोजन	
5) अचिनय कला - स्वरूप प्रकार	
6) फॅशन शो (वेचशषा) - स्वरूप	
7) लोककला - प्रकार, स्वरूप, वैिशष्ट्ये	
Total Hours	**30**

Evaluation and Assessment for Cultural-3, CC - III

सांस्कृचिक उपक्रमाचाील सचहागा बाचब करावयाचाी गुणदान पसधी

अ.क्र	सांस्कृचिक उपक्रमाचाा शीषाक / चापशील	गुण	प्राप्त करावयाचाा क्रेचिट

१	िवद्यालयाच्या कोणत्याही प्रसंगी सूत्रसचाालन करणे	10	प्रत्येकी एका सूत्राचाून दोन क्रेचिट 50 गुण सोचब िदलेल्या कोणत्याही सांस्कृचिक उपक्रमाचाून हे गुण िमळचवा येचाील
२	मासिक / त्रैमासिक / वासिषकांचा लेख / किचवा प्रकाशचश करणे	10	
३	महाशिवद्यालयाचाफे प्रकाशचश होणाऱ्या वासिषक अकाचा कथा शलिहणे	10	
४	महाशिवद्यालयाच्या कायाक्रमाचाील स्वाचगगीचा / इशस्चावन प्रसंगी वाद्य वाजवणे	10	
५	महाशिवद्यालयाच्या सास्कृचिक कायाक्रमाचा गदररग एकपात्री सादर करणे	10	
६	महाशिवद्यालयाच्या सास्कृचिक कायाक्रमाचा नायप्रयोगाचा पात्र साकारणे	10	
७	महाशिवद्यालयाच्या सांस्कृचिक कायाक्रमाचा फेशन शोमध्ये सचहाग घेणे	10	
८	महाशिवद्यालयाच्या सास्कृचिक कायाक्रमाचा लोक कला सादरीकरण करणे	10	
	Total Marks	**50**	

Semester IV

KCES's Institute of Management and Research (Autonomous), Jalgaon

FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application
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SEMESTER: IV

IMCA-DSC-241 Database Management System

Course Title: Database Management System
Course Code: IMCA-DSC-241
Lectures: Tutorials: Practical: 2:0:0
Lecture Hours: 24 Hours

Course Type: DSC
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description:

The "Database Management System (DBMS)" course introduces students to the core concepts of database systems. Topics include DBMS architecture, data models, ER modeling, normalization, SQL, and transaction management. Students will learn to design and query relational databases using SQL and understand key principles like data integrity and ACID properties. The course emphasizes practical skills through hands-on exercises, preparing students for advanced database applications and real-world data handling.

Course Objectives:

1. To provide a strong foundation in database concepts, architecture, and design using ER modeling and normalization techniques.
2. To develop practical skills in SQL and relational algebra for effective data manipulation, querying, and transaction management.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** DBMS architecture, users, and ACID properties of transactions.
CO2	**Design** ER models and normalize relational schemas up to 4NF.
CO3	**Write** SQL queries and apply relational algebra for data manipulation and control.

SN	*Contents of Module*	*Marks*	*Hrs*	***COs***
1	**UNIT –I: Introduction** Database system application and purpose, Characteristics of DBMS., Database Users, 1-tier, 2-tier and 3-tier architecture of DBMS along with its advantages, Levels of Database Architecture, Data Models, Transaction and states of transactions, Desirable properties (ACID properties) of Transactions, Data-schemas and instances, Data Independence, Role and responsibilities of DBA.	08	06	**CO1**

SN	*Contents of Module*	*Marks*	*Hrs*	***COs***
2	**UNIT –II: Database Design and E-R Model** Overviews of Database Design, ER Modelling concepts, ER Diagrams, Reduction to Relational Schemas, Extended ER Features, Alternative notations for Modelling, Cardinality constraints, Atomic Domains and 1NF, Decomposition using Functional Dependencies (BCNF, 3NF and 4NF)	10	08	**CO2**
3	**UNIT –III RELATIONAL DATABASES** Structure of Relational Databases, Database Schemas, Keys, Schema diagrams, SQL data types and Schemas, Relational Query Languages, Relational Operation. Overview of SQL- Basic Structure of SQL Queries-DDL, DML, DCL, TCL, DQL. Basic Operations- Set Operations, Null Values, Aggregate Functions, and Nested Sub queries, Modification of Databases. Join Expressions, Views, Transactions, Integrity Constraints, Authorization, Functions and Procedures, Relational Algebra fundamental and extended Operations.	12	10	**CO3**

REFERENCE BOOKS:

1. Michael Kifer, Arthur Bernstein, P.M, Lewis and P.K. Panigrahi (2011), "Database Systems: An Application Oriented Approach", Second Edition, Pearson Education, 2011, ISBN: 9788131703748.

2. Fundamentals of Database Systems, Mark L Gillenson, 2nd Edition, John Wiley & Sons, 2011

3. Silberschatz, H.F.Korth, and S.Sudarshan (2011), "Database System Concepts", TMH Publications, Sixth Edition, 2011, ISBN: 978-007-132522-6.

4. Ramez Elmasri, Shamkant B. Navathe (2011), "Fundamentals of Database Systems" Seventh Edition, Pearson Education, 2011, ISBN: 978-0-13-397077-7.

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
CO1	3	2	2	1	2	2	1	1	1	1	1	1
CO2	3	3	2	2	2	1	1	1	1	1	1	1
CO3	3	3	2	2	3	1	1	1	1	1	1	1

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	✓			✓
End Semester Examination	✓	✓	✓	✓		✓

(60)						

KCES's Institute of Management and Research (Autonomous), Jalgaon

FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application

M.C.A. (Integrated) PROGRAMME BATCH 2024-29

SEMESTER: IV

IMCA-DSC-242 Lab on Database Management System

Course Title: Lab on Database Management System | Course Type: DSC

Course Code: IMCA-DSC-242 | Total Credits: 02

Lectures: Tutorials: Practical: 0:0:2 | CIE Marks: 20

Lecture Hours: 24 Hours | ESE Marks: 30

Course Description:

The objective of this lab course is to understand the practical applicability of database management system concepts. Working on existing database systems, designing of database, creating relational database, analysis of table design.

Course Objectives:

1. Understand and Apply SQL DDL, DML and data integrity constraints.
2. Use SQL Clauses, Aggregate functions, string and date time functions.
3. Perform set based operations, joins and create procedure.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓	✓		✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Execute DDL,DML commands and implement integrity constraints.
CO2	Apply SQL clauses, Aggregate functions, string and date time functions.
CO3	Create Procedure, apply joins and perform set based operations

SN	***Practical List***
1	Implement DDL Statement. (Create table, modify table, Drop table) 1. Create a table called Employee. 2. Add a column salary to the Employee table. 3. Drop a column HIRE_DATE.
2	Implement DML Statement. (Create a table called Employee that contain attributes EMPNO, ENAME, JOB, MGR, SAL & execute the following.) 1. Insert any five records into the table. 2. Update the column details of job 3. Delete the employee whose Empno is 105.
3	Implement the constraints on table.(Create a table as Product_master and implement following constraints.) 1. Apply constraints to pno as primary key using alter command. 2. Apply constraint to quantity as null using alter command

SN	Practical List
	3. Apply constraint to pno as not null using alter command. 4. Apply constraint Foreign Key, Unique, Check, Default Constraints.
4	Implement following clauses .(Create a table as Product and Implement following clauses.) 1. Simple select clause 2. Accessing specific data with Where Clause 3. Ordered By/ Distinct/Group By Clause.
5	Create Employee table and Implement Aggregate Functions containing all Records E_id, E_name, Age, Salary. 1. Find the AVG Salary from employee table. 2. Find the COUNT age from employee table. 3. Find the MAX age from employee table. 4. Find the MIN age from employee table. 5. Find the SUM Salary from employee table. 6. Find the CUBE Aggregate Functions from employee table.
6	Create a table employee records and implement various SQL string functions to manipulate and retrieve text-based information.
7	Develop a database for employee attendance management and implement SQL Date and Time functions to manipulate and extract date-time information.
8	Implement use of Union, Intersection, Set Difference. (Create student's data for two academic programs BCA_Students and IMCA_Students.) 1. Add at least 5 students in each table. 2. Insert some students who are enrolled in both programs (duplicate IDs/names across tables). 3. List all unique students enrolled in either BCA or IMCA 4. List students enrolled in both BCA and IMCA 5. List students enrolled in BCA but not in IMCA
9	Implement Nested Queries & all types of Join operation (Create tables like Students, Courses and Enrolments Add 5–6 students, courses from different departments, and enrolment records including some missing values.) 1. List student names along with the courses they are enrolled in. 2. List all students and their courses (include students with no enrollments) 3. List all courses and students enrolled (include courses with no students). 4. List all students and courses, even if there's no matching record on either side. 5. Show all possible combinations of students and courses (Cartesian product).
10	Implement practical performing different operations on a view.(Create tables like Students, Marks and insert at least 5 students and 10 mark records covering different subjects and departments.) 1. Create a view StudentMarksView showing Student_ID, Name, Subject, and Marks. 2. Create a view HighScorersView showing students who scored more than 75 marks. 3. Retrieve all records from HighScorersView. 4. Update marks of a student through StudentMarksView where Subject = 'Math' (ensure update is possible).

SN	*Practical List*
	5. Drop the view HighScorersView.
11	Implement use of Procedure. (Create and execute stored procedures to manage and analyze employee salary data.) 1. Insert a new employee into the Employee table using input parameters. 2. Update the salary of an employee based on their ID. 3. Fetch and display all details of an employee based on their ID. 4. Calculate total salary expenses for a given department.

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	--	--	--	2	--	2	--	2	--	--
CO2	--	3	3	--	3	--	--	--	3	--	--	3
CO3	--	--	3	--	3	--	--	--	--	--	3	--

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	✓	✓	✓	✓
End Semester Examination (60)	✓	✓	✓	✓	✓	✓

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FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application
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SEMESTER: IV

IMCA-DSC-243 Java Programming

Course Title: Java Programming
Course Code: IMCA-DSC-243
Lectures: Tutorials: Practical: 02:0:0
Lecture Hours: 24 Hours

Course Type: DSC
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description:

This course provides a comprehensive introduction to Java programming, covering fundamental concepts such as data types, control structures, arrays, and string handling. It emphasizes Object-Oriented Programming (OOP) principles, including classes, objects, inheritance, polymorphism, and interfaces. Additionally, the course explores exception handling and wrapper classes to develop robust and efficient Java applications. Through hands-on practice, students will gain the skills needed to design, implement, and debug Java programs effectively.

Course Objectives:

1. Understand the core syntax and structure of Java, including variables, operators, loops, and conditional statements.
2. Apply OOP concepts (encapsulation, inheritance, polymorphism, abstraction) to design modular and reusable code.
3. Develop programs using arrays, strings, and control flow mechanisms for efficient problem-solving.
4. Implement exception handling (try-catch, throw, custom exceptions) to manage runtime errors.
5. Utilize wrapper classes and type casting for data manipulation in Java.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Apply Java programming fundamentals, including data types, control structures, arrays, and string handling, to develop basic programs.
CO2	Design and implement Java applications using core OOP concepts such as classes, objects, inheritance, polymorphism, and interfaces.
CO3	Implement exception handling techniques and wrapper classes to write robust and error-resistant Java code.

SN	*Contents of Module*	*Hrs*	***COs***
1	**UNIT -I: Introduction** History, features JVM, JDK, JRE, Data Types, Variables, Operators, Type Casting, Control Statements: if, switch, loops (for, while, do-while) Arrays and String Handling	8	**CO1**

SN	*Contents of Module*	*Hrs*	***COs***
2	**UNIT –II: Core OOP Concepts**: Introduction to OOP, Classes, Objects, Constructors ,Static Members, Access Modifiers, this Keyword, Inheritance , Encapsulation , Polymorphism , Abstract, Interface.	10	**CO2**
3	**UNIT –III : Exception Handling**: try-catch, throws, throw, finally, Custom Exceptions, Wrapper Classes, Autoboxing / Unboxing	6	**CO3**

REFERENCE BOOKS:

1. Core Java 2: Volume 1 – Fundamental Seventh Edition - Cay S. Horstmann.
2. Programming with Java – E Balagurusamy.
3. The Complete Reference Java – 7th Edition – Herbert S.

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	-	-	-	-	-	-	-	-	1
CO2	3	3	3	2	-	-	-	-	1	2	-	2
CO3	3	2	3	-	-	-	-	-	-	1	-	1

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (20)	✓	✓	✓	✓	✓	-
End Semester Examination (30)	✓	✓	✓	✓	✓	-

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SEMESTER: IV

IMCA-DSC-244 Lab on Java Programming

Course Title: Lab on Java Programming
Course Code: IMCA-DSC-244
Lectures: Tutorials: Practical: 0:0:2
Lecture Hours: 24 Hours

Course Type: DSC
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description:

This practical course provides hands-on experience in Java programming, focusing on core concepts such as data types, control structures, arrays, strings, object-oriented programming, exception handling, and wrapper classes. Through real-time problem-solving and application development, students will strengthen their ability to write robust, maintainable Java programs.

Course Objectives:

1. Apply Java Fundamentals: Use Java syntax, data types, operators, and control structures to develop basic applications.
2. Work with Arrays and Strings: Implement operations on arrays and string manipulations to solve structured problems.
3. Implement Object-Oriented Concepts: Develop Java programs using classes, objects, inheritance, polymorphism, interfaces, and abstraction.
4. Handle Errors Gracefully: Use exception handling techniques to build error-resilient applications.
5. Utilize Wrapper Classes and Auto boxing: Implement wrapper classes, type conversions, and auto boxing/unboxing to manipulate primitive data types as objects.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓	✓		✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Apply Java programming fundamentals, including data types, control structures, arrays, and string handling, to develop basic programs.
CO2	Design and implement Java applications using core OOP concepts such as classes, objects, inheritance, polymorphism, and interfaces.
CO3	Implement exception handling techniques and wrapper classes to write robust and error-resistant Java code.

Practical Assignments:

1	Write and execute Simple Java Programs using loops a. Find factorial of a given number

	b. Check number is palindrome or not c. Display Fibonacci series up to given number of terms
2	Write and execute Simple Java Programs using class definition and array d. Read an array on n numbers and print the largest number. e. Read two matrices and print addition of that matrices. f. Write a Java program to find the transpose of a matrix.
3.	Write a Java program to demonstrate 5 different string operations. g. length () b. toUpperCase() c. toLowerCase() h. equals() e. equalsIgnoreCase()
4.	Write a Java program to implement different types of constructors.
5.	Develop programs using Inheritance- i. Write a Java program to implement single level inheritance using Person-Employee/ Person-Student class j. Write a Java program to implement multi-level inheritance using Person- Student-Result class.
6.	Develop programs Using Abstract classes and Interfaces k. Program that demonstrate using Abstract Class – Shape, that is extended by two different Classes – Circle and Rectangle l. Program that uses Interface for the Vehicle with some final attributes and abstract functions. Demonstrate its implementation in Vehicles like – Maruti, Toyota Classes.
7.	Implementation Exceptions m. Write a Java program using single Exception n. Write a Java program using multiple Exception o. Write a Java program using user defines Exception by extending Exception class
8.	Develop programs using Polymorphism p. Write a Java program to implement method overloading q. Write a Java program to implement method overriding
9.	Write a Java program to design student registration form using AWT and Swing.

REFERENCE BOOKS :

1. Core Java 2: Volume 1 – Fundamental Seventh Edition - Cay S. Horstmann.
2. Programming with Java – E Balagurusamy.
3. The Complete Reference Java – 7th Edition – Herbert S.

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	-	-	-	-	-	-	-	-	1
CO2	3	3	3	2	-	-	-	-	1	2	-	2
CO3	3	2	3	-	-	-	-	-	-	1	-	1

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (20)	✓	✓	✓	✓	✓	-
End Semester Examination (30)	✓	✓	✓	✓	✓	-

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FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application

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SEMESTER: IV

IMCA-MIN-245 Software Engineering

Course Title: Software Engineering
Course Type: MIN
Course Code: IMCA-MIN-245
Total Credits: 04
Lectures: Tutorials: Practical: 4:0:0
CIE Marks: 40
Lecture Hours: 48 Hours
ESE Marks: 60

Course Description:

Computer software engineers apply the principles and techniques of computer science, engineering, and mathematical analysis to the design, development, testing, and evaluation of the software and the systems that enable computers to perform their many applications.

Course Objectives:

1. To make students understand how to engineer the software.
2. To make students understand various components of software process model and their working.
3. To make students understand various ways to test software.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To introduce the fundamental principles, components, and types of systems essential to system engineering.
CO2	To explain the nature, characteristics, and domains of software, and the need for systematic software engineering practices.
CO3	To familiarize students with software development processes and models, including SDLC phases and various process frameworks.
CO4	To enable students to perform structured analysis and design using tools like decision trees, DFDs, data dictionaries, and pseudo code.
CO5	To provide insights into software testing principles, types of testing, and the concept of changeover in software systems.
CO6	To explore agile methodologies, principles, and models such as Scrum, XP, and DSDM for adaptive and efficient software development.

SN	*Contents of Module*	*Hrs*	***COs***

1	**UNIT –I: Introduction to System Engineering** 1.1 Definition 1.2 Basic Components 1.3 Elements of the system 1.4 System Components 1.5 Types of System	8	**CO1**
2	**UNIT –II: Introduction to Software Engineering** 2.1 Definition of Software 2.2 Characteristics of Software 2.3 Software Application Domain 2.4 Definition of Software Engineering 2.5 Need for software Engineering 2.6 The Software Process 2.7 Types of Software	8	**CO2**
3	**UNIT –III : Software Development Life Cycle (SDLC)** 3.1 Introduction 3.2 Activities of SDLC 3.3 A Generic Process Model 3.4 Prescriptive Process models: Waterfall Model, Incremental Process Models, Evolutionary process Models, Prototyping Model, Spiral Model 3.5 Concurrent Models, Types	8	**CO3**
4	**UNIT –IV: Analysis and Design Engineering** 4.1 Decision Tree and Decision Table 4.2 Data Flow Diagrams (DFD) 4.3 Data Dictionary 4.3.1 Elements of DD 4.3.2 Advantages of DD 4.4 Input and Output Design 4.5 Pseudo Code 4.6 Case Studies on above topics	8	**CO4**

5	**UNIT –V: Software Testing** 5.1 Testing Fundamentals and principals. 5.2 Types of Testing. 5.2.1 Black Box & White Box 5.2.2 Unit Testing 5.2.3 Integration Testing 5.2.4 System Testing 5.3 Introduction to change Over 5.4. Types of change over	8	**CO5**
6	**UNIT –VI Agile Development** 6.1 Agility 6.2 Agile Process 6.2.1 Principles 6.2.2 The Politics of Agile Development 6.2.3 Human Factors 6.3 Extreme Programming(XP) 6.4 Adaptive Software Development(ASD) 6.5 Scrum 6.6 Dynamic System Development Model (DSDM)	8	**CO6**

REFERENCE BOOKS:

1. Roger S. Pressman, "Software Engineering a Practitioners Approach", ISBN 13: 9780071267823, 7thedition, McGraw Hill International Edition.

2. Fairly, Richard, "Software Engineering Concepts" ISBN 13: 9780074631218, McGraw Hill Education New Delhi-2001.

3. Rajib Mall, "Fundamental of Software Engineering", ISBN- 978-81-203- 3819-7 RD Edition, , PHI Learning Private Limited.

4. Software Engineering and Quality Assurance – Mrs Anuradha A. Puntambekar

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	1	2	1	1	2	1	1	1	1
CO2	3	3	2	1	2	2	1	2	1	2	1	1

CO3	3	3	3	2	2	2	1	3	1	2	1	2
CO4	3	3	2	3	3	1	1	2	1	1	1	1
CO5	2	2	2	3	3	2	1	2	1	1	1	1
CO6	3	3	3	2	3	2	2	3	2	2	2	3

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	✓	✓	✓	
End Semester Examination (60)	✓	✓	✓	✓	✓	

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SEMESTER: IV

IMCA-OE-246-A-Basics of Tally

Course Title: Basics of Tally
Course Code: IMCA-OE-246-A
Lectures: Tutorials: Practical: 2:0:0
Lecture Hours: 24 Hours

Course Type: OE
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description:

Tally Prime is the latest updated version of the Tally accounting software. It is the successor of Tally ERP 9 and comes with many new features; it promotes business growth and makes everyday business simple. It helps you manage accounting, banking, taxation, inventory and payroll in a much easier way

Course Objectives:

1. To provide a practical foundation in accounting and financial management
2. To use software effectively for transaction recording, and generate financial reports.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓	--	--	-	--		

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Memorize key Tally Prime Concepts.
CO2	Create Ledger & Groups in Tally Prime Software.
CO3	Compile Stock & Pass Voucher Entries in Tally Prime Software.

SN	*Contents of Module*	*Hrs*	CO's
1	**Assignment 1. Maintaining Charts in Tally Prime** 1.1 Introduction to Tally Prime 1.2 Charts of Accounts 1.3 Creation of Masters in Tally Prime. 1.4 Accounting Masters 1.5 Inventory Masters	6	CO1

<table>
<tr><th>SN</th><th>Contents of Module</th><th>Hrs</th><th>CO's</th></tr>
<tr><td>2</td><td>Assignment 2. Create BCA Ltd company with following details
2.1 Enter the hypothetical details e.g. Address, State, PAN No. etc.
2.2 Select Accounts with Inventory option, Use 1-4-20XX (Current Financial Year) as the date of Commencement of business.
2.3 Alter company Details.
2.4 Delete Company.
Assignment 3. Create the following Ledger accounts, place under appropriate group (Create new groups whenever necessary)
(a) Wages paid to factory workers
(b) Wages paid to temporary workers
(c) Salary paid to H.O. employees
(d) Salary paid to Branch employees
(e) Share Capital (Rs. 5,00,000 Cr.)
(f) Telephone Charges</td><td>8</td><td>CO2</td></tr>
<tr><td>3</td><td>Assignment 4. Create Ledger & Groups
<table><tr><th>Ledger Name</th><th>Under</th><th>Opening Balance</th></tr><tr><td>Capital A/c</td><td>Capital Account</td><td>5,00,000</td></tr><tr><td>Building A/c</td><td>Fixed Assets</td><td>25,000</td></tr><tr><td>Mr. Rajesh A/c</td><td>Sundry Debtors</td><td>15,000</td></tr><tr><td>Mr. Swapnil A/c</td><td>Sundry Creditors</td><td>10,000</td></tr><tr><td>Sales A/c</td><td>Sales</td><td>5,000</td></tr><tr><td>SBI Loan A/c</td><td>Loans & Advances</td><td>50,000</td></tr><tr><td>Purchase A/c</td><td>Purchase</td><td>10,000</td></tr></table>Assignment 5; Pass Journal Entries:
1. On July 1st 2024 Ramu started business with a capital of Rs. 75, 000.
2. Purchased Furniture from Manu for Rs. 25,000.
3. Sold goods to Tanu for cash Rs.16, 000.
4. Bought furniture for Rs.15, 000.
5. Cash Paid to Manu Rs. 10,000.
6. Sold Furniture to Prakash for Rs. 40,000</td><td>10</td><td>CO3</td></tr>
</table>

REFERENCE BOOKS:

ReferenceBooks:

1. Master Tally Prime A Complete Guide, Ravi Thelgu, Vedanta Soft Solutions.

2. Mastering Tally Prime: Training, Certification & Job, Ashok K. Nadhani, BPB Solutions.

3. Official Guide to Financial Accounting Using Tally Prime, Tally Education Private Limited.

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	1	1	2	1	1	1	1	1	1	1
CO2	2	2	2	1	3	2	1	2	1	1	1	2
CO3	2	2	2	2	3	2	1	2	1	1	1	2

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation (40)	✓	✓	✓	✓		✓
End Semester Examination (60)	✓	✓	✓	✓		✓

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SEMESTER: IV

IMCA- OE-246-B Advanced Excel

Course Title: Advanced Excel
Course Code: IMCA-OE-246-B
Lectures: Tutorials: Practical: 02:0:0
Lecture Hours: 24 Hours

Course Type: OE
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description:

This course is designed to enhance your Excel skills by equipping you with powerful tools and techniques for data management, analysis, and automation. You will learn how to use smart formulas, advanced lookup functions, and text manipulation tools to streamline your workflow and reduce errors. The course covers essential data analysis techniques, such as PivotTables, charts, and What-If analysis, enabling you to summarize and visualize large datasets effectively. Additionally, you will gain expertise in automating tasks using Macros, securing your work with password protection, and cleaning and combining data from multiple sources using Power Query. Whether you're managing simple spreadsheets or complex data models, this course will empower you to work faster, make informed decisions, and safeguard your Excel files with confidence.

Course Objectives:

1. **Master Advanced Excel Functions:** Learn to apply smart formulas such as IF, AND, OR, VLOOKUP, HLOOKUP, INDEX + MATCH, and text functions (LEFT, RIGHT, MID, CONCAT) to automate decision-making, clean data, and enhance workflow efficiency.
2. **Analyze and Visualize Data Effectively:** Develop the ability to summarize large datasets using PivotTables, create dynamic reports with PivotCharts, and present insights visually using a variety of charts and graphs, including Bar, Line, and Waterfall charts.
3. **Automate Tasks and Ensure Data Security:** Gain proficiency in automating repetitive tasks using Macros, managing data with Excel Tables, and securing your workbooks with password protection, permissions, and auditing tools to maintain data integrity and confidentiality.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Apply** advanced Excel functions (e.g., IF, VLOOKUP, TEXT functions) to manipulate data, automate calculations, and streamline decision-making processes.
CO2	**Utilize** PivotTables, charts, and What-If tools to analyze large datasets, create dynamic reports, and visualize data effectively for decision support.
CO3	**Automate** repetitive tasks with Macros, secure Excel files with password protection, and clean/combine data using Power Query to improve workflow efficiency and data integrity.

SN	*Contents of Module*	*Hrs*	***COs***
1	**UNIT -I Smart Formulas and Data Tools** 1.1 An Overview of the Screen, Navigation and Basic Spreadsheet 1.2 Concept 1.3 Lookup Functions, Logical If Functions 1.4 Text Function, Statistical Function, Math; Trig Functions 1.5 Date; Time and Logical Functions, Financial Functions 1.6 Data Validation 1.7 Sorting, Filtering, and Removing Duplicates Conditional Formatting	10	**CO1**
2	**UNIT –II Analysing Data and Making Reports** 2.1 PivotTables 2.2 Pivot Charts 2.3 Slicers and Timelines 2.4 What-If tools: Goal Seek, Scenario Manager 2.5 Charts: Bar, Line, Pie, Waterfall, Sparkline's 2.6 Grouping data and creating Subtotals 2.7 Making simple Dashboards	8	**CO2**
3	**UNIT –III Automating and Securing Your Work** 3.1 Recording Macros 3.2 Excel Tables 3.3 Power Query 3.4 Power Pivot 3.5 Locking and Protecting Worksheets	6	**CO3**

REFERENCE BOOKS:

1. Excel 2021 Bible by Michael Alexander and Dick Kusleika (easy and complete guide)
2. Learn MS Excel in One Day by Krishna Rungta (India-focused and simple)
3. Excel Made Easy by Diane Griffiths (for absolute beginners and office users)

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	1	3	1	1	1	2	1	1	3
CO2	3	3	2	2	3	1	1	2	3	2	1	3
CO3	3	1	3	2	3	2	2	1	1	2	2	3

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	✓	✓	✓	

End Semester Examination (60)	✓	✓	✓	✓	✓	✓

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SEMESTER: IV

IMCA-SEC-247 Cyber Security

Course Title: Cyber Security
Course Code: IMCA-SEC-247
Lectures: Tutorials: Practical: 02:0:0
Lecture Hours: 24 Hours

Course Type: SEC
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description:

This course provides a comprehensive introduction to computer networking and information security. It covers communication systems, cryptography, system and OS security, and modern cyber threats. Students will also learn about cybersecurity laws, ethical practices, and protection techniques.

Course Objectives:

1. To learn the fundamental concepts of communication systems, information security, and threat modeling.
2. To learn about cryptographic techniques, secure systems, and security practices in networks and operating systems.
3. To learn the basics of cyber laws, digital forensics, and the legal standards related to cybersecurity.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	✓

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the foundational concepts of information security and the nature of modern threats.
CO2	Apply cryptographic methods and system security principles to protect data and networks.
CO3	Demonstrate knowledge of OS security mechanisms and interpret cybersecurity laws and standards.

SN	*Contents of Module*	*Hrs*	***COs***
1	**UNIT -I Introduction to Information Security and Threats:** History of Information Systems and its Importance, basics, Basics of Communication Systems, Nature and Architecture of Information Systems, Basic Principles of Information Security ,Information System Threats and attacks -Information Security Services and Goals, Types of Attacks ,Passwords: Types, Attacks, and Storage (Windows & Linux),Physical Security: Importance,	10	**CO1**

SN	*Contents of Module*	*Hrs*	***COs***
	Biometric Security, Equipment, Cybercrime Overview: Email, Social Media, Desktop, Social Engineering, Network Crimes, Cyber Terrorism, Banking Crimes, Hacking Techniques, Password Cracking ,Insecure Networks and Wi-Fi Attacks , Information Warfare and Surveillance		
2	**UNIT –II Cryptography and Secure Systems:** Introduction and Goals of Cryptography, Types and Applications of Cryptography, Hash Functions, Digital Signatures, Public Key Infrastructure (PKI), System Security: Desktop and Email Security (PGP, SMIME), Web Security: Authentication, Certificates, SSL, SET Network Security: IDS, IPS, Firewalls, VPN, Multimedia and Fax Security	10	**CO2**
3	**UNIT –III OS Security and Legal Framework:** OS Security: Vulnerabilities, Patches, and Integrity Checks, Anti-virus Software, Secure OS Design and Hardening, Trusted OS Security Laws and Standards: Genesis and International Perspective, IT Act 2000 and Amendments, Security Audits	10	**CO3**

REFERENCE BOOKS:

1. BPB Publication, "Fundamentals of Cyber Security", Mayank Bhushan, Rajkumar Singh Rathore ,Aatif Jamshed
2. CreateSpace Independent Publishing Platform, "Cyber Security Basics", Don Franke, ISBN13: 978-1522952190ISBN-10: 1522952195
3. Godbole, "Information Systems Security", Willey ISBN 10: 8126516925

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	2	1	2	3	2	1	2	3	1	1
CO2	2	2	3	2	3	3	2	2	2	2	2	1
CO3	1	2	2	2	2	3	2	2	2	3	1	1

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	✓	✓		
End Semester Examination (60)	✓	✓	✓	✓		

KCES's Institute of Management and Research (Autonomous), Jalgaon

FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application
M.C.A. (Integrated) PROGRAMME BATCH 2024-29

SEMESTER: IV

IMCA-AEC-248 Personality Development

Course Title: Personality Development
Course Code: IMCA-AEC-248
Lectures: Tutorials: Practical: 02:0:0
Lecture Hours: 24 Hours

Course Type: AEC
Total Credits: 02
CIE Marks: 20
ESE Marks: 30

Course Description:

This course focuses on holistic personality development by enhancing self-awareness, ethical values, leadership, and communication skills. It emphasizes character building, stress and conflict management, and effective interpersonal relationships. Students will also learn goal setting, time management, and interview preparation for career readiness.

Course Objectives:

1. To orient the students about the concept and importance of personality development.
2. To be able to identify one's own strengths and weaknesses.
3. To sensitize the students, the importance of moral, ethical values in personality development.
4. To enhance team building and leadership skills
5. To build students skills in presentation and listening.
6. To familiarize them with coping mechanisms related to conflict, stress and anger management -To introduce them to steps to career planning

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓			✓		✓	

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the foundations of personality development, including ethics, values, leadership, and communication skills.
CO2	Develop strong character traits and build effective public and human relations through self-awareness and empathy.
CO3	Apply conflict and stress management strategies, plan careers with realistic goals, and prepare effectively for interviews and aptitude tests.

SN	*Contents of Module*	*Hrs*	***COs***
1	**UNIT -I: Foundations of Personality Development** **Concept of Personality Development:** Understanding personality and its impact on personal and professional growth. **Role of Morals, Ethics, and Values:** Importance of ethical behavior, integrity, and values in shaping one's character and decision-making.		

SN	*Contents of Module*	*Hrs*	***COs***
	Self SWOC Analysis: Identifying personal Strengths, Weaknesses, Opportunities, and Challenges for self-improvement. **Leadership Qualities and Team Building:** Exploring key leadership traits, understanding team dynamics, and learning effective team collaboration strategies. **Presentation Skills:** Techniques for structuring and delivering impactful presentations with confidence and clarity. **Listening and Negotiation Skills:** Developing active listening abilities and learning the fundamentals of effective negotiation for personal and professional situations.	8	**CO1**
2	**UNIT –II : Building a Character** **Role of Heredity and Environment in Individual Development:** Understanding how genetic and environmental factors influence personality and behavior. **Building a Strong Character:** Exploring the traits of a good character such as integrity, responsibility, and empathy, and how to cultivate them. **Public and Human Relations:** Importance of maintaining positive relationships in social and professional settings through effective communication, empathy, and respect.	8	**CO2**
3	**UNIT –III: Conflict, Stress Management and Career Planning** **Conflict Management:** Understanding sources of conflict and applying techniques to resolve personal and interpersonal disputes effectively. **Developing Interpersonal skills:** Transactional Analysis And Johari Window model **Stress and Anger Management:** Strategies to manage stress and control anger, with a focus on reducing exam-related stress and overcoming fear. **Career Planning and Goal Setting:** Setting realistic short-term and long-term goals aligned with personal interests and abilities. **Time Management:** Effective planning and prioritization techniques to enhance productivity and reduce procrastination. **Facing Interviews:** Preparing for interviews with confidence, including body language, answering techniques, and self-presentation. **Personality and Aptitude Tests:** Understanding the role and importance of these tests in career selection and personal development.	8	**CO3**

REFERENCE BOOKS:

1. Shankar, Uday 1981: Personality Development. Delhi Chandra, M.S. Satish: Conflict Management. Delhi. Rajat publication, 1999.
2. Charlesworth, Edward & Nathan, R.G.: Stress Management. [A Comprehensive~ Guide To Weilness] New York, Ballantine Books, 1991.

3. Harigopal, K.: Conflict Management : Managing Interpersonal Conflict. New Delhi. Oxford & IBH Publication, 1995.
4. Barun K. Mitra , Personality Development and Group Discussions Oxford University Press Career Digest

Mapping of Course Outcomes to Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	1	2	3	2	1	3	2	2	2
CO2	2	2	2	1	2	3	2	1	3	2	3	2
CO3	1	3	2	2	2	3	2	2	3	2	3	2

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation. (40)	✓	✓	✓	✓	✓	✓
End Semester Examination (60)	✓	✓	✓	✓	✓	✓

KCES's Institute of Management and Research (Autonomous), Jalgaon
FACULTY OF SCIENCE AND TECHNOLOGY, School of Computer Application
M.C.A. (Integrated) PROGRAMME BATCH 2024-29

SEMESTER: IV

CEP-401 Community Engagement and Service

Course Title: Community Engagement and Service	Course Type: CEP
Course Code: CEP-401	Total Credits: 02
Lectures: Tutorials: Practical: 2:0:0	CIE Marks: 20
Lecture Hours: 24 Hours	ESE Marks: 30

Course Description:

This course enables students to understand the importance of community service and encourages them to participate actively in social engagement. It helps foster a sense of responsibility, empathy, and social awareness among students by introducing them to real-life challenges in communities and motivating them to contribute to sustainable development.

Course Objectives:

1. To develop awareness about the importance of community involvement.
2. To instill empathy, responsibility, and civic sense among students.
3. To encourage participation in community development and service-learning activities.
4. To relate academic learning to real-life social challenges.

Teaching/ Evaluation Pedagogy

Chalk & Talk	ICT Tools	Group Discussion	Case Study	Guest Session	Survey	Assignment	Lab
✓	✓	✓	✓	✓	✓	✓	-

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the foundational concepts and importance of community engagement.
CO2	**Analyse** and identify prevalent social issues through real-life case examples.
CO3	**Plan** and **execute** community service initiatives with collaborative effort and appropriate engagement methods.
CO4	**Critically** reflect on service experiences through documentation, assess impact.

SN	*Contents of Module*	*Hrs*	***COs***
1	**Unit I: Introduction to Community Engagement:** 1.1 Concept and Scope of Community Engagement. 1.2 Importance of Social Responsibility. 1.3 Role of Youth in Nation Building	4	CO1
2	**Unit II: Understanding the Community**: 2.1 Types of Communities. 2.2 Social Structure. 2.3 Identification of Local Issues and Stakeholders. 2.4 Case Examples	6	CO2
3	**Unit III: Participating in Community Service:** 3.1 Cleanliness drive 3.2 Tree Plantation 3.3 Donation to Needy 3.4 Awareness Campaigns, etc. 3.5 Journaling of activities	6	CO3

REFERENCE BOOKS:

1. Handbook on Community Engagement – Dr. P.N. Raju (Allied Publishers)
2. Social Work and Community Development – Surendra Singh (IGNOU Publications)
3. Community Organization and Development – Prof. M.S. Gore (Himalaya Publishing)
4. Youth and Social Change – Yogendra Singh (Rawat Publications)

Assessment Pattern

Bloom's Category	Remember	Understand	Apply	Analyze	Evaluate	Create
Continuous Internal Evaluation (20)	✓	✓	✓	✓		
End Semester Examination (30)	✓	✓	✓	✓		

KCES's Institute of Management and Research (Autonomous), Jalgaon

UNDER-GRADUATE PROGRAMME BATCH 2024-25

SEMESTER: IV

CC-400 A) NSS

Course Title: NSS
Course Code: CC-400
Lectures: Tutorials: Practical: 0:0:2
Lecture Hours: 30 Hours

Course Type: CC
Total Credits: 02
CIE Marks: 50

Course Objectives:

- To groom youth as social centric by applying her/his knowledge towards improvement of the community.
- To develop among themselves a sense of social and civic responsibility and act as agents of social change towards India as a developed Country.

Course Outcomes:

- Understand social responsibility.
- Awareness about social issues.

Course Content:

Name of the Activities	Hours
• Shramdaan (Campus cleanliness, Maintenance of Plants) • Important Day celebration (Any five) • Fit India Movement (Physical and mental health, family welfare) • Health and Nutrition programme • National integrity program (Street Play, Raley, etc.) • Gender awareness program (Street Play, Raley, etc.) • Human Values awareness • Drug Free India Campaign • Disaster management • Survey based studies (Any one)	
Total Hours	**30**

Reference Books:

- National Service Scheme Manual 2006, Govt. of India, Ministry of Youth Affairs.
- Annual Report of NSS, Published by Dept. of Higher Education.
- https://nss.gov.in

Note:

1. Awareness programs can be conducted through rally, street plays, posters, slogans, etc.
2. Survey based studies should be carried out on social issues.

Evaluation and Assessment (College Assessment 50 Marks) for CC – IV (B):

Sr. No.	Activity	Marks
1.	Attendance to Important day celebration (any five), (Independence Day is compulsory)	10
2.	Attendance	10 (Above 90 %) 08 (Between 80 to 90 %) 06 (Between 75 to 80 %)
3.	Shramdaan	10
4.	Awareness Campaign (Any Three)	10
5.	Survey based studies	10
	Total	**50**

KCES's Institute of Management and Research (Autonomous), Jalgaon

UNDER-GRADUATE PROGRAMME BATCH 2024-25

SEMESTER: IV

CC-400 B) Sports

Course Title: Sports
Course Code: CC-400
Lectures: Tutorials: Practical: 0:0:2
Lecture Hours: 30 Hours

Course Type: CC
Total Credits: 02
CIE Marks: 50

Course Objectives:

To enable the students:

- To create interest in sports among students.
- To develop the sports knowledge among students.
- To explain the importance of sports to the students.
- To develop physical and mental health through sports.

Course Outcomes:

- Increase in the physical and mental fitness of students through sports.
- The student may develop better grasping power.
- Development of student's personality through sports.
- The students be encouraged for better competition in sports.

Course Content:

Name of the Topic	Hours
Unit 1: Sports Training ● Introduction ● Methods of training ● Physical fitness training ● Skill training ● Training and tactics	
Unit 2: Major Game ● Introduction ● Indian games ● Foreign games	
Total Hours	**30**

Reference Books:

1. Bucher, C. A., Foundation of Physical Education, St. Louis: The C. V. Mosby Co.

Evaluation and Assessment for (College Assessment 50 Marks) for CC – IV (C):

Sr. No.	Description	Mark	
7.	Attendance sports practices	10	Any three from Sr. No. 1 to 5 for 30 Marts.
8.	Sportsmanship and Behaviour	10	
9.	Participation in any one Intercollegiate tournament/College Annual Gathering sports	10	
10.	Participation in any one Zonal/Open state level tournament	10	
11.	Participation in any one University/All India inter university/Open National level tournament	10	
12.	Assignments	20	
	Total Mark	**50**	

KCES's Institute of Management and Research (Autonomous), Jalgaon

UNDER-GRADUATE PROGRAMME BATCH 2024-25

SEMESTER: III

CC-400 C) Cultural Activities

Course Title: Cultural Activities
Course Code: CC-400
Lectures: Tutorials: Practical: 0:0:2
Lecture Hours: 30 Hours

Course Type: CC
Total Credits: 02
CIE Marks: 50

Course Objectives:

- नृत्य, नकला, पाककला, मेहंदी, रेखाटन, कथाकथन, काव्यसादरीकरण , वक्तृत्व, चित्रकला, फलन, रेखाटन, सूत्रसंचाालन, वादन, एकपात्री, नायचिनय, वादिववाद, अचिवाचान इत्यादी कलेचाा स्वरूप, प्रकार, प्रयोजन समजून घेणे
- फॅशन शो, िविचव लोककला, सांस्कृचिक स्ा, सजावट, साहित्य संमेलन, इत्यादीचाा स्वरूप प्रकार प्रयोजन समजून घेणे

Course Outcomes:

- नृत्य, नकला, पाककला, मेहंदी, रेखाटन, कथाकथन, काव्यसादरीकरण , वक्तृत्व, चित्रकला, फलन, रेखाटन, सूत्रसंचाालन, वादन, एकपात्री, नायचिनय, वादिववाद, अचिवाचान इत्यादी कलेचाा स्वरूप, प्रकार, प्रयोजन िवद्याथथयांना समजून येईल
- फॅशन शो, िविचव लोककला, सांस्कृचिक स्ा, सजावट, साहित्य संमेलन, इत्यादीचाा स्वरूप प्रकार प्रयोजन िवद्याथथयांच्या लक्षाचा येईल

Course Content:

Name of the Topic	**Hours**
1) वादिववाद – स्वरूप, कौशल्य	
2) कथाकथन – स्वरूप, कौशल्य	
3) अचिवाचान – स्वरूप, प्रयोजन	
4) सांस्कृचिक - स्ाचा प्रकार	
5) सजावट - एक कला	
6) साहित्य संमेलन – स्वरूप, प्रयोजन	
Total Hours	**30**

Evaluation and Assessment for Cultural-4, CC - IV

सांस्कृचिक उपक्रमाचाील सचहागा बाचब करावयाचाी गुणदान पसधी

अ.क्र	सांस्कृचिक उपक्रमाचाा े शीषाक / चापशील	गुण	प्राप्त करावयाचाा े क्रेचिट
१	महा िवद्यालयाच्या सांस्कृचिक कायाक्रमाचा (गॅदररंग) वादिववाद स् ्ेचा सचहाग	10	प्रत्येकी एका सूत्राचाा ून दोन क्रेचिट 50 गुण सोचब िदलेल्या कोणत्याही सांस्कृचिक उपक्रमाचाा ून हे गुण िमळचवा येचाील
२	महा िवद्यालयाच्या सांस्कृचिक कायाक्रमाचा (गॅदररंग) कथाकथन स् ्ेचा सचहाग	10	
३	महा िवद्यालयाचाफे प्रका िचश होणाऱ्या ग्रंथांचाा े स्मरिणकेचाा े / सुव्हे िनयररे मुखपृष्ठ चायार करणे	10	
४	महा िवद्यालयाचाफे प्रका िचश होणाऱ्या बॅनर चिझाईन / सजावट चायार करणे	10	
५	आचार महा िवद्यालयीन कुठल्याही सांस्कृचिक स् ्ेचा सचहाग	10	
६	आचार महा िवद्यालयीन कुठल्याही सांस्कृचिक स् ्ेचा पाररराे िषक	10	
७	वाङ्मयीन स् ्ाेचा अचिवाचान	10	
८	सा िहत्य संमेलनाचा सचहाग	10	
	Total Marks	**50**	

Question Paper Pattern (4 Credit Course)

Subject Code

Subject Name

Marks: 60 **Times: 2 hrs**

No. of Pages:

Instructions to Candidate

1. Do not write anything on question paper except Seat No.
2. Graph or diagram should be drawn with the black ink pen being used for writing paper or black HB pencil.
3. Students should not, no supplement will be provided.

Q. No.	Question	CO	Marks
Que.1	Attempt any two		
	a.		6
	b.		6
	c.		6
Que.2	Attempt any two		
	a.		6
	b.		6
	c.		6
Que.3	Attempt any two		
	a.		6
	b.		6
	c.		6
Que.4	Attempt any two		
	a.		6
	b.		6
	c.		6
Que.5	Attempt any two		
	a.		6
	b.		6
	c.		6

Question Paper Pattern (2 Credit Course)

Subject Code

Subject Name

Marks: 30 **Times: 1.5 hrs**
No. of Pages:

Instructions to Candidate

1. Do not write anything on question paper except Seat No.
2. Graph or diagram should be drawn with the black ink pen being used for writing paper or black HB pencil.
3. Students should not, no supplement will be provided.

Q. No.	Question	CO	Marks
Que.1	Attempt any two		
	a.		5
	b.		5
	c.		5
Que.2	Attempt any two		
	a.		5
	b.		5
	c.		5
Que.3	Attempt any two		
	a.		5
	b.		5
	c.		5