



MBA Program Outcomes, Program Education Outcomes and Course Outcomes

SIBAR is affiliated to SPPU and follows the OBE approach

Concept of OUTCOME BASED EDUCATION APPROACH

1. Outcome Based Education (OBE) Approach: Outcomes are about performance, and this implies:
2. There must be a performer – the student (learner), not only the teacher
3. There must be something performable (thus demonstrable or assessable) to perform
4. The focus is on the performance, not the activity or task to be performed

Programme Educational Objectives (PEOs): Programme Educational Objectives are a set of broad future-focused student performance outcomes that explicitly identify what students will be able to do with what they have learned, and what they will be like after they leave school and are living full and productive lives. Thus, PEOs are what the programme is preparing graduates for in their career and professional life (to attain within a few years after graduation¹).

3.3 Graduate Attributes (GAs): Graduate Attributes (GAs) are the qualities, knowledge and capabilities that students are encouraged to take responsibility for developing throughout their studies and are the defining characteristics of the students passing out of the MBA program. These attributes include, but go beyond, the disciplinary expertise or technical knowledge.

3.4 Programme Outcomes (POs): Programme Outcomes are a set of narrow statements that describes what students (learners) of the programme are expected to know and be able to perform or attain by the time of graduation.

3.5 Programme Specific Outcomes (PSOs): Programme Outcomes are a set of



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narrow statements that describes what students (learners) of a particular specialization of the programme are expected to know and be able to perform or attain by the time of graduation. PSOs are also a function of the various course combinations offered by the Institute.

3.6 Learning Outcomes: A learning outcome is what a student CAN DO as a result of a learning experience. It describes a specific task that he/she is able to perform at a given level of competence under a certain situation. The three broad types of learning outcomes are:

- a) Disciplinary knowledge and skills
- b) Generic skills
- c) Attitudes and values

3.7 Course Outcomes (COs): A set of specific statements that describes the complex performances a student should be capable of as a result of learning experiences within a course.

3.8 Teaching and Learning Activities (TLAs): The set of pedagogical tools and techniques or the teaching and learning activities that aim to help students to attain the intended learning outcomes and engage them in these learning activities through the teaching process.

3.9 Outcome Based Assessment (OBA): An assessment system that asks course teachers to first identify what it is that we expect students to be able to do once they have completed a course or program. It then asks course teachers to provide evidence that they are able to do so. In other words, how will each learning outcome be assessed? What evidence of student learning is most relevant for each learning outcome and what standard or criteria will be used to evaluate that evidence? Assessment is therefore a key part of outcome-based education and used to determine whether or not a qualification has been achieved.



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Programme Outcomes (POs):

At the end of the MBA programme the learner will possess the

PO	ATTRIBUTE	PROGRAM OUTCOME
1	Generic and Domain Knowledge	Ability to articulate, illustrate, analyse, synthesize and apply the knowledge of principles and frameworks of management and allied domains to the solutions of real-world complex business issues
2	Problem Solving & Innovation	Ability to Identify, formulate and provide innovative solution frameworks to real world complex business and social problems by systematically applying modern quantitative and qualitative problem-solving tools and techniques.
3	Critical Thinking	Ability to conduct investigation of multidimensional business problems using research-based knowledge and research methods to arrive at data driven decisions
4	Effective Communication	Ability to effectively communicate in cross-cultural settings, in technology mediated environments, especially in the business context and with society at large
5	Leadership and Team Work	Ability to collaborate in an organizational context and across organizational boundaries and lead themselves and others in the achievement of organizational goals and optimize outcomes for all stakeholders.
6	Global Orientation and Cross-Cultural Appreciation:	Ability to approach any relevant business issues from a global perspective and exhibit an appreciation of Cross-Cultural aspects of business and management.
7	Entrepreneurship.	Ability to identify entrepreneurial opportunities and leverage managerial & leadership skills for founding, leading & managing startups as well as professionalizing and growing family businesses



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8	Environment and Sustainability	Ability to demonstrate knowledge of and need for sustainable development and assess the impact of managerial decisions and business priorities on the societal, economic and environmental aspects.
9	Social Responsiveness and Ethics -	Ability to exhibit a broad appreciation of the ethical and value underpinnings of managerial choices in a political, cross-cultural, globalized, digitized, socio-economic environment and distinguish between ethical and unethical behaviours & act with integrity.
10	Lifelong Learning	Ability to operate independently in new environment, acquire new knowledge and skills and assimilate them into the internalized knowledge and skills.

Program Educational Objectives:

PEOs	Description
PEO 1	PEO1: Graduates of the MBA program will successfully integrate core, cross-functional and inter-disciplinary aspects of management theories, models and frameworks with the real-world practices and the sector specific nuances to provide solutions to real world business, policy and social issues in a dynamic and complex world.
PEO 2	PEO2: Graduates of the MBA program will possess excellent communication skills, excel in cross-functional, multi- disciplinary, multi-cultural teams, and have an appreciation for local, domestic and global contexts so as to manage continuity, change, risk, ambiguity and complexity.
PEO 3	PEO3: Graduates of the MBA program will be appreciative of the significance of Indian ethos and values in managerial decision making and exhibit value cantered leadership.
PEO 4	PEO4: Graduates of the MBA program will be ready to engage in successful career pursuits covering a broad spectrum of areas in corporate, non-profit organizations, public policy, entrepreneurial ventures and engage in life- long learning.



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PEO 5	PEO5: Graduates of the MBA program will be recognized in their chosen fields for their managerial competence, creativity & innovation, integrity & sensitivity to local and global issues of social relevance and earn the trust & respect of others as inspiring, effective and ethical leaders, managers, entrepreneurs, intrapreneurs and change agents.
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Course Outcomes – MBA Sem I

Semester I		101 – Managerial Accounting
3 Credits	LTP: 2:1:1	Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO101.1	REMEMBERING	DESCRIBE the basic concepts related to Accounting, Financial Statements, Cost Accounting, Marginal Costing, Budgetary Control and Standard Costing
CO101.2	UNDERSTANDING	EXPLAIN in detail, all the theoretical concepts taught through the syllabus.
CO101.3	APPLYING	PERFORM all the necessary calculations through the relevant numerical problems.
CO101.4	ANALYSING	ANALYSE the situation and decide the key financial as well as non-financial elements involved in the situation.
CO101.5	EVALUATING	EVALUATE the financial impact of the decision.

Semester I		102 - Organizational Behavior
3 Credits	LTP: 2:1:1	Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO102.1	REMEMBERING	DESCRIBE the major theories, concepts, terms, models, frameworks and research findings in the field of organizational behavior.
CO102.2	UNDERSTANDING	EXPLAIN the implications of organizational behavior from the perspectives of employees, managers, leaders and the organization.
CO102.3	APPLYING	MAKE USE OF the Theories, Models, Principles and Frameworks of organizational behavior in specific organizational settings.
CO102.4	ANALYSING	DECONSTRUCT the role of individual, groups, managers and leaders in influencing how people behave and in influencing organizational culture at large.
CO102.5	EVALUATING	FORMULATE approaches to reorient individual, team, managerial and leadership behavior in order to achieve organizational goals.
CO102.6	CREATING	ELABORATE UPON the challenges in shaping organizational behavior, organizational culture and organizational change.

Semester I		103 – Economic Analysis for Business Decisions
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3 Credits	LTP: 2:1:1	Compulsory Generic Core Course
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Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO103.1	REMEMBERING	DEFINE the key terms in micro-economics.
CO103.2	UNDERSTANDING	EXPLAIN the key terms in micro-economics, from a managerial perspective.
CO103.3	APPLYING	IDENTIFY the various issues in an economics context and DEMONSTRATE their significance from the perspective of business decision making.
CO103.4	ANALYSING	EXAMINE the inter-relationships between various facets of micro-economics from the perspective of a consumer, firm, industry, market, competition and business cycles.
CO103.5	EVALUATING	DEVELOP critical thinking based on principles of micro-economics for informed business decision making.
CO103.6	CREATING	ANTICIPATE how other firms in an industry and consumers will respond to economic decisions made by a business, and how to incorporate these responses into their own decisions.

Semester I		104 - Business Research Methods
3 Credits	LTP: 2:1:1	Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO104.1	REMEMBERING	DEFINE various concepts & terms associated with scientific business research.
CO104.2	UNDERSTANDING	EXPLAIN the terms and concepts used in all aspects of scientific business research.
CO104.3	APPLYING	MAKE USE OF scientific principles of research to SOLVE contemporary business research problems.
CO104.4	ANALYSING	EXAMINE the various facets of a research problem and ILLUSTRATE the relevant aspects of the research process from a data driven decision perspective.
CO104.5	EVALUATING	JUDGE the suitability of alternative research designs, sampling designs, data collection instruments and data analysis options in the context of a given real-life business research problem from a data driven decision perspective.
CO104.6	CREATING	FORMULATE alternative research designs, sampling designs, data collection instruments, testable hypotheses, data analysis strategies and research reports to address real-life business research problems.

Semester I		105 – Basics of Marketing
3 Credits	LTP: 2:1:1	Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO105.1	REMEMBERING	RECALL and REPRODUCE the various concepts, principles, frameworks and terms related to the function and role of marketing.
CO105.2	UNDERSTANDING	DEMONSTRATE the relevance of marketing management concepts and frameworks to a new or existing business across wide variety of sectors and ILLUSTRATE the role that marketing plays in the 'tool kit' of every organizational leader and manager.



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CO105.3	APPLYING	APPLY marketing principles and theories to the demands of marketing function and practice in contemporary real-world scenarios.
CO105.4	ANALYSING	EXAMINE and LIST marketing issues pertaining to segmentation, targeting and positioning, marketing environmental forces, consumer buying behavior, marketing mix and Product Life Cycle in the context of real-world marketing offering (commodities, goods, services, e-products/ e-services).
CO105.5	EVALUATING	EXPLAIN the interrelationships between segmentation, targeting and positioning, marketing environment, consumer buying behavior, marketing mix and Product Life Cycle with real world examples.
CO105.6	CREATING	DISCUSS alternative approaches to segmentation, targeting and positioning, the marketing environment, consumer buying behavior, marketing mix and Product Life Cycle in the context of real-world marketing offering (Commodities, goods, services, e-products/ e-services.).

Semester I		106 – Digital Business
3 Credits	LTP: 2:1:1	Compulsory Generic Core Course

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO106.1	REMEMBERING	DESCRIBE the conceptual framework of e commerce, mobile commerce and social commerce.
CO106.2	UNDERSTANDING	SUMMARIZE the impact of information, mobile, social, digital, IOT and related technologies on society, markets & commerce.
CO106.3	APPLYING	ILLUSTRATE value creation & competitive advantage in a digital Business environment.
CO106.4	ANALYSING	EXAMINE the changing role of intermediaries, changing nature of supply chain and payment systems in the online and offline world.
CO106.5	EVALUATING	ELABORATE upon the various types of digital business models and OUTLINE their benefits and limitations.
CO106.6	CREATING	DISCUSS the various applications of Digital Business in the present-day world.



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Course code / name	105 – Basics of Marketing	Sem: 1 – 2021-2023
Name of the course teacher	Course code / name	105 – Basics of Marketing
	Name of the course teacher	Dr. Zamarrud Ansari

For the year 2020 -2022 batch it has decided 61% as a Target/Threshold marks for internal as well as external assessment.

64% students got marks more than threshold marks (43marks, 64%) in internal assesment &
 58% students got marks more than threshold marks (42marks, 58%) in External assesment
 Since Target / Threshold for average % of students for internal as well as external is very moderate

Hence for Internal	For External
LOW = 51%	LOW = 51%
Medium = 61%	Medium = 61%
High = 71%	High = 71%

Attainment Level	Level name	Internal Assessment		External Assessment	
		% of students	Average Threshold Marks >= 43	% of students	Average Threshold Marks >=42
1	Low	51%	61%	51%	61%
2	Medium	61%	61%	61%	61%
3	High	71%	61%	71%	61%

Example-

For Internals, If 50% students get more than 70% marks, then we achieve Level 1

For Externals, If 50% students get more than 70% marks, then we achieve Level 1

PO attainment

CO-PO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1
CO1	3			1			0				3
CO2	2	2			1						3
CO3		2	3			1		1			3
CO4								3		1	3
CO5	2		2								3
CO6		1	2			2			2		3
average	2.33333	1.6667	2.33333	1	1	1.5	0	2	2	1	3

COs & Mapping with POs / PSOs

Course Code / Name	305 – Basics of Marketing	Sem: 1 – 2021-2023
Course Coordinator	Dr. Zameerud Ansari	

CO ID#	Description of course outcomes At the end of the course, students will be able to	Mapping to POs / PSOs @ levels indicated		
		3 Substantial	2 Moderate	1 Low
CO-1	RECALL and REPRODUCE the various concepts, principles, frameworks and terms related to the function and role of marketing.	PO-1	-	PO-4
CO-2	DEMONSTRATE the relevance of marketing management concepts and frameworks to a new or existing business across wide variety of sectors and ILLUSTRATE the role that marketing plays in the "tool kit" of every organizational leader and manager.	-	PO-1, PO-2	PO-5
CO-3	APPLY marketing principles and theories to the demands of marketing function and practice in contemporary real world scenarios.	PO-3,	PO-2	PO-6
CO-4	EXAMINE and LIST marketing issues pertaining to segmentation, targeting and positioning, marketing environmental forces, consumer buying behavior, marketing mix and Product Life Cycle in the context of real world marketing offering (commodities, goods, services, e-products/ e-services).	PO-8	-	PO-8 PO-10
CO-5	EXPLAIN the interrelationships between segmentation, targeting and positioning, marketing environment, consumer buying behavior, marketing mix and Product Life Cycle with real-world examples.	-	PO-1, PO-3	-
CO-6	DISCUSS alternative approaches to segmentation, targeting and positioning, the marketing environment, consumer buying behavior, marketing mix and Product Life Cycle in the context of real world marketing offering (commodities, goods, services, e-products/ e-services.)	-	PO-3,6,9	PO-2

Description of terms:

Definitions of the different levels of thinking skills in Bloom's taxonomy

1. **Low:** Just introduction of concepts
2. **Moderate:** Interrelationship of the known concepts
3. **Substantial/High:** More challenging. Focus is more on analyzing, creative exercise etc.

Critical Thinking

levels:

Definitions of the different levels of thinking skills in Bloom's taxonomy

1. **Remember:** Recall/relevant terminologies, specific facts or different procedures related to information and/or course topics. At this level, a student can remember something but may not really understand it.
2. **Understand:** The ability to grasp the meaning of information (facts, definitions, concepts, etc.) that has been presented
3. **Analyse:** Being able to use previously learned information in different situations or in problem solving.
4. **Analyze:** The ability to break information down into its component parts. Also refers to the process of examining information in order to make conclusions regarding cause and effect, interrelated motives, make inferences or find evidence to support statements or arguments
5. **Evaluate:** Being able to judge the value of information and/ or sources of information based on personal values or opinions.
6. **Create:** The ability to creatively and uniquely apply prior knowledge and / or skills to produce new and original thoughts, ideas, processes etc. At this level, Students are involved in creating their own ideas and thoughts.

PO-SPU	Short title of PO	Description of the Program Outcome (PO)
PO-1	Generic and Domain Knowledge	Ability to articulate, illustrate, analyse, synthesize and apply the knowledge of principles and frameworks of management and allied domains to the solutions of real-world complex business issues
PO-2	Problem Solving & Innovation	Ability to identify, formulate and provide innovative solution frameworks to real world complex business and social problems by systematically applying modern quantitative and qualitative problem solving tools and techniques.
PO-3	Critical Thinking	-Ability to conduct investigation of multidimensional business problems using research based knowledge and research methods to arrive at data driven decisions
PO-4	Effective Communication -	Ability to effectively communicate in cross-cultural settings, in technology mediated environments, especially in the business context and with society at large
PO-5	Leadership and Team Work	Ability to collaborate in an organizational context and across organizational boundaries and lead themselves and others in the achievement of organizational goals and optimize outcomes for all stakeholders.
PO-6	Global Orientation and Cross-Cultural Appreciation:	Ability to approach any relevant business issues from a global perspective and exhibit an appreciation of Cross Cultural aspects of business and management.
PO-7	Entrepreneurship	Ability to identify entrepreneurial opportunities and leverage managerial & leadership skills for founding, leading & managing startups as well as professionalizing and growing family businesses.
PO-8	Environment and Sustainability -	Ability to demonstrate knowledge of and need for sustainable development and assess the impact of managerial decisions and business priorities on the societal, economic and environmental aspects.
PO-9	Social Responsiveness and Ethics	Ability to exhibit a broad appreciation of the ethical and value underpinnings of managerial choices in a political, cross-cultural, globalized, digitized, socio-economic environment and distinguish between ethical and unethical behaviors & act with integrity.
PO-10	PO 10: Lifelong learning -	Ability to operate independently in new environment, acquire new knowledge and skills and assimilate them into the internalized knowledge and skills.

Program Specific Outcomes (PSOs)

1. AS PER THE SPU - SYLLABUS - Programme Specific Outcomes (PSOs): It is expected that Institutes define the PSOs for each specialisation / major/minor combination. PSOs shall also vary based upon the **customized combination** of Generic Core, Generic Elective, Subject Core, Subject Elective, Foundation, Enrichment & Alternative Study Credit Courses that they offer.

PSO1	The student will be able to apply marketing concepts that integrate product/service, pricing, communications and channel decisions
PSO2	Multidisciplinary knowledge application comprising of finance, operations, system, marketing and human resources management to integrate business projects.
PSO3	An understanding of routine sales to global marketing operation - research, Develop strategies for efficient and effective distribution of products
PSO4	Gain understanding of cross culture, social responsiveness and gauge requirement/dynamics of the global market
PSO5	Application of product market dynamics based on demand supply equilibrium, assess analytics that are best suited to provide better outcomes.

			KRITIKA							
			I	W	T					
SR.NO.	Roll	Name of the Student	50	50	100	Total No. of Students		198		
Roll No.	Seat No.	Name of the Student						I	W	T
1	22475	AANCHAL MESHRAM	36	45	81	A		50	50	100
2	22517	AARTI SHASHIKANT SHINDE	42	50	92	O				
3	22579	AARYA MANOJ MOHABEY	32	50	82	A	AVERAGE (Threshold marks)	36	45	81
4	22489	ABDUL RAHMAN SHAKEEL AHMED	34	49	83	A	Average %of Thershold marks	156	100	100
5	22518	ABHISHEK HARIBHAU DHEPLE	32	44	76	B				
6	22490	ADHAV DHANRAJ PRAKASH	32	46	78	B	No. of students with marks greater than Threshold marks	112	129	115
7	22519	AGALE NEHA RAVINDRA	48	50	98	O	Average % of students who scored more than Threshold marks	Average % of	66	59
8	22444	AGARWAL DIVYA RAHUL	40	46	86	A	Level	2	3	1
9	22520	AKASH NARESH GAWLI	39	47	86	A				
10	22445	ALHAT PRAJWAL DEVIDAS	38	49	87	A	64% students got marks more than threshold marks (43marks, 64%) in internal assesmnt &			
11	22521	ANKUR RAMU TIRPUDE	36	48	84	A	Level=2 (Refer Targets)	INTERNAL	CO1, CO2, CO3, CO4, CO5, CO6	
12	22604	AVADUTH BABURAO DHUMAL	45	49	94	O				
13	22522	AWAIS SADIQUE SHAIKH	36	42	78	B	58% students got marks more than threshold marks (42marks, 58%) in External assesmnt			
14	22580	BAJARE PRANAY SANJAY	38	47	85	A	Level=3 (Refer Targets)	EXTERNAL	CO1, CO2, CO3, CO4, CO5, CO6	
15	22581	BAMNE APURVA ATUL	42	46	88	A				
16	22523	BANGALE OMKAR SUBHASH	39	50	89	A				
17	22524	BANSODE RUSHIKESH NANASAHEB	34	50	84	A				
18	22605	BATTEWAR RUSHIKESH LAKSHMIKANT	39	48	87	A				
19	22491	BHAGAT ADESH SATISH	32	49	81	A				
20	22525	BHAKAD SHUBHAM TUKARAM	40	40	80	A				
21	22615	BHALERAO AKSHAY SHARAD	38	42	80	A				
22	22492	BHOSALE DNYANESHWAR PRABHAKAR	37	49	86	A				
23	22459	BHOSALE RITESH VASANT	36	47	83	A				
24	22526	BIBWE SHIVANI ANAND	32	47	79	B				
25	22527	BORADE SATISH MADHUKAR	30	50	80	A				
26	22528	BORANNAVAR RAHUL GUNDAPPA	34	43	77	B				
27	22529	BORKAR ADITYA MANGESH	32	42	74	B				
28	22530	BRIJESH MAHESH JADHAV	30	50	80	A				
29	22531	CHAUDHARI VAIBHAV BHAGWAN	42	44	86	A				
30	22616	CHAVAN SANKET RAOSAHEB	36	47	83	A				
31	22617	CHAVAN SWAPNIL RAOSAHEB	36	44	80	A				
32	22532	CHOTHAVE TRUSHNA LALIT	45	48	93	O				
33	22606	CHOUTMAL SONIYA RAJENDRA	37	50	87	A				
34	22493	DABKE PRASAD SHIVNATH	44	48	92	O				
35	22494	DAGALE VAIBHAV KALU	30	37	67	C				
36	22495	DALVI YOUSEF ASHFAQ AHMED	36	42	78	B				
37	22618	DAYA RAJENDRA SARKATE	33	49	82	A				
38	22479	DCRUZ JOEL ANTHONY	38	46	84	A				
39	22496	DESHMUKH RUSHIKESH SUBHASHRAO	40	47	87	A				
40	22533	DEVANG BHARAT KADU	30	47	77	B				
41	22607	DHAKNE GANESH ARUN	38	46	84	A				
42	22534	DHANASHREE GHEWADE	44	44	88	A				
43	22480	DHANTOLE SANDEEP KANHAIYALAL	32	42	74	B				
44	22446	DHAYGUDE SHREYAS JALINDAR	33	47	80	A				
45	22460	DHENDE AISHWARYA VIKAS	36	41	77	B				

46	22435	DHIWAR PRASAD UMESH	32	46	78	B
47	22447	DIAS IVAN MARIAN	36	38	74	B
48	22582	DIGHEKAR TEJASVINI PRAKASH	32	49	81	A
49	22535	DILESWAR NAIK	36	36	72	B
50	22481	DINKAR KUMAR	34	47	81	A
51	22608	DOMADE KALPESH ANNASAHEB	30	41	71	B
52	22536	FULDEORE TEJASHREE RAMESH	32	47	79	B
53	22461	GAIGAWAL ANKITA ANIL	37	46	83	A
54	22497	GAIKWAD BHAGYASHRI BAJRANG	36	41	77	B
55	22482	GAIKWAD RUSHABH RAJENDRA	36	43	79	B
56	22537	GAIKWAD SAYALI PRADEEP	44	50	94	O
57	22498	GAIKWAD SWAPNIL SHAHAJI	34	36	70	B
58	22483	GAUND SHUBHAM NIVRUTTI	34	48	82	A
59	22448	GAURI VIJAY SHINDE	32	46	78	B
60	22538	GAVIT AJAY MAHADU	34	34	68	C
61	22499	GHADGE PRAJAKTA BALKRUSHNA	32	46	78	B
62	22539	GHUMATKAR ANAGHA ATUL	36	44	80	A
63	22540	GUJAR PRATIKSHA ANIL	36	47	83	A
64	22449	GUNDWADE VINOD ANIL	32	43	75	B
65	22500	GURAV SHIVANI SUNIL	40	45	85	A
66	22471	SHAIKH HASNAIN ASIF	36	39	75	B
67	22462	HIMANSHU PRATAP SONAWANE	37	39	86	A
68	22583	HIRE ADITI GANESH	42	42	84	A
69	22609	GHULE HRISHIKESH ANAND	35	49	84	A
70	22584	INAMDAR NOORHALIMA FAIYAZ	44	50	94	O
71	22501	ISHA NARESHRAO ZANZAD	67	50	87	A
72	22541	JADHAV AISHWARIYA ARUN	45	47	92	O
73	22502	JADHAV NISHAD RAJENDRA	39	45	84	A
74	22585	JADHAV TEJAL SANJAY	32	37	69	C
75	22450	JAGDALE HARSHAL ATUL	32	42	74	B
76	22619	JAMBHULKAR NACHIKET RAJENDRA	32	41	73	B
77	22436	JANBA APURV RAGHUNATH	40	50	90	O
78	22586	KAKADE ANKUSH ANIL	32	49	81	A
79	22484	KALE GAJANAN VASANT	35	49	84	A
80	22464	KALE VIVEK ANKUSH	36	41	77	B
81	22465	KALPANA TARACHAND RATHOD	34	45	79	B
82	22466	KAMBLE ANJALEE TULSHIDAS	36	45	81	A
83	22503	KAMBLE PRAJWAL DEEPAK	30	46	76	B
84	22542	KAMBLE SIMRAN GAUTAM	32	46	78	B
85	22620	KAMBLE TEJAS GORAKH	32	43	75	B
86	22504	KANKATE SHUBHAM BHASKAR	37	50	87	A
87	22543	KASHID AMIT CHANDRAKANT	36	49	85	A
88	22423	KASHISH MANESH PASHAMALLU	30	47	77	B
89	22544	KHADIJA SHOUKAT MULLA	34	33	67	C
90	22451	KHADKIWALA MUSTAFA MOHAMMEDALI	36	46	82	A
91	22587	KHARADE SAKSHI HIRACHAND	36	40	76	B
92	22476	KHAWALE KIRAN DADA	34	50	84	A
93	22621	KHUSHBU UTTAM BAGDE	36	38	74	B
94	22452	KUMBHAR SHIVANI VASANT	34	41	75	A
95	38691	LADE KRUTIKA PRAVIN	32	44	76	B
96	22505	LANDGE PARIMAL SUNIL	36	47	83	A
97	22610	LONKAR AJINKYA ANIL	32	50	82	A
98	22506	MAHALE RUSHIKESH SOMNATH	32	50	82	A
99	22467	MAHESHWARI	34	45	79	D
100	22622	MANE VINDHYANDRI SACHCHIDANAND	30	44	74	B
101	22507	MASKE KAUSTUBH BALASAHEB	42	49	91	O
102	22545	MOGARE KIRTI UMESH	36	34	70	B
103	22453	MOHINI SINGH	36	48	84	A
104	22437	MORE PRADEEP MADHUKAR	36	34	70	B
105	22438	MORE RUTUPARN SANKET	32	44	76	D

106	22546	MUNDADA NIKUNJ SANJAY	34	47	81	A
107	22508	MUSALE AKASH FULCHAND	35	47	82	A
108	22547	NAIKNAWARE YASH SANJAY	36	44	80	A
109	22485	NARAWADE SITARAM GORKSHANATH	36	46	82	A
110	22477	NARUTE GANESH BHIMA	35	38	73	B
111	22588	NAVALE PUSHKARAJ SUNIL	34	49	83	A
112	22548	NEHA DNYANDEO CHAUDHARI	30	39	69	C
113	22611	NIRBHAVANE SUMIT MADHUKAR	36	46	82	A
114	22549	OGALE GARGI DATTAPRASAD	32	46	78	B
115	22439	OHAL SURAJ BHASKAR	32	38	70	B
116	22440	OHOL DIGAMBAR RAMCHANDRA	30	35	65	C
117	22550	PAL JAIHIND KANTA	44	47	91	O
118	22509	PANDEY PRAJWAL JAYPRAKASH	30	43	73	B
119	22551	PARAG ANIL HUKKERI	34	31	65	C
120	22589	PARTHE MANALI VIJAY	36	50	86	A
121	22624	PATANGE RAVI VASANT	30	46	76	B
122	22510	PATIL HANSRAJ PURUSHOTTAM	42	44	86	A
123	22441	PATINGRAO KULDIP PRALHAD	30	49	79	B
124	22552	PAWAR GANESH NANAJI	32	49	81	A
125	22590	PAWAR GARGI ANAND	34	50	84	A
126	22553	PAWAR PRATIBHA PRAKASH	32	20	52	D
127	22511	PHATE NIKHIL SADASHIV	32	39	71	B
128	22591	POOJA SANJAY SHARMA	42	49	91	O
129	22463	PRAJAKTA INGALE	36	43	79	B
130	22554	PRAPTI DEEPAK GUNDECHA	35	46	81	A
131	22454	PRATIK HEMRAJ SHETE	33	43	76	B
132	22486	PRATIK VISHNU AYAGOLE	35	44	79	B
133	22555	PRIYA KIMTILAL ANAND	32	37	69	C
134	22556	PRIYANKA RAJU KUMBHALKAR	40	44	84	A
135	22557	PUJARI HANUMANT MALLAPPA	42	50	92	O
136	22455	PUSHPAK PRAMENDRA MESHRAM	32	44	76	B
137	22558	QAZI NOMAN IMDAD ALI	41	50	91	O
138	22612	RAHUL RAMESH GHODKE	40	47	87	A
139	22512	RAJA SUBHASH AWARI	37	50	87	A
140	22625	RAMTEKE HARSHAL MANOJ	34	46	80	A
141	22592	RANGARI RASIKA GANESHRAO	32	49	81	A
142	22593	RITIKA VIDYASAGAR RAUT	35	50	85	A
143	22594	ROSHNI THARWANI	40	43	83	A
144	22626	ROY LALIT VIKAS	34	50	84	A
145	22559	SABLE SNEHA BHAU	37	49	86	A
146	22456	SACHIN GAJANAN WAGH	30	48	78	B
147	22560	SAHIL TEKBAHADUR THAPA	38	50	88	A
148	22468	SAKAT TEJASWINI LAXMAN	34	30	64	C
149	22561	SAMANT PRATHAMESH VINAYAK	37	45	82	A
150	22457	SAMPADA DAVE	34	49	83	A
151	22627	SANAS AISHWARYA PRAKASH	45	48	93	O
152	22469	SANDESH SUBHASH GEDAM	36	43	79	B
153	22562	SANKET JYOTIRAM MAVALE	30	45	75	B
154	22595	SARVAIYA JINAL ASHOK	39	50	89	A
155	22563	SASANE MITALI MUKUND	36	50	86	A
156	22564	SATAV HRUSHIKESH NANDKUMAR	32	44	76	B
157	22470	SATHE HARSHADA LAXMAN	32	43	75	B
158	22458	SHAIKH FIZA SHABBIR	42	44	86	A
159	22472	SHAIKH MUSKAN HUSSAIN	36	45	81	A
160	22596	SHAIKH ZAARA TANVIR	34	45	79	B
161	22513	SHINDE ANIKET GAJENDRA	39	48	87	A
162	22565	SHINDE MANGESH DEVIDAS	34	45	79	B
163	22514	SHINDE NILESH BALASO	36	45	81	A
164	22487	SHINDE VILAS BHANUDAS	38	47	85	A
165	22597	SHINGEWAR SANJANA VIKAS	39	42	81	A

166	22566	SHIVAM ANIL DAVE	37	42	79	B
167	22488	SHIVSHARAN AJAY VIVEK	37	36	73	B
168	22628	SHIVSHARAN KARAN DILIP	36	48	84	A
169	22478	SHRIDHARA NAVANATH SHEDGE	35	48	83	A
170	22473	SHWETA MANIK SAWAT	39	41	80	A
171	22598	SIDRAH WAQUAR SHAIKH	37	50	87	A
172	22567	SNEHAL SURESH BICHARE	44	47	91	O
173	22568	SOHEL AJIJ MULANI	34	50	84	A
174	22569	SONKAMBLE SHEETAL VIJAYKUMAR	37	50	87	A
175	22629	SONWANE ABHIJIT VIJAY	37	41	78	B
176	22630	SRUSHTI MADUR	36	49	85	A
177	22570	SUJATA GAJANAN BHAWANE	36	48	84	A
178	22613	SUPADIA NEHA RAKESH	36	47	83	A
179	22571	SUPEKAR DHIRAJ RAJENDRA	40	49	89	A
180	22515	SURAWASE SONAL CHANDRAKANT	37	48	85	A
181	22614	TAWARE SOURABH SANTOSH	36	49	85	A
182	22572	TIWARI SHIVANI SANJAY	48	48	96	O
183	22442	ULHARE SHRIKANT BALU	37	39	76	B
184	22474	UMTEKAR MAYURI PRABHAKAR	44	48	92	O
185	22573	UNAWANE SHUBHAM SANJAY	42	38	80	A
186	22599	UNNATI BALKRUSHNA BHANSALI	40	50	90	O
187	22600	VAISHNAVI LAXMAN BORWAR	42	47	89	A
188	22574	VAISHNAVI SHARAD CHATARKAR	42	46	88	A
189	22575	VRUSHABH SANJAY GURJAR	36	47	83	A
190	22516	WAGHMARE ANIL NAMDEV	44	50	94	O
191	22576	WAGHMARE DATTATRAY NAMDEO	39	50	89	A
192	22577	WANI RACHANA DIPAK	42	47	89	A
193	22578	YADAV KRISHNA MAHENDRA	32	50	82	A
194	22601	YADAV MENKA INDAL	36	46	82	A
195	22403	YALLAL DIPAK BAPURAO	30	30	60	C
196	22602	YASH GOVIND BADOLE	42	50	92	O
197	22631	YASH MILIND RAMTEKE	32	50	82	A
198	22603	ZALTE ASAWARI SURAJ	32	50	82	A

The following calculations are made automatically based on data entries done in previous sheets , so do not enter any values in below tables

Example for University Assesment
50% Internal and 50% University

	INTERNAL (IA) (50marks)	University Assesment EXTERNAL (UA) (50marks)	Overall CO attainment (Average of Internal and External) = $50\%IA + 50\%UA$
CO1	2	3	2.5
CO2	2	2	2
CO3	3	2	2.5
CO4	1	3	2
CO5	2	2	1.5
CO6	3	3	3

*****Formula is $(50*3) + (50*2)$

CO1=2.5	CO2=2	CO3=2.5	CO4=2.0	CO5=1.5	CO6=3
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The following calculations are made automatically based on data entries done in previous sheets , so do not enter any values in below tables

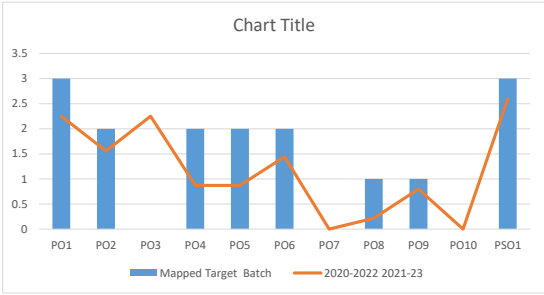
CO-PO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1
CO1	3			1			0				3
CO2	2	2			1						3
CO3		2	3			1		1			3
CO4								3		1	3
CO5	2		2								3
CO6		1	2			2			2		3
average	2.33333	1.66667	2.33333	1	1	1.5	0	2	2	1	3

[illegible]

BOM- Dr. Zam	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1
Mapped Target	3	2	0	2	2	2	0	1	1	0	3
Attained	2.252	1.558	2.252	0.87	0.87	1.44333		0.2175	0.8	0	2.6
Actions for less attainment	<p>Compare the knowledge, skills, and competencies expected from students in the course with the overall program requirements. Identify the gaps or areas of less attainment and determine the extent of misalignment.</p>										

		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1
Mapped Target	Batch	3	2	0	2	2	2	0	1	1	0	3
2020-2022	2021-23	2.252	1.558	2.252	0.87	0.87	1.4433		0.2175	0.8	0	2.6





MCA Program Outcomes, Program Specific Outcomes and Course outcomes

Following are the MCA Program Outcomes designed:

Institute has clearly defined learning outcomes on web portals shared to faculty, students, and parents. Learning outcomes are notified and made available on website.

The POs of MCA program are as follows:

1. PO1: Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.
2. PO2: Identify, formulate, research literature, and solve complex Computing problems reaching substantiated conclusions using fundamental principles of Mathematics, Computing sciences, and relevant domain disciplines.
3. PO3: Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
4. PO4: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
5. PO5: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.
6. PO6: Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practice.
7. PO7: Recognize the need, and have the ability, to engage in independent learning for continual development as a Computing professional.
8. PO8: Demonstrate knowledge and understanding of computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
9. PO9: Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.
10. PO10: Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.
11. PO11: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.
12. PO12: Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

Programme Specific Outcomes of MCA:

1. Learning of mathematics and computing fundamentals useful for various real life applications in order to provide simple, optimal and automated solutions for decision making.
2. Acquisition of knowledge about the technologies like Java, .NET, PHP, Mobile Computing and other internet technologies to develop commercial e-commerce websites, android applications, electronic trading platforms, gaming applications and digital advertising.



1. Competency in database concepts and data analytics for implementation in design and administration useful for policy making, cost reduction, faster and better decision making, developing new products and services.
2. Acquisition of knowledge about networking useful in network administration and application development.
3. Competency in operating system concepts beneficial for being good system administrators and OS developers of various gadgets.
4. Well versed with machine learning, image processing, graphic design applications and intelligent games by learning 'Python'.
5. Expertise in Cloud environment makes student to handle the challenges and opportunities in the technologies like SaaS, PaaS, IaaS.
6. Competent software developers groomed through software engineering and software project management.

MCA Course Outcomes:

Master of Computer Applications (2020 Pattern)

Semester-I

Course:	Java Programming
CO1	Student will be able to understand Basic Concepts of OOPs, Java, Inheritance, Package.
CO2	Student will be able to Understand Exception handling, arrays and Strings and multi-threading in Java
CO3	Student will be able to understand collection framework
CO4	Student will be able to develop GUI using Abstract Windows Toolkit (AWT) and event handling
CO5	Student will be able to develop Web application using JSP and Servlet, JDBC

Course:	Data Structure and Algorithms
CO1	Student will be able to demonstrate linear data structures linked list, stack and queue
CO2	Student will be able to implement tree, graph, hash table and heap data structures
CO3	Student will be able to apply brute force and backtracking techniques
CO4	Student will be able to demonstrate greedy and divide-conquer approaches
CO5	Student will be able to implement dynamic programming technique

Course:	Object Oriented Software Engineering
CO1	Student will be able to distinguish different process model for a software development.
CO2	Student will be able to design software requirements specification solution for a given problem/definitions of a software system
CO3	Student will be able to apply software engineering analysis/design knowledge to suggest solutions for simulated problems
CO4	Student will be able to design user interface layout for different types of applications
CO5	Student will be able to recognize and describe current trends in software engineering



Course:	Operating System Concepts
CO1	Student will be able to understand structure of OS, process management and synchronization.
CO2	Student will be able to understand multicore and multiprocessing OS.
CO3	Student will be able to explain realtime and embedded OS
CO4	Student will be able to understand Windows and Linux OS fundamentals and administration
CO5	Student will be able to solve shell scripting problems

Course:	Network Technologies
CO1	Student will be able to understand the basic concepts of computer network, and principle of layering
CO2	Student will be able to apply the error detection and correction techniques used in data transmission
CO3	Student will be able to apply ip addressing schemes and sub netting
CO4	Student will be able to understand the concept of routing protocols, application layer protocols and network security
CO5	Student will be able to apply the socket programming basics to create a simple chat application

Semester -II

Course:	Python Programming
CO1	Student will be able to understand demonstrate the concepts of python and modular programming.
CO2	Student will be able to apply the concepts of concurrency control in python
CO3	Student will be able to solve the real-life problems using object-oriented concepts and python libraries
CO4	Student will be able to demonstrate the concept of io, exception handling, database
CO5	Student will be able to analyze the given dataset and apply the data analysis concepts and data visualization

Course:	Software Project Management
CO1	Student will be able to understand the process of software project management framework and apply estimation techniques
CO2	Student will be able to learn the philosophy, principles and lifecycle of an agile project.
CO3	Student will be able to demonstrate agile teams and tools and apply agile project constraints and trade-offs for estimating project size and schedule
CO4	Student will be able to explain project tracking and interpretation of progress report
CO5	Student will be able to analyze problem statement and evaluate user stories



Course:	Optimization Techniques
CO1	Student will be able to understand the role and principles of optimization techniques in business world
CO2	Student will be able to demonstrate specific optimization technique for effective decision making
CO3	Student will be able to apply the optimization techniques in business environments
CO4	Student will be able to illustrate and infer for the business scenario
CO5	Student will be able to analyze the optimization techniques in strategic planning for optimal gain.

Course:	Advanced Internet Technologies
CO1	Student will be able to Outline the basic concepts of Advance Internet Technologies
CO2	Student will be able to Design appropriate user interfaces and implements webpage based on given problem Statement
CO3	Student will be able to Implement concepts and methods of nodejs
CO4	Student will be able to Implement concepts and methods of Angular
CO5	Student will be able to Build Dynamic web pages using server-side PHP programming with Database Connectivity

Course:	Advanced DBMS
CO1	Student will be able to describe the core concepts of dbms and various databases used in real applications
CO2	Student will be able to design relational database using e-r model and normalization
CO3	Student will be able to demonstrate xml database and nonprocedural structural query languages for data access
CO4	Student will be able to explain concepts of parallel, distributed and object-oriented databases and their
CO5	Student will be able to apply transaction management, recovery management, backup and security –privacy concepts for database applications

Semester -III

Course:	Mobile Application Development
CO1	Student will be able to Understand Various Mobile Application Architectures. (Understand)
CO2	Student will be able to Apply different types of widgets and Layouts. (Apply)
CO3	Student will be able to Describe Web Services and Web Views in mobile applications. (Understand)
CO4	Student will be able to Implement data storing and retrieval methods in android. (Apply)
CO5	Student will be able to Demonstrate Hybrid Mobile App Framework. (Apply)

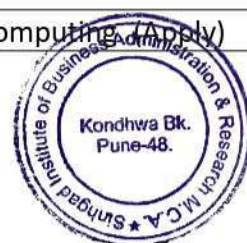


Course:	Data Warehousing and Data Mining
CO1	Student will be able to Understand Data warehouse concepts, architecture and models (Understand)
CO2	Student will be able to Learn and understand techniques of preprocessing on various kinds of data (Understand)
CO3	Student will be able to Apply association Mining and Classification Techniques on Data Sets (Apply)
CO4	Student will be able to Apply Clustering Techniques and Web Mining on Data Sets (Apply)
CO5	Student will be able to Understand other approaches of Data mining (Understand)

Course:	Software Testing and Quality Assurance
CO1	Student will be able to Understand the role of software quality assurance in contributing to the efficient delivery of software solutions. (Understand)
CO2	Student will be able to Demonstrate specific software tests with well-defined objectives and targets. (Apply)
CO3	Student will be able to Apply the software testing techniques in commercial environments. (Apply)
CO4	Student will be able to Construct test strategies and plans for software testing. (Analyze)
CO5	Student will be able to Demonstrate the usage of software testing tools for test effectiveness, efficiency and coverage (Apply)

Course:	Knowledge Representation and Artificial Intelligence: ML, DL
CO1	Student will be able to Understand basic building block of Artificial Intelligence and Knowledge Representation. (Understand)
CO2	Student will be able to Apply Propositional Logic for knowledge representation. (Apply)
CO3	Student will be able to Design various models based on Machine Learning methodology (Apply)
CO4	Student will be able to Design various models based on Deep Learning methodology (Apply)
CO5	Student will be able to Understand various hardware and software aspect used for AI and its application. (Understand)

Course:	Cloud Computing
CO1	Student will be able to Describe the concepts of Cloud Computing and its Service Models & Deployment Models. (Understand)
CO2	Student will be able to Classify the types of Virtualization. (Understand)
CO3	Student will be able to Describe the Cloud Management and relate Cloud to SOA. (Understand)
CO4	Student will be able to Interpret Architecture and Pharell Programming of Cloud Computing. (Apply)
CO5	Student will be able to Demonstrate practical implementation of Cloud computing. (Apply)



Course:	Practicals
CO1	Student will be able to Develop mobile application. (Apply)
CO2	Student will be able to Develop ML, DL models using Python (Apply)

Course:	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)

Course:	PPM&OB
CO1	Describe and analyze the interactions between multiple aspects of management. (Understand)
CO2	Analyze the role of planning and decision making in Organization (Analyze)
CO3	Justify the role of leadership qualities, Motivation and Team Building. (Analyze)
CO4	Analyze stress management and conflict management (Analyze)
CO5	Describe Personality and Individual Behavior (Understand)



THRESHOLD

For the year 2020 -2022 batch it has decided 70% as a Target/Threshold marks for internal as well as external assessment.

86% students got marks more than threshold marks (22marks, 86%) in internal assessment & 62% students got marks more than threshold marks (43marks, 62%) in External assessment
 Since Target / Threshold for average % of students for internal as well as external is very moderate

Hence for Internal

LOW = 50%

Medium = 60%

High = 70%

For External

LOW = 50%

Medium = 60%

High = 70%

Attain ment Level	Level name	Internal Assessment		External Assessment	
		% of students	Average Threshold Marks >= 22	% of students	Average Threshold Marks >=43
1	Low	50 %	70%	50 %	70%
2	Medium	60 %	70%	60 %	70%
3	High	70 %	70%	70 %	70%



THRESHOLD

PO attainment

CO-PO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
CO1	3	0		0	1				0		0	0	3
CO2	3				2	0							3
CO3	3												3
CO4	1		3		3		0	2					3
CO5	1		3		3			2		0			3
average	2.2	0	3	0	2.25	0	0	2	0	0	0	0	3



Sem I
 103 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190 1200 1210 1220 1230 1240 1250 1260 1270 1280 1290 1300 1310 1320 1330 1340 1350 1360 1370 1380 1390 1400 1410 1420 1430 1440 1450 1460 1470 1480 1490 1500 1510 1520 1530 1540 1550 1560 1570 1580 1590 1600 1610 1620 1630 1640 1650 1660 1670 1680 1690 1700 1710 1720 1730 1740 1750 1760 1770 1780 1790 1800 1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100 2110 2120 2130 2140 2150 2160 2170 2180 2190 2200 2210 2220 2230 2240 2250 2260 2270 2280 2290 2300 2310 2320 2330 2340 2350 2360 2370 2380 2390 2400 2410 2420 2430 2440 2450 2460 2470 2480 2490 2500 2510 2520 2530 2540 2550 2560 2570 2580 2590 2600 2610 2620 2630 2640 2650 2660 2670 2680 2690 2700 2710 2720 2730 2740 2750 2760 2770 2780 2790 2800 2810 2820 2830 2840 2850 2860 2870 2880 2890 2900 2910 2920 2930 2940 2950 2960 2970 2980 2990 3000 3010 3020 3030 3040 3050 3060 3070 3080 3090 3100 3110 3120 3130 3140 3150 3160 3170 3180 3190 3200 3210 3220 3230 3240 3250 3260 3270 3280 3290 3300 3310 3320 3330 3340 3350 3360 3370 3380 3390 3400 3410 3420 3430 3440 3450 3460 3470 3480 3490 3500 3510 3520 3530 3540 3550 3560 3570 3580 3590 3600 3610 3620 3630 3640 3650 3660 3670 3680 3690 3700 3710 3720 3730 3740 3750 3760 3770 3780 3790 3800 3810 3820 3830 3840 3850 3860 3870 3880 3890 3900 3910 3920 3930 3940 3950 3960 3970 3980 3990 4000 4010 4020 4030 4040 4050 4060 4070 4080 4090 4100 4110 4120 4130 4140 4150 4160 4170 4180 4190 4200 4210 4220 4230 4240 4250 4260 4270 4280 4290 4300 4310 4320 4330 4340 4350 4360 4370 4380 4390 4400 4410 4420 4430 4440 4450 4460 4470 4480 4490 4500 4510 4520 4530 4540 4550 4560 4570 4580 4590 4600 4610 4620 4630 4640 4650 4660 4670 4680 4690 4700 4710 4720 4730 4740 4750 4760 4770 4780 4790 4800 4810 4820 4830 4840 4850 4860 4870 4880 4890 4900 4910 4920 4930 4940 4950 4960 4970 4980 4990 5000 5010 5020 5030 5040 5050 5060 5070 5080 5090 5100 5110 5120 5130 5140 5150 5160 5170 5180 5190 5200 5210 5220 5230 5240 5250 5260 5270 5280 5290 5300 5310 5320 5330 5340 5350 5360 5370 5380 5390 5400 5410 5420 5430 5440 5450 5460 5470 5480 5490 5500 5510 5520 5530 5540 5550 5560 5570 5580 5590 5600 5610 5620 5630 5640 5650 5660 5670 5680 5690 5700 5710 5720 5730 5740 5750 5760 5770 5780 5790 5800 5810 5820 5830 5840 5850 5860 5870 5880 5890 5900 5910 5920 5930 5940 5950 5960 5970 5980 5990 6000 6010 6020 6030 6040 6050 6060 6070 6080 6090 6100 6110 6120 6130 6140 6150 6160 6170 6180 6190 6200 6210 6220 6230 6240 6250 6260 6270 6280 6290 6300 6310 6320 6330 6340 6350 6360 6370 6380 6390 6400 6410 6420 6430 6440 6450 6460 6470 6480 6490 6500 6510 6520 6530 6540 6550 6560 6570 6580 6590 6600 6610 6620 6630 6640 6650 6660 6670 6680 6690 6700 6710 6720 6730 6740 6750 6760 6770 6780 6790 6800 6810 6820 6830 6840 6850 6860 6870 6880 6890 6900 6910 6920 6930 6940 6950 6960 6970 6980 6990 7000 7010 7020 7030 7040 7050 7060 7070 7080 7090 7100 7110 7120 7130 7140 7150 7160 7170 7180 7190 7200 7210 7220 7230 7240 7250 7260 7270 7280 7290 7300 7310 7320 7330 7340 7350 7360 7370 7380 7390 7400 7410 7420 7430 7440 7450 7460 7470 7480 7490 7500 7510 7520 7530 7540 7550 7560 7570 7580 7590 7600 7610 7620 7630 7640 7650 7660 7670 7680 7690 7700 7710 7720 7730 7740 7750 7760 7770 7780 7790 7800 7810 7820 7830 7840 7850 7860 7870 7880 7890 7900 7910 7920 7930 7940 7950 7960 7970 7980 7990 8000 8010 8020 8030 8040 8050 8060 8070 8080 8090 8100 8110 8120 8130 8140 8150 8160 8170 8180 8190 8200 8210 8220 8230 8240 8250 8260 8270 8280 8290 8300 8310 8320 8330 8340 8350 8360 8370 8380 8390 8400 8410 8420 8430 8440 8450 8460 8470 8480 8490 8500 8510 8520 8530 8540 8550 8560 8570 8580 8590 8600 8610 8620 8630 8640 8650 8660 8670 8680 8690 8700 8710 8720 8730 8740 8750 8760 8770 8780 8790 8800 8810 8820 8830 8840 8850

Sub.: IT14 Operating System Concepts

Faculty: Priya Chaudhari

Approved by AICTE, New Delhi

CO ID#	Description	Mapping at the levels		
		3 Substantial	2 Moderate	1 Low
C01:	Student will be able to Understand Basic Concepts of OOPs, Java, Inheritance,	PO1		PO5
C02:	Understand Exception handling, arrays and Strings	PO1	PO5	
C03:	framework (Understand)	PO1		
C04:	Develop GUI using Abstract Windows Toolkit (AWT) and	PO3, PO5	PO8	PO1
C05:	Develop Web application using JSP and Servlet, JDBC (Apply)	PO3, PO5	PO8	PO1

Assessment Plan for Attainment							
Assessment	Asgg 1	Asgg 2	Asgg 3	Asgg 4	Test 1	Test 2	Prelim
COs	CO1	CO2	CO3, CO4	CO3, CO5	CO1, CO2	CO2, CO3, CO4	CO1, CO2, CO3, CO4, CO5
Max Marks	10	10	10	10	20	20	50
Chapter	1,2,3,4	5,6,7	8,9,10	11,12,13	1,2,3,4,5	6,7,8,9,10,11	All

Sr. No.	Topics Details	CO Mapped
1	<ul style="list-style-type: none"> 1. Introduction - <ul style="list-style-type: none"> 1.1 About Java 1.2 Flavours of Java 1.3 Java Installation 1.4 Java Program Development Environment 	CO1
2	<ul style="list-style-type: none"> 2. Object Oriented Programming <ul style="list-style-type: none"> 2.1 Class Fundamentals 2.2 Object & Object reference 2.3 Object Life time & Garbage Collection 2.4 Creating and Operating Objects 2.5 Constructor & Initialization code block 2.6 Access Control, Modifiers, Use of Modifiers with Classes & Methods. 2.7 Nested, Inner Class & Anonymous Classes, Abstract Class & Interfaces 2.8 Methods, Defining Methods, Argument Passing Mechanism, Method Overloading, Recursion, Dealing with Static Members, Finalize () Method, Native Method. 2.9 Use of "this" reference. 2.10 Design of Accessors and Mutator Methods 	CO1
3	<ul style="list-style-type: none"> 3. Extending Classes and Inheritance <ul style="list-style-type: none"> 3.1 Use and Benefits of Inheritance in OOP 3.2 Types of Inheritance in Java 3.3 Inheriting Data members and Methods 3.4 Role of Constructors in inheritance 3.5 Overriding Super Class Methods, Use of "super" 3.6 Polymorphism in inheritance 3.7 Type Compatibility and Conversion 3.8 Implementing interfaces 	CO1



4	<p>4. Package</p> <p>4.1 Organizing Classes and Interfaces in Packages 4.2 Package as Access Protection</p> <p>4.3 Defining Package</p> <p>4.4 CLASSPATH Setting for Packages</p> <p>4.5 Making JAR Files for Library Packages</p> <p>4.6 Import and Static Import</p> <p>4.7 Naming Convention for Packages.</p>	CO1
5	<p>5. Exception Handling</p> <p>5.1 The Idea behind Exception</p> <p>5.2 Exceptions & Errors</p> <p>5.3 Types of Exception</p> <p>5.4 Control Flow in Exceptions</p> <p>5.5 JVM reaction to Exceptions</p> <p>5.6 Use of try, catch, finally, throw, throws in Exception Handling</p> <p>5.7 In-built and User Defined Exceptions Checked and Un-Checked Exceptions</p>	CO2
6	<p>6. Array & String:</p> <p>6.1 Defining an Array</p> <p>6.2 Initializing & Accessing Array</p> <p>6.3 Multi –Dimensional Array</p> <p>6.4 Operation on String, Mutable & Immutable String</p> <p>6.5 Using Collection Bases Loop for String, Tokenizing a String</p> <p>6.6 Creating Strings using StringBuffer, String Builder</p>	CO2
7	<p>7. Thread</p> <p>7.1 Understanding Threads</p> <p>7.2 Needs of Multi-Threaded Programming 7.3 Thread Life-Cycle</p> <p>7.4 Thread Priorities</p> <p>7.5 Synchronizing Threads</p> <p>7.6 Inter Communication of Threads</p> <p>7.7 Critical Factor in Thread –Deadlock</p>	CO2
8	<p>8. A Collection of Useful Classes</p> <p>8.1 Utility Methods for Arrays 8.2 Observable and Observer Objects,</p> <p>8.3 Date & Times, 8.4 Using Scanner</p> <p>8.5 Regular Expression,</p> <p>8.6 Input/output Operation in Java (java.io Package)</p> <p>8.7 Streams and the new I/O Capabilities</p> <p>8.7.1 Understanding Streams</p> <p>8.7.2 The Classes for Input and Output</p> <p>8.7.3 The Standard Streams 8.8 Working with File Object</p> <p>8.8.1 File I/O Basics, 8.8.2 Reading and Writing to Files</p> <p>8.8.3 Buffer and Buffer Management</p> <p>8.8.4 Read/Write Operations with File Channel</p> <p>8.9 Serializing Objects</p>	CO3
9	<p>9. UI Programming</p> <p>9.1 Designing Graphical User Interfaces in Java,</p> <p>9.2 Components and Containers, 9.3 Basics of Components</p> <p>9.4 Using Containers 9.5 Layout Managers,</p> <p>9.6 AWT Components 9.7 Adding a Menu to Window</p> <p>9.8 Extending GUI Features Using Swing Components</p>	CO4



10	10. Event Handling 10.1 Event-Driven Programming in Java 10.2 Event- Handling Process 10.3 Event Handling Mechanism 10.4 The Delegation Model of Event Handling	CO4
11	11. The Collection Framework 11.1 Introduction to Java Frameworks 11.2 Collections of Objects 11.3 Collection Types, Sets, Sequence, Map 11.4 Understanding Hashing 11.5 Use of ArrayList & Vector	CO3
12	12. Database Programming using JDBC 12.1 Introduction to JDBC 12.2 JDBC Drivers & Architecture 12.3 CURD operation Using JDBC 12.4 Connecting to non-conventional databases	CO5
13	13. Java Server Technologies 13.1 Servlet Web Application Basics, 13.2 Architecture and challenges of Web Application 13.3 Introduction to servlet 13.4 Introduction to JSP 13.5 Servlet life cycle 13.6 Developing and Deploying Servlets, Exploring Deployment Descriptor (web.xml) 13.7 Handling Request and Response.	CO5

MCA Programme Outcomes (POs)

At the end of the MCA programme the learner will possess the following Program Outcome

PO1	Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.
PO2	Identify, formulate, research literature, and solve complex Computing problems reaching substantiated conclusions using fundamental principles of Mathematics, Computing sciences, and relevant domain disciplines.
PO3	Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations
PO4	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
PO5	Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.
PO6	Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practice.
PO7	Recognize the need, and have the ability, to engage in independent learning for continual development as a Computing professional.
PO8	Demonstrate knowledge and understanding of computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO9	Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.



PO10	Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.
PO11	Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.
PO12	Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large

CO-CALCULATIONS

SR.NO.	Roll No.	Name of the Student	I	W	T
1	21259	ADAGALE AARTI BHAGWAT	25	50	75
2	21257	AARTI KISHORE LOKHANDE	18	50	63
3	21258	ABHISHEK RAJESH TOHARE	22	50	70
4	21260	AHIRE SAGAR DIPAK	20	50	70
5	21312	KATRE AJINKYA DATTATRAY	22	50	72
6	21380	UTEKAR AKSHAY ASHOK	20	50	69
7	21376	TAKE AKSHAY JAGAN	21	50	71
8	21267	BAJAJ AMRUTA AMBERNATH	19	50	57
9	21263	ANKIT SENGAR VIMLESH	20	50	70
10	21264	ASOLE KUNAL GOPALRAO	21	50	63
11	21265	BADHE SHRADHA ULHAS	20	50	70
12	21266	BAGWAN MUSTAKEEM RAJAK	22	50	67
13	21268	BANKAR HEMANGI CHANDRAKANT	21	50	67
14	21270	BHAGWAT SARVESH NITIN	21	50	65
15	21271	BHALEKAR VAISHNAVI KHANDU	22	50	66
16	21272	BHARATESH RAMANNA RODAGE	18	50	66
17	21273	BHONDAVE RANGOU SUNIL	21	50	69
18	21274	BHOSALE VISHAL SHRIDHAR	21	50	70
19	21275	BHUSHAN DILIPRAO MATTE	14	50	63
20	21254	BODKE YOGESH SANJAY	19	50	52
21	21278	CHANDERSHEKHAR SANJAY GORSE	15	50	59
22	21281	CHAVAN VIVEK DAYANAND	21	50	71
23	21282	CHOPADE AKASH MAHESH	20	50	65
24	21284	DAKE KISHORE SAWATA	19	50	69
25	21285	DAREKAR SHIVRAJ SAMBHAI	19	50	69
26	21286	DAVARE MADHURI RAJARAM	21	50	71
27	21269	BANSODE DHEERAJ RAJKUMAR	22	50	69
28	21290	DUBEY PRASHANT MAHENDRA	19	50	50
29	21291	EKBOTE ATHARV SRINIVAS	22	50	69
30	21292	ERANDE RUTUJA RANGANATH	19	50	69
31	21293	EZEKIEL SHIRLEY DANIEL	18	50	64
32	21302	JAHANGIR FAIZAN TOFIQ	21	50	71
33	21307	KALE GANESH SANJAY	20	50	69
34	21294	GALURAV PUNYANI	20	50	70
35	21295	GAURI SANJU TAPPE	20	50	70
36	21316	KULKARNI GAYATRI BHASKAR	22	50	72
37	21279	CHAUDHARI HARSHADA SUBODH	21	50	69
38	21288	DESALE HIMANSHU ASHOK	22	50	72
39	21367	SHAIKH HUZAF ABID	21	50	71
40	21298	INDU KUMARI	17	50	65
41	21382	VISHAKHA VINODRAO INGOLE	18	50	55
42	21384	WANI ISHA RAMESH	20	50	65
43	21299	ISHWARKAR HEMANT RAMESH	21	50	71
44	21340	NIVEDITA ANKUSH JADHAV	21	50	71

Total No. of Students	134
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AVERAGE (Threshold marks)	I	W	T
	25	50	75
Average % of Threshold marks	20	47	67
	80	94	89
No. of students with marks greater than Threshold marks	95	20	11
Average % of students who scored more than Threshold marks	71	15	9
Level	2	2	2

80% students got marks more than threshold marks (20marks, 70%) in internal assessment
Level=2 (Refer Targets)

INTERNAL CO1, CO2, CO3, CO4, CO5

94% students got marks more than threshold marks (47marks, 94%) in External assessment
Level=2 (Refer Targets)

EXTERNAL CO1, CO2, CO3, CO4, CO5



45 21300 JADHAV SUNNY SHASHIKANT
 46 21303 JAIN SAMRUDHI MANOJ KUMAR
 47 21304 JEDHE VAISHNAVI SUNIL
 48 21306 KADAM MOHINI MAHADEV
 49 21261 AKSHATA MAHADEV KAMBLE
 50 21308 KANDEKAR AKSHAY AMBADAS
 51 21309 KARAKALL PRAVEEN PEERAGOND
 52 21387 YUTI ANIL KARIYA
 53 21313 KHAN MOHAMMAD ZAID
 54 21314 KHATATE SUNIL TANAJI
 55 21276 BIBI KHUTEJA ZUBAIR
 56 21315 KORDE SAKSHI SUNIL
 57 21317 KURMUDE AJINKYA SANDIP
 58 21319 LANJEWAR NAMRATA SATISH
 59 21320 LONDHE PREETI SANJAY
 60 21321 MAHATO PRADEEP GOPAL
 61 21322 MAHATO VIVEK SURESH
 62 21323 MAILARKAR SANDEEP VENKATESH
 63 21324 MANDALE AJIT BALAJI
 64 21325 MANIYAR SOHEL MUSTAFA
 65 21280 CHAVAN MANSI DEEPAK
 66 21326 MARWAAN MUNIR MEMON
 67 21327 MELEKAR MANALI SHRIKRISHNA
 68 21289 DISHA PRAVIN MITHE
 69 21329 MO SUFIYAN SHAHIR
 70 21330 MOHAMMAD FAIZAN AYAZUDDIN
 71 21374 SIYAM MUSTAFA HAKIMUDDIN
 72 21332 NADAF AFREEN SAIDUSAB
 73 21333 NAIK DURGESH VASUDEV
 74 21310 KARUNA DILIP NAIK
 75 21334 NAMPALLIWAR SNEHAL RAJU
 76 21335 NARKE SHUBHAM PRADEEP
 77 21337 NAWALE SHIVANI SANJAY
 78 21338 NIKAJE HRITIK ANIL
 79 21255 NIKHIL NAGORAO BHALEKARI
 80 21339 NIMBALKAR SHILPA SHANTARAM
 81 21341 OHOL PRAVIN SATISH
 82 21318 LANDGE OM SATISH
 83 21328 MHASKE OMKAR PRALHAD
 84 21342 PAL SHARMISTHA PRATYUSH
 85 21256 PATIL KEDAR AVINASH
 86 21344 PATLE SWATI PRITIRAJ
 87 21345 PAWAR NIPUL SANJAY
 88 21346 PHADATARE PRATIKSHA MOHAN
 89 21347 PRAJWAL PRABHULING HAWASHETTI
 90 21336 NAVGHANE PRANIT HARISHCHANDRA
 91 21348 PRATHAMESH AVINASH ROGE
 92 21349 PRATIK RAVIKANT TAJNE
 93 21350 RAHUL UDAYKUMAR PATIL
 94 21351 RANPISE SOURABH MILIND
 95 21352 RAUT PIYANKA DILIP
 96 21353 RITIK TIKARAM CHOUDHARI
 97 21363 SAYYAD MOHAMMAD RIJWAN
 98 21296 GIRME ROHAN HANUMANT
 99 21311 KASBEKAR ROHINI
 100 21354 ROSHAN PRANOD MUNESHWAR
 101 21356 SABALE AISHWARYA VIJAY
 102 21359 SALUNKE SACHIN JANKIRAM
 103 21357 SAHANE SHUBHAM SANJAY
 104

18	50	64
20	50	68
20	50	69
22	50	72
21	50	71
18	50	68
21	50	71
20	50	70
20	50	70
20	50	68
20	50	70
21	50	62
20	50	70
21	50	66
20	50	70
20	50	69
15	50	63
22	50	72
20	50	70
19	50	62
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20	47	70
19	47	69
19	46	69
21	46	62
21	46	71
19	46	62
22	46	72
21	46	70
20	45	70
21	45	56
21	45	67
19	45	69



105	21358	SALUNKE AAKASH PRASHANT	20	45	66
106	21360	SANMANE PRIYANKA SIDDHARAM	21	45	71
107	21361	SAPAR DIKSHA VITTHAL	23	45	73
108	21365	SETHIA SMITH NILESH	22	44	72
109	21366	SAYYED SHAGNAM SHAFIQ	23	44	73
110	21368	SHAIKH ASIFAR LUTFARAHAMAN	21	44	71
111	21369	SHAIKH JUNAID SAJJAD	19	44	65
112	21370	SHAIKH JUNEED RAIS	22	44	70
113	21370	SHAMSAD AHMAD TARABUNNISHA	22	44	70
114	21371	SHUBHAM AJAY VISHWAKARMA	19	43	60
115	21301	JAGDALE SHUBHAM ANKUSH	18	43	58
116	21297	GOLA SHUBHAM MAHADEV	19	43	69
117	21277	BORATE SHUBHAM PRAVIN	20	42	70
118	21287	DEOKAR SHUBHANGI NARAYAN	19	41	67
119	21372	SIMANT POOJA ANIL	21	41	71
120	21373	SIRSAT ANIL BABANRAO	16	41	36
121	21355	RUSHIKESH DNYANESHWARRAO SONAR	19	41	63
122	21375	SONWAL VISHAL GORAKH	21	41	71
123	21283	DAGADE SUKESHANA SHRIMANT	16	41	36
124	21378	TAMBE SUMEET SANJAY	19	41	63
125	21262	AMBI SUYOG SUBHASH	21	41	70
126	21377	TAKWALE ANTHONY RAJESH	20	40	70
127	21379	TAMBOOLI AJHAR SALIM	19	38	69
128	21362	SARVESH VILAS TARHEKAR	17	37	59
129	21305	KABRA VIJAYA ARUN	20	36	68
130	21381	VIJAYALAXMI MAHADEV SHEJALE	21	35	64
131	21331	MORE VIVEK ASHOK	23	33	73
132	21383	WAGHMARE VISHAL SUNIL	18	33	61
133	21385	YADAV RAJESH MAHENDRAPRASAD	20	31	67
134	21386	YOGESH SANJAY MALI	19	20	66



The following calculations are made automatically based on data entries done in previous sheets , so do not enter any values in below tables

OVERALL CO-ATTAINMENT

Example for University Assessment
40% Internal and 60% University

	INTERNAL (IA) (25 marks)	University Assessment EXTERNAL (UA) (50 marks)	Overall CO attainment (Average of Internal and External) = 40%IA+60%
CO1	3	2	1.75
CO2	2	2	1.5
CO3	3	2	1.75
CO4	2	2	1.5
CO5	1	2	1.25

*****Formula is (0.4*3)+(0.6*2)

CO1=1.75	CO2=1.5	CO3=1.75	CO4=1.5	CO5=1.25
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CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1
CO1	3	0			0	1			0			0	3
CO2	3				2	0							3
CO3	3												3
CO4	1		3		3		0	2					3
CO5	1		3		3			2					3
average	1.2	1.25	1.33333	1.33	1.2	0	1	2	1	1	1	1	3

CO No.	Direct	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1
CO1	Mapped	3	0			1								
	Attainment	2	0	0	0	0.67	0	0	0	0	0	0	0	3
CO2	Mapped	3				2	0							
	Attainment	2	0	0	0	1.33	0	0	0	0	0	0	0	3
CO3	Mapped	3												
	Attainment	2	0	0	0	0	0	0	0	0	0	0	0	2
CO4	Mapped	1		3		3		0	2					
	Attainment	2	0	0	0	0	0	0	1.33	0	0	0	0	3
CO5	Mapped	1		3		3			2		0			
	Attainment	0.67	0	2	0	2	0	0	1.33	0	0	0	0	3
Weighted avg. Direct		1.87909	0	1	0	1.036667	0	0	1.33	0	0	0	0	2

JP

Dr. Priya Choudhary	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
Mapped Target	1.2	1.25	1.33333	1.33333333	1.20	0.00	1.00	2.00	1.00	1.00	1.00	1.00	3
Attained	1.8791	0	1	0	1.03667	0	0	1.33	0	0	0	0	2
Modify teaching strategies: Adapt teaching strategies to bridge the gap between the course outcomes and program outcomes. Incorporate active learning methods, practical applications, case studies, or group projects to enhance student engagement and attainment of desired outcomes.													
Actions for less attainment													



THRESHOLD

OVERALL PO-ATTAINMENT

BATCH	Mapped Target-AY	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01
2020-2022	2021-23	1.2	1.25	1.3333	1.3333	1.2	0	1	2	1	1	1	1	3
		1.879090909	0	1	0	1.036666667	0	0	1.33	0	0	0	0	2

