

Academic Year	2022-23
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**B.P.H.E. Society's
Ahmednagar College, Ahmednagar
Internal Quality Assurance Cell
CO, PO, and PSO Attainment Sheet**

Department Name	Computer Science
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Program Name	M.Sc. in Computer Application
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Program Outcomes(PO)

PO1	To produce knowledgeable and skilled human resources that is employable in IT and ITES.
PO2	To impart knowledge required for planning, designing and building Complex Application Software Systems as well as to provide support for automated systems or applications.
PO3	To produce entrepreneurs
PO4	Students are expected to gain proficiency in multiple programming languages and develop the ability to write efficient, reliable, and maintainable code.
PO5	Depending on the chosen track or concentration, students may develop expertise in areas
PO6	
PO7	
PO8	
PO9	
PO10	
PO11	
PO12	

Program Specific Outcome(PSO)

PSO1	Graduates should be equipped with the ability to analyze complex problems in computer science, design innovative solutions, and implement them effectively.
PSO2	Computer science professionals often work in multidisciplinary teams. Students should learn to collaborate effectively with team members, understand different perspectives, and contribute productively to achieve common goals.
PSO3	The program include On Job Training, internships, research work, research article and papers writing or a thesis that provides students with practical experience, applying their knowledge to real-world challenges.

Academic Year :

Computer Science

Class		FY M.Sc (Computer Applications)	Course Outcomes	Program Outcomes					PSOs					
Subject Code	Subject Name	Semester No		Teacher Name	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3		
CA - CCTP-1	Web Technology	I	Priyanka Bhagat	CO1	2	3	3	2	2	2	2	2		
				CO2	2	3	1	3	2	2	2	1		
				CO3	3	1	1	1	2	1	2	2		
				CO4										
				CO5										
				Average	2.33	2.33	1.67	2.00	2.00	1.67	2.00	1.67		
				CO1	Develop web based application using suitable client side and server side web technologies.									
				CO2	Build Dynamic web site using server side PHP Programming and Database connectivity.									
				CO3	Build applications using AJAX and XML									
				CO4										
				CO5										

Class		FY M.Sc (Computer Applications)	Course Outcomes	Program Outcomes						PSOs				
Subject Code	Subject Name	Semester No			Teacher Name	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	
CA - CCTP-2	Advance Databases	I	Nivedita Waghmare	CO1	3	2	1	2	2	1	1	2		
				CO2	3	2	1	1	1	2	2	1		
				CO3	2	1	2	1	1	1	2	1		
				CO4	2	2	3	1	1	2	2	1		
				CO5	1	2	2	2	1	1	1	1		
				Average	2.20	1.80	1.80	1.40	1.20	1.40	1.60	1.20		
				CO1	Write Embedded and dynamic queries using SQL/PLSQL									
				CO2	Define PL/PgSQL Language structure (Views, Functions, cursors, Triggers).									
				CO3	Classify Encryption Techniques for security									
				CO4	Solve Problems on Checkpoints to achieve Transaction recovery									
				CO5	Identify Crash Recovery Techniques used to recover Transaction.									

Class		FY M.Sc (Computer Applications)		Program Outcomes					PSOs		
Subject Code	CA - CCTP-3	Course Outcomes		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Design, Analysis and Algorithm (DAA)	CO1		3	3	3	2	2	2	2	2
Semester No	I	CO2		2	3	2	2	2	1	2	3
Teacher Name	Pathan Arshiya	CO3		3	2	2	2	2	2	2	1
Course Outcomes		CO4		2	2	1	2	1	3	2	2
CO1	Explain Greedy method and solve the problems using this method;	CO5		2	2	1	1	2	1	2	1
CO2	Discuss Dynamic programming and solve the problems using this strategy;	Average		2.40	2.40	1.80	1.80	1.80	1.80	2.00	1.80
CO3	Interpret the concepts of Decrease and conquer strategy and solve the problems using this method;										
CO4	Discuss Backtracking and solve the problems using this method;										
CO5	Analyze & classify the different class of problems.										

Class		FY M.Sc (Computer Applications)		Program Outcomes					PSOs		
Subject Code	CA - CBOP-1 A	Course Outcomes		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	OBJECT ORIENTED PROGRAMMING WITH C++	CO1		3	2	2	3	3	3	3	2
Semester No	I	CO2		3	2	2	3	3	2	2	2
Teacher Name	Awate Sheetal	CO3		2	2	3	2	3	3	2	2
Course Outcomes		CO4		2	3	3	2	2	2	2	2
CO1	Classify their problems and solve it by using appropriate feature of OOPs.	CO5		2	2	1	1	1	2	2	3
CO2	Describe programming problems as per their programming need	Average		2.40	2.20	2.20	2.20	2.40	2.40	2.20	2.20
CO3	Classify their problems and solve it by using appropriate feature of OOPs.										
CO4	Apply the knowledge of OOPs for various data bases.										
CO5	Evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes.										

Class		FY M.Sc (Computer Applications)		Program Outcomes					PSOs		
Subject Code	CA - CBOP-1 A (LABORATORY)	Course Outcomes		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Object Oriented Programming with C++ Laboratory	CO1		3	3	3	3	2	3	3	3
Semester No	I	CO2		2	2	3	3	2	2	2	3
Teacher Name	Arshiya Pathan	CO3		2	3	3	1	2	2	3	3
Course Outcomes		CO4									
CO1	Design programs for various applications.	CO5									

CO2	Use OOP concepts to solve problems.	Average	2.33	2.67	3.00	2.33	2.00	2.33	2.67	3.00
CO3	Create small scale applications using object oriented programming (OOPs).									
CO4										
CO5										

Class		FY M.Sc (Computer Applications)		Program Outcomes					PSOs		
Subject Code	CA - CCPP-1	Course Outcomes		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Web Technology Laboratory	CO1		3	2	2	3	3	3	2	2
Semester No	I	CO2		2	2	2	3	3	2	2	2
Teacher Name	Priyanka Bhagat	CO3		3	2	3	2	3	2	2	3
Course Outcomes		CO4		2	2	3	2	2	2	2	2
CO1	Demonstrate the web pages more dynamic and interactive.	CO5									
CO2	Classify the functions of specific types of web pages.	Average		2.50	2.00	2.50	2.50	2.75	2.25	2.00	2.25
CO3	Select the HTML5 technology to develop dynamic web pages										
CO4	Create webpages using HTML5, CSS, PHP and JavaScript.										
CO5											

Class		FY M.Sc (Computer Applications)		Program Outcomes					PSOs		
Subject Code	CA - CCTP-4	Course Outcomes		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Data Mining& Data Warehousing	CO1		2	1	2	2	2	1	2	2
Semester No	I	CO2		3	2	3	2	1	2	2	2
Teacher Name	Abhijita Jagtap	CO3		1	2	2	2	2	1	2	2
Course Outcomes		CO4		1	1	1	1	1	1	1	1
CO1	Interpret the basic concepts of data mining and its applications.	CO5									
CO2	Explain various data mining techniques and solve the problem using those techniques.	Average		1.75	1.50	2.00	1.75	1.50	1.25	1.75	1.75
CO3	Describe classification and prediction algorithms and solve the problem using those techniques.										
CO4	Discuss data warehousing and its architecture;										
CO5											

Class		FY M.Sc (Computer Applications)		Program Outcomes					PSOs		
Subject Code	CA - CCTP-5	Course Outcomes		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	OPERATING SYSTEMS	CO1		2	3	1	2	2	2	2	2
Semester No	II	CO2		3	2	2	2	2	2	2	3

Teacher Name	Pathan Iram	Course Outcomes	CO3	3	1	3	2	2	2	1	3
			CO4	2	1	2	1	1	3	2	2
			CO5	2	3	2	1	1	3	2	2
			Average	2.40	2.00	2.00	1.60	1.60	2.40	1.80	2.40
CO1	Explain basic concepts of operating system										
CO2	Describe algorithms for process, memory and disk scheduling										
CO3	Apply technique for inter-process communication and Multithreading.										
CO4	Implement concept of critical-section										
CO5	Compare and contrast deadlock avoidance and prevention. Use functions for file system management										

Class	FY M.Sc (Computer Applications)	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CA - CCTP-6		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Computer Networks	CO1	2	3	3	1	1	2	2	2
Semester No	II	CO2	3	2	2	1	1	1	2	2
Teacher Name	Shaikh Shaheen	CO3	3	2	2	1	2	2	1	1
Course Outcomes		CO4	2	2	2	1	1	1	2	1
		CO5								
		Average	2.50	2.25	2.25	1.00	1.25	1.50	1.75	1.50
CO1	Analyze the requirements for a given organization and select appropriate network architecture, topologies, transmission mediums and technologies.									
CO2	Analyze data flow between TCP/IP model using Application, Transport and Network Layer Protocols.									
CO3	Illustrate applications of Computer Network.									
CO4	Compare and contrast different routing and switching algorithms									
CO5										

Class	FY M.Sc (Computer Applications)	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CA - CBOTP-2A		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Java Programming	CO1	3	2	3	3	2	3	2	2
Semester No	II	CO2	2	3	2	3	2	2	2	3
Teacher Name	Priyanka Bhagat	CO3	1	3	3	3	3	3	2	2
Course Outcomes		CO4	2	3	2	2	2	3	3	2
		CO5	3	2	1	2	2	2	3	2
		Average	2.20	2.60	2.20	2.60	2.20	2.60	2.40	2.20
CO1	Identify classes, objects, class members and relationships for a given problem									
CO2	Design end to end applications using object-oriented constructs.									
CO3	Apply collection classes for storing java objects.									
CO4	Use Java APIs for program development.									
CO5	Handle abnormal termination of a program using exception handling									

Class		FYM.Sc (Computer Applications)	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CA - CBOPP-2A			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Java Programming Laboratory		CO1	3	3	3	3	2	2	3	3
Semester No	II		CO2	3	3	3	3	3	2	2	2
Teacher Name	Priyanka Bhagat		CO3	3	2	2	3	2	2	3	2
Course Outcomes			CO4	3	3	3	2	2	2	2	2
	CO1	Use the Java SDK environment to create, debug and run simple Java programs.	CO5	3	2	3	3	2	3	2	2
	CO2	Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with response to events.	Average	3.00	2.60	2.80	2.80	2.20	2.20	2.40	2.20
	CO3	Design end to end applications using object-oriented constructs.									
	CO4	Design programs using Servlets.									
	CO5	Design applications and its connectivity									

Class		FY M.Sc (Computer Applications)	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CA - CCPP-2			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Data Mining and Ware Housing Laboratory		CO1	2	2	2	2	2	2	2	2
Semester No	II		CO2	3	2	3	2	2	2	3	2
Teacher Name	Abhijita Jagtap		CO3	2	2	2	2	1	2	2	3
Course Outcomes			CO4	2	2	2	2	1	2	2	2
	CO1	Summarize the various accuracy measures	CO5								
	CO2	Discuss clustering algorithms and solve the problem using those techniques;	Average	2.25	2.00	2.25	2.00	1.50	2.00	2.25	2.25
	CO3	Explain the advanced techniques such as text mining and web mining.									
	CO4	Describe classification and prediction algorithms and solve the problem using those techniques;									
	CO5										

Academic Year :

Computer Science

Class		S.Y. M.Sc (Computer Applications)		Course Outcomes	Program Outcomes					PSOs				
Subject Code	Subject Name	Semester No	Teacher Name		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3		
CA- CCTP -7	Mobile Application Development Using Android	SEM-III	Mrs. Madhavi Dethe	CO1	2	2	2	3	2	2	2	2		
				CO2	2	3	2	3	2	2	3	2		
				CO3	3	2	2	3	2	2	1	2		
				CO4	2	1	1	2	2	3	2	3		
				CO5										
				Average	2.25	2.00	1.75	2.75	2.00	2.25	2.00	2.25		
				CO1	Describe the process of developing mobile applications.									
				CO2	Create mobile applications on the Android Platform.									
				CO3	Design and implement mobile applications involving data storage in SQLite database									
				CO4	Use location-based services while developing applications									
				CO5										

Class		S.Y. M.Sc (Computer Applications)		Course Outcomes	Program Outcomes					PSOs		
Subject Code	Subject Name	Semester No	Teacher Name		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
CA- CCTP-8	Internet of Things (IoT)	SEM-III	Mrs. Abhijeeta Jagtap	CO1	1	2	2	1	2	2	2	2
				CO2	2	1	2	1	1	1	2	1
				CO3								

Course Outcomes			CO4							
	CO1	Develop small Microcontroller based IoT application	CO5							
	CO2	Apply theoretical knowledge in real world scenario	Average	1.50	1.50	2.00	1.00	1.50	1.50	2.00
	CO3									
	CO4									
	CO5									

Class	S.Y. M.Sc (Computer Applications)		Course Outcomes	Program Outcomes					PSOs		
Subject Code	CA- CCTP-9			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Artificial Intelligence		CO1	2	2	2	1	2	2	2	2
Semester No	SEM-III		CO2	1	1	1	1	1	2	1	2
Teacher Name	Shaheen Shaikh		CO3								
Course Outcomes			CO4								
	CO1	Discuss the core concepts and algorithms of advanced AI	CO5								
	CO2	Apply the basic principles, models, and algorithms of AI to recognize, model.	Average	1.50	1.50	1.50	1.00	1.50	2.00	1.50	2.00
	CO3										
	CO4										
	CO5										

Class	S.Y. M.Sc (Computer Applications)		Course Outcomes	Program Outcomes					PSOs		
Subject Code	CA- CBOTP -3 A			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Python Programming		CO1	2	2	2	3	2	2	2	2
Semester No	SEM-III		CO2	2	1	2	3	3	2	2	1
Teacher Name	Karishma Rajpal		CO3	2	2	2	3	3	2	1	3

Teacher Name	Mrs. Madhavi Dethe		CO3	2	1	2	3	2	2	2	2
Course Outcomes			CO4	2	2	1	2	1	2	2	1
	CO1	Describe the process of developing mobile applications.	CO5								
	CO2	Create mobile applications on the Android Platform.	Average	2.00	1.75	1.75	2.50	1.75	2.00	2.50	2.00
	CO3	Design and implement mobile applications involving data storage in SQLite database									
	CO4	Use location-based services while developing applications									
	CO5										

Class	S.Y. M.Sc (Computer Applications)		Course Outcomes	Program Outcomes					PSOs		
Subject Code	CA-CCUP			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Industrial Training/on-campus Projects		CO1	2	2	2	2	3	2	2	2
Semester No	SEM-IV		CO2	2	1	2	2	2	3	2	1
Teacher Name	Mrs.Sheetal Awate		CO3	1	2	2	2	2	2	2	2
Course Outcomes			CO4	1	1	2	2	1			
	CO1	Apply fundamental principles of the subjects to solve real world problems	CO5								
	CO2	Become master in at least one specialized area	Average	1.50	1.50	2.00	2.00	2.00	2.33	2.00	1.67
	CO3	Able to communicate efficiently									
	CO4	Ability to identify, formulate and model problems and find solutions									
	CO5										

CO-PO Mapping

		Computer Science	Course	PO1	PO2	PO3	PO4	PO5
FY	FY	1	CA - CCTP-1	2.33	2.33	1.67	2.00	2.00
		2	CA - CCTP-2	2.20	1.80	1.80	1.40	1.20
		3	CA - CCTP-3	2.40	2.40	1.80	1.80	1.80
		4	CA - CBOP-1 A	2.40	2.20	2.20	2.20	2.40
		5	CA - CBOPP-1 A	2.33	2.67	3.00	2.33	2.00
		6	CA - CCPP-1	2.50	2.00	2.50	2.50	2.75
		7	CA - CCTP-4	1.75	1.50	2.00	1.75	1.50
		8	CA - CCTP-5	2.40	2.00	2.00	1.60	1.60
		9	CA - CCTP-6	2.50	2.25	2.25	1.00	1.25
		10	CA - CBOTP-2A	2.20	2.60	2.20	2.60	2.20
		11	CA - CBOPP-2A	3.00	2.60	2.80	2.80	2.20
		12	CA - CCPP-2	2.25	2.00	2.25	2.00	1.50
SY	SY	1	CA- CCTP -7	2.25	2.00	1.75	2.75	2.00
		2	CA- CCTP-8	1.50	1.50	2.00	1.00	1.50
		3	CA- CCTP-9	1.50	1.50	1.50	1.00	1.50
		4	CA- CBOTP -3 A	2.00	1.67	2.00	3.00	2.67
		5	CA- CBOPP -3 A	2.00	2.00	2.33	2.67	2.33
		6	CA- CCPP -3	2.00	1.75	1.75	2.50	1.75
		7	CA-CCUP	1.50	1.50	2.00	2.00	2.00

CO-PO ATTAINMENT

Percentage CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5
1.213333	1.213333	0.866666667	1.04	1.04
1.144	0.936	0.936	0.728	0.624
1.248	1.248	0.936	0.936	0.936
1.248	1.144	1.144	1.144	1.248
2.333333	2.666667	3	2.333333333	2
2.5	2	2.5	2.5	2.75
1.19	1.02	1.36	1.19	1.02
1.248	1.04	1.04	0.832	0.832
1.7	1.53	1.53	0.68	0.85
1.144	1.352	1.144	1.352	1.144
3	2.6	2.8	2.8	2.2
2.25	2	2.25	2	1.5
2.25	2	1.75	2.75	2
1.5	1.5	2	1	1.5
1.5	1.5	1.5	1	1.5
2	1.666667	2	3	2.666667
2	2	2.333333333	2.666666667	2.333333
2	1.75	1.75	2.5	1.75
1.5	1.5	2	2	2

PO1	PO2	PO3	PO4	PO5
52	52	52	52	52
52	52	52	52	52
52	52	52	52	52
52	52	52	52	52
100	100	100	100	100
100	100	100	100	100
68	68	68	68	68
52	52	52	52	52
68	68	68	68	68
52	52	52	52	52
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100

CO-PSO MAPPING

Computer Science

Course	PSO1	PSO2	PSO3
1 CA - CCTP-1	1.67	2.00	1.67
2 CA - CCTP-2	1.40	1.60	1.20
3 CA - CCTP-3	1.80	2.00	1.80
4 CA - CBOP-1 A	2.40	2.20	2.20
5 CA - CBOPP-1 A (LABORATORY)	2.33	2.67	3.00
6 CA - CCPP-1	2.25	2.00	2.25
7 CA - CCTP-4	1.25	1.75	1.75
8 CA - CCTP-5	2.40	1.80	2.40
9 CA - CCTP-6	1.50	1.75	1.50
10 CA - CBOTP-2A	2.60	2.40	2.20
11 CA - CBOPP-2A	2.20	2.40	2.20
12 CA - CCPP-2	2.00	2.25	2.25
1 CA- CCTP -7	2.25	2.00	2.25
2 CA- CCTP-8	1.50	2.00	1.50
3 CA- CCTP-9	2.00	1.50	2.00
4 CA- CBOTP -3 A	2.00	1.67	2.00
5 CA- CBOPP -3 A	2.33	2.33	2.33
6 CA- CCPP -3	2.00	2.50	2.00
7 CA-CCUP	2.33	2.00	1.67

CO-PSO ATTAINMENT

Course	PSO1	PSO2	PSO3
CA - CCTP-1	0.866667	1.04	0.866667
CA - CCTP-2	0.728	0.832	0.624
CA - CCTP-3	0.936	1.04	0.936
CA - CBOP-1 A	1.248	1.144	1.144
CA - CBOPP-1 A	2.333333	2.666667	3
CA - CCPP-1	2.25	2	2.25
CA - CCTP-4	0.85	1.19	1.19
CA - CCTP-5	1.248	0.936	1.248
CA - CCTP-6	1.02	1.19	1.02
CA - CBOTP-2A	1.352	1.248	1.144
CA - CBOPP-2A	2.2	2.4	2.2
CA - CCPP-2	2	2.25	2.25
CA- CCTP -7	2.25	2	2.25
CA- CCTP-8	1.5	2	1.5
CA- CCTP-9	2	1.5	2
CA- CBOTP -3 A	2	1.666667	2
CA- CBOPP -3 A	2.333333	2.333333	2.333333
CA- CCPP -3	2	2.5	2
CA-CCUP	2.333333	2	1.666667

Percentage CO-PSO ATTAINMENT

Course	PSO1	PSO2	PSO3
CA - CCTP-	52	52	52
CA - CCTP-	52	52	52
CA - CCTP-	52	52	52
CA - CBOP	52	52	52
CA - CBOP	100	100	100
CA - CCPP-	100	100	100
CA - CCTP-	68	68	68
CA - CCTP-	52	52	52
CA - CCTP-	68	68	68
CA - CBOT	52	52	52
CA - CBOP	100	100	100
CA - CCPP-	100	100	100
CA- CCTP -	100	100	100
CA- CCTP-8	100	100	100
CA- CCTP-9	100	100	100
CA- CBOTP	100	100	100
CA- CBOPP	100	100	100
CA- CCPP -	100	100	100
CA-CCUP	100	100	100

FY

SY