

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. (Computer Science)
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Program Outcomes(PO)

PO1	Enriched learning experience
PO2	Create technology-oriented students with the knowledge and ability to develop creative solutions
PO3	Better understand the effects of future developments of computer systems and technology on people and society
PO4	Develop skills to learn new technology
PO5	Grasping the concepts and issues behind its use and the use of computers.
PO6	
PO7	
PO8	
PO9	
PO10	
PO11	
PO12	

Program Specific Outcome(PSO)

PSO1	To develop standard practices and techniques in software development.
PSO2	Students will be able to learn principles of management which includes organization, planning, product design, development, maintenance
PSO3	Students will be able to understand data communication concepts and its applications. Network architecture, transmission of data, OSI Model

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Class		Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSUT111			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Paradigm of Programming Language		CO1	2	2	2	3	1	1	2	2
Semester No	I		CO2	3	3	2	3	2	2	2	2
Teacher Name	Komal Todakar		CO3	2	2	2	2	2	2	1	2
Course Outcomes			CO4	3	2	3	3	2	1	2	2
	CO1	Knowledge of Separate syntax from semantics	CO5	3	2	3	2	3	1	2	2
	CO2	Learn to compare programming language designs	Average	2.60	2.20	2.40	2.60	2.00	1.40	1.80	2.00
	CO3	Understand their strengths and weaknesses									
	CO4	Enhance to learn new languages more quickly									
	CO5	Understand basic language implementation techniques									

Class		Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSUT112			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Design and Analysis of Algorithm		CO1	3	3	2	2	3	2	2	2
Semester No	I		CO2	3	2	2	3	2	3	2	2
Teacher Name	Rahul Ghodake		CO3	3	2	3	2	2	1	2	2
Course Outcomes			CO4	3	2	3	2	2	2	1	2
	CO1	To select the appropriate algorithm by doing necessary analysis of algorithms	CO5	3	2	2	2	2	1	2	2
	CO2	To learn basic Algorithm Analysis techniques and understand the use of asymptotic notation	Average	3.00	2.20	2.40	2.20	2.20	1.80	1.80	2.00
	CO3	Understand the use of data structures in improving algorithm performance									
	CO4	To develop ability to understand and design algorithms in context of space and time complexity									
	CO5	Understand classification of problems									

Class		Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSUT113			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Database Technologies		CO1	3	2	2	2	1	2	2	1
Semester No	I		CO2	3	2	3	2	2	1	2	2
Teacher Name	Roopali Kulkarni		CO3	3	2	2	1	2	2	1	1
Course Outcomes			CO4								
	CO1	Provide an overview of the concept of NoSQL technology	CO5								
	CO2	Provide an insight to the different types of NoSQL databases	Average	3.00	2.00	2.33	1.67	1.67	1.67	1.67	1.33
	CO3	Make the student capable of making a choice of what database technologies to use, based on their application needs									
	CO4										
	CO5										

Class		Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSDT 114C			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Web Services		CO1	3	3	3	3	2	1	2	2
Semester No	I		CO2	3	3	3	2	2	2	1	2
Teacher Name	Trupti Deochake		CO3	3	2	3	3	3	2	2	1
Course Outcomes			CO4	3	2	2	3	2	1	1	2
	CO1	To understand the details of web services technologies like WSDL,UDDI, SOAP	CO5								
	CO2	To learn how to implement and deploy web service client and server	Average	3.00	2.50	2.75	2.75	2.25	1.50	1.50	1.75
	CO3	To explore interoperability between different frameworks									
	CO4	To understand the concept of RESTful system									
	CO5										

Class		Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSDP114C			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Web Services Practical		CO1	3	3	3	3	2	3	2	2
Semester No	I		CO2	3	3	3	3	3	3	2	2
Teacher Name	Trupti Devchake		CO3								
Course Outcomes			CO4								
	CO1	To understand how to develop web services using Java/PHP/.Net	CO5								

	CO2	Provide a platform to connect with differet technologies	Average	3.00	3.00	3.00	3.00	2.50	3.00	2.00	2.00
	CO3										
	CO4										
	CO5										

Class		Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSUP115			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	PPL and Database Technologies Practical		CO1	3	3	3	2	3	3	3	2
Semester No	I		CO2	3	3	3	3	2	2	2	3
Teacher Name	Komal Todakar and Prachi Walunjkar		CO3								
Course Outcomes			CO4								
	CO1	enhancing skills about developing applications	CO5								
	CO2	Managing and handling big data	Average	3.00	3.00	3.00	2.50	2.50	2.50	2.50	2.50
	CO3										
	CO4										
	CO5										

Class		Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSUT121			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Advanced Operating System		CO1	3	3	1	1	3	1	2	1
Semester No	II		CO2	3	1	0	1	2	1	1	2
Teacher Name	Prachi Walunjkar		CO3	3	3	2	1	2	2	1	1
Course Outcomes			CO4	3	2	3	1	2	2	1	1
	CO1	Teaches Advanced Operating Systems Concepts using Unix/Linux. Describes the programming interface to the Unix/Linux system - the system call interface.	CO5								
	CO2	Writing C programs that run under Unix/Linux	Average	3.00	2.25	1.50	1.00	2.25	1.50	1.25	1.25
	CO3	provides an understanding of the functions and functional modules of Operating Systems.									
	CO4	Provides the concepts underlying in the design and implementation of Operating Systems.									
	CO5										

Class		Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSUT122			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3

Subject Name	Mobile Technologie	CO1	3	2	3	2	2	2	2	1	
Semester No	II	CO2	3	3	3	3	3	1	2	1	
Teacher Name	Komal Todakar	CO3	3	3	2	2	3	1	2	2	
Course Outcomes		CO4	3	3	2	3	2	2	1	1	
	CO1	To impart basic understanding of the wirelesscommunication systems	CO5								
	CO2	To expose students to various aspects of mobile and ad-hoc networks.	Average	3.00	2.75	2.50	2.50	2.50	1.50	1.75	1.25
	CO3	Understand the issues relating to Wireless applications									
	CO4	Understand the Mobile security									
	CO5										

Class	Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs			
Subject Code	CSUT123		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	
Subject Name	Software Project Management	CO1	3	3	1	2	1	2	2	1	
Semester No	II	CO2	3	1	2	1	2	1	2	2	
Teacher Name	Trupti Deochake	CO3	3	2	2	2	2	1	2	2	
Course Outcomes		CO4	2	1	2	1	1	2	2	1	
	CO1	Enhanced skills that are required to ensure successful medium and large scale software projects.	CO5								
	CO2	Requirements Elicitation, Project Management, Verification &Validation and Management of Large Software Engineering Projects	Average	2.75	1.75	1.75	1.50	1.50	1.50	2.00	1.50
	CO3	Learn to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management;									
	CO4	Software verification and validation using inspections, design and execution of system test cases.									
	CO5										

Class	Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs			
Subject Code	CSDT124A		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	
Subject Name	Project	CO1	3	3	2	1	1	3	2	2	
Semester No	II	CO2	3	2	2	1	1	2	2	2	
Teacher Name	Trupti Deochake	CO3	3	3	2	0	1	2	3	3	
Course Outcomes		CO4	3	3	3	3	2	2	2	3	
	CO1	Time, cost estimation of project	CO5								
	CO2	how to develop real project	Average	3.00	2.75	2.25	1.25	1.25	2.25	2.25	2.50
	CO3	designing of software									
	CO4	coding and testing of software									

	CO5	
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Class		Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSDP124A			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Project Related Assignments		CO1	3	1	3	2	1	2	3	3
Semester No	II		CO2	3	2	3	2	1	3	2	2
Teacher Name	Trupti Deochake		CO3	3	1	2	1	1	3	2	2
Course Outcomes			CO4								
	CO1	excursion of best logic	CO5								
	CO2	finding the solution of any coding problem	Average	3.00	1.33	2.67	1.67	1.00	2.67	2.33	2.33
	CO3	user friendly designing of code									
	CO4										
	CO5										

Class		Msc Computer Science-I	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSUP125			PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Practical on Advanced OS & Mobile Technologies		CO1	1	1	1	1	1	2	2	2
Semester No	II		CO2	1	2	1	2	2	3	3	3
Teacher Name	Prachi Walunjkar and Komal Todakar		CO3	1	2	1	1	1	2	2	2
Course Outcomes			CO4	3	3	3	2	3	3	3	3
	CO1	Learn basic skills of operating skills	CO5	3	2	2	2	2	3	3	3
	CO2	Finding and execution of C libraries	Average	1.80	2.00	1.60	1.60	1.80	2.60	2.60	2.60
	CO3	Creating Small operating Software application									
	CO4	Creating small mobile applications									
	CO5	Confugring new apps using Adroid operating System									

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Class		Course Outcomes	Program Outcomes					PSOs		
Subject Code	Subject Name		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
M.Sc(Computer Science)- II	Software Architecture and Design Patterns	CO1	1	2	2	2	2	3	2	2
CSUT231		CO2	2	2	2	3	2	2	2	3
III		CO3	2	2	2	2	2	2	1	1
Trupti Deochake		CO4	2	2	2	2	2	2	2	2
Course Outcomes		CO5	1	3	2	2	2	2	1	2
CO1	To introduce students to the basic concepts and techniques of SADP	Average	1.60	2.20	2.00	2.20	2.00	2.20	1.60	2.00
CO2	To write java programs using Design Pattern and Frameworks to create reusable and flexible software systems.									
CO3	Use of patterns and architectures for solving practical problems.									
CO4	To understand about design pattern									
CO5	To understand about the process of deploying web apps using specific Frameworks.									

Class		Course Outcomes	Program Outcomes					PSOs		
Subject Code	Subject Name		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
M.Sc(Computer Science)- II	Machine Learning	CO1	2	2	2	3	3	3	3	3
CSUT232		CO2	3	3	3	3	3	3	3	3
III		CO3	3	3	3	3	3	3	3	3
Sarika Kulkarni		CO4	3	3	3	3	3	3	3	3
Course Outcomes		CO5								
CO1	To introduce students to the basic concepts and techniques of Machine Learning	Average	2.75	2.75	2.75	3.00	3.00	3.00	3.00	3.00
CO2	To write python programs using machine learning algorithms for solving practical problems.									
CO3	To understand about Machine Learning Library and use cases.									
CO4	To understand about the process of deploying ML model.									
CO5										

Class		Course Outcomes	Program Outcomes					PSOs		
Subject Code	Subject Name		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
M.Sc(Computer Science)- II	Web Frameworks	CO1	1	2	1	1	1	2	2	2
CSUT233		CO2	2	2	1	2	1	1	2	2
III		CO3	1	2	2	1	2	2	1	2
Prachi Walunjkar										

Course Outcomes			CO4	1	1	1	2	1	2	1	1
CO1	Students will be ready with the technology which is used widely in Industry as a part of full stack developer		CO5	1	2	2	2	1	1	2	2
CO2	Students will know the powerful way to develop the web application in Python.		Average	1.20	1.80	1.40	1.60	1.20	1.60	1.60	1.80
CO3	Students will understand what really the asynchronous programming.										
CO4	Build and deploy robust Django Web App.										
CO5	Integrate with Restful web services.										

Class	M. Sc. (Computer Science) II	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSDT234C		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Project	CO1	3	3	2	1	1	3	2	2
Semester No	III	CO2	3	2	2	1	1	2	3	2
Teacher Name	Trupti Deochake	CO3	3	3	2	0	1	3	2	2
Course Outcomes		CO4	3	3	3	3	2	2	2	2
CO1	Time, cost estimation of project	CO5								
CO2	how to develop real project	Average	3.00	2.75	2.25	1.25	1.25	2.50	2.25	2.00
CO3	designing of software									
CO4	coding and testing of software									
CO5										

Class	M. Sc. (Computer Science) II	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSDP234C:		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Project Related Assignments	CO1	3	1	3	2	1	2	2	1
Semester No	III	CO2	3	2	3	2	1	1	2	3
Teacher Name	Trupti Deochake	CO3	3	1	2	1	1	2	2	3
Course Outcomes		CO4								
CO1	excursion of best logic	CO5								
CO2	finding the solution of any coding problem	Average	3.00	1.33	2.67	1.67	1.00	1.67	2.00	2.33
CO3	user friendly designing of code									
CO4										
CO5										

Class	M. Sc. (Computer Science) II	Course Outcomes	Program Outcomes					PSOs		
Subject Code	CSUP235		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
Subject Name	Practical on CSUT231, CSUT232 and CSUT233	CO1	1	2	2	2	2	2	1	1

Semester No	III	CO2	3	2	2	2	3	2	3	2
Teacher Name	Prachi Walunjkar, Sarika Kulkarni, Komal Todkar	CO3	2	3	2	2	2	2	2	3
Course Outcomes		CO4	3	3	3	3	2	3	3	3
	CO1	<input type="checkbox"/> Able to use specific frameworks as per applications need.	CO5							
	CO2	<input type="checkbox"/> Design java application using design pattern techniques.	Average	2.25	2.50	2.25	2.25	2.25	2.25	2.25
	CO3	<input type="checkbox"/> Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem.								
	CO4	<input type="checkbox"/> Able to estimate Machine Learning models efficiency using suitable metrics.								
	CO5									

Class	M. Sc. (Computer Science) II	Course Outcomes	Program Outcomes					PSOs			
Subject Code	CSUIT241		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	
Subject Name	Industrial Training /Institutional project	CO1	2	2	2	2	2	3	2	2	
Semester No	IV	CO2	3	3	2	2	2	2	3	2	
Teacher Name	Trupti Deochake	CO3	3	2	3	2	3	2	3	3	
Course Outcomes		CO4	3	2	2	2	2	2	2	3	
	CO1	"Select comprehensive learning platform students can enhance their employ ability skills and become job ready along with real corporate exposure;	CO5	3	2	2	2	3	2	3	
	CO2	Apply the theory knowledge to get hands-on experience in the field of computer science;	Average	2.80	2.20	2.20	2.00	2.40	2.20	2.60	2.60
	CO3	Appreciate the ethical basis of professional practice in relevant industry									
	CO4	Describe with all the latest changes in technological world;									
	CO5	Interpret options in career plans and goals.									

CO-PO Mapping

		Course	PO1	PO2	PO3	PO4	PO5
FY	FY	1 CSUT111	2.60	2.20	2.40	2.60	2.00
		2 CSUT112	3.00	2.20	2.40	2.20	2.20
		3 CSUT113	3.00	2.00	2.33	1.67	1.67
		4 CSDT 114C	3.00	2.50	2.75	2.75	2.25
		5 CSDP114C	3.00	3.00	3.00	3.00	2.50
		6 CSUP115	3.00	3.00	3.00	2.50	2.50
		7 CSUT121	3.00	2.25	1.50	1.00	2.25
		8 CSUT122	3.00	2.75	2.50	2.50	2.50
		9 CSUT123	2.75	1.75	1.75	1.50	1.50
		10 CSDT124A	3.00	2.75	2.25	1.25	1.25
		11 CSDP124A	3.00	1.33	2.67	1.67	1.00
		12 CSUP125	1.80	2.00	1.60	1.60	1.80
SY	SY	1 CSUT231	1.60	2.20	2.00	2.20	2.00
		2 CSUT232	2.75	2.75	2.75	3.00	3.00
		3 CSUT233	1.20	1.80	1.40	1.60	1.20
		4 CSDT234C	3.00	2.75	2.25	1.25	1.25
		5 CSDP234C:	3.00	1.33	2.67	1.67	1.00
		6 CSUP235	2.25	2.50	2.25	2.25	2.25
		7 CSUIT241	2.80	2.20	2.20	2.00	2.40

CO-PO ATTAINMENT

Percentage CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5
1.352	1.144	1.248	1.352	1.04
1.56	1.144	1.248	1.144	1.144
1.56	1.04	1.213333	0.866666667	0.866667
3	2.5	2.75	2.75	2.25
1.56	1.56	1.56	1.56	1.3
0.6	0.6	0.6	0.5	0.5
1.56	1.17	0.78	0.52	1.17
1.56	1.43	1.3	1.3	1.3
1.43	0.91	0.91	0.78	0.78
2.04	1.87	1.53	0.85	0.85
2.04	0.906667	1.813333	1.133333333	0.68
0.36	0.4	0.32	0.32	0.36
0.832	1.144	1.04	1.144	1.04
1.43	1.43	1.43	1.56	1.56
0.624	0.936	0.728	0.832	0.624
3	2.75	2.25	1.25	1.25
3	1.333333	2.666667	1.666666667	1
1.29	1.433333	1.29	1.29	1.29
2.202667	1.730667	1.730667	1.573333333	1.888

PO1	PO2	PO3	PO4	PO5
52	52	52	52	52
52	52	52	52	52
52	52	52	52	52
100	100	100	100	100
52	52	52	52	52
20	20	20	20	20
52	52	52	52	52
52	52	52	52	52
52	52	52	52	52
68	68	68	68	68
68	68	68	68	68
20	20	20	20	20
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
57.33333	57.33333	57.33333	57.33333	57.33333
78.66667	78.66667	78.66667	78.66667	78.66667

CO-PSO MAPPING

	Course	PSO1	PSO2	PSO3
1	CSUT111	1.40	1.80	2.00
2	CSUT112	1.80	1.80	2.00
3	CSUT113	1.67	1.67	1.33
4	CSDT 114C	1.50	1.50	1.75
5	CSDP114C	3.00	2.00	2.00
6	CSUP115	2.50	2.50	2.50
7	CSUT121	1.50	1.25	1.25
8	CSUT122	1.50	1.75	1.25
9	CSUT123	1.50	2.00	1.50
10	CSDT124A	2.25	2.25	2.50
11	CSDP124A	2.67	2.33	2.33
12	CSUP125	2.60	2.60	2.60
1	CSUT231	2.20	1.60	2.00
2	CSUT232	3.00	3.00	3.00
3	CSUT233	1.60	1.60	1.80
4	CSDT234C	2.50	2.25	2.00
5	CSDP234C	1.67	2.00	2.33
6	CSUP235	2.25	2.25	2.25
7	CSUIT241	2.20	2.60	2.60

CO-PSO ATTAINMENT

	Course	PSO1	PSO2	PSO3
	CSUT111	0.728	0.936	1.04
	CSUT112	0.936	0.936	1.04
	CSUT113	0.866667	0.866667	0.693333
	CSDT 114C	1.5	1.5	1.75
	CSDP114C	1.56	1.04	1.04
	CSUP115	0.5	0.5	0.5
	CSUT121	0.78	0.65	0.65
	CSUT122	0.78	0.91	0.65
	CSUT123	0.78	1.04	0.78
	CSDT124A	1.53	1.53	1.7
	CSDP124A	1.813333	1.586667	1.586667
	CSUP125	0.52	0.52	0.52
	CSUT231	1.144	0.832	1.04
	CSUT232	1.56	1.56	1.56
	CSUT233	0.832	0.832	0.936
	CSDT234C	2.5	2.25	2
	CSDP234C:	1.666667	2	2.333333
	CSUP235	1.29	1.29	1.29
	CSUIT241	1.730667	2.045333	2.045333

Percentage CO-PSO ATTAINMENT

	Course	PSO1	PSO2	PSO3
	CSUT111	52	52	52
	CSUT112	52		52
	CSUT113	52	52	52
	CSDT 114C	100	100	100
	CSDP114C	52	52	52
	CSUP115	20	20	20
	CSUT121	52	52	52
	CSUT122	52	52	52
	CSUT123	52	52	52
	CSDT124A	68	68	68
	CSDP124A	68	68	68
	CSUP125	20	20	20
	CSUT231	52	52	52
	CSUT232	52	52	52
	CSUT233	52	52	52
	CSDT234C	100	100	100
	CSDP234C	100	100	100
	CSUP235	57.33333	57.33333	57.33333
	CSUIT241	78.66667	78.66667	78.66667

FY

SY