



# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [ SEM V ]

NBCA-501: COMPUTER NETWORKS

## Course Outcomes (CO)

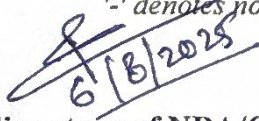
At the end of this course, the student will be able to:


CO1	:	Understand basic computer network technology.
CO2	:	Identify the different types of network topologies and protocols.
CO3	:	Enumerate the layers of the OSI model and TCP/IP.
CO4	:	Understand the concept of IP addressing, subnetting and routing mechanisms
CO5	:	Understand the application layer protocols and file management.

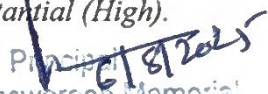
## CO - PO - PSO Mapping

COURSE OUTCOMES (CO)	PO CO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1		2	1	-	-	2	1	1	-	1
CO2		1	-	1	1	2	1	1	1	1
CO3		-	1	-	-	2	1	1	1	1
CO4		1	1	1	-	2	1	1	1	1
CO5		1	1	-	1	2	1	1	-	1
CO (Average)		1.25	1	1	1	2	1	1	1	1

The extent of mapping is as follows: 1 → Slight (Low), 2 → Moderate (Medium), 3 → Substantial (High).  
 '-' denotes no correlation between CO, PO & PSO.

  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM V]

NBCA-502: DATA ANALYTICS

## Course Outcomes (CO)

At the end of this course, the student will be able to:

CO1	Understand data and its analytics in the real world.
CO2	Demonstrate proficiency with the statistical analysis of data.
CO3	Develop the ability to build and assess data based-models.
CO4	Handle large scale analytics project from various domains.
CO5	Develop intelligent decision support systems.

## CO - PO - PSO Mapping

CO	PO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
COURSE OUTCOMES (CO)	CO1	3	2	2	2	2	2	-	1	1
	CO2	1	2	3	1	2	2	1	1	1
	CO3	2	1	2	1	1	2	2	1	1
	CO4	3	2	2	2	2	2	2	1	1
	CO5	1	3	2	1	2	2	2	1	1
CO (Average)		2	2	2	1.20	1.40	2	1.75	1	1

The extent of mapping is as follows: 1→ Slight (Low), 2→ Moderate (Medium), 3→ Substantial (High).  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM V]

NBCA-503: ARTIFICIAL INTELLIGENCE

## Course Outcomes (CO)

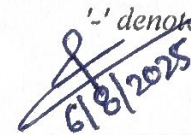
At the end of this course, the student will be able to:

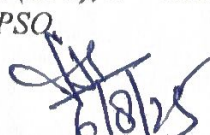
CO1	Understand how to apply knowledge representation techniques to common AI applications.
CO2	Analyze a problem in hand and do the inference to identify the computing requirements that are essential to solve the problem.
CO3	Understand the concept and type of learning.
CO4	Understand the need and various component of expert system.
CO5	Understand soft computing technologies like fuzzy logic, neural network etc.

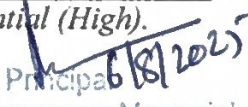
## CO - PO - PSO Mapping

COURSE OUTCOMES (CO)	PO CO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1		2	2	1	2	1	2	-	1	1
CO2		2	3	2	1	2	2	1	1	1
CO3		2	2	2	1	2	2	2	1	1
CO4		2	2	2	1	2	2	2	1	1
CO5		2	2	2	2	2	2	2	1	1
CO (Average)		2	2.2	1.8	1.4	1.8	2	1.75	1	1

The extent of mapping is as follows: 1→ Slight (Low), 2→ Moderate (Medium), 3→ Substantial (High).  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [ SEM V ]

NBCA-504: CYBER LAW AND INTERNET SECURITY

## Course Outcomes (CO)

At the end of this course, the student will be able to:

CO1	:	Understand the basics of cyber-Law.
CO2	:	Understand the need of information security and threats to information system.
CO3	:	Identify and analyse statutory, regulatory, constitutional and organizational laws that affect the information technology professional.
CO4	:	Locate and apply case law and common law to current legal dilemmas in the technology field.
CO5	:	Understand about internet security threats.

## CO - PO - PSO Mapping

CO	PO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1		1	1	-	-	2	1	1	-	1
CO2		1	-	-	1	2	1	1	1	1
CO3		-	1	-	-	2	1	1	1	1
CO4		1	1	1	-	2	1	1	1	1
CO5		1	1	-	1	2	1	1	-	1
CO (Average)		1	1	1	1	2	1	1	1	1

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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM V]

NBCA-5051: GRAPH THEORY

## Course Outcomes (CO)

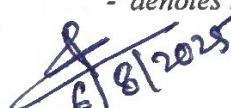
At the end of this course, the student will be able to:


CO1	Solve problems using graph theory and apply some basic algorithms for graphs
CO2	Determine whether a graph is a Hamiltonian and/or an Euler graph.
CO3	Demonstrate different traversal methods for trees and graphs.
CO4	Solve problems involving vertex and edge connectivity, planarity and crossing numbers
CO5	Represent graphs in Vector space and using Matrix.
CO6	Model real world problems using graph theory like four color problem.

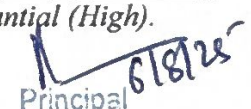
## CO - PO - PSO Mapping

CO \ PO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	2	1	2	1	1	2	-	1	1
CO2	2	1	2	2	1	2	1	1	1
CO3	2	1	2	2	1	2	2	1	1
CO4	2	1	2	1	1	2	1	1	1
CO5	2	1	2	1	1	2	-	1	1
CO6	2	1	2	2	1	2	2	1	1
CO (Average)	2	1	2	1.5	1	2	1	1	1

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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM V]

NBCA-5052: SOFTWARE TESTING AND AUDITS

## Course Outcomes (CO)

At the end of this course, the student will be able to:

CO1	Study fundamental concepts in software testing, including software testing objectives, process, criteria, strategies and methods.
CO2	Learn how to planning a test project, design test cases and data, conduct testing operations, manage software problems and defects, and generate a testing report.
CO3	Expose the advanced software testing topics, such as object-oriented software testing methods, and component based software testing issues, challenges and solutions.

## CO - PO - PSO Mapping

COURSE OUTCOMES (CO)	PO CO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1		2	1	1	2	1	2	-	1	1
CO2		2	3	2	1	2	2	1	1	1
CO3		2	2	3	1	2	2	2	1	1
CO (Average)		2	2	2	1.33	1.66	2	1	1	1

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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM V]

NBCA-5054: DATA MINING AND DATA WAREHOUSING

## Course Outcomes (CO)

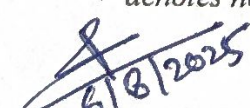
At the end of this course, the student will be able to:


<b>CO1</b>	Learn the concept of database technology evolutionary path which has led to the need for data mining and its application.
<b>CO2</b>	Analyze and apply the methodologies and approaches to data mining.
<b>CO3</b>	Understand the concept of various tasks of mining such as classification, clustering, association rule mining.
<b>CO4</b>	Explore data warehouse and multi-dimensional data models.
<b>CO5</b>	Understand real-world applications and recent trends in data mining and evaluate its ethical, privacy, and social impacts.

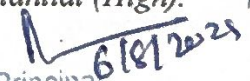
## CO - PO - PSO Mapping

CO \ PO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	2	2	1	2	1	2	1	1	1
CO2	3	2	2	2	2	2	1	1	1
CO3	2	2	2	1	2	2	2	1	1
CO4	2	2	2	2	2	2	2	2	1
CO5	2	2	1	1	2	1	2	2	2
<b>CO (Average)</b>	<b>2.2</b>	<b>2.0</b>	<b>1.6</b>	<b>1.6</b>	<b>1.8</b>	<b>1.8</b>	<b>1.6</b>	<b>1.4</b>	<b>1.2</b>

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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM IV]

NBCA-506P: DATA ANALYTICS LAB

## Course Outcomes (CO)

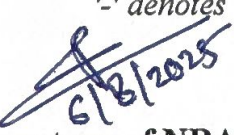
At the end of this course, the student will be able to:


CO1	Understand the working of NumPy array.
CO2	Understand the concept of Python Pandas.
CO3	Perform various operations such as detecting outliers, identifying missing values, and removal of duplicate record etc.
CO4	Implement reading of CSV files.
CO5	Perform data visualization.

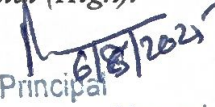
## CO - PO - PSO Mapping

CO \ PO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	2	2	1	2	1	2	2	1	1
CO2	2	2	2	1	2	2	1	1	1
CO3	1	2	2	1	2	2	2	1	1
CO4	2	2	2	1	2	2	2	1	1
CO5	2	2	2	2	2	2	2	1	1
CO (Average)	1.8	2	1.8	1.4	1.8	2	1.75	1	1

The extent of mapping is as follows: 1→ Slight (Low), 2→ Moderate (Medium), 3→ Substantial (High).  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM V]

NBCA-507P: INDUSTRIAL TRAINING VIVA VOCE

## Course Outcomes (CO)

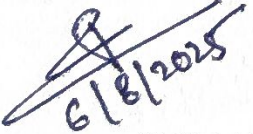
At the end of this course, the student will be able to:

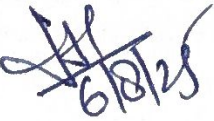
CO1	:	Students will be able to understand the scope of industrial training as well as its utilization.
CO2	:	Demonstrate a sound technical knowledge of industrial training report
CO3	:	Rectify the problems in industrial training reports and clear doubts about basics of software development procedure.
CO4	:	Communicate with students in written and oral forms. Analyze their work progress by organizing Industrial training report presentation.

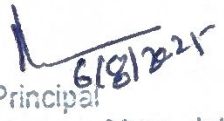
## CO - PO - PSO Mapping

COURSE OUTCOMES (CO)	PO CO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
	CO1	3	2	2	2	1	2	-	1	1
	CO2	2	2	2	1	2	2	1	1	1
	CO3	2	2	2	1	2	2	2	1	1
	CO4	1	2	2	1	2	2	2	1	1
	CO (Average)	2	2	2	1.25	1.75	2	1.25	1	1

The extent of mapping is as follows: 1→ Slight (Low), 2→ Moderate (Medium), 3→ Substantial (High). '-' denotes no correlation between CO, PO & PSO.

  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM V]

NBCA-508P: PROJECT PHASE-I

## Course Outcomes (CO)

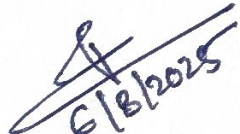
At the end of this course, the student will be able to:


CO1	:	Understand the scope of computer programming languages as well as its utilization. Demonstrate a sound technical knowledge of their selected project topic.
CO2	:	Undertake problem identification, formulation and solution.
CO3	:	Design engineering solutions to complex problems utilizing a systems approach. Demonstrate the knowledge, skills and attitudes of a professional software developer.
CO4	:	Communicate with students in written and oral forms. Analyze their work progress by organizing Synopsis and Project presentation.

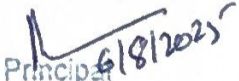
## CO - PO - PSO Mapping

CO	PO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1		2	2	2	2	1	2	-	1	1
CO2		2	2	2	2	2	2	1	2	1
CO3		2	1	2	2	2	2	2	1	1
CO4		2	2	2	1	2	2	1	1	1
CO (Average)		2	1.75	2	1.75	1.75	2	1	1.25	1

The extent of mapping is as follows: 1→ Slight (Low), 2→ Moderate (Medium), 3→ Substantial (High).  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM VI]

NBCA-601: MACHINE LEARNING

## Course Outcomes (CO)


At the end of this course, the student will be able to:


CO1	Explain the fundamental usage of the concept of Machine Learning system
CO2	Demonstrate on various regression Technique
CO3	Analyse the Ensemble Learning Methods
CO4	Illustrate the Clustering Techniques and Dimensionality Reduction Models in Machine Learning.
CO5	Discuss the Neural Network Models and Fundamental concepts of Deep Learning.

## CO - PO - PSO Mapping

		PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
COURSE OUTCOMES (CO)	CO1	2	2	1	2	1	2	-	1	1
	CO2	2	3	2	1	2	2	1	1	1
	CO3	2	2	2	1	2	2	2	1	1
	CO4	2	2	2	1	2	2	2	1	1
	CO5	2	2	2	2	2	2	2	1	1
CO (Average)		2	2.2	1.8	1.4	1.8	2	1.75	1	1

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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM VI]

NBCA-602: MULTIMEDIA SYSTEM

## Course Outcomes (CO)

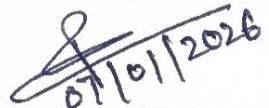
At the end of this course, the student will be able to:


CO1	Describe the types of media and define multimedia system.
CO2	Describe the process of digitizing (quantization) of different analog signals (text, graphics, sound and video).
CO3	Use and apply tools for image processing, video, sound and animation.
CO4	Apply methodology to develop a multimedia system.
CO5	Apply acquired knowledge in the field of multimedia in practice and independently continue to expand knowledge in this field.

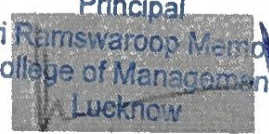
## CO - PO - PSO Mapping

PO CO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	2	1	1	2	1	2	1	1	1
CO2	3	3	3	1	2	2	1	1	1
CO3	1	2	2	1	2	2	2	1	1
CO4	2	2	2	3	2	2	2	1	1
CO5	2	2	2	2	2	2	2	1	1
CO (Average)	2	2	2	1.80	1.80	2	1.60	1	1

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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [ SEM VI ]

NBCA-603: SOFTWARE PROJECT MANAGEMENT

## Course Outcomes (CO)

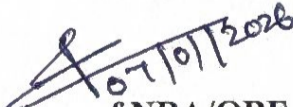
At the end of this course, the student will be able to:


CO1	:	Successful development of the project's procedure of initiation, planning, execution, regulation and closure.
CO2	:	Guidance of the project team's operations towards achieving all the agreed upon goals within set scope, time, quality and budget standards.
CO3	:	Project plans that address real world management challenges.
CO4	:	Develop the skills for tracking and controlling software deliverables.


## CO - PO - PSO Mapping

COURSE OUTCOMES (CO)	PO CO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1		2	1	2	-	1	2	1	-	1
CO2		1	2	2	1	1	2	2	1	1
CO3		1	2	2	-	1	2	1	1	1
CO4		1	1	1	2	2	1	2	2	1
CO (Average)		1.25	1.5	1.75	1	1.25	1.75	1.5	1.25	1

The extent of mapping is as follows: 1 → Slight (Low), 2 → Moderate (Medium), 3 → Substantial (High).  
'-' denotes no correlation between CO, PO & PSO.

  
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Coordinator(s)  
[with Date]

  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM VI]

NBCA-6041: OPEN SOURCE SOFTWARE

## Course Outcomes (CO)

At the end of this course, the student will be able to:

CO1	Understand the concepts, strategies, and methodologies related to open source software development.
CO2	Be familiar with open source software products and development tools currently available on the market.
CO3	To utilize open source software for developing a variety of software applications, particularly web applications.
CO4	Understand the open source operating system and implement the open source database and programming languages.

## CO - PO - PSO Mapping

CO \ PO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	2	2	1	2	1	2	1	1	1
CO2	3	2	2	2	2	2	1	1	1
CO3	2	2	2	1	2	2	2	1	1
CO4	2	2	2	2	2	2	2	2	1
CO (Average)	2.2	2.0	1.7	1.7	1.7	2	1.5	1.25	1.0

The extent of mapping is as follows: 1 → Slight (Low), 2 → Moderate (Medium), 3 → Substantial (High).  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM VI]

NBCA-6042: MOBILE COMPUTING

## Course Outcomes (CO)

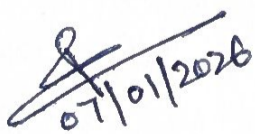
At the end of this course, the student will be able to:

CO1	Explain the principles and theories of mobile computing technologies.
CO2	Describe infrastructures and technologies of mobile computing technologies.
CO3	Learn the concept of cellular network and GSM.
CO4	List out the data management issues in mobile computing.
CO5	Understand the concept of Ad-hoc Network and Routing Protocols.

## CO - PO - PSO Mapping

CO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	2	2	1	2	1	2	1	1	1
CO2	3	3	3	1	2	2	1	1	1
CO3	1	2	2	1	2	2	2	1	1
CO4	2	2	2	3	2	2	2	1	1
CO5	2	2	2	2	2	2	2	1	1
CO (Average)	2	2.2	2	1.80	1.80	2	1.60	1	1

The extent of mapping is as follows: 1 → Slight (Low), 2 → Moderate (Medium), 3 → Substantial (High).  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM VI]

NBCA-605P : MACHINE LEARNING LAB

## Course Outcomes (CO)

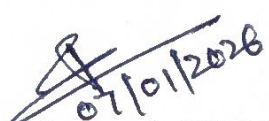
At the end of this course, the student will be able to:


CO1	Implement procedures for the machine learning algorithms
CO2	Design and develop python programs for various learning algorithms
CO3	Apply appropriate data sets to the machine learning algorithms
CO4	Develop machine learning algorithm to solve real world problems

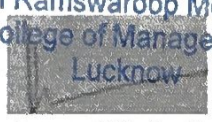
## CO - PO - PSO Mapping

COURSE OUTCOMES (CO)	PO CO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
		CO1	3	2	2	2	1	2	-	1
CO2	2	2	2	1	2	2	1	1	1	
CO3	2	2	2	1	2	2	2	1	1	
CO4	1	2	2	1	2	2	2	1	1	
CO (Average)		2	2	2	1.25	1.75	2	1.25	1	1

The extent of mapping is as follows: 1→ Slight (Low), 2→ Moderate (Medium), 3→ Substantial (High). '-' denotes no correlation between CO, PO & PSO.

  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM VI]

NBCA-606P: SEMINAR

## Course Outcomes (CO)

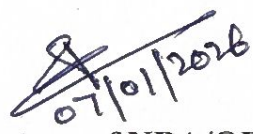
At the end of this course, the student will be able to:


CO1	:	Students will be able to identify and explore latest and emerging technologies in the field of computer applications.
CO2	:	Development of conceptual understanding of the given technical topic through self-learning and literature review.
CO3	:	Analyze real-world applications, impact, and future scope of emerging technologies.
CO4	:	Demonstration of technical writing and presentation skills through the preparation and delivery of a seminar as well as seminar report.


## CO - PO - PSO Mapping

COURSE OUTCOMES (CO)	PO CO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1		3	2	2	2	1	2	-	1	1
CO2		2	2	2	1	2	2	1	1	1
CO3		2	2	2	1	2	2	2	1	1
CO4		1	2	2	1	2	2	2	1	1
CO (Average)		2	2	2	1.25	1.75	2	1.25	1	1

The extent of mapping is as follows: 1→ Slight (Low), 2→ Moderate (Medium), 3→ Substantial (High).  
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# SHRI RAMSWAROOP MEMORIAL COLLEGE OF MANAGEMENT

BCA [SEM VI]

NBCA-607P: PROJECT PHASE-II

## Course Outcomes (CO)

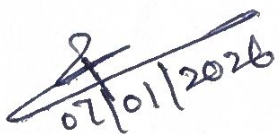
At the end of this course, the student will be able to:

CO1	:	Understand the scope of computer programming languages as well as its utilization. Demonstrate a sound technical knowledge of their selected project topic.
CO2	:	Undertake problem identification, formulation and solution.
CO3	:	Design engineering solutions to complex problems utilizing a systems approach. Demonstrate the knowledge, skills and attitudes of a professional software developer.
CO4	:	Communicate with students in written and oral forms. Analyze their work progress by organizing Synopsis and Project presentation.

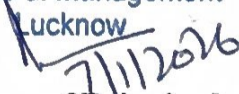
## CO - PO - PSO Mapping

COURSE OUTCOMES (CO)	PO CO	PROGRAM OUTCOMES (PO)					PROGRAM SPECIFIC OUTCOMES (PSO)			
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1		2	2	2	2	1	2	-	1	1
CO2		2	2	2	2	2	2	1	2	1
CO3		2	1	2	2	2	2	2	1	1
CO4		2	2	2	1	2	2	1	1	1
CO (Average)		2	1.75	2	1.75	1.75	2	1	1.25	1

The extent of mapping is as follows: 1→ Slight (Low), 2→ Moderate (Medium), 3→ Substantial (High).  
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