

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: BIG DATA ANALYTICS

COURSE CODE: MCA18503

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.
- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:**PROGRAM SPECIFIC OUTCOMES (PSOs)**

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Describe different AWT and Swings Classes. Students can design GUI based applications.	(V)EVALUATE
CO2	Develop: web based applications using servlets.	(III)APPLY
CO3	Compare Servlet and JSP features and can design Presentation logic.	(II)UNDERSTAND
CO4	Design applications based on MVC architecture using EJB. Student can identify different Enterprise Java Beans	(VI)CREATE
CO5	Compare Servlet and JSP features and can design Presentation logic.	(V)EVALUATE

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	H	S	H					H	H	S		
2	S	H	H	S					H	S	S		
3	S	H	S	S					S	H	S		
4	S	H	H	S					S	S	H		
5	S	H	H	S					S	S	H		

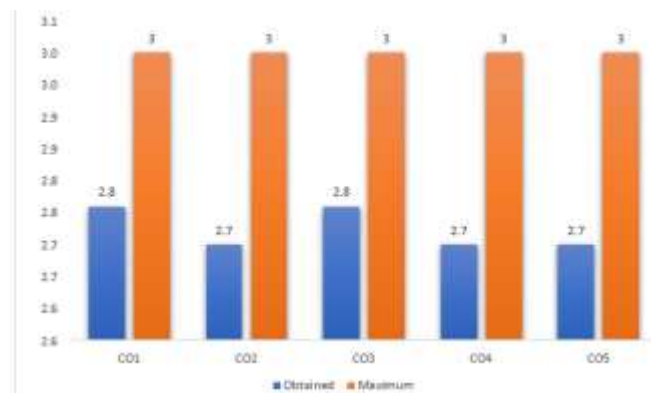
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise Internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	96.4	3.0			98.2	3.0	98.2	3.0	98.2	3.0	41.8	0.0	2.4	94.5	3.0	3.0	2.8
CO2	96.4	3.0			98.2	3.0			98.2	3.0	41.8	0.0	2.3	94.5	3.0	3.0	2.7
CO3	96.4	3.0	98.2	3.0	98.2	3.0			98.2	3.0	41.8	0.0	2.4	94.5	3.0	3.0	2.8
CO4			98.2	3.0	98.2	3.0			98.2	3.0	41.8	0.0	2.3	94.5	3.0	3.0	2.7
CO5			98.2	3.0	98.2	3.0			98.2	3.0	41.8	0.0	2.3	94.5	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76	H 2.76		H 2.76				
CO2		H 2.7	H 2.7					
CO3		H 2.76						
CO4		H 2.7	H 2.7					
CO5		H 2.7	H 2.7					
AVERAGE OF COS FOR POS	2.76	2.724	2.7	2.76				
AVERAGE OF POS	2.76	2.7168	2.7	2.76				
AVERAGE	2.7342							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: SEMANTIC WEB AND SOCIAL NETWORKS

COURSE CODE: MCA18505

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

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- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective .

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Demonstrate knowledge and be able to explain the three different “named” generations of the web.	II (UNDERSTAND)
CO2	Explains about OWL ,roles and constructs Ontology	II (UNDERSTAND)
CO3	Able to understand and analyze key Web applications including search engines and social networking sites	IV (ANALYZE)
CO4	Creates an OWL-S Ontology for Web services and analyses the development of Social Network Analysis	VI (CREATE)
CO5	Develops Semantic Web Applications with Social Network Features	IV (APPLY)

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1	H	S	S	H					H	S	S		
2	S	H	S	S					S	S	S		
3	S	H	S	S					S	H	S		
4	S	S	H	S					S	H	S		
5	S	S	H	S					S	S	H		

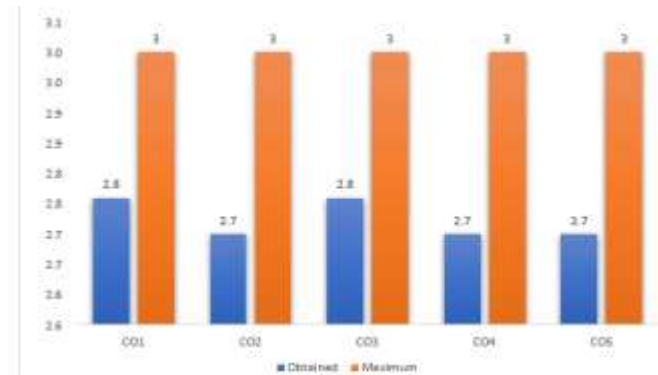
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ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
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- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	94.6	3.0			98.2	3.0	100.0	3.0	100.0	3.0	51.8	0.0	2.4	98.2	3.0	3.0	2.8
CO2	94.6	3.0			98.2	3.0			100.0	3.0	51.8	0.0	2.3	98.2	3.0	3.0	2.7
CO3	94.6	3.0	100.0	3.0	98.2	3.0			100.0	3.0	51.8	0.0	2.4	98.2	3.0	3.0	2.8
CO4			100.0	3.0	98.2	3.0			100.0	3.0	51.8	0.0	2.3	98.2	3.0	3.0	2.7
CO5			100.0	3.0	98.2	3.0			100.0	3.0	51.8	0.0	2.3	98.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
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OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76			H 2.76				
CO2		H 2.7						
CO3		H 2.76						
CO4			H 2.7					
CO5			H 2.7					
AVERAGE OF COS FOR POS	2.76	2.73	2.7	2.76				
AVERAGE OF POS	2.76	2.73	2.7	2.76				
AVERAGE	2.7375							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: CLOUD COMPUTING

COURSE CODE: MCA18508

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.
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PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
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- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective .

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Illustrate the main concepts, features, challenges, and risks in cloud computing	II (UNDERSTAND)
CO2	Describe virtualization of clusters and Data centers, virtual clusters, and resource management.	I (REMEMBERING)
CO3	Identify the architectures over virtualized data centers.	III (APPLY)
CO4	Explain the core issues of cloud computing such as cloud security and trust management.	II (UNDERSTAND)
CO5	Compare various cloud programming and software environments.	IV (ANALYZE)

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Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	H	S	H					S	S	S		
2	H	H	S	H					S	S	S		
3	H	H	S	H					S	S	S		
4	H	H	H	H					S	H	H		
5	H	H	H	H					S	H	H		

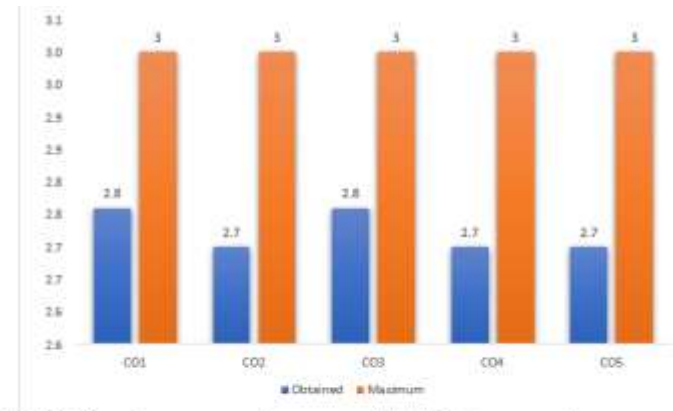
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Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

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co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	28.6	0.0	2.4	98.2	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	28.6	0.0	2.3	98.2	3.0	3.0	2.7
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	28.6	0.0	2.4	98.2	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	28.6	0.0	2.3	98.2	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	28.6	0.0	2.3	98.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

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OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76	H 2.76		H 2.76				
CO2	H 2.7	H 2.7		H 2.7				
CO3	H 2.76	H 2.76		H 2.76				
CO4	H 2.7	H 2.7	H 2.7	H 2.7				
CO5	H 2.7	H 2.7	H 2.7	H 2.7				
AVERAGE OF COS FOR POS	2.724	2.724	2.7	2.724				
AVERAGE OF POS	2.7168	2.7168	2.7	2.7168				
AVERAGE	2.7126							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DATA WAREHOUSING AND MINING

COURSE CODE: MCA21503

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
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PROGRAMME SPECIFIC OUTCOME:**PROGRAM SPECIFIC OUTCOMES (PSOs)**

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
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	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	To understand the concepts of data mining and its importance and FIM algorithms.	(II)UNDERSTAND
CO2	Analyze different classification and clustering methods using algorithms	(IV)ANALYZE
CO3	Explain the data flow and the concepts of warehousing	(II)UNDERSTAND
CO4	Express how to build data marts and to learn about dimensional modeling.	(III)APPLY
CO5	Identify concepts of Extraction, Transformation and loading	(III)APPLY

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	S	S	S	S					S	S	H		
2	S	H	H	H					H	S	S		
3	S	S	S	S					H	S	S		
4	H	S	S	S					S	S	S		
5	S	S	H	S					S	H	S		

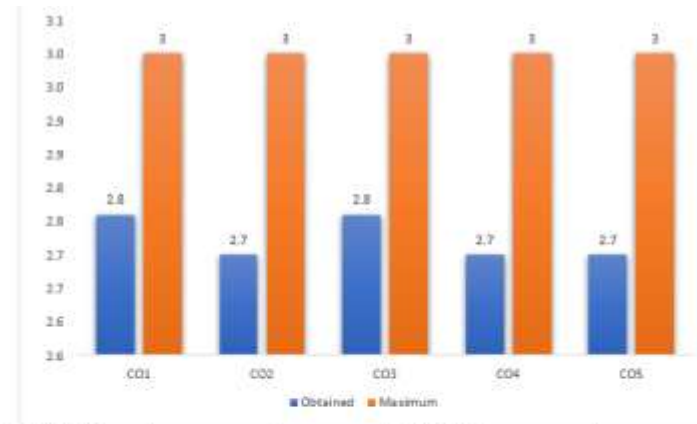
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Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
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- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	96.4	3.0			100.0	3.0	98.2	3.0	96.4	3.0	45.5	0.0	2.4	94.5	3.0	3.0	2.8
CO2	96.4	3.0			100.0	3.0			96.4	3.0	45.5	0.0	2.3	94.5	3.0	3.0	2.7
CO3	96.4	3.0	100.0	3.0	100.0	3.0			96.4	3.0	45.5	0.0	2.4	94.5	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			96.4	3.0	45.5	0.0	2.3	94.5	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			96.4	3.0	45.5	0.0	2.3	94.5	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

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OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1								
CO2		H 2.7	H 2.7	H 2.7				
CO3								
CO4	H 2.7							
CO5			H 2.7					
AVERAGE OF COS FOR POS	2.7	2.7	2.7	2.7				
AVERAGE OF POS	2.7	2.7	2.7	2.7				
AVERAGE	2.7							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: ANDROID APPLICATION DEVELOPMENT

COURSE CODE: MCA21504

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
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PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

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	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Compare different mobile application models/architectures and patterns	II (UNDERSTAND)
CO2	Apply a mobile development framework to the development of a mobile application.	III (APPLY)
CO3	Explain components and structure of a mobile development framework.	II (UNDERSTAND)
CO4	Develop advanced Java programming competency.	VI (CREATE)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	S	H	S	H					H	S	S		
2	H	H	S	H					S	H	H		
3	S	H	S	H					H	S	S		
4	S	H	H	S					S	H	H		

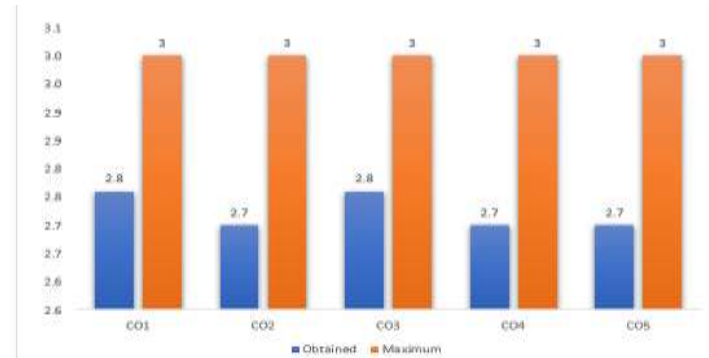
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CO2	100.0	3.0			100.0	3.0			100.0	3.0	42.9	0.0	2.3	98.2	3.0	3.0	2.7
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	42.9	0.0	2.4	98.2	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	42.9	0.0	2.3	98.2	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	42.9	0.0	2.3	98.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

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OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1		H 2.76		H 2.76				
CO2	H 2.7	H 2.7		H 2.7				
CO3		H 2.76		H 2.76				
CO4		H 2.7	H 2.7					
CO5								
AVERAGE OF COS FOR POS	2.7	2.73	2.7	2.74				
AVERAGE OF POS	2.7	2.7225	2.7	2.73333				
AVERAGE	2.713958333							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: BIG DATA ANALYTICS

COURSE CODE: MCA21401B

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.
- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:**PROGRAM SPECIFIC OUTCOMES (PSOs)**

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Describe different AWT and Swings Classes. Students can design GUI based applications.	(V)EVALUATE
CO2	Develop: web based applications using servlets.	(III)APPLY
CO3	Compare Servlet and JSP features and can design Presentation logic.	(II)UNDERSTAND
CO4	Design applications based on MVC architecture using EJB. Student can identify different Enterprise Java Beans	(VI)CREATE
CO5	Compare Servlet and JSP features and can design Presentation logic.	(V)EVALUATE

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3		
1	H	H	S	H					H	H	S		
2	S	H	H	S					H	S	S		
3	S	H	S	S					S	H	S		
4	S	H	H	S					S	S	H		
5	S	H	H	S					S	S	H		

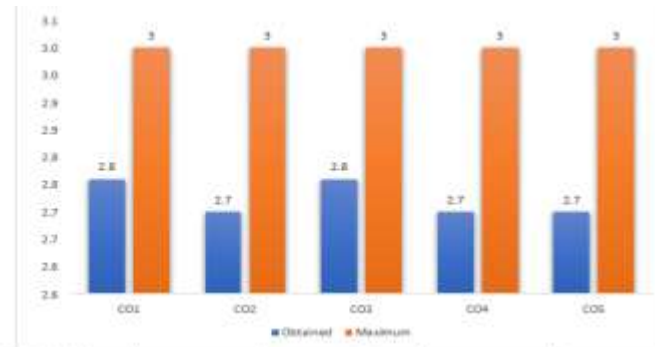
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		CO wise internal average	External Exam			CO wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	CO wise external average	
CO1	93.1	3.0			100.0	3.0	100.0	3.0	100.0	3.0	58.6	0.0	2.4	93.1	3.0	3.0	2.8
CO2	93.1	3.0			100.0	3.0			100.0	3.0	58.6	0.0	2.3	93.1	3.0	3.0	2.7
CO3	93.1	3.0	100.0	3.0	100.0	3.0			100.0	3.0	58.6	0.0	2.4	93.1	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	58.6	0.0	2.3	93.1	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	58.6	0.0	2.3	93.1	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7	H 2.7	H 2.7					
CO3	H 2.76	H 2.76		H 2.76				
CO4	H 2.7	H 2.7						
CO5	H 2.7	H 2.7	H 2.7					
AVERAGE OF COS FOR POS	2.724	2.715	2.72	2.76				
AVERAGE OF POS	2.7168	2.715	2.70667	2.76				
AVERAGE	2.724616667							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: SOFTWARE TESTING

COURSE CODE: MCA21401C

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Express importance of testing in software development process, glass-box testing, black-box testing, and how to report and analyse bugs	II (UNDERSTAND)
CO2	Design different types of test case	VI (CREATING)
CO3	Organize how to build testing strategy, establishing software testing methodology and software testing techniques	III (APPLY)
CO4	Identify the definition of quality, metrics for software quality and inspection techniques	III (APPLY)
CO5	Identify the definition of quality, metrics for software quality and inspection techniques	III (APPLY)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	S	S	H					H	S	S		
2	S	S	H	S					S	S	S		
3	H	H	S	S					S	S	H		
4	H	S	S	H					S	H	S		
5	H	S	S	H					S	H	S		

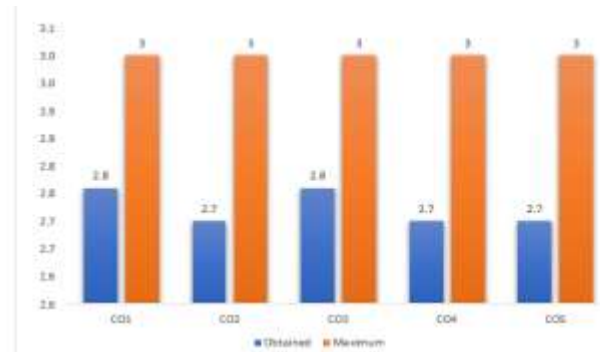
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam		co wise external average	co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	46.4	0.0	2.4	89.3	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	46.4	0.0	2.3	89.3	3.0	3.0	2.7
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	46.4	0.0	2.4	89.3	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	46.4	0.0	2.3	89.3	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	46.4	0.0	2.3	89.3	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76			H 2.76				
CO2		H 2.7						
CO3	H 2.76		H 2.76					
CO4	H 2.7			H 2.7				
CO5	H 2.7			H 2.7				
AVERAGE OF COS FOR POS	2.73	2.7	2.76	2.72				
AVERAGE OF POS	2.7225	2.7	2.76	2.70667				
AVERAGE	2.722291667							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: CLOUD COMPUTING

COURSE CODE: MCA21402B

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective .

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Illustrate the main concepts, features, challenges, and risks in cloud computing	II (UNDERSTAND)
CO2	Describe virtualization of clusters and Data centers, virtual clusters, and resource management.	I (REMEMBERING)
CO3	Identify the architectures over virtualized data centers.	III (APPLY)
CO4	Explain the core issues of cloud computing such as cloud security and trust management.	II (UNDERSTAND)
CO5	Compare various cloud programming and software environments.	IV (ANALYZE)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	H	S	H					S	S	S		
2	H	H	S	H					S	S	S		
3	H	H	S	H					S	S	S		
4	H	H	H	H					S	H	H		
5	H	H	H	H					S	H	H		

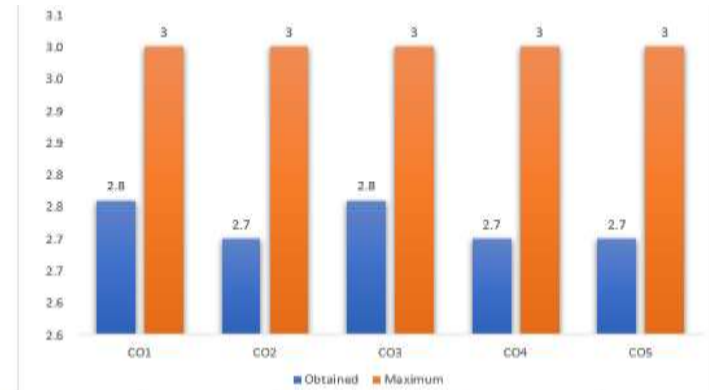
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	96.2	3.0			100.0	3.0	100.0	3.0	100.0	3.0	46.2	0.0	2.4	96.2	3.0	3.0	2.8
CO2	96.2	3.0			100.0	3.0			100.0	3.0	46.2	0.0	2.3	96.2	3.0	3.0	2.7
CO3	96.2	3.0	100.0	3.0	100.0	3.0			100.0	3.0	46.2	0.0	2.4	96.2	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	46.2	0.0	2.3	96.2	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	46.2	0.0	2.3	96.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76	H 2.76		H 2.76				
CO2	H 2.7	H 2.7		H 2.7				
CO3	H 2.76	H 2.76		H 2.76				
CO4	H 2.7	H 2.7	H 2.7	H 2.7				
CO5	H 2.7	H 2.7	H 2.7	H 2.7				
AVERAGE OF COS FOR POS	2.724	2.724	2.7	2.724				
AVERAGE OF POS	2.7168	2.7168	2.7	2.7168				
AVERAGE	2.7126							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DEEP LEARNING

COURSE CODE: MCA21402C

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Learn deep learning basics and optimization algorithms	(II)UNDERSTAND
CO2	Understand deep learning computation, CNNs and modern CNNs	(II)UNDERSTAND
CO3	Study recurrent neural networks and its modern versions	(II)UNDERSTAND
CO4	Learn computer vision	(III)APPLY
CO5	Comprehend GANs	(IV)ANALYZE

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3		
1	S	H	S	S					H	S	S		
2	H	H	S	S					S	S	S		
3	S	S	S	S					S	S	S		
4	H	H	H	H					H	H	S		
5	S	S	H	S					H	S	S		

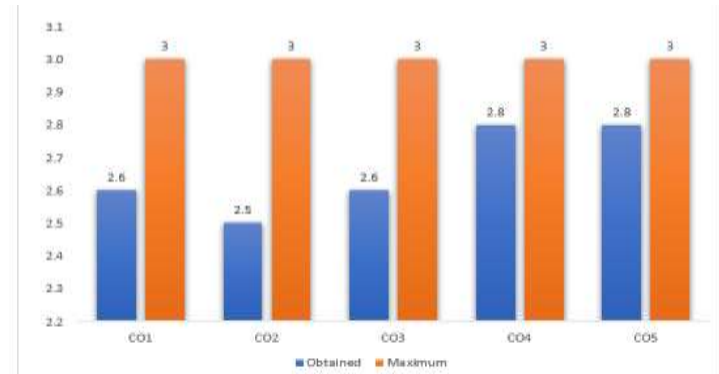
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	50.0	0.0			100.0	3.0	100.0	3.0	100.0	3.0	75.0	1.0	2.0	100.0	3.0	3.0	2.6
CO2	50.0	0.0			100.0	3.0			100.0	3.0	75.0	1.0	1.8	100.0	3.0	3.0	2.5
CO3	50.0	0.0	100.0	3.0	100.0	3.0			100.0	3.0	75.0	1.0	2.0	100.0	3.0	3.0	2.6
CO4			100.0	3.0	100.0	3.0			100.0	3.0	75.0	1.0	2.5	100.0	3.0	3.0	2.8
CO5			100.0	3.0	100.0	3.0			100.0	3.0	75.0	1.0	2.5	100.0	3.0	3.0	2.8

AVERAGE	AVERAGE
3	2.66

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1		H 2.6						
CO2	H 2.5	H 2.5						
CO3								
CO4	H 2.8	H 2.8	H 2.8	H 2.8				
CO5			H 2.8					
AVERAGE OF COS FOR POS	2.65	2.6333333333	2.8	2.8				
AVERAGE OF POS	2.65	2.64444	2.8	2.8				
AVERAGE	2.7236111111							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: INTERNET OF THINGS

COURSE CODE: MCA21303A

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Understand the concepts of IoT and IoT enabling technologies	II (UNDERSTAND)
CO2	Explain IOT and system management.	II (UNDERSTAND)
CO3	To develop an understanding Programming Raspberry Pi with Python	III(APPLY)
CO4	To understand IoT Physical Servers and Cloud Offerings	II (UNDERSTAND)
CO5	Gain knowledge on IoT programming and able to develop IoT applications	IV(APPLY)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	S	H	H	H					S	H	H		
2	S	H	H	H					S	H	H		
3	H	H	S	H					H	H	H		
4	S	H	H	H					S	H	H		
5	H	H	S	H					H	H	H		

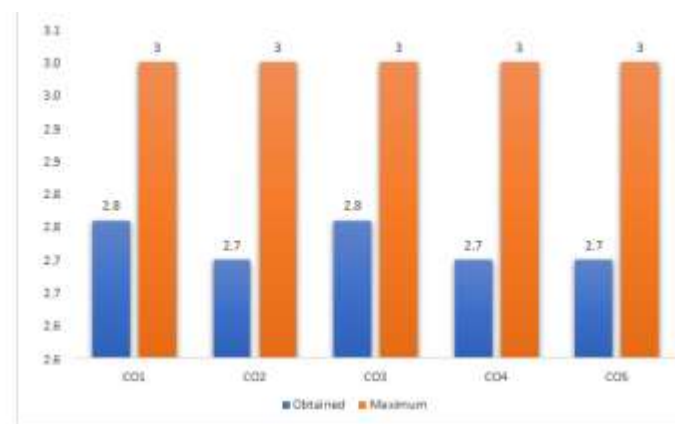
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	96.5	3.0			100.0	3.0	100.0	3.0	100.0	3.0	28.1	0.0	2.4	98.2	3.0	3.0	2.8
CO2	96.5	3.0			100.0	3.0			100.0	3.0	28.1	0.0	2.3	98.2	3.0	3.0	2.7
CO3	96.5	3.0	100.0	3.0	100.0	3.0			100.0	3.0	28.1	0.0	2.4	98.2	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	28.1	0.0	2.3	98.2	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	28.1	0.0	2.3	98.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1		H 2.76	H 2.76	H 2.76				
CO2		H 2.7	H 2.7	H 2.7				
CO3	H 2.76	H 2.76		H 2.76				
CO4		H 2.7	H 2.7	H 2.7				
CO5	H 2.7	H 2.7		H 2.7				
AVERAGE OF COS FOR POS	2.73	2.724	2.72	2.724				
AVERAGE OF POS	2.73	2.7168	2.70667	2.7168				
AVERAGE	2.717566667							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: NETWORK SECURITY

COURSE CODE: MCA21303A

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Explain the fundamentals of network security	II (UNDERSTAND)
CO2	Elaborate the concepts secret and public key cryptography	VI (CREATE)
CO3	Elucidate the hash functions digital signatures	II (UNDERSTAND)
CO4	Describe the digital signatures and smart cards	VI (CREATE)
CO5	Explain the applications of network security	II (UNDERSTAND)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	H	S	H					H	S	S		
2	H	H	S	S					S	S	H		
3	S	H	S	S					H	S	S		
4	H	H	S	S					S	H	S		
5	S	S	H	S					S	S	H		

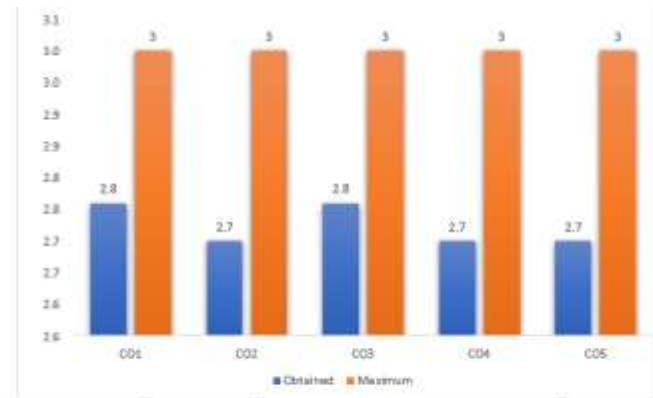
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	15.8	0.0	2.4	94.7	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	15.8	0.0	2.3	94.7	3.0	3.0	2.7
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	15.8	0.0	2.4	94.7	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	15.8	0.0	2.3	94.7	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	15.8	0.0	2.3	94.7	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76	H 2.76				
CO2	H 2.7		H 2.7					
CO3			H 2.76					
CO4	H 2.7		H 2.7					
CO5		H 2.7						
AVERAGE OF COS FOR POS	2.72	2.7	2.73	2.76				
AVERAGE OF POS	2.70667	2.7	2.7225	2.76				
AVERAGE	2.722291667							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: OPERATIONS RESEARCH

COURSE CODE: MCA21304

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Identifying the methods to solve LPP.	III (APPLY)
CO2	Applying OR to transportation problems.	III (APPLY)
CO3	Applying OR to Assignment problems and IPP.	III (APPLY)
CO4	Creating the network diagrams for Project management problems.	VI (CREATING)
CO5	Analysing the game theory problems	IV (ANALYZE)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	S	H	S					H	H	S		
2	H	S	H	S					H	H	S		
3	H	S	H	S					H	H	S		
4	S	H	H	H					H	S	H		
5	S	H	H	H					H	H	H		

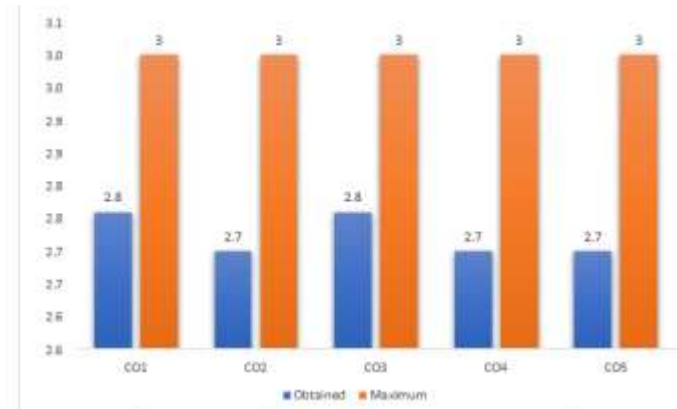
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise Internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	94.7	3.0			100.0	3.0	100.0	3.0	100.0	3.0	24.6	0.0	2.4	98.2	3.0	3.0	2.8
CO2	94.7	3.0			100.0	3.0			100.0	3.0	24.6	0.0	2.3	98.2	3.0	3.0	2.7
CO3	94.7	3.0	100.0	3.0	100.0	3.0			100.0	3.0	24.6	0.0	2.4	98.2	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	24.6	0.0	2.3	98.2	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	24.6	0.0	2.3	98.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7		H 2.7					
CO3	H 2.76		H 2.76					
CO4		H 2.7	H 2.7	H 2.7				
CO5		H 2.7	H 2.7	H 2.7				
AVERAGE OF COS FOR POS	2.74	2.7	2.724	2.7				
AVERAGE OF POS	2.73333	2.7	2.7168	2.7				
AVERAGE	2.71253333							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: SOFTWARE ENGINEERING

COURSE CODE: MCA21305

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Explain Software Engineering and to know which model is suited according to the user specifications.	II (UNDERSTAND)
CO2	Explain about Software Requirement and Specifications (SRS) and to know the concepts of designing a project and what are the models used for designing.	VI (CREATING)
CO3	Understand the places or parts of the project where design is to be conducted and the types of designs and how to identify and overcome the risks in a software project.	III (APPLY)
CO4	Explain the importance of testing and to understand the importance of testing and understand various testing procedures and measurements used for testing the productivity of a software project.	VI (CREATING)
CO5	Understand the importance of maintenance, reengineering and software process improvement in a software project.	II (UNDERSTAND)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	S	S	H					S	H	S		
2	S	H	S	S					S	S	S		
3	H	S	H	S					H	S	S		
4	H	S	S	H					S	S	H		
5	H	S	S	H					S	S	H		

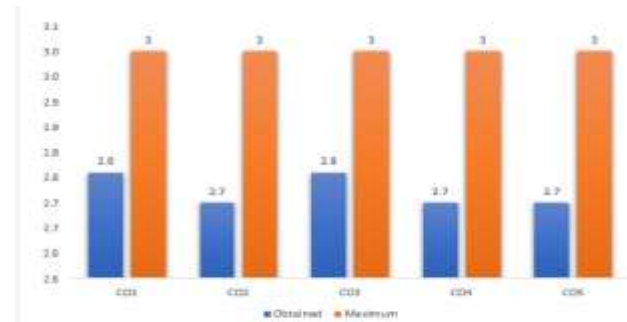
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			98.2	3.0	100.0	3.0	100.0	3.0	35.1	0.0	2.4	98.2	3.0	3.0	2.8
CO2	100.0	3.0			98.2	3.0			100.0	3.0	35.1	0.0	2.3	98.2	3.0	3.0	2.7
CO3	100.0	3.0	100.0	3.0	98.2	3.0			100.0	3.0	35.1	0.0	2.4	98.2	3.0	3.0	2.8
CO4			100.0	3.0	98.2	3.0			100.0	3.0	35.1	0.0	2.3	98.2	3.0	3.0	2.7
CO5			100.0	3.0	98.2	3.0			100.0	3.0	35.1	0.0	2.3	98.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76			H 2.76				
CO2		H 2.7						
CO3	H 2.76		H 2.76					
CO4	H 2.7			H 2.7				
CO5	H 2.7			H 2.7				
AVERAGE OF COS FOR POS	2.73	2.7	2.76	2.72				
AVERAGE OF POS	2.7225	2.7	2.76	2.70667				
AVERAGE	2.72291667							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: INTERNET TECHNOLOGIES

COURSE CODE: MCA21306

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.
- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:**PROGRAM SPECIFIC OUTCOMES (PSOs)**

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Explain basics of Java Script and OOPS concept.	(II)UNDERSTAND
CO2	Creation of Express with node JS	(VI)CREATE
CO3	Create Dynamic Web Applications using Angular.	(VI)CREATE
CO4	Explain Basics of Django Frame work.	(II)UNDERSTAND
CO5	Create trending web applications using Django	(VI)CREATE

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	S	H	S					H	H	S		
2	H	H	H	S					S	H	S		
3	H	H	S	H					S	H	S		
4	H	H	S	S					H	H	H		
5	H	H	H	S					H	H	H		

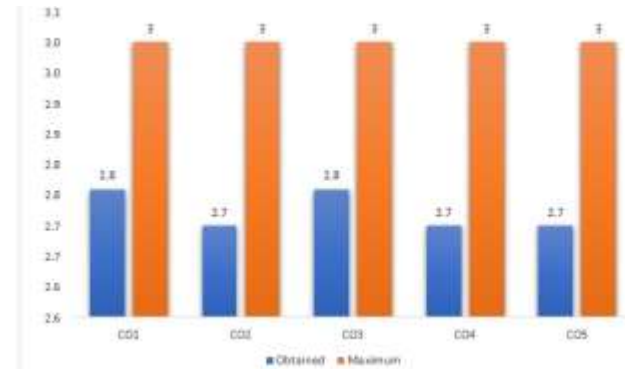
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	92.9	3.0			98.2	3.0	96.4	3.0	96.4	3.0	37.5	0.0	2.4	96.4	3.0	3.0	2.8
CO2	92.9	3.0			98.2	3.0			96.4	3.0	37.5	0.0	2.3	96.4	3.0	3.0	2.7
CO3	92.9	3.0	98.2	3.0	98.2	3.0			96.4	3.0	37.5	0.0	2.4	96.4	3.0	3.0	2.8
CO4			98.2	3.0	98.2	3.0			96.4	3.0	37.5	0.0	2.3	96.4	3.0	3.0	2.7
CO5			98.2	3.0	98.2	3.0			96.4	3.0	37.5	0.0	2.3	96.4	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7	H 2.7	H 2.7					
CO3	H 2.76	H 2.76		H 2.76				
CO4	H 2.7	H 2.7						
CO5	H 2.7	H 2.7	H 2.7					
AVERAGE OF COS FOR POS	2.724	2.715	2.72	2.76				
AVERAGE OF POS	2.7168	2.715	2.70667	2.76				
AVERAGE	2.724616667							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DATA SCIENCE

COURSE CODE: MCA21307

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Use various data structures and packages in R for data visualization and summarization	(II)UNDERSTANDING
CO2	Use linear , non-linear regression models, and classification techniques for data analysis	(III)APPLYING
CO3	Use clustering methods including K-means and CURE algorithm	(III)APPLYING

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	S	S	S	H					S	S	S		
2	H	H	H	S					S	S	H		
3	H	H	H	S					S	S	H		

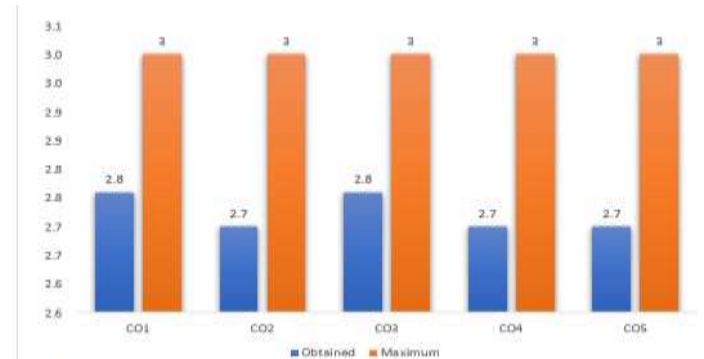
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	96.4	3.0			98.2	3.0	100.0	3.0	100.0	3.0	64.3	0.0	2.4	98.2	3.0	3.0	2.8
CO2	96.4	3.0			98.2	3.0			100.0	3.0	64.3	0.0	2.3	98.2	3.0	3.0	2.7
CO3	96.4	3.0	101.8	3.0	98.2	3.0			100.0	3.0	64.3	0.0	2.4	98.2	3.0	3.0	2.8
CO4			101.8	3.0	98.2	3.0			100.0	3.0	64.3	0.0	2.3	98.2	3.0	3.0	2.7
CO5			101.8	3.0	98.2	3.0			100.0	3.0	64.3	0.0	2.3	98.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76							
CO2			H 2.7					
CO3		H 2.76	H 2.76					
CO4		H 2.7						
CO5		H 2.7	H 2.7					
AVERAGE OF COS FOR POS	2.76	2.72	2.72					
AVERAGE OF POS	2.76	2.72	2.72					
AVERAGE	2.73333333							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: COMPUTER NETWORKS

COURSE CODE: MCA20202

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Defines Data Communication, components of networks, explains the type of transmission media and describes the functions of each layer in OSI and TCP/IP model.	I (REMEMBER)
CO2	Describes the functions of each layer and explains the various protocols	V (EVALUATE)
CO3	Classify the routing protocols and analyze how to assign the IP addresses for the given network.	II (UNDERSTAND)
CO4	Describe the Transport layer header format and services.	V (EVALUATE)
CO5	Explain the functions of Presentation layer and Application Layer.	II (UNDERSTAND)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	S	H	S					S	S	H		
2	S	S	H	H					H	S	S		
3	S	H	H	H					H	S	S		
4	H	S	S	H					S	S	H		
5	S	S	S	H					S	H	S		

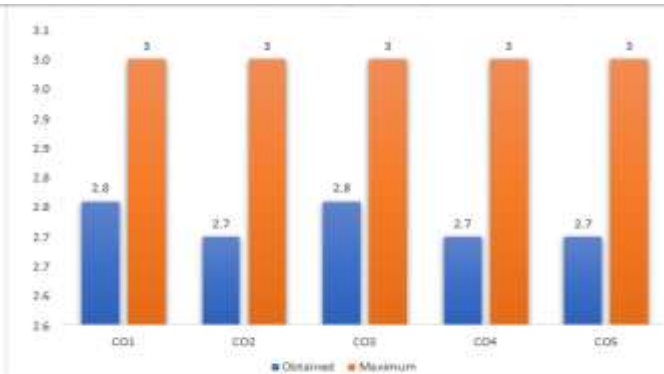
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	48.3	0.0	2.4	94.8	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	48.3	0.0	2.3	94.8	3.0	3.0	2.7
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	48.3	0.0	2.4	94.8	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	48.3	0.0	2.3	94.8	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	48.3	0.0	2.3	94.8	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76	H 2.76						
CO2		H 2.7		H 2.7				
CO3		H 2.76	H 2.76	H 2.76				
CO4	H 2.7			H 2.7				
CO5				H 2.7				
AVERAGE OF COS FOR POS	2.73	2.74	2.76	2.715				
AVERAGE OF POS	2.715	2.73333	2.76	2.715				
AVERAGE	2.730833333							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: ARTIFICIAL INTELLIGENCE

COURSE CODE: MCA20203

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Defines Artificial Intelligence, Problem Solving, Heuristic Search Techniques.	(I)Remembering
CO2	Explains about Knowledge Representation using Predicate Logic.	(II)Understanding
CO3	Explains about Expert Systems and Probability Theory.	(II)Understanding
CO4	Compares the various Artificial Neural Networks	(IV) Analyzing
CO5	Constructs the various Advance Knowledge Representation Techniques.	(VI)Creating

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3		
1	H	S	H	S					H	S	S		
2	S	S	H	H					S	H	S		
3	S	H	H	H					H	H	S		
4	H	S	S	H					S	S	S		
5	S	S	S	H					S	S	H		

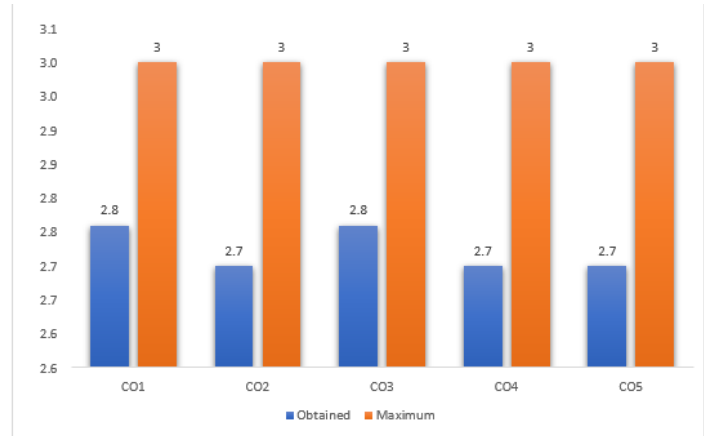
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	94.8	3.0			100.0	3.0	100.0	3.0	100.0	3.0	34.5	0.0	2.4	94.8	3.0	3.0	2.8
CO2	94.8	3.0			100.0	3.0			100.0	3.0	34.5	0.0	2.3	94.8	3.0	3.0	2.7
CO3	94.8	3.0	100.0	3.0	100.0	3.0			100.0	3.0	34.5	0.0	2.4	94.8	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	34.5	0.0	2.3	94.8	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	34.5	0.0	2.3	94.8	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76	H 2.76						
CO2		H 2.7		H 2.7				
CO3		H 2.76	H 2.76	H 2.76				
CO4	H 2.7			H 2.7				
CO5				H 2.7				
AVERAGE OF COS FOR POS	2.73	2.74	2.76	2.715				
AVERAGE OF POS	2.715	2.73333	2.76	2.715				
AVERAGE	2.730833333							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DESIGN AND ANALYSIS OF ALGORITHMS

COURSE CODE: MCA20204

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Define Elementary data structures	I (Remembering)
CO2	Explaining divide and conquer, greedy methods with examples	II (Understand)
CO3	Explaining divide and conquer, greedy methods with examples	II (Understand)
CO4	Explaining back tacking and branch and bound	II (Understand)
CO5	Analysis of NP-Hard and NP-Complete problem	(IV)Analyze

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	S	S	S					H	S	S		
2	S	H	H	S					H	H	S		
3	S	H	H	S					S	H	S		
4	H	H	S	S					S	S	H		
5	S	S	S	H					S	S	H		

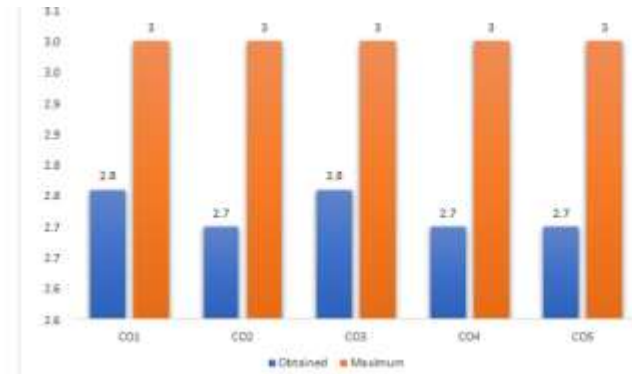
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		co wise external average	co wise total average		
CO1	99.1	3.0			100.0	3.0	100.0	3.0	100.0	3.0	34.5	0.0	2.4	96.6	3.0	3.0	2.8
CO2	99.1	3.0			100.0	3.0			100.0	3.0	34.5	0.0	2.3	96.6	3.0	3.0	2.7
CO3	99.1	3.0	100.0	3.0	100.0	3.0			100.0	3.0	34.5	0.0	2.4	96.6	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	34.5	0.0	2.3	96.6	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	34.5	0.0	2.3	96.6	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76							
CO2		H 2.7	H 2.7					
CO3		H 2.76	H 2.76					
CO4	H 2.7	H 2.7						
CO5				H 2.7				
AVERAGE OF COS FOR POS	2.73	2.72	2.73	2.7				
AVERAGE OF POS	2.715	2.72	2.73	2.7				*
AVERAGE	2.71625							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: OPERATING SYSTEMS

COURSE CODE: MCA20205

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Understand fundamental operating system abstractions, Analyzing the algorithms	IV (ANALYZE)
CO2	Describe list resources involved in process creation and management	V (EVALUATE)
CO3	Explain the use of paging and segmentation	II (UNDERSTAND)
CO4	Explain the function and structure of the I/O system.	II (UNDERSTAND)
CO5	Describe path names and directory structure visible to end users	IV (ANALYZE)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3		
1	H	H	S	S					H	H	S		
2	S	H	H	S					H	S	H		
3	H	H	S	H					H	H	S		
4	H	H	S	H					H	H	S		
5	H	H	S	H					S	H	H		

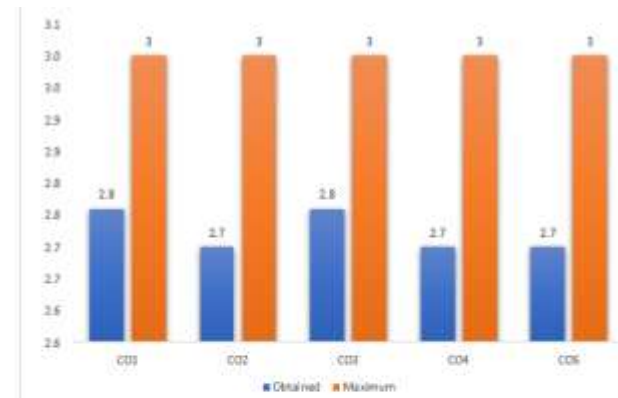
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDENCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	94.7	3.0			100.0	3.0	100.0	3.0	100.0	3.0	50.9	0.0	2.4	98.2	3.0	3.0	2.8
CO2	94.7	3.0			100.0	3.0			100.0	3.0	50.9	0.0	2.3	98.2	3.0	3.0	2.7
CO3	94.7	3.0	100.0	3.0	100.0	3.0			100.0	3.0	50.9	0.0	2.4	98.2	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	50.9	0.0	2.3	98.2	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	50.9	0.0	2.3	98.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76	H 2.76						
CO2		H 2.7	H 2.7					
CO3	H 2.76	H 2.76		H 2.76				
CO4	H 2.7	H 2.7		H 2.7				
CO5	H 2.7	H 2.7		H 2.7				
AVERAGE OF CO5 FOR PO5	2.73	2.724	2.7	2.72				
AVERAGE OF PO5	2.7225	2.7168	2.7	2.72				
AVERAGE	2.714825							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: JAVA PROGRAMMING

COURSE CODE: MCA20206

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.
- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:**PROGRAM SPECIFIC OUTCOMES (PSOs)**

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Explain the benefit of JAVA's compared to other Programming Language. The student will be able to identify classes, objects, Interfaces and will be able to demonstrate the concepts of polymorphism and inheritance	(II)UNDERSTAND
CO2	Create Java programs to implement error handling techniques using exception handling and Multi Threading concepts	(VI)CREATE
CO3	Identify usage of collection framework.	(III)APPLYING
CO4	Distinguish different Byte Streams and Character Streams and construct applets.	(IV)ANALYZE
CO5	Describe different AWT and Swings Classes. Students can design GUI based applications.	(V)EVALUATING

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3		
1	H	H	S	H					S	S	S		
2	S	H	S	S					H	S	S		
3	S	H	S	S					H	S	S		
4	S	H	S	S					S	S	H		
5	S	S	H	S					S	H	H		

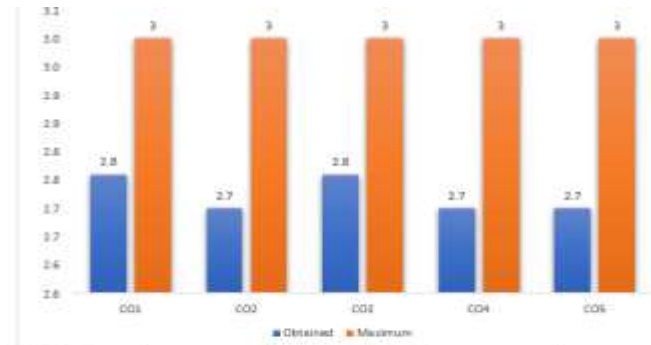
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	96.5	3.0			96.5	3.0	98.2	3.0	98.2	3.0	96.8	0.0	2.4	96.5	3.0	3.0	2.8
CO2	96.5	3.0			96.5	3.0			98.2	3.0	96.8	0.0	2.3	96.5	3.0	3.0	2.7
CO3	96.5	3.0	94.7	3.0	96.5	3.0			98.2	3.0	96.8	0.0	2.4	96.5	3.0	3.0	2.8
CO4			94.7	3.0	96.5	3.0			98.2	3.0	96.8	0.0	2.3	96.5	3.0	3.0	2.7
CO5			94.7	3.0	96.5	3.0			98.2	3.0	96.8	0.0	2.3	96.5	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76	H 2.76		H 2.76				
CO2		H 2.7						
CO3		H 2.76						
CO4		H 2.7						
CO5			H 2.7					
AVERAGE OF COS FOR PO5	2.76	2.73	2.7	2.76				
AVERAGE OF POS	2.76	2.7225	2.7	2.76				
AVERAGE	2.735625							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: MACHINE LEARNING

COURSE CODE: MCA20207

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Understand basic maths required for Machine learning.	(II)UNDERSTANDING
CO2	Implement regression and dimensionality reduction.	(III)APPLYING
CO3	Classify the learning algorithms and apply to the given data set, evaluate and interpret the results of the algorithms	(IV)ANALYZING
CO4	Identify evaluation measures	(III)APPLYING
CO5	Have a good understanding of reinforcement learning and graphical models.	(II)UNDERSTANDING

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3		
1	H	S	S	S					H	S	S		
2	S	S	H	S					H	S	H		
3	S	H	H	S					S	H	S		
4	S	H	S	S					H	S	S		
5	S	H	H	S					H	S	H		

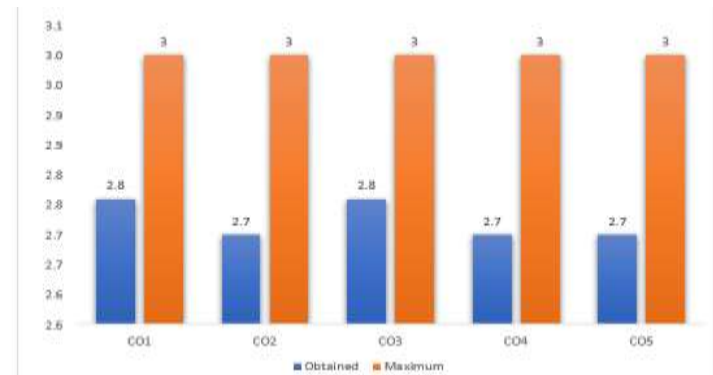
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	96.5	3.0			100.0	3.0	100.0	3.0	100.0	3.0	47.4	0.0	2.4	98.2	3.0	3.0	2.8
CO2	96.5	3.0			100.0	3.0			100.0	3.0	47.4	0.0	2.3	98.2	3.0	3.0	2.7
CO3	96.5	3.0	100.0	3.0	100.0	3.0			100.0	3.0	47.4	0.0	2.4	98.2	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	47.4	0.0	2.3	98.2	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	47.4	0.0	2.3	98.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76							
CO2			H 2.7					
CO3		H 2.76	H 2.76					
CO4		H 2.7						
CO5		H 2.7	H 2.7					
AVERAGE OF COS FOR POS	2.76	2.72	2.72					
AVERAGE OF POS	2.76	2.72	2.72					
AVERAGE	2.73333333							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: PROBABILITY AND STATISTICS

COURSE CODE: MCA

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Understanding of Linear Algebra will boost the ability to understand and apply various data science algorithms.	II (UNDERSTAND)
CO2	Calculate probabilities by applying probability laws and theoretical results, knowledge of important discrete and continuous distributions, their inter relations with real time applications.	III (APPLY)
CO3	Understanding the use of sample statistics to estimate unknown parameters.	II (UNDERSTAND)
CO4	Evaluating the proficiency in learning to interpret outcomes.	V (EVALUATE)
CO5	Application of Correlation Analysis, regression lines and multiple regression analysis.	III (APPLY)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3		
1	H	S	S	S					S	S	S		
2	S	S	S	H					H	S	S		
3	S	S	H	S					S	S	S		
4	H	H	S	S					S	H	H		
5	S	H	S	S					H	S	H		

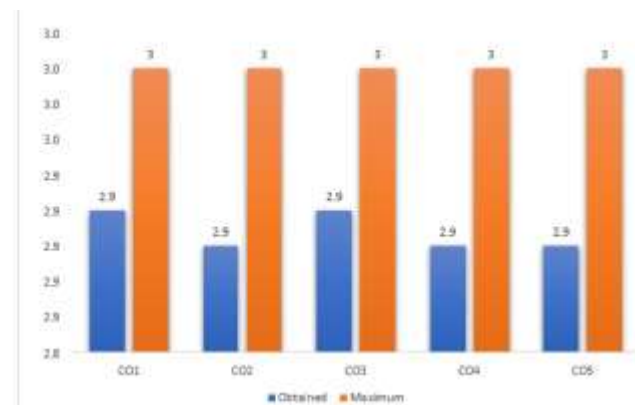
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	93.0	3.0			89.5	3.0	87.7	3.0	91.2	3.0	77.2	2.0	2.8	93.0	3.0	3.0	2.9
CO2	93.0	3.0			89.5	3.0			91.2	3.0	77.2	2.0	2.8	93.0	3.0	3.0	2.9
CO3	93.0	3.0	98.2	3.0	89.5	3.0			91.2	3.0	77.2	2.0	2.8	93.0	3.0	3.0	2.9
CO4			98.2	3.0	89.5	3.0			91.2	3.0	77.2	2.0	2.8	93.0	3.0	3.0	2.9
CO5			98.2	3.0	89.5	3.0			91.2	3.0	77.2	2.0	2.8	93.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.908

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

- 1. Copy the completed table 1.**
- 2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]**
- 3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]**



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92							
CO2				H 2.9				
CO3			H 2.92					
CO4	H 2.9	H 2.9						
CO5		H 2.9						
AVERAGE OF COS FOR POS	2.91	2.9	2.92	2.9				
AVERAGE OF POS	2.905	2.9	2.92	2.9				
AVERAGE	2.90625							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

COURSE CODE: MCA20102

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Define Statements, connectives, how to apply connectives ,working with sets, subsets and represent them in venn diagrams	(I)Remember
CO2	Explains about relations ,ordering, functions, lattices and Boolean algebra illustrating with examples.	(II)Understand
CO3	Explains about algebraic structures and groups by applying various theorems and solving for an appropriate result	(III)Apply
CO4	Compare the Homogeneous Recurrence Relations and Non-Homogeneous Recurrence Relations along with examples.	(IV)Analyze
CO5	Constructs graphs, trees and planar graphs	(VI)Create

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	H	H	S	S					H	S	S		
2	S	H	S	H					H	S	S		
3	H	S	H	S					S	S	H		
4	S	S	S	S					S	H	S		
5	S	S	H	S					S	S	S		

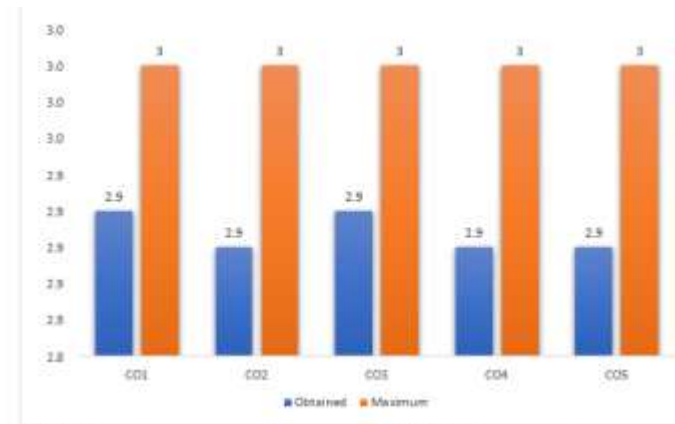
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam		co wise external average	co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	93.1	3.0			96.6	3.0	100.0	3.0	100.0	3.0	81.0	2.0	2.8	93.1	3.0	3.0	2.9
CO2	93.1	3.0			96.6	3.0			100.0	3.0	81.0	2.0	2.8	93.1	3.0	3.0	2.9
CO3	93.1	3.0	96.6	3.0	96.6	3.0			100.0	3.0	81.0	2.0	2.8	93.1	3.0	3.0	2.9
CO4			96.6	3.0	96.6	3.0			100.0	3.0	81.0	2.0	2.8	93.1	3.0	3.0	2.9
CO5			96.6	3.0	96.6	3.0			100.0	3.0	81.0	2.0	2.8	93.1	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.908

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92					
CO2			H 2.9	H 2.9				
CO3	H 2.92	H 2.92						
CO4								
CO5		H 2.9						
AVERAGE OF COS FOR POS	2.92	2.91	2.91	2.9				
AVERAGE OF POS	2.92	2.91	2.905	2.9				
AVERAGE	2.90875							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: COMPUTER ARCHITECTURE

COURSE CODE: MCA201303

CREDITS: 4

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Demonstrate knowledge of digital logic circuits and organization of a basic computer system.	II (UNDERSTAND)
CO2	Explain machine language of a basic computer system.	II (UNDERSTAND)
CO3	Analyse in-depth understanding of control unit organization and micro programmed control.	IV (ANALYZE)
CO4	Apply various algorithms to perform arithmetic operations and propose suitable hardware for them.	III (APPLY)
CO5	Analyze and emphasize various communication media in the basic computer system using design of various memory structures.	IV (ANALYZE)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3		
1	H	H	S	H					H	H	S		
2	H	H	S	H					H	H	S		
3	H	H	S	H					S	H	H		
4	H	S	H	H					H	S	H		
5	H	H	S	H					S	H	H		

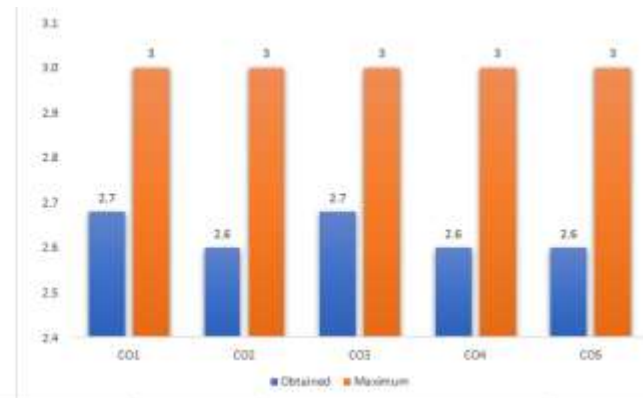
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			98.2	3.0	100.0	3.0	66.7	1.0	71.9	1.0	2.2	96.5	3.0	3.0	2.7
CO2	100.0	3.0			98.2	3.0			66.7	1.0	71.9	1.0	2.0	96.5	3.0	3.0	2.6
CO3	100.0	3.0	100.0	3.0	98.2	3.0			66.7	1.0	71.9	1.0	2.2	96.5	3.0	3.0	2.7
CO4			100.0	3.0	98.2	3.0			66.7	1.0	71.9	1.0	2.0	96.5	3.0	3.0	2.6
CO5			100.0	3.0	98.2	3.0			66.7	1.0	71.9	1.0	2.0	96.5	3.0	3.0	2.6

AVERAGE	AVERAGE
3	2.632

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.68	H 2.68		H 2.68				
CO2	H 2.6	H 2.6		H 2.6				
CO3	H 2.68	H 2.68		H 2.68				
CO4	H 2.6		H 2.6	H 2.6				
CO5	H 2.6	H 2.6		H 2.6				
AVERAGE OF COS FOR POS	2.632	2.64	2.6	2.632				
AVERAGE OF POS	2.6224	2.63	2.6	2.6224				
AVERAGE	2.6187							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DATA STRUCTURES USING C

COURSE CODE: MCA20104

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.

- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Implement linear and non-linear data structure operations using C	III (APPLY)
CO2	Suggest appropriate linear / non-linear data structure for any given data set.	VI (CREATE)
CO3	Apply hashing concepts for a given problem	III (APPLY)
CO4	Modify or suggest new data structure for an application	VI (CREATE)
CO5	Implementing sorting algorithm for an application	III (APPLY)

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3		
1	S	H	S	S					H	S	S		
2	H	H	S	S					H	S	H		
3	S	H	H	S					H	S	H		
4	S	H	S	H					H	H	H		
5	S	S	H	S					H	S	H		

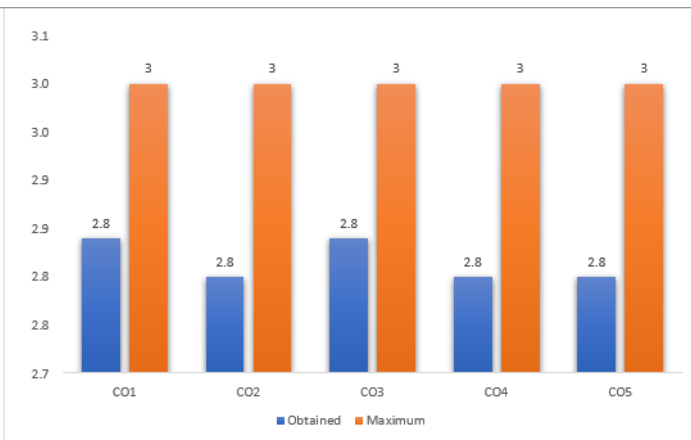
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
- Pass percent between 75% - 85%= 2
- Pass percent between 65%- 75%= 1
- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	65.5	1.0	2.6	94.8	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	65.5	1.0	2.5	94.8	3.0	3.0	2.8
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	65.5	1.0	2.6	94.8	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	65.5	1.0	2.5	94.8	3.0	3.0	2.8
CO5			100.0	3.0	100.0	3.0			100.0	3.0	65.5	1.0	2.5	94.8	3.0	3.0	2.8

AVERAGE	AVERAGE
3	2.816

RESULT ANALYSIS: (Only write a comment on the total CO attainment for the course and areas of improvement, how less it is from 3, which exam are they losing marks in, how can we attain 3)

The total CO attainment of the course is satisfactory. Performance in the mid semester exam needs to improve to improve overall course outcome attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table 1.
2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the ‘S’ points]
3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1			H 2.84					
CO2	H 2.8		H 2.8					
CO3		H 2.84	H 2.84					
CO4			H 2.8	H 2.8				
CO5		H 2.8						
AVERAGE OF COS FOR POS	2.8	2.82	2.82	2.8				
AVERAGE OF POS	2.8	2.82	2.815	2.8				
AVERAGE	2.80875							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DATABASE MANAGEMENT SYSTEMS

COURSE CODE: MCA20105

CREDITS: 3

DEPARTMENT: M.C.A

PROGRAMME OUTCOMES Or POS(MCA):

PROGRAM OBJECTIVES (POs)

- **PO1: Engineering knowledge:** Apply the knowledge of mathematics, computer science, various programming languages, databases and operating system to develop a software system.
- **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/development of solutions:** Design solutions for complex engineering problems and System components or processes that meet the specified needs of public health and safety.
- **PO4: Continuous learning:** Recognize the needs and improves the ability to engage in independent and life-long learning as trends changes in technology.

PROGRAMME SPECIFIC OUTCOME:**PROGRAM SPECIFIC OUTCOMES (PSOs)**

- **PSO1:** To consolidate foundation of mathematics, computer science and problem solving methodology for effective implementation in the area of software development. To inculcate advance knowledge about various sub-domains of computer science and applications.
- **PSO2:** To prepare graduates to achieve peer-recognition, as an individual and in a team, through demonstration of good analytical, design and implementation skills.
- **PSO3:** To improve the ability to test and analyze the qualities of various subsystems and to integrate them together to evolve a larger and better computing system, that includes the concept of mathematics, computer engineering and related disciplines to meet the user objective

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	Explain logical database using Entity Relationship.	(II)UNDERSTAND
CO2	Construct database using relational algebra and relational calculus &SQL	(III)APPLYING
CO3	Classify the storage and file structure, storage access, indexing and hashing techniques of the database.	(II)UNDERSTAND
CO4	Defines client server architecture, Parallel databases, and distributed databases.	(I)REMEMBER
CO5	Create NOSQL Databases	(VI)CREATE

Table 1: CO, PO, PSO MAPPING

Course outcomes	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3		
1	H	H	H	H					H	H	H		
2	H	H	H	H					H	H	H		
3	S	S	S	S					S	S	S		
4	S	H	H	S					S	S	S		
5	S	H	H	S					S	S	H		

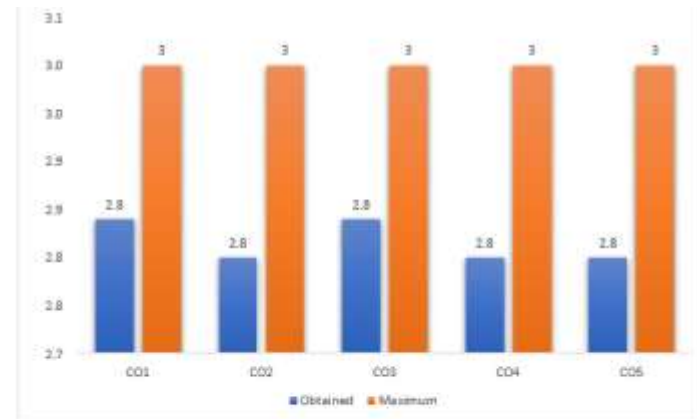
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	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	96.5	3.0			96.5	3.0	98.2	3.0	98.2	3.0	70.2	1.0	2.6	98.2	3.0	3.0	2.8
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CO4			98.2	3.0	96.5	3.0			98.2	3.0	70.2	1.0	2.5	98.2	3.0	3.0	2.8
CO5			98.2	3.0	96.5	3.0			98.2	3.0	70.2	1.0	2.5	98.2	3.0	3.0	2.8

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CO2	H 2.8	H 2.8	H 2.8	H 2.8				
CO3								
CO4		H 2.8	H 2.8					
CO5		H 2.8	H 2.8					
AVERAGE OF COS FOR POS	2.82	2.81	2.81	2.82				
AVERAGE OF POS	2.81	2.8025	2.8025	2.81				
AVERAGE	2.80625							