

SEMESTER- 1

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: GENERAL ENGLISH -I

COURSE CODE: EN23101

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
 - **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.
 - **PO5:** Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development.
 - **PO6:** Individual and team work: Function objectively as an individual and as a member in diverse teams.
 - **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
 - **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.
-
- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
 - **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
 - **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
 - **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

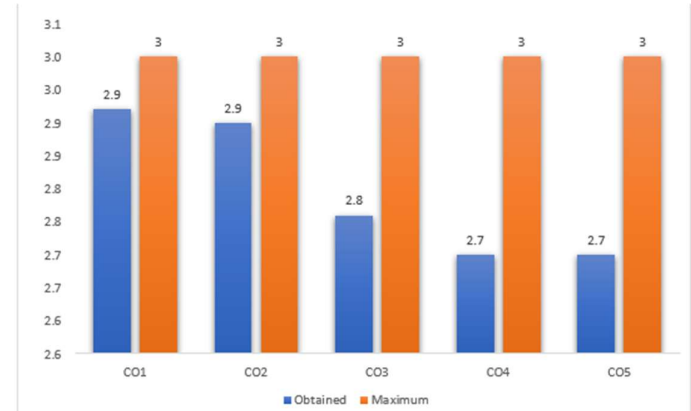
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	90.0	3.0			78.0	2.0	100.0	3.0	100.0	3.0	96.0	3.0	2.8	100.0	3.0	3.0	2.9
CO2	90.0	3.0			78.0	2.0			100.0	3.0	96.0	3.0	2.8	100.0	3.0	3.0	2.9
CO3	90.0	3.0	74.0	1.0	78.0	2.0			100.0	3.0	96.0	3.0	2.4	100.0	3.0	3.0	2.8
CO4			74.0	1.0	78.0	2.0			100.0	3.0	96.0	3.0	2.3	100.0	3.0	3.0	2.7
CO5			74.0	1.0	78.0	2.0			100.0	3.0	96.0	3.0	2.3	100.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.796



Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92					
CO2	H 2.9		H 2.9	H 2.9			H 2.9	
CO3	H 2.76	H 2.76	H 2.76	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	2.796	2.76	2.796	2.786666667		2.73	2.786666667	2.7
AVERAGE OF POS	2.7712	2.76	2.7712	2.78667		2.73	2.78667	2.7
AVERAGE	2.757961905							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: VALUE EDUCATION & PERSONALITY DEVELOPMENT

COURSE CODE: VE18101

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

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 - **PO6:** Individual and team work: Function objectively as an individual and as a member in diverse teams.
 - **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
 - **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.
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- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
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 - **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

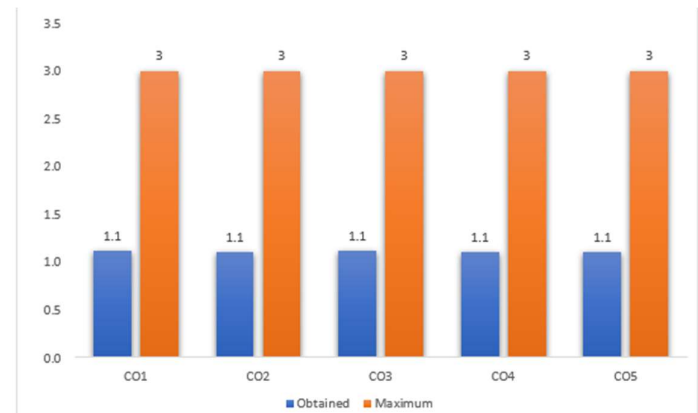
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co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	92.0	3.0			78.0	2.0	100.0	3.0	100.0	3.0	96.0	3.0	2.8	0.0	0.0	0.0	1.1
CO2	92.0	3.0			78.0	2.0			100.0	3.0	96.0	3.0	2.8	0.0	0.0	0.0	1.1
CO3	92.0	3.0	96.0	3.0	78.0	2.0			100.0	3.0	96.0	3.0	2.8	0.0	0.0	0.0	1.1
CO4			96.0	3.0	78.0	2.0			100.0	3.0	96.0	3.0	2.8	0.0	0.0	0.0	1.1
CO5			96.0	3.0	78.0	2.0			100.0	3.0	96.0	3.0	2.8	0.0	0.0	0.0	1.1

AVERAGE	AVERAGE
0	1.108

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92					
CO2	H 2.9		H 2.9	H 2.9			H 2.9	
CO3	H 2.76	H 2.76	H 2.76	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	2.796	2.76	2.796	2.786666667		2.73	2.786666667	2.7
AVERAGE OF POS	2.7712	2.76	2.7712	2.78667		2.73	2.78667	2.7
AVERAGE	2.757961905							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: COMPUTER FUNDAMENTALS

COURSE CODE: CSCS21101

CREDITS: 3

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

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 - **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Understand various I/O devices and functionality of computer	II (UNDERSTAND)
CO2	CO2: Solve arithmetic operations using different types of number systems	III (APPLY)

CO3	CO3: Understand the concepts of Data Organisation	II (UNDERSTAND)
CO4	CO4: Understand the concepts of Internet	II (UNDERSTAND)
CO5	CO5: Explain the concepts of Problem Solving using Computers	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	PSO4	
1	H		H	S			S	S		S		H	
2	H		H	H			H	S	S	H		H	
3	H	H	H	H		H	H	S	H	H		H	
4	H		H			H	H	S	H	H		S	

5	H		H	H	S		S	H		H		H	
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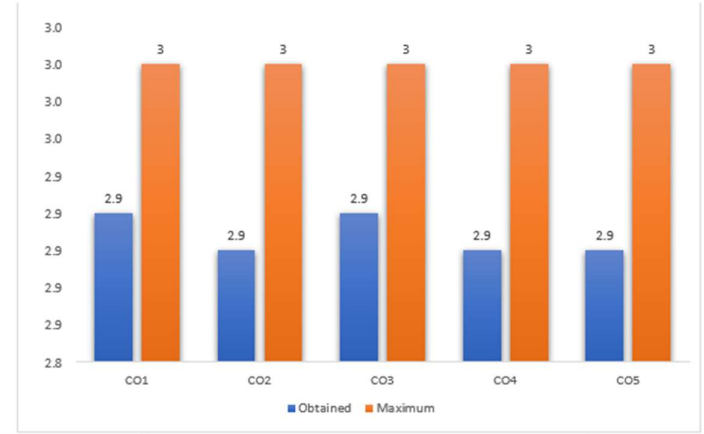
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	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	92.0	3.0			78.0	2.0	100.0	3.0	100.0	3.0	96.0	3.0	2.8	98.0	3.0	3.0	2.9
CO2	92.0	3.0			78.0	2.0			100.0	3.0	96.0	3.0	2.8	98.0	3.0	3.0	2.9
CO3	92.0	3.0	96.0	3.0	78.0	2.0			100.0	3.0	96.0	3.0	2.8	98.0	3.0	3.0	2.9
CO4			96.0	3.0	78.0	2.0			100.0	3.0	96.0	3.0	2.8	98.0	3.0	3.0	2.9
CO5			96.0	3.0	78.0	2.0			100.0	3.0	96.0	3.0	2.8	98.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.908



Table 3: PROGRAMME OUTCOME MAPPING

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92					
CO2	H 2.9			H 2.9			H 2.9	
CO3	H 2.92	H 2.92	H 2.92	H 2.92		H 2.92	H 2.92	
CO4	H 2.9	H 2.9			H 2.9			H 2.9
CO5	H 2.9		H 2.9	H 2.9				H 2.9
AVERAGE OF COS FOR POS	2.908	2.91	2.913333333	2.906666667	2.9	2.92	2.91	2.9
AVERAGE OF POS	2.9056	2.91	2.91111	2.90667	2.9	2.92	2.91	2.9
AVERAGE	2.907922222							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: MATHEMATICAL FOUNDATION FOR CYBER-SECURITY

COURSE CODE: CSCS21102

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
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PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

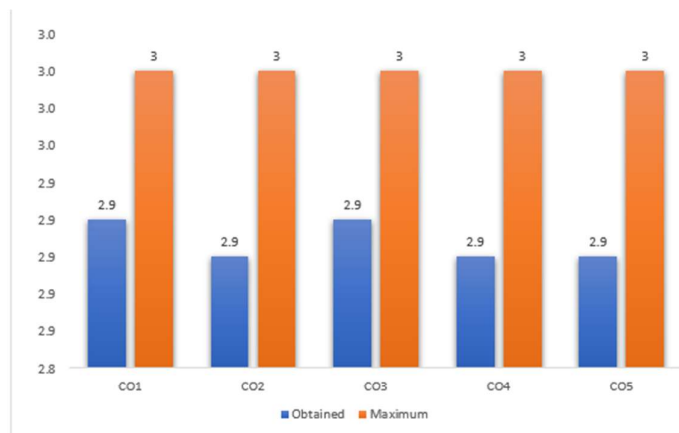
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Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

- Pass percent of 85% and above= 3
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co	mid exam 1		mid exam 2		group discussion		assignment		viva		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	92.0	3.0			78.0	2.0	100.0	3.0	100.0	3.0	96.0	3.0	2.8	98.0	3.0	3.0	2.9
CO2	92.0	3.0			78.0	2.0			100.0	3.0	96.0	3.0	2.8	98.0	3.0	3.0	2.9
CO3	92.0	3.0	96.0	3.0	78.0	2.0			100.0	3.0	96.0	3.0	2.8	98.0	3.0	3.0	2.9
CO4			96.0	3.0	78.0	2.0			100.0	3.0	96.0	3.0	2.8	98.0	3.0	3.0	2.9
CO5			96.0	3.0	78.0	2.0			100.0	3.0	96.0	3.0	2.8	98.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.908

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92					
CO2								
CO3		H 2.76	H 2.76	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	H 2.7
AVERAGE OF COS FOR POS	2.81	2.73	2.793333333	2.73	2.7	2.76	2.72	2.7
AVERAGE OF POS	2.755	2.73	2.75111	2.73	2.7	2.76	2.72	2.7
AVERAGE	2.730763889							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: IT Hardware and Networking

COURSE CODE: CSCS21103

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

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PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
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1				H						S		
2		H				H				S		
3				H				H		H	H	
4				H				H		S		H
5		H				H		H		H		

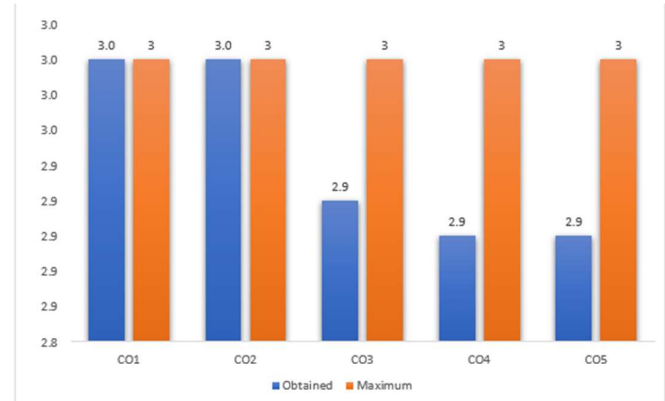
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CO2	98.0	3.0			94.0	3.0			100.0	3.0	96.0	3.0	3.0	94.0	3.0	3.0	3.0
CO3	98.0	3.0	80.0	2.0	94.0	3.0			100.0	3.0	96.0	3.0	2.8	94.0	3.0	3.0	2.9
CO4			80.0	2.0	94.0	3.0			100.0	3.0	96.0	3.0	2.8	94.0	3.0	3.0	2.9
CO5			80.0	2.0	94.0	3.0			100.0	3.0	96.0	3.0	2.8	94.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.944

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 3		H 3					
CO2								
CO3	H 2.92	H 2.92	H 2.92	H 2.92		H 2.92	H 2.92	
CO4	H 2.9	H 2.9		H 2.9	H 2.9			
CO5	H 2.9		H 2.9	H 2.9			H 2.9	H 2.9
AVERAGE OF COS FOR POS	2.93	2.91	2.94	2.906666667	2.9	2.92	2.91	2.9
AVERAGE OF POS	2.9125	2.91	2.92	2.90667	2.9	2.92	2.91	2.9
AVERAGE	2.909895833							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: PROBLEM SOLVING AND PROGRAMMING THROUGH ‘C’

COURSE CODE: BS21104

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

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- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..

PSO4: Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

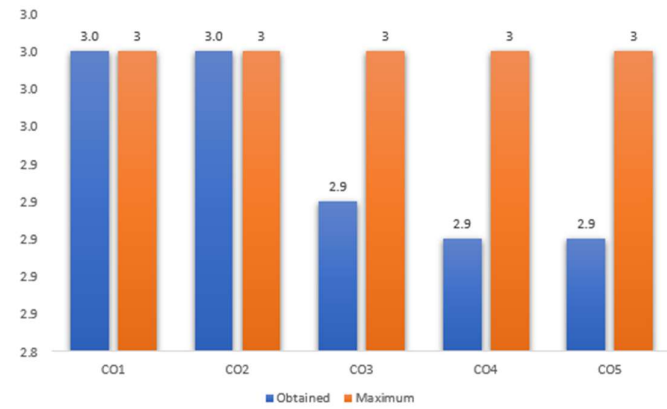
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	98.0	3.0			94.0	3.0	100.0	3.0	100.0	3.0	96.0	3.0	3.0	94.0	3.0	3.0	3.0
CO2	98.0	3.0			94.0	3.0			100.0	3.0	96.0	3.0	3.0	94.0	3.0	3.0	3.0
CO3	98.0	3.0	80.0	2.0	94.0	3.0			100.0	3.0	96.0	3.0	2.8	94.0	3.0	3.0	2.9
CO4			80.0	2.0	94.0	3.0			100.0	3.0	96.0	3.0	2.8	94.0	3.0	3.0	2.9
CO5			80.0	2.0	94.0	3.0			100.0	3.0	96.0	3.0	2.8	94.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2,944

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 3		H 3					
CO2							H 3	
CO3		H 2.92	H 2.92	H 2.92		H 2.92	H 2.92	H 2.92
CO4		H 2.9		H 2.9	H 2.9		H 2.9	H 2.9
CO5			H 2.9	H 2.9			H 2.9	H 2.9
AVERAGE OF COS FOR POS	3	2.91	2.94	2.90666667	2.9	2.92	2.93	2.90666667
AVERAGE OF POS	3	2.91	2.92	2.90667	2.9	2.92	2.93	2.90667
AVERAGE	2.92416667							

SEMESTER- 3

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: CRYPTOGRAPHIC ALGORITHMS

COURSE CODE: CSCS22302

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.
- **PO5:** Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development.
- **PO6:** Individual and team work: Function objectively as an individual and as a member in diverse teams.
- **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

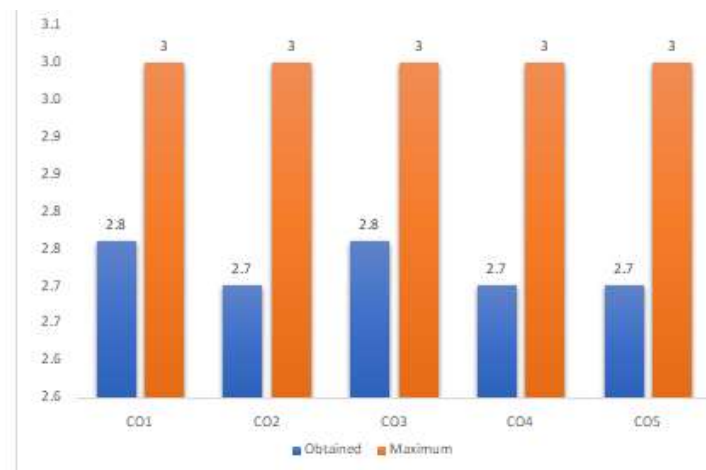
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	50.0	0.0	2.4	92.0	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	50.0	0.0	2.3	92.0	3.0	3.0	2.7
CO3	100.0	3.0	90.0	3.0	100.0	3.0			100.0	3.0	50.0	0.0	2.4	92.0	3.0	3.0	2.8
CO4			90.0	3.0	100.0	3.0			100.0	3.0	50.0	0.0	2.3	92.0	3.0	3.0	2.7
CO5			90.0	3.0	100.0	3.0			100.0	3.0	50.0	0.0	2.3	92.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76	H 2.76		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	H 2.7		H 2.7		
AVERAGE OF COS FOR POS	2.73	2.72	2.72	2.74	2.7	2.73	2.73	2.76
AVERAGE OF POS	2.715	2.72	2.706667	2.733333	2.7	2.715	2.715	2.76
AVERAGE	2.720625							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: ETHICAL HACKING

COURSE CODE: CSCS22301

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
 - **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.
 - **PO5:** Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development.
 - **PO6:** Individual and team work: Function objectively as an individual and as a member in diverse teams.
 - **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
 - **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.
-
- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
 - **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
 - **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
 - **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

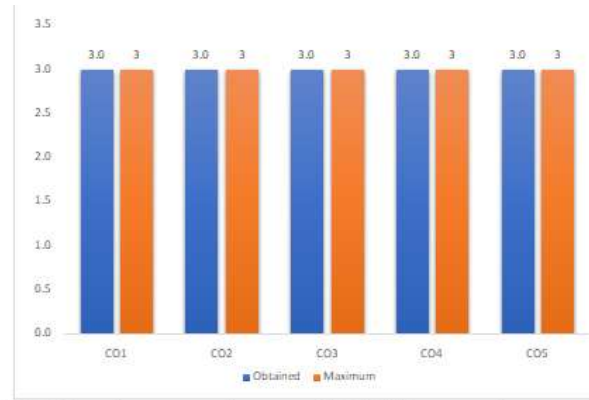
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	92.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	100.0	3.0	3.0	94.0	3.0	3.0	3.0
CO2	92.0	3.0			100.0	3.0			100.0	3.0	100.0	3.0	3.0	94.0	3.0	3.0	3.0
CO3	92.0	3.0	94.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	94.0	3.0	3.0	3.0
CO4			94.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	94.0	3.0	3.0	3.0
CO5			94.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	94.0	3.0	3.0	3.0

AVERAGE	AVERAGE
3	3

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 3							
CO2			H 3		H 3		H 3	
CO3				H 3				H 3
CO4				H 3		H 3		
CO5		H 3			H 3			H 3
AVERAGE OF COS FOR POS	3	3	3	3	3	3	3	3
AVERAGE OF POS	3	3	3	3	3	3	3	3
AVERAGE	3							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: ENVIRONMENTAL STUDIES & GENDER SENSITIZATION

COURSE CODE: ES23301

CREDITS: 3

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.

<ul style="list-style-type: none"> • PO5: Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development. • PO6: Individual and team work: Function objectively as an individual and as a member in diverse teams. • PO7: Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation. • PO8: Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.
<ul style="list-style-type: none"> • PSO1: Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems. • PSO2: Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions. • PSO3: Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies.. • PSO4: Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Understand the importance of Environmental education, conservation of natural resources & understand the importance of ecosystems and biodiversity.	II (UNDERSTAND)
CO2	CO2: Understand the pollution problems and apply the environmental science knowledge on solid waste management, disaster management.	III (APPLY)

CO3	CO3: Apply the environmental science knowledge to improve the resources Evaluate and understand the sustainable environmental conditions and control methods.	II (UNDERSTAND)
CO4	CO4: Identify the interactions and inter sections of identities (e.g., gender, race, ethnicity class, sexuality, and so on) and assess the ways in which they contribute to instances of privilege and power dynamics across cultures, space, and time. And their problems	II (UNDERSTAND)
CO5	CO5: Understand the gender problems and ways of addressing them, including interactions across local to global scales in communities and overcome inequalities with legislation	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	PSO4	
1	H		H	S			S	S		S		H	
2	H		H	H			H	S	S	H		H	
3	H	H	H	H		H	H	S	H	H		H	
4	H		H			H	H	S	H	H		S	

5	H		H	H	S		S	H		H		H	
---	---	--	---	---	---	--	---	---	--	---	--	---	--

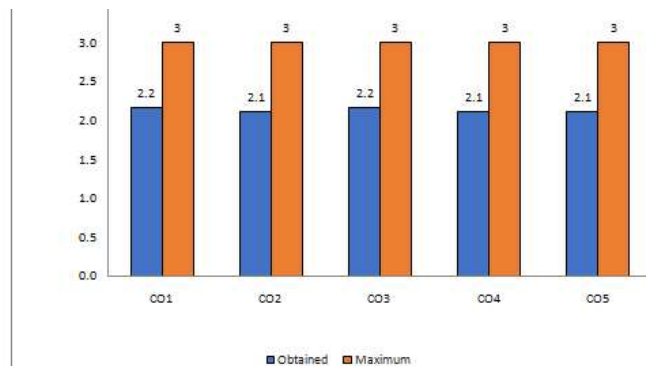
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal	External Exam			co wise total
	pass%	Attainment	pass%	Attainment	pass%	Attainment	pass%	Attainment	pass%	Attainment	pass%	Attainment		pass%	Attainment	co wise external	
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	44.0	0.0	2.4	82.0	2.0	2.0	2.2
CO2	100.0	3.0			100.0	3.0			100.0	3.0	44.0	0.0	2.3	82.0	2.0	2.0	2.1
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	44.0	0.0	2.4	82.0	2.0	2.0	2.2
CO4			100.0	3.0	100.0	3.0			100.0	3.0	44.0	0.0	2.3	82.0	2.0	2.0	2.1
CO5			100.0	3.0	100.0	3.0			100.0	3.0	44.0	0.0	2.3	82.0	2.0	2.0	2.1

AVERAGE	AVERAGE
2	2.124

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92					
CO2	H 2.9		H 2.9	H 2.9			H 2.9	
CO3	H 2.92	H 2.92	H 2.92	H 2.92		H 2.92	H 2.92	
CO4	H 2.9		H 2.9			H 2.9	H 2.9	
CO5	H 2.9		H 2.9	H 2.9				H 2.9
AVERAGE OF COS FOR POS	2.908	2.92	2.908	2.906666667		2.91	2.906666667	2.9
AVERAGE OF POS	2.9056	2.92	2.9056	2.90667		2.91	2.90667	2.9
AVERAGE	2.907790476							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: PYTHON PROGRAMMING

COURSE CODE:CSCS21304

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.

- **PO5:** Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development.
- **PO6:** Individual and team work: Function objectively as an individual and as a member in diverse teams.
- **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

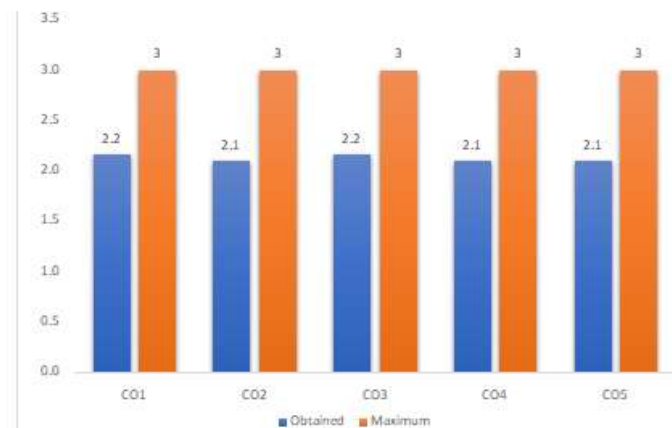
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	92.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	48.0	0.0	2.4	84.0	2.0	2.0	2.2
CO2	92.0	3.0			100.0	3.0			100.0	3.0	48.0	0.0	2.3	84.0	2.0	2.0	2.1
CO3	92.0	3.0	94.0	3.0	100.0	3.0			100.0	3.0	48.0	0.0	2.4	84.0	2.0	2.0	2.2
CO4			94.0	3.0	100.0	3.0			100.0	3.0	48.0	0.0	2.3	84.0	2.0	2.0	2.1
CO5			94.0	3.0	100.0	3.0			100.0	3.0	48.0	0.0	2.3	84.0	2.0	2.0	2.1

AVERAGE	AVERAGE
2	2.124



Table 3: PROGRAMME OUTCOME MAPPING

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.16				H 2.16			H 2.16
CO2				H 2.1		H 2.1		
CO3			H 2.16					H 2.16
CO4		H 2.1				H 2.1		
CO5		H 2.1					H 2.1	
AVERAGE OF COS FOR POS	2.16	2.1	2.16	2.1	2.16	2.1	2.1	2.16
AVERAGE OF POS	2.16	2.1	2.16	2.1	2.16	2.1	2.1	2.16
AVERAGE	2.13							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: SERVER ADMINISTRATION

COURSE CODE: CSCS21303

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.

- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..

PSO4: Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

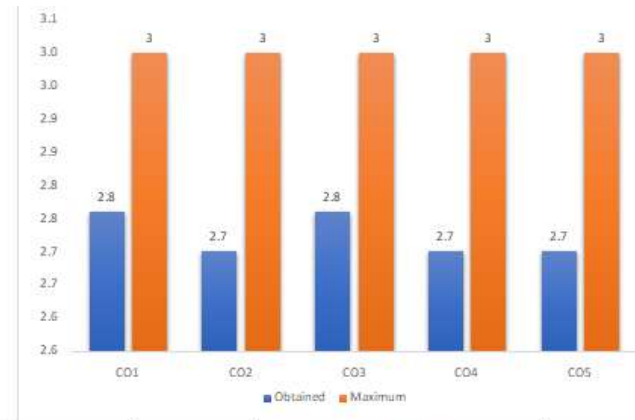
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	98.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	54.0	0.0	2.4	92.0	3.0	3.0	2.8
CO2	98.0	3.0			100.0	3.0			100.0	3.0	54.0	0.0	2.3	92.0	3.0	3.0	2.7
CO3	98.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	54.0	0.0	2.4	92.0	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	54.0	0.0	2.3	92.0	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	54.0	0.0	2.3	92.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



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				H 2.7		H 2.7
AVERAGE OF COS FOR POS		2.7		2.74		2.7		2.72
AVERAGE OF POS		2.7		2.733333		2.7		2.72
AVERAGE	2.713333333							

SEMESTER- V

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: STEGANOGRAPHY

COURSE CODE: CSCS23501A

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental

considerations.

- **PO3.Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6.Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies.
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

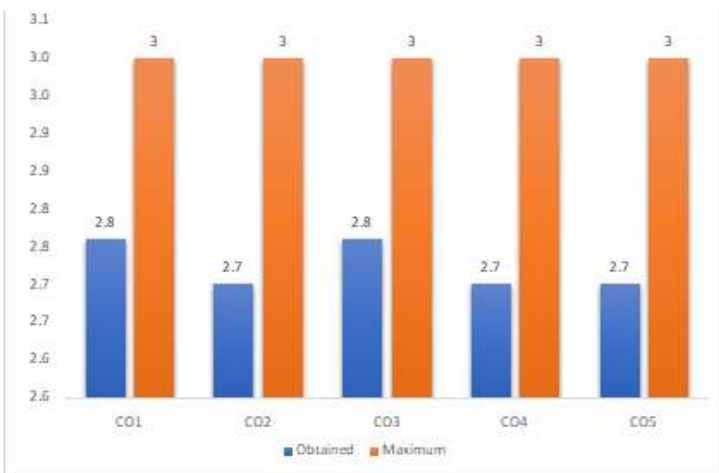
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	97.9	3.0	100.0	3.0	44.7	0.0	2.4	93.6	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	44.7	0.0	2.3	93.6	3.0	3.0	2.7
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	44.7	0.0	2.4	93.6	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	44.7	0.0	2.3	93.6	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	44.7	0.0	2.3	93.6	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



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
CO5			H 2.7			H 2.7		
AVERAGE OF COS FOR POS	2.76		2.7	2.7	2.76	2.7	2.7	2.7
AVERAGE OF POS	2.76		2.7	2.7	2.76	2.7	2.7	2.7
AVERAGE	2.717142857							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: SECURE E-COMMERCE

COURSE CODE: CSCS23501B

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised

machine learning methodologies..

- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Understand the framework and anatomy of ecommerce applications and analyze ecommerce consumer, organizational applications	I (REMEMBER)
CO2	CO2: Understand Web Security framework	II(UNDERSTAND)
CO3	CO3: Infer Digital payments system	II(UNDERSTAND)
CO4	CO4: Understand the implementation of Electronic Data Interchange (EDI)	VI(CREATE)
CO5	CO5: Analyse Strategies, Techniques of E payments	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	PSO4	
1	H				H				H				H
2			H			H				S			
3		H			H			H				H	
4			S	H			H			H			
5	H						S			S			H

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

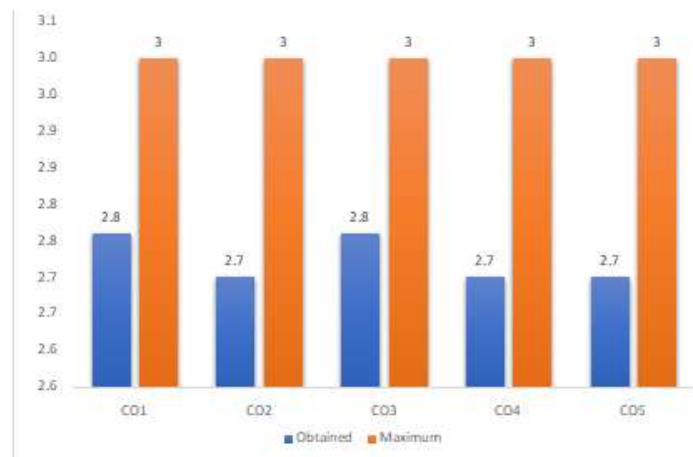
ATTAINMENT SCALE:

Pass percent of 85% and above= 3

Pass percent between 75% - 85%= 2

Pass percent between 75%- 65%= 1

Pass percent of less than 65%= 0



co	mid exam 1		mid exam 2		group discussion		assignment		viva		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	97.8	3.0			100.0	3.0	91.3	3.0	100.0	3.0	43.5	0.0	2.4	93.5	3.0	3.0	2.8
CO2	97.8	3.0			100.0	3.0			100.0	3.0	43.5	0.0	2.3	93.5	3.0	3.0	2.7
CO3	97.8	3.0	100.0	3.0	100.0	3.0			100.0	3.0	43.5	0.0	2.4	93.5	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	43.5	0.0	2.3	93.5	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	43.5	0.0	2.3	93.5	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



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	2.76	2.7	2.7	2.76	2.7	2.7	2.76
AVERAGE OF POS	2.715	2.76	2.7	2.7	2.76	2.7	2.7	2.76
AVERAGE	2.724375							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: CLOUD COMPUTING

COURSE CODE: CSCS23502A

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex

problems.

- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3.Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6.Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data

using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Explain differences of system models.	II (UNDERSTAND)
CO2	CO2: Identify different types of clouds	IV(ANALYZE)
CO3	CO3: Analyze virtualization and data centre working procedure	III (APPLY)
CO4	CO4: Classify public cloud platforms	V(EVALUATE)
CO5	CO5: Choose a particular data security in the cloud	VI(CREATE)

Table 1: CO, PO, PSO MAPPING

Course	Programme Outcomes	Program Specific outcomes
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outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3	PSO4	
1			H							S			
2	H	H				H			H		H		H
3				H			H		H				
4		H					H		S		H		
5	H					H				H			H

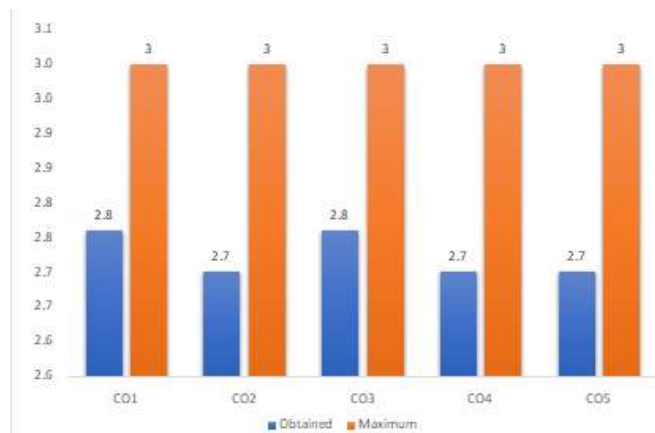
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	87.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	60.9	0.0	2.4	93.5	3.0	3.0	2.8
CO2	87.0	3.0			100.0	3.0			100.0	3.0	60.9	0.0	2.3	93.5	3.0	3.0	2.7
CO3	87.0	3.0	95.7	3.0	100.0	3.0			100.0	3.0	60.9	0.0	2.4	93.5	3.0	3.0	2.8
CO4			95.7	3.0	100.0	3.0			100.0	3.0	60.9	0.0	2.3	93.5	3.0	3.0	2.7
CO5			95.7	3.0	100.0	3.0			100.0	3.0	60.9	0.0	2.3	93.5	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1			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	H 2.7				H 2.7			
AVERAGE OF COS FOR POS	2.7	2.7	2.76	2.76	2.7	2.7	2.73	
AVERAGE OF POS	2.7	2.7	2.76	2.76	2.7	2.7	2.73	
AVERAGE	2.721428571							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: INTERNET OF THINGS

COURSE CODE: CSCS23502B

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and

environmental contexts and for sustainable development.

- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies.
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
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4								S				S		
5					S									

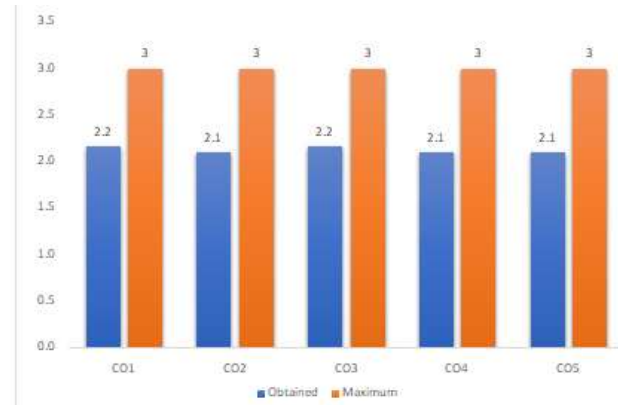
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	95.7	3.0			100.0	3.0	91.3	3.0	100.0	3.0	58.7	0.0	2.4	78.3	2.0	2.0	2.2
CO2	95.7	3.0			100.0	3.0			100.0	3.0	58.7	0.0	2.3	78.3	2.0	2.0	2.1
CO3	95.7	3.0	100.0	3.0	100.0	3.0			100.0	3.0	58.7	0.0	2.4	78.3	2.0	2.0	2.2
CO4			100.0	3.0	100.0	3.0			100.0	3.0	58.7	0.0	2.3	78.3	2.0	2.0	2.1
CO5			100.0	3.0	100.0	3.0			100.0	3.0	58.7	0.0	2.3	78.3	2.0	2.0	2.1

AVERAGE	AVERAGE
2	2.124

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.16							
CO2		H 2.1						
CO3				H 2.16				
CO4								
CO5								
AVERAGE OF COS FOR POS	2.16	2.1		2.16				
AVERAGE OF POS	2.16	2.1		2.16				
AVERAGE	2.14							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: GOLANG PROGRAMMING

COURSE CODE: CSCS23503

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental

considerations.

- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

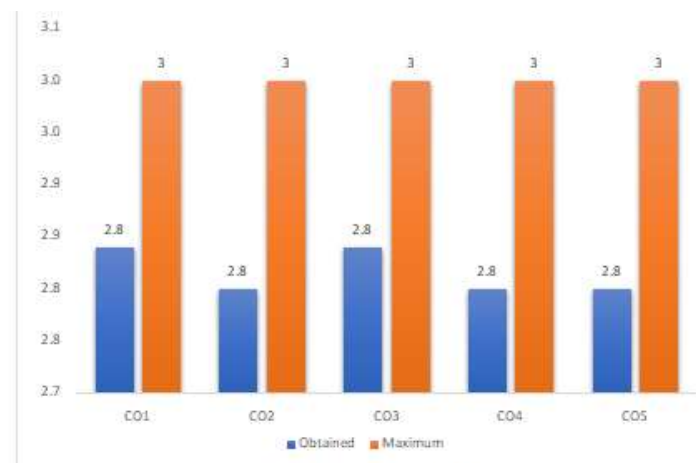
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	95.8	3.0			100.0	3.0	100.0	3.0	100.0	3.0	68.8	1.0	2.6	95.8	3.0	3.0	2.8
CO2	95.8	3.0			100.0	3.0			100.0	3.0	68.8	1.0	2.5	95.8	3.0	3.0	2.8
CO3	95.8	3.0	100.0	3.0	100.0	3.0			100.0	3.0	68.8	1.0	2.6	95.8	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	68.8	1.0	2.5	95.8	3.0	3.0	2.8
CO5			100.0	3.0	100.0	3.0			100.0	3.0	68.8	1.0	2.5	95.8	3.0	3.0	2.8

AVERAGE	AVERAGE
3	2.816

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1		H 2.84						
CO2				H 2.8				
CO3		H 2.84	H 2.84		H 2.84		H 2.84	
CO4		H 2.8						
CO5				H 2.8			H 2.8	
AVERAGE OF COS FOR POS		2.826666667	2.84	2.8	2.84		2.82	
AVERAGE OF POS		2.822222	2.84	2.8	2.84		2.82	
AVERAGE	2.824444444							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: MACHINE LEARNING FOR CYBER SECURITY

COURSE CODE: CSCS23504

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies.
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Outline basic concepts of machine learning	VI(CREATE)
CO2	CO2: Discuss Machine learning concepts for ensemble modelling and URLs	IV(ANALYZE)
CO3	CO3: Classify on email and spam detection using Machine learning algorithms	III (APPLY)
CO4	CO4: Predict Anomaly and malicious detection	IV(ANALYZE)
CO5	CO5: Develop model for impersonation and financial fraud.	VI(CREATE)

Table 1: CO, PO, PSO MAPPING

Course	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	
1	H								H				H
2		H									S		
3	H								H				H
4	H			H				H		S		H	H
5		H		H		H							

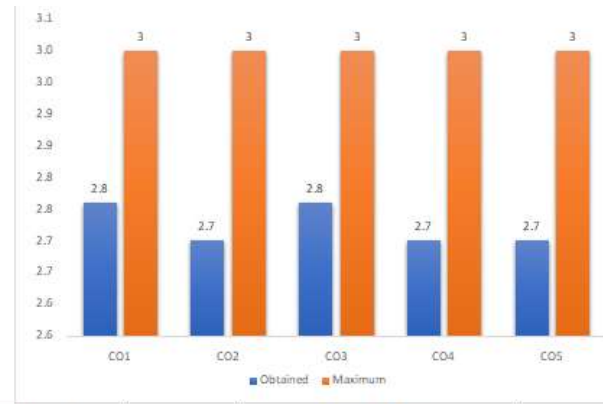
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	87.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	54.3	0.0	2.4	89.1	3.0	3.0	2.8
CO2	87.0	3.0			100.0	3.0			100.0	3.0	54.3	0.0	2.3	89.1	3.0	3.0	2.7
CO3	87.0	3.0	87.0	3.0	100.0	3.0			100.0	3.0	54.3	0.0	2.4	89.1	3.0	3.0	2.8
CO4			87.0	3.0	100.0	3.0			100.0	3.0	54.3	0.0	2.3	89.1	3.0	3.0	2.7
CO5			87.0	3.0	100.0	3.0			100.0	3.0	54.3	0.0	2.3	89.1	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76							
CO2		H 2.7						
CO3	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		2.7		2.7		2.7
AVERAGE OF POS	2.733333	2.7		2.7		2.7		2.7
AVERAGE	2.70666667							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DATABASE TECHNOLOGY

COURSE CODE: CSCS23505

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies.
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Outline basic concepts of machine learning	VI(CREATE)
CO2	CO2: Discuss Machine learning concepts for ensemble modelling and URLs	IV(ANALYZE)
CO3	CO3: Classify on email and spam detection using Machine learning algorithms	III (APPLY)
CO4	CO4: Predict Anomaly and malicious detection	IV(ANALYZE)
CO5	CO5: Develop model for impersonation and financial fraud.	VI(CREATE)

Table 1: CO, PO, PSO MAPPING

Course	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	
1	H								H				H
2		H									S		
3	H								H				H
4	H			H				H		S		H	H
5		H		H		H							

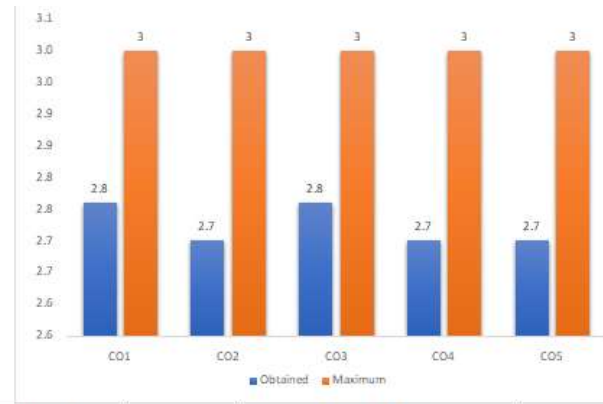
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	87.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	54.3	0.0	2.4	89.1	3.0	3.0	2.8
CO2	87.0	3.0			100.0	3.0			100.0	3.0	54.3	0.0	2.3	89.1	3.0	3.0	2.7
CO3	87.0	3.0	87.0	3.0	100.0	3.0			100.0	3.0	54.3	0.0	2.4	89.1	3.0	3.0	2.8
CO4			87.0	3.0	100.0	3.0			100.0	3.0	54.3	0.0	2.3	89.1	3.0	3.0	2.7
CO5			87.0	3.0	100.0	3.0			100.0	3.0	54.3	0.0	2.3	89.1	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76	H 2.76		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	H 2.7		H 2.7		
AVERAGE OF COS FOR POS	2.73	2.72	2.72	2.74	2.7	2.73	2.73	2.76
AVERAGE OF POS	2.715	2.72	2.706667	2.733333	2.7	2.715	2.715	2.76
AVERAGE	2.720625							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DISASTER RECOVERY AND RISK MANAGEMENT

COURSE CODE: CSCS23506

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies.
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Outline basic concepts of machine learning	VI(CREATE)
CO2	CO2: Discuss Machine learning concepts for ensemble modelling and URLs	IV(ANALYZE)
CO3	CO3: Classify on email and spam detection using Machine learning algorithms	III (APPLY)
CO4	CO4: Predict Anomaly and malicious detection	IV(ANALYZE)
CO5	CO5: Develop model for impersonation and financial fraud.	VI(CREATE)

Table 1: CO, PO, PSO MAPPING

Course	Programme Outcomes								Program Specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	
1	H								H				H
2		H									S		
3	H								H				H
4	H			H				H		S		H	H
5		H		H		H							

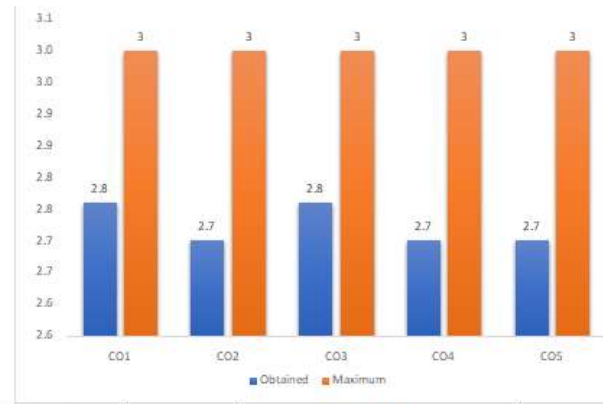
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	87.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	54.3	0.0	2.4	89.1	3.0	3.0	2.8
CO2	87.0	3.0			100.0	3.0			100.0	3.0	54.3	0.0	2.3	89.1	3.0	3.0	2.7
CO3	87.0	3.0	87.0	3.0	100.0	3.0			100.0	3.0	54.3	0.0	2.4	89.1	3.0	3.0	2.8
CO4			87.0	3.0	100.0	3.0			100.0	3.0	54.3	0.0	2.3	89.1	3.0	3.0	2.7
CO5			87.0	3.0	100.0	3.0			100.0	3.0	54.3	0.0	2.3	89.1	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



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	2.76	2.7	2.7	2.76	2.7	2.7	2.76
AVERAGE OF POS	2.715	2.76	2.7	2.7	2.76	2.7	2.7	2.76
AVERAGE	2.724375							

SEMESTER- 2

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: GENERAL ENGLISH -II

COURSE CODE: EN23201

CREDITS: 3

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
 - **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.
 - **PO5:** Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development.
 - **PO6:** Individual and team work: Function objectively as an individual and as a member in diverse teams.
 - **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
 - **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.
-
- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
 - **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
 - **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
 - **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

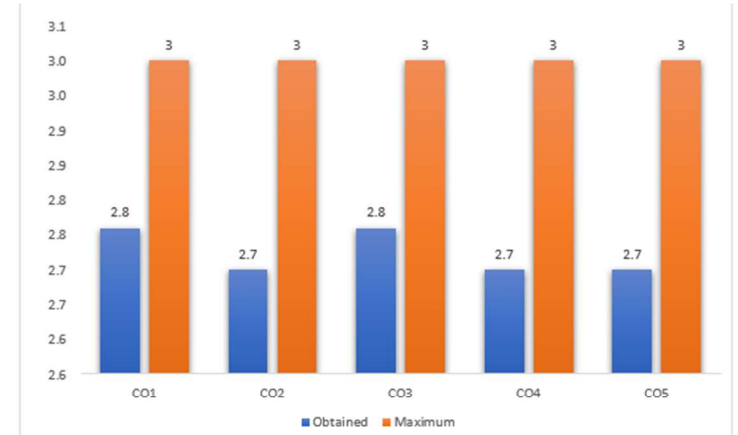
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	86.0	3.0			94.0	3.0	90.0	3.0	98.0	3.0	46.0	0.0	2.4	96.0	3.0	3.0	2.8
CO2	86.0	3.0			94.0	3.0			98.0	3.0	46.0	0.0	2.3	96.0	3.0	3.0	2.7
CO3	86.0	3.0	86.0	3.0	94.0	3.0			98.0	3.0	46.0	0.0	2.4	96.0	3.0	3.0	2.8
CO4			86.0	3.0	94.0	3.0			98.0	3.0	46.0	0.0	2.3	96.0	3.0	3.0	2.7
CO5			86.0	3.0	94.0	3.0			98.0	3.0	46.0	0.0	2.3	96.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76	H 2.76	H 2.76					H 2.76
CO2	H 2.7		H 2.7	H 2.7			H 2.7	H 2.7
CO3	H 2.76		H 2.76	H 2.76	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	2.76	2.73	2.715	2.76		2.72	2.724
AVERAGE OF POS	2.7168	2.76	2.7225	2.715	2.76		2.72	2.7168
AVERAGE	2.730157143							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: INDIAN HERITAGE AND CULTURE

COURSE CODE: IC23201

CREDITS: 2

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
 - **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.
 - **PO5:** Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development.
 - **PO6:** Individual and team work: Function objectively as an individual and as a member in diverse teams.
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 - **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.
-
- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
 - **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
 - **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
 - **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

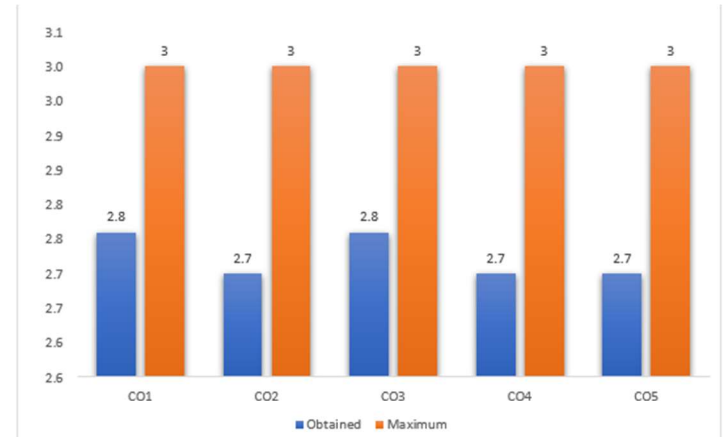
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	26.0	0.0	2.4	94.0	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	26.0	0.0	2.3	94.0	3.0	3.0	2.7
CO3	100.0	3.0	96.0	3.0	100.0	3.0			100.0	3.0	26.0	0.0	2.4	94.0	3.0	3.0	2.8
CO4			96.0	3.0	100.0	3.0			100.0	3.0	26.0	0.0	2.3	94.0	3.0	3.0	2.7
CO5			96.0	3.0	100.0	3.0			100.0	3.0	26.0	0.0	2.3	94.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



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			H 2.7	
CO3	H 2.76		H 2.76	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	2.715	2.76		2.72	2.7
AVERAGE OF POS	2.7168		2.7168	2.715	2.76		2.72	2.7
AVERAGE	2.721433333							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: COMPUTER NETWORKS

COURSE CODE: C S C S 2 1 2 0 1

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.

- **PO5:** Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development.
 - **PO6:** Individual and team work: Function objectively as an individual and as a member in diverse teams.
 - **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
 - **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.
-
- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
 - **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
 - **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
 - **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Understand various I/O devices and functionality of computer	II (UNDERSTAND)
CO2	CO2: Solve arithmetic operations using different types of number systems	III (APPLY)

CO3	CO3: Understand the concepts of Data Organisation	II (UNDERSTAND)
CO4	CO4: Understand the concepts of Internet	II (UNDERSTAND)
CO5	CO5: Explain the concepts of Problem Solving using Computers	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	PSO4	
1	S			S			S	S	H		H	H	S
2	H			H			H	S	H		H	H	H
3	H	H		H	H		H	S	H		H	H	H
4	H	S		H	S		H	S	H		H	S	H

5	H	S		S	S		S	H	H		H	H	H
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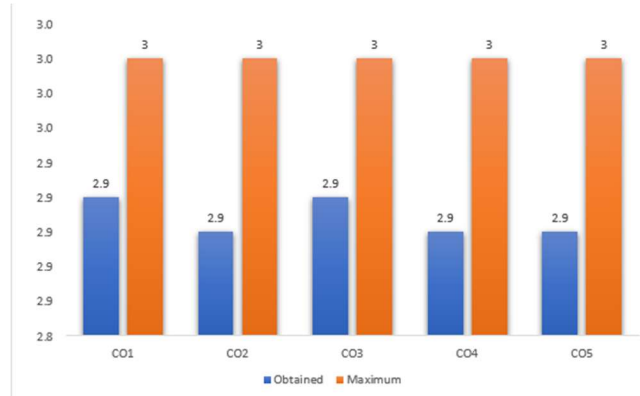
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	90.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	84.0	2.0	2.8	86.0	3.0	3.0	2.9
CO2	90.0	3.0			100.0	3.0			100.0	3.0	84.0	2.0	2.8	86.0	3.0	3.0	2.9
CO3	90.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	86.0	3.0	3.0	2.9
CO4			98.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	86.0	3.0	3.0	2.9
CO5			98.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	86.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.908

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1								
CO2	H 2.9			H 2.9			H 2.9	
CO3	H 2.92	H 2.92		H 2.92	H 2.92		H 2.92	
CO4	H 2.9			H 2.9			H 2.9	
CO5	H 2.9							H 2.9
AVERAGE OF COS FOR POS	2.905	2.92		2.906666667	2.92		2.906666667	2.9
AVERAGE OF POS	2.905	2.92		2.90667	2.92		2.90667	2.9
AVERAGE	2.909722222							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

SE TITLE: ELEMENTARY NUMBER THEORY AND LAPLACE TRANSFORMS

COURSE CODE: CSCS21202

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.

- **PO5:** Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development.
- **PO6:** Individual and team work: Function objectively as an individual and as a member in diverse teams.
- **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

1													
2													
3													
4													
5													

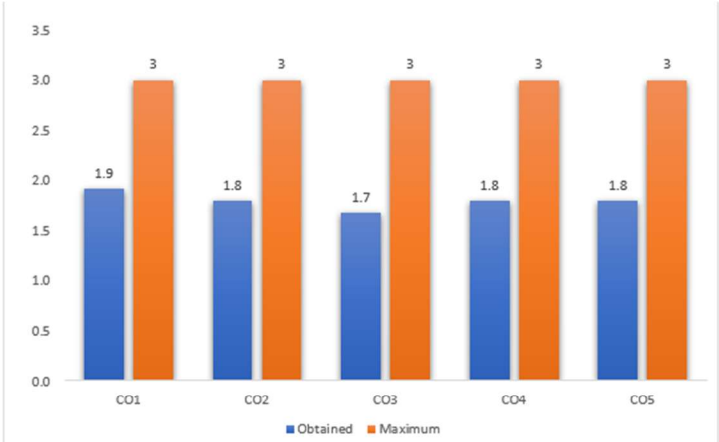
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	42.0	0.0			100.0	3.0	100.0	3.0	100.0	3.0	56.0	0.0	1.8	80.0	2.0	2.0	1.9
CO2	42.0	0.0			100.0	3.0			100.0	3.0	56.0	0.0	1.5	80.0	2.0	2.0	1.8
CO3	42.0	0.0	46.0	0.0	100.0	3.0			100.0	3.0	56.0	0.0	1.2	80.0	2.0	2.0	1.7
CO4			46.0	0.0	100.0	3.0			100.0	3.0	56.0	0.0	1.5	80.0	2.0	2.0	1.8
CO5			46.0	0.0	100.0	3.0			100.0	3.0	56.0	0.0	1.5	80.0	2.0	2.0	1.8

AVERAGE	AVERAGE
2	1.8

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.92		H 1.92					
CO2	H 1.8	H 1.8						H 1.8
CO3	H 1.68	H 1.68	H 1.68	H 1.68	H 1.68		H 1.68	H 1.68
CO4	H 1.8	H 1.8	H 1.8					H 1.8
CO5	H 1.8		H 1.8	H 1.8				H 1.8
AVERAGE OF COS FOR POS	1.8	1.76	1.8	1.74	1.68		1.68	1.77
AVERAGE OF POS	1.776	1.76	1.77	1.74	1.68		1.68	1.77
AVERAGE	1.739428571							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: PRINCIPLES OF INFORMATION SECURITY

COURSE CODE: CSCS21203

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.

- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..

PSO4: Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

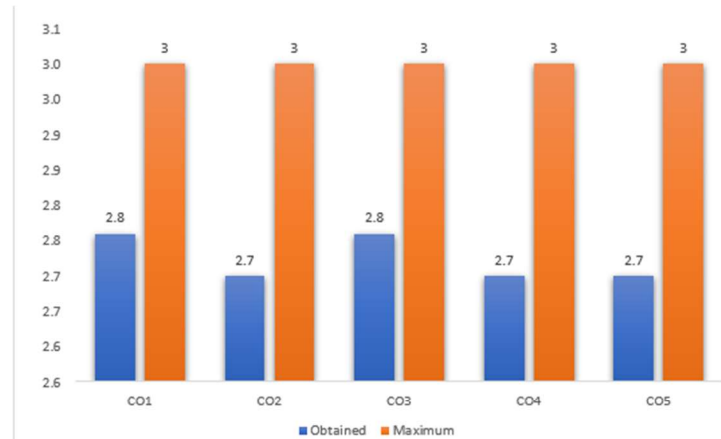
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	96.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	52.0	0.0	2.4	92.0	3.0	3.0	2.8
CO2	96.0	3.0			100.0	3.0			100.0	3.0	52.0	0.0	2.3	92.0	3.0	3.0	2.7
CO3	96.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	52.0	0.0	2.4	92.0	3.0	3.0	2.8
CO4			98.0	3.0	100.0	3.0			100.0	3.0	52.0	0.0	2.3	92.0	3.0	3.0	2.7
CO5			98.0	3.0	100.0	3.0			100.0	3.0	52.0	0.0	2.3	92.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



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		H 2.76	
CO4	H 2.7	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			H 2.7
AVERAGE OF COS FOR POS	2.724	2.7	2.73	2.715	2.72		2.72	2.7
AVERAGE OF POS	2.7168	2.7	2.715	2.715	2.72		2.72	2.7
AVERAGE	2.7124							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: C++ AND DATA STRUCTURE

COURSE CODE: BS21204

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.

- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..

PSO4: Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

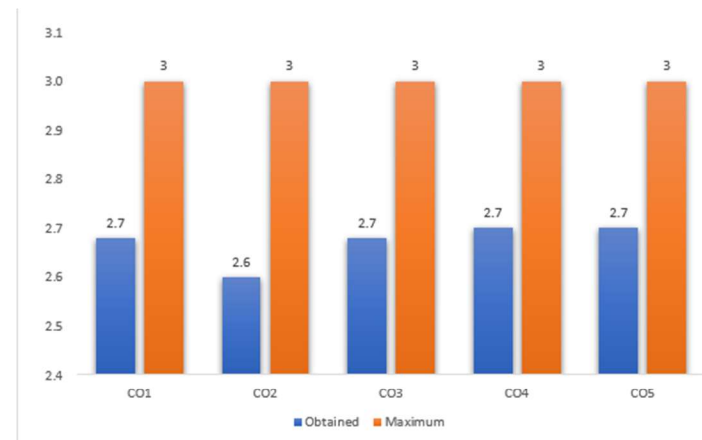
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	78.0	2.0			100.0	3.0	100.0	3.0	100.0	3.0	54.0	0.0	2.2	92.0	3.0	3.0	2.7
CO2	78.0	2.0			100.0	3.0			100.0	3.0	54.0	0.0	2.0	92.0	3.0	3.0	2.6
CO3	78.0	2.0	94.0	3.0	100.0	3.0			100.0	3.0	54.0	0.0	2.2	92.0	3.0	3.0	2.7
CO4			94.0	3.0	100.0	3.0			100.0	3.0	54.0	0.0	2.3	92.0	3.0	3.0	2.7
CO5			94.0	3.0	100.0	3.0			100.0	3.0	54.0	0.0	2.3	92.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.672

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.68		H 2.68					
CO2	H 2.6	H 2.6	H 2.6	H 2.6	H 2.6		H 2.6	
CO3	H 2.68	H 2.68	H 2.68	H 2.68	H 2.68		H 2.68	
CO4	H 2.7		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		H 2.7
AVERAGE OF COS FOR POS	2.672	2.64	2.672	2.67	2.66	2.7	2.66	2.7
AVERAGE OF POS	2.6704	2.64	2.6704	2.67	2.66	2.7	2.66	2.7
AVERAGE	2.67135							

SEMESTER- 4

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DISCRETE MATHEMATICS

COURSE CODE:CSCS21401

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

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- **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

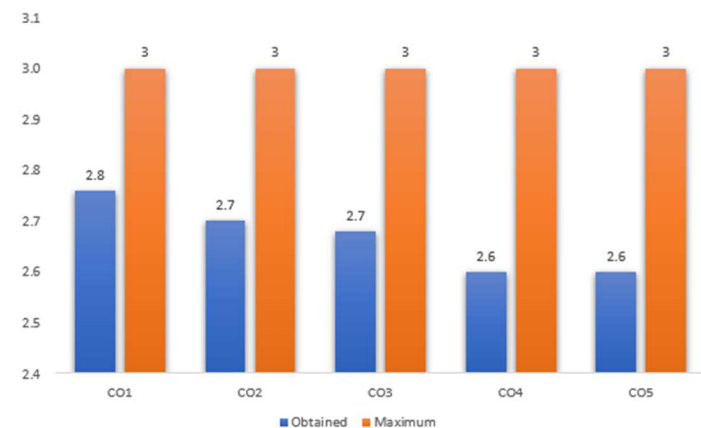
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	86.8	3.0			100.0	3.0	100.0	3.0	100.0	3.0	26.4	0.0	2.4	92.5	3.0	3.0	2.8
CO2	86.8	3.0			100.0	3.0			100.0	3.0	26.4	0.0	2.3	92.5	3.0	3.0	2.7
CO3	86.8	3.0	75.5	2.0	100.0	3.0			100.0	3.0	26.4	0.0	2.2	92.5	3.0	3.0	2.7
CO4			75.5	2.0	100.0	3.0			100.0	3.0	26.4	0.0	2.0	92.5	3.0	3.0	2.6
CO5			75.5	2.0	100.0	3.0			100.0	3.0	26.4	0.0	2.0	92.5	3.0	3.0	2.6

AVERAGE	AVERAGE
3	2.668

Table 3: PROGRAMME OUTCOME MAPPING



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			H 2.7	H 2.7
CO3	H 2.68		H 2.68	H 2.68	H 2.68		H 2.68	H 2.68
CO4	H 2.6		H 2.6	H 2.6			H 2.6	H 2.6
CO5	H 2.6		H 2.6	H 2.6				H 2.6
AVERAGE OF COS FOR POS	2.668	2.76	2.668	2.645	2.68		2.66	2.645
AVERAGE OF POS	2.6496	2.76	2.6496	2.645	2.68		2.66	2.645
AVERAGE	2.669885714							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: COMPUTER FORENSICS

COURSE CODE: CSCS21402

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
 - **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.
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 - **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
 - **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.
-
- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
 - **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
 - **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
 - **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

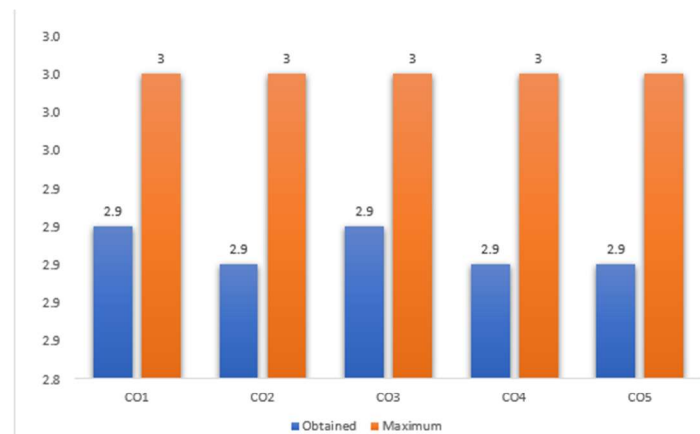
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	79.2	2.0	2.8	94.3	3.0	3.0	2.9
CO2	96.2	3.0			100.0	3.0			100.0	3.0	79.2	2.0	2.8	94.3	3.0	3.0	2.9
CO3	96.2	3.0	98.1	3.0	100.0	3.0			100.0	3.0	79.2	2.0	2.8	94.3	3.0	3.0	2.9
CO4			98.1	3.0	100.0	3.0			100.0	3.0	79.2	2.0	2.8	94.3	3.0	3.0	2.9
CO5			98.1	3.0	100.0	3.0			100.0	3.0	79.2	2.0	2.8	94.3	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.908

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92			H 2.92				
CO2	H 2.9	H 2.9		H 2.9	H 2.9		H 2.9	
CO3	H 2.92	H 2.92		H 2.92	H 2.92		H 2.92	
CO4	H 2.9	H 2.9			H 2.9		H 2.9	
CO5	H 2.9	H 2.9		H 2.9				H 2.9
AVERAGE OF COS FOR POS	2.908	2.905		2.91	2.906666667		2.906666667	2.9
AVERAGE OF POS	2.9056	2.905		2.9075	2.90667		2.90667	2.9
AVERAGE	2.905238889							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: CYBER ETHICS SND IPR

COURSE CODE: CSCS21403

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.

<ul style="list-style-type: none"> • PO5: Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development. • PO6: Individual and team work: Function objectively as an individual and as a member in diverse teams. • PO7: Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation. • PO8: Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.
<ul style="list-style-type: none"> • PSO1: Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems. • PSO2: Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions. • PSO3: Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies.. • PSO4: Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Understand the importance of Environmental education, conservation of natural resources & understand the importance of ecosystems and biodiversity.	II (UNDERSTAND)
CO2	CO2: Understand the pollution problems and apply the environmental science knowledge on solid waste management, disaster management.	III (APPLY)

CO3	CO3: Apply the environmental science knowledge to improve the resources Evaluate and understand the sustainable environmental conditions and control methods.	II (UNDERSTAND)
CO4	CO4: Identify the interactions and inter sections of identities (e.g., gender, race, ethnicity class, sexuality, and so on) and assess the ways in which they contribute to instances of privilege and power dynamics across cultures, space, and time. And their problems	II (UNDERSTAND)
CO5	CO5: Understand the gender problems and ways of addressing them, including interactions across local to global scales in communities and overcome inequalities with legislation	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	PSO4	
1	H		H	S			S	S		S		H	H
2	H		S	H			H	S		H		H	H
3	S	H	H	H	H		H	H		H		H	S
4	H	H	S	H	H		H	S		H		S	H

5	H		H	S			S	S		S		H	
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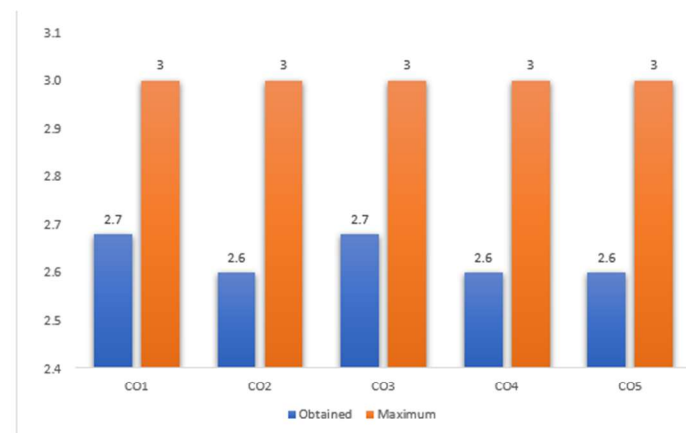
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	92.5	3.0			77.4	2.0	100.0	3.0	100.0	3.0	60.4	0.0	2.2	100.0	3.0	3.0	2.7
CO2	92.5	3.0			77.4	2.0			100.0	3.0	60.4	0.0	2.0	100.0	3.0	3.0	2.6
CO3	92.5	3.0	96.2	3.0	77.4	2.0			100.0	3.0	60.4	0.0	2.2	100.0	3.0	3.0	2.7
CO4			96.2	3.0	77.4	2.0			100.0	3.0	60.4	0.0	2.0	100.0	3.0	3.0	2.6
CO5			96.2	3.0	77.4	2.0			100.0	3.0	60.4	0.0	2.0	100.0	3.0	3.0	2.6

AVERAGE	AVERAGE
3	2.632

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	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	H 2.68		H 2.68	H 2.68
CO4	H 2.6	H 2.6		H 2.6	H 2.6		H 2.6	
CO5		H 2.6	H 2.6	H 2.6				H 2.6
AVERAGE OF COS FOR POS	2.626666667	2.626666667	2.653333333	2.62	2.64		2.626666667	2.64
AVERAGE OF POS	2.60889	2.62667	2.64444	2.62	2.64		2.62667	2.64
AVERAGE	2.62952381							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: WEB TECHNOLOGIES

COURSE CODE: CSCS21404

CREDITS: 3

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

- **PO1:** Scientific Knowledge. Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3:** Problem analysis: Identify, formulate, research literature, and analyse complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4:** Modern tool usage: Create, select and apply appropriate techniques, resources, and modern technology and IT tools to complex science and technological activities.

- **PO5:** Environment and sustainability: Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable Development.
- **PO6:** Individual and team work: Function objectively as an individual and as a member in diverse teams.
- **PO7:** Communication: Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8:** Life-long learning: Recognize the need and ability to engage in independent and lifelong Learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

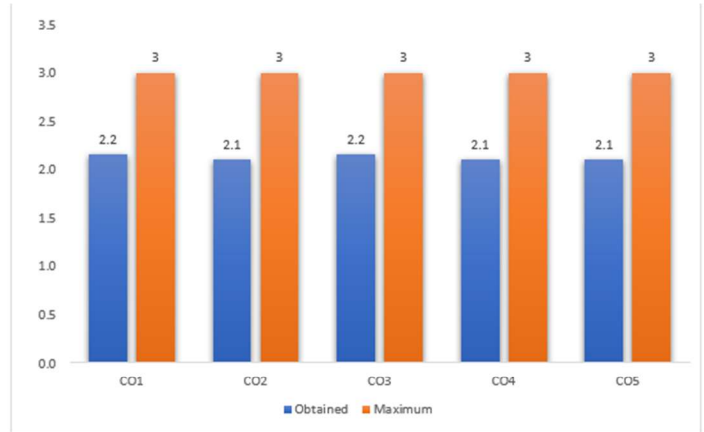
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	90.6	3.0			100.0	3.0	100.0	3.0	100.0	3.0	28.3	0.0	2.4	79.2	2.0	2.0	2.2
CO2	90.6	3.0			100.0	3.0			100.0	3.0	28.3	0.0	2.3	79.2	2.0	2.0	2.1
CO3	90.6	3.0	90.6	3.0	100.0	3.0			100.0	3.0	28.3	0.0	2.4	79.2	2.0	2.0	2.2
CO4			90.6	3.0	100.0	3.0			100.0	3.0	28.3	0.0	2.3	79.2	2.0	2.0	2.1
CO5			90.6	3.0	100.0	3.0			100.0	3.0	28.3	0.0	2.3	79.2	2.0	2.0	2.1

AVERAGE	AVERAGE
2	2.124

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.16		H 2.16					
CO2							H 2.1	
CO3					H 2.16		H 2.16	
CO4					H 2.1		H 2.1	
CO5					H 2.1			H 2.1
AVERAGE OF COS FOR POS	2.16		2.16		2.12		2.12	2.1
AVERAGE OF POS	2.16		2.16		2.12		2.12	2.1
AVERAGE	2.132							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: NETWORK SECURITY

COURSE CODE:CSCS21405

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering& Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3.Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.

- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..

PSO4: Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

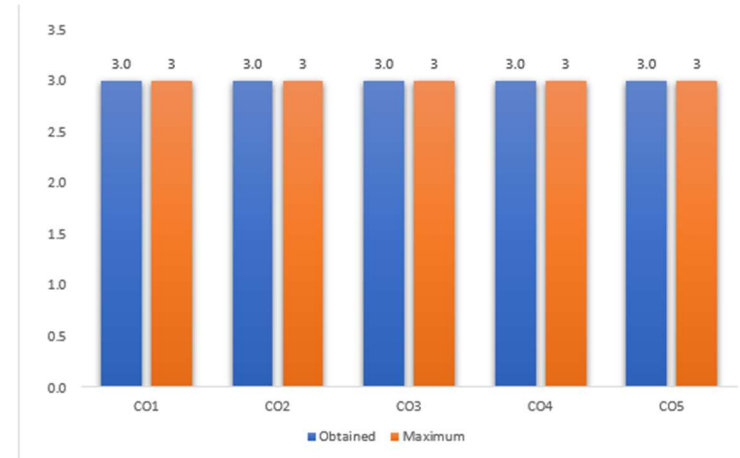
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	100.0	3.0	3.0	96.2	3.0	3.0	3.0
CO2	100.0	3.0			100.0	3.0			100.0	3.0	100.0	3.0	3.0	96.2	3.0	3.0	3.0
CO3	100.0	3.0	96.2	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	96.2	3.0	3.0	3.0
CO4			96.2	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	96.2	3.0	3.0	3.0
CO5			96.2	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	96.2	3.0	3.0	3.0

AVERAGE	AVERAGE
3	3

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 3		H 3			H 3		
CO2	H 3		H 3			H 3	H 3	
CO3				H 3	H 3	H 3	H 3	
CO4		H 3	H 3	H 3			H 3	
CO5	H 3			H 3				H 3
AVERAGE OF COS FOR POS	3	3	3	3	3	3	3	3
AVERAGE OF POS	3	3	3	3	3	3	3	3
AVERAGE	3							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: PYTHON SCRIPTING

COURSE CODE: CSCS21406

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental

considerations.

- **PO3.Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6.Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies.
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

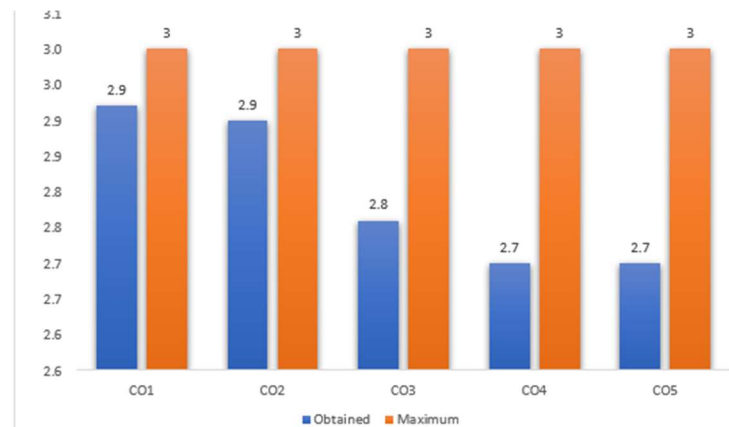
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	92.5	3.0			100.0	3.0	100.0	3.0	100.0	3.0	83.0	2.0	2.8	100.0	3.0	3.0	2.9
CO2	92.5	3.0			100.0	3.0			100.0	3.0	83.0	2.0	2.8	100.0	3.0	3.0	2.9
CO3	92.5	3.0	69.8	1.0	100.0	3.0			100.0	3.0	83.0	2.0	2.4	100.0	3.0	3.0	2.8
CO4			69.8	1.0	100.0	3.0			100.0	3.0	83.0	2.0	2.3	100.0	3.0	3.0	2.7
CO5			69.8	1.0	100.0	3.0			100.0	3.0	83.0	2.0	2.3	100.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.796

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92					
CO2	H 2.9		H 2.9				H 2.9	H 2.9
CO3	H 2.76		H 2.76	H 2.76	H 2.76		H 2.76	H 2.76
CO4	H 2.7	H 2.7	H 2.7	H 2.7	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				H 2.7
AVERAGE OF COS FOR POS	2.796	2.7	2.796	2.72	2.73	2.7	2.78666667	2.765
AVERAGE OF POS	2.7712	2.7	2.7712	2.72	2.73	2.7	2.78667	2.765
AVERAGE	2.743008333							

SEMESTER- VI

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: CYBER THREAT

INTELLIGENCE

COURSE CODE: CSCS23601A

CREDITS: 3

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised

machine learning methodologies..

- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Understand the framework and anatomy of ecommerce applications and analyze ecommerce consumer, organizational applications	I (REMEMBER)
CO2	CO2: Understand Web Security framework	II(UNDERSTAND)
CO3	CO3: Infer Digital payments system	II(UNDERSTAND)
CO4	CO4: Understand the implementation of Electronic Data Interchange (EDI)	VI(CREATE)
CO5	CO5: Analyse Strategies, Techniques of E payments	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	PSO4	
1	H		H	S			S	H		S		H	H
2	S		H	S			H	H		H	S	H	S
3	S	H	S	H	H		H	H		S		H	S
4	H	H	S	H	H		S	S	H	H	H	S	H
5	H		H	H	H		S	H		H		H	H

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

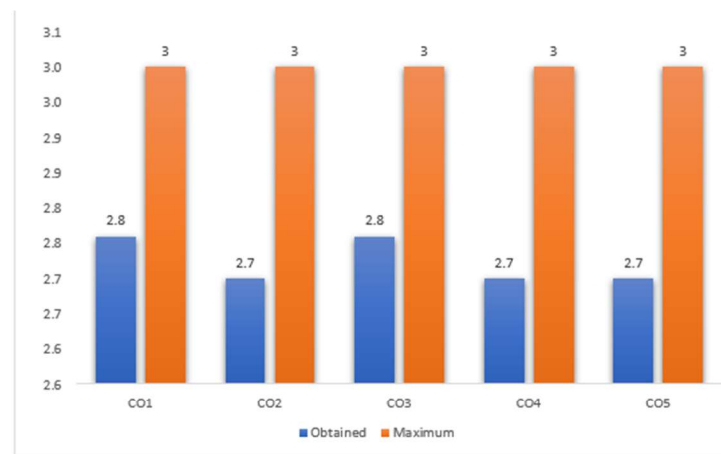
ATTAINMENT SCALE:

Pass percent of 85% and above= 3

Pass percent between 75% - 85%= 2

Pass percent between 75%- 65%= 1

Pass percent of less than 65%= 0



co	mid exam 1		mid exam 2		group discussion		assignment		viva		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	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	63.6	0.0	2.4	86.4	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	63.6	0.0	2.3	86.4	3.0	3.0	2.7
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	63.6	0.0	2.4	86.4	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	63.6	0.0	2.3	86.4	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	63.6	0.0	2.3	86.4	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



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		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			H 2.7
AVERAGE OF COS FOR POS	2.72	2.73	2.72	2.72	2.72		2.73	2.73
AVERAGE OF POS	2.70667	2.73	2.70667	2.72	2.72		2.73	2.7225
AVERAGE	2.719404762							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: BLOCKCHAIN AND CRYPTOCURRENCY

COURSE CODE: CSCS23601B

CREDITS: 3

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex

problems.

- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3.Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6.Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data

using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Explain differences of system models.	II (UNDERSTAND)
CO2	CO2: Identify different types of clouds	IV(ANALYZE)
CO3	CO3: Analyze virtualization and data centre working procedure	III (APPLY)
CO4	CO4: Classify public cloud platforms	V(EVALUATE)
CO5	CO5: Choose a particular data security in the cloud	VI(CREATE)

Table 1: CO, PO, PSO MAPPING

Course	Programme Outcomes	Program Specific outcomes
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outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PSO1	PSO2	PSO3	PSO4	
1	H		H	S		H	S	S		S		H	H
2	H	S	H	H			H	H		H		H	H
3	H	S	H	S	H		H	H		H		H	H
4	H		S	H	S		H	H		H		H	H
5	H		H	S	S		S	H		H		H	H

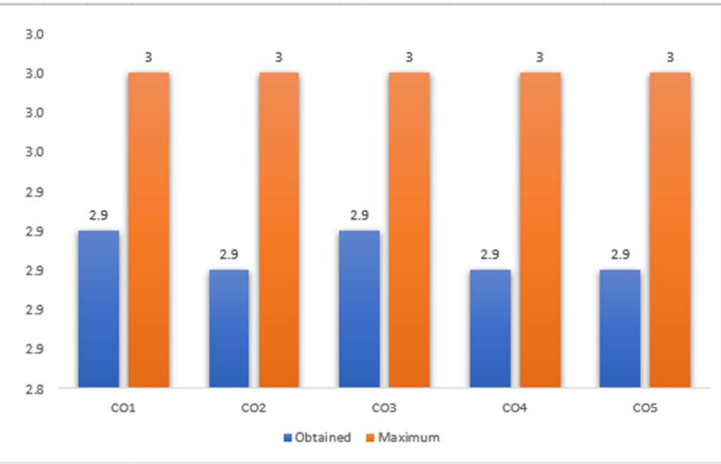
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	82.6	2.0	2.8	100.0	3.0	3.0	2.9
CO2	100.0	3.0			100.0	3.0			100.0	3.0	82.6	2.0	2.8	100.0	3.0	3.0	2.9
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	82.6	2.0	2.8	100.0	3.0	3.0	2.9
CO4			100.0	3.0	100.0	3.0			100.0	3.0	82.6	2.0	2.8	100.0	3.0	3.0	2.9
CO5			100.0	3.0	100.0	3.0			100.0	3.0	82.6	2.0	2.8	100.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.908

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92			H 2.92		
CO2	H 2.9		H 2.9	H 2.9			H 2.9	H 2.9
CO3	H 2.92		H 2.92		H 2.92		H 2.92	H 2.92
CO4	H 2.9			H 2.9			H 2.9	H 2.9
CO5	H 2.9		H 2.9					H 2.9
AVERAGE OF COS FOR POS	2.908		2.91	2.9	2.92	2.92	2.906666667	2.905
AVERAGE OF POS	2.9056		2.9075	2.9	2.92	2.92	2.90667	2.905
AVERAGE	2.909252381							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: WEB APPLICATION TESTING

COURSE CODE: CSCS23602

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and

environmental contexts and for sustainable development.

- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies.
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
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CO1	CO1: Identify the importance of IOT and its applications	I(REMEMBER)
CO2	CO2: Differentiate between IOT and M2M, SDN and NFV	IV(ANALYZE)
CO3	CO3: Understand building of IOT devices and Raspberry PI	III (APPLY)
CO4	CO4: Explain working of WAMP server and AWS	IV(ANALYZE)
CO5	CO5: Understand applications and analytics of IoT	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	PSO4	
1	H		H	S	H		S	H		S		H	H
2	S		H	S	H		H	H		S		H	S
3	S		S	H	S		H	H		S		H	S

4	H		H	S	H		S	H		S		H	H
5	S		H	S	H		H	H		S		H	S

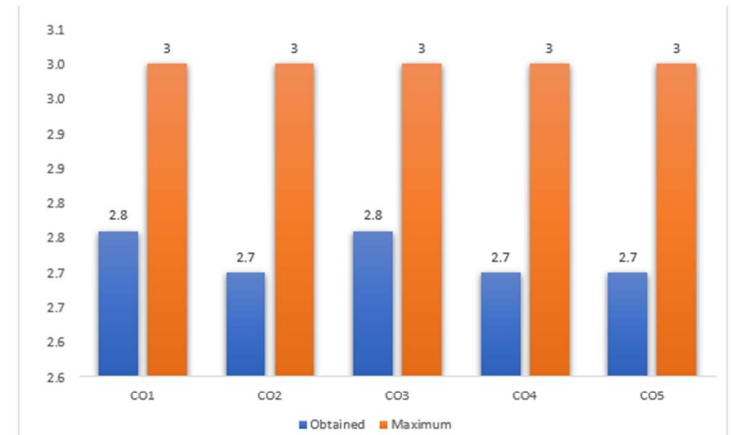
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	33.3	0.0	2.4	100.0	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	33.3	0.0	2.3	100.0	3.0	3.0	2.7
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	33.3	0.0	2.4	100.0	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	33.3	0.0	2.3	100.0	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	33.3	0.0	2.3	100.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76		H 2.76			H 2.76
CO2			H 2.7		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
AVERAGE OF COS FOR POS	2.73		2.72	2.73	2.73		2.72	2.73
AVERAGE OF POS	2.715		2.70667	2.73	2.715		2.72	2.7225
AVERAGE	2.718194444							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DATABASE SECURITY

COURSE CODE: CSCS23603

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge:** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
- **PO2. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental

considerations.

- **PO3. Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complex science and technological activities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societal and environmental contexts and for sustainable development.
- **PO6. Individual and team work:** Function objectively as an individual and as a member in diverse teams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

- **PSO1:** Apply computer science languages and algorithms, as well as mathematical and statistical models for developing solutions to real world problems.
- **PSO2:** Understand the fundamentals of Computer Organisation, Operating Systems and networking related concepts and apply the knowledge of computer systems in designing and building software solutions.
- **PSO3:** Demonstrate, identify, formulate and analyse diverse big data problems helping in business decision making. Apply supervised and unsupervised machine learning methodologies..
- **PSO4:** Apply appropriate Data Mining and Text Mining techniques for cleaning, processing and transforming the data. Analyse and interpret the data using an ethically responsible approach and derive insights from it.

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

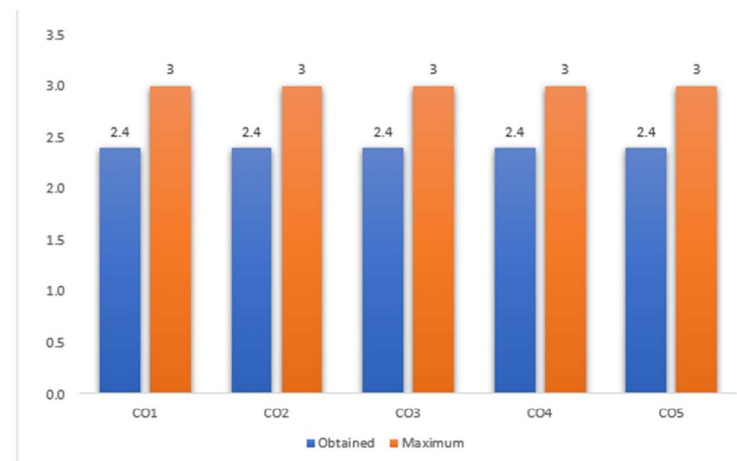
H: Highly Supportive

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	mid exam 1		mid exam 2		group discussion		assignment		viva		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	86.7	3.0	3.0	82.2	2.0	2.0	2.4
CO2	100.0	3.0			100.0	3.0			100.0	3.0	86.7	3.0	3.0	82.2	2.0	2.0	2.4
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	86.7	3.0	3.0	82.2	2.0	2.0	2.4
CO4			100.0	3.0	100.0	3.0			100.0	3.0	86.7	3.0	3.0	82.2	2.0	2.0	2.4
CO5			100.0	3.0	100.0	3.0			100.0	3.0	86.7	3.0	3.0	82.2	2.0	2.0	2.4

AVERAGE	AVERAGE
2	2.4

Table 3: PROGRAMME OUTCOME MAPPING



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.4		H 2.4		H 2.4			H 2.4
CO2			H 2.4	H 2.4	H 2.4		H 2.4	H 2.4
CO3	H 2.4	H 2.4	H 2.4	H 2.4	H 2.4		H 2.4	
CO4	H 2.4		H 2.4	H 2.4			H 2.4	
CO5	H 2.4		H 2.4	H 2.4				H 2.4
AVERAGE OF COS FOR POS	2.4	2.4	2.4	2.4	2.4		2.4	2.4
AVERAGE OF POS	2.4	2.4	2.4	2.4	2.4		2.4	2.4
AVERAGE	2.4							