

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: GENERALENGLISH I

COURSE CODE: EN18101

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

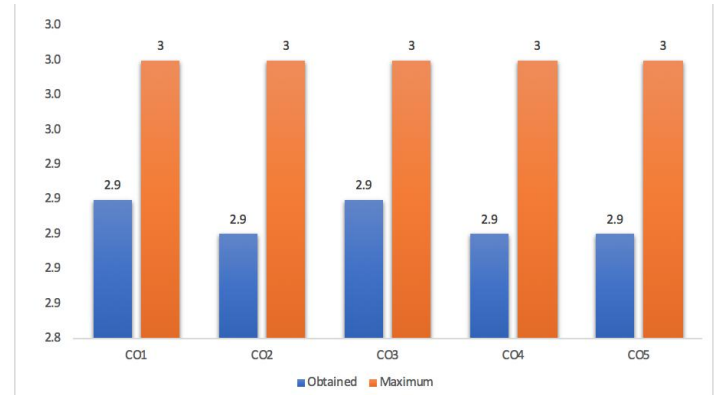
H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

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



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	78.0	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	78.0	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	78.0	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	78.0	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	78.0	2.0	2.8	100.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.908



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92	H 2.92				H 2.92
CO2				H 2.9				
CO3	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	H 2.9			H 2.9	
AVERAGE OF COS FOR POS	2.913333333		2.913333333	2.908	2.9		2.91	2.91
AVERAGE OF POS	2.911111		2.911111	2.9056	2.9		2.91	2.905
AVERAGE	2.907137037							

Table 3: PROGRAMME OUTCOME MAPPING

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: VALUE EDUCATION & PERSONALITY DEVELOPMENT

COURSE CODE: VE18101

CREDITS: 2

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

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

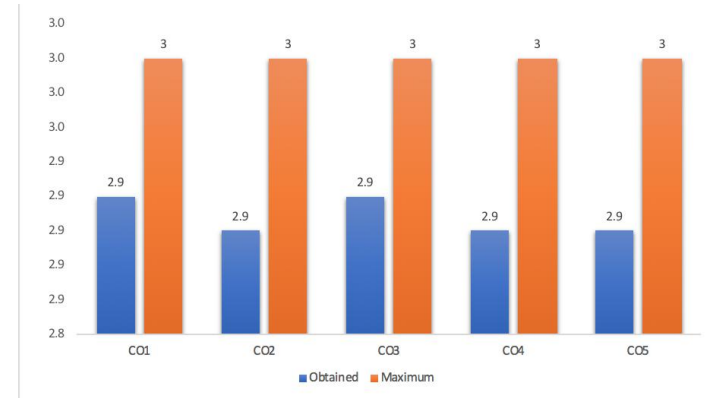
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ATTAINMENT SCALE:

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- Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	82.0	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	82.0	2.0	2.8	100.0	3.0	3.0	2.9
CO3	100.0	3.0	96.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	100.0	3.0	3.0	2.9
CO4			96.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	100.0	3.0	3.0	2.9
CO5			96.0	3.0	100.0	3.0			100.0	3.0	82.0	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				H 2.92
CO2				H 2.9				
CO3	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	H 2.9			H 2.9	
AVERAGE OF COS FOR POS	2.913333333		2.913333333	2.908	2.9		2.91	2.91
AVERAGE OF POS	2.911111		2.911111	2.9056	2.9		2.91	2.905
AVERAGE	2.907137037							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: COMPUTER FUNDAMENTALS

COURSE CODE: CSCS21 101

CREDITS: 3

DEPARTMENT: B. Sc. COMPUTER SCIENCE AND CYBER SECURITY

Programme Outcomes – (B. Sc.)

B. Sc.:

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-
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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	H	H		H	H	S	H			
2	H		S	H	S		S	S	S	H		S	
3	S	S	H	H	S	S	H	H	H	S		S	
4	H	S	H	H	H	S	H	H	S	S	H	H	

5	H	S	H	H	S	S	H	S	S	H	H	H	
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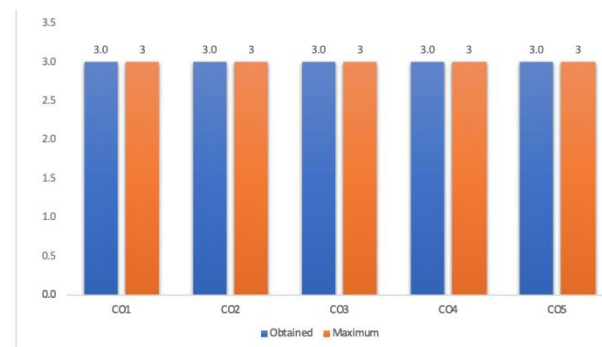
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- Pass percent between 75% - 85%= 2
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- Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	90.0	3.0	3.0	96.0	3.0	3.0	3.0
CO2	100.0	3.0			100.0	3.0			100.0	3.0	90.0	3.0	3.0	96.0	3.0	3.0	3.0
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	90.0	3.0	3.0	96.0	3.0	3.0	3.0
CO4			100.0	3.0	100.0	3.0			100.0	3.0	90.0	3.0	3.0	96.0	3.0	3.0	3.0
CO5			100.0	3.0	100.0	3.0			100.0	3.0	90.0	3.0	3.0	96.0	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 2.92		H 2.92	H 2.92	H 2.92		H 2.92	H 2.92
CO2	H 2.9			H 2.9				
CO3			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	H 2.9
CO5	H 2.9		H 2.9	H 2.9			H 2.9	
AVERAGE OF COS FOR POS	2.905		2.91	2.908	2.91		2.91	2.91333333
AVERAGE OF POS	2.90125		2.9075	2.9056	2.905		2.9075	2.911111
AVERAGE	2.906326852							

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.
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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.
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	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Construct simple mathematical proofs and possess the ability to verify them.	III (APPLY)
CO2	CO2: Apply basic counting techniques to solve combinatorial problems.	III (APPLY)
CO3	CO3: Solve problems using recurrence relations and recursion to analyse algorithms and programs such as finding fibonacci numbers and Tower of Hanoi problems.	III (APPLY)
CO4	CO4: Understand to find the rank of a matrix and to solve systems of linear equations applying matrix techniques.	V (EVALUATE)
CO5	CO5: Determine Eigenvalues And Eigenvectors of a given matrix and to apply these concepts to quadratic forms.	III (APPLY)

Table 1: CO, PO, PSO MAPPING

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

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

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

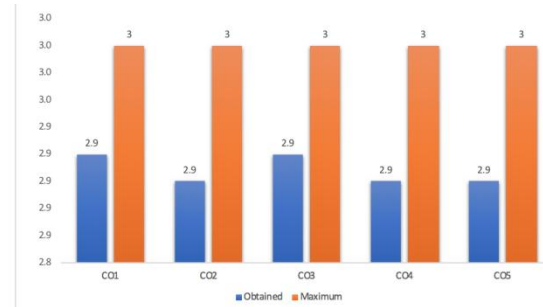
ATTAINMENT SCALE:

Pass percent of 85% and above= 3

Pass percent between 75% - 85%= 2

Pass percent between 65%- 75%= 1

Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			92.0	3.0	100.0	3.0	100.0	3.0	78.0	2.0	2.8	98.0	3.0	3.0	2.9
CO2	100.0	3.0			92.0	3.0			100.0	3.0	78.0	2.0	2.8	98.0	3.0	3.0	2.9
CO3	100.0	3.0	94.0	3.0	92.0	3.0			100.0	3.0	78.0	2.0	2.8	98.0	3.0	3.0	2.9
CO4			94.0	3.0	92.0	3.0			100.0	3.0	78.0	2.0	2.8	98.0	3.0	3.0	2.9
CO5			94.0	3.0	92.0	3.0			100.0	3.0	78.0	2.0	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				H 2.92	
CO2								
CO3			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	2.90666667	2.9	2.91	2.90666667	2.92		2.92	2.91
AVERAGE OF POS	2.907222	2.9	2.9075	2.906667	2.92		2.92	2.91
AVERAGE	2.909484127							

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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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.

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

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

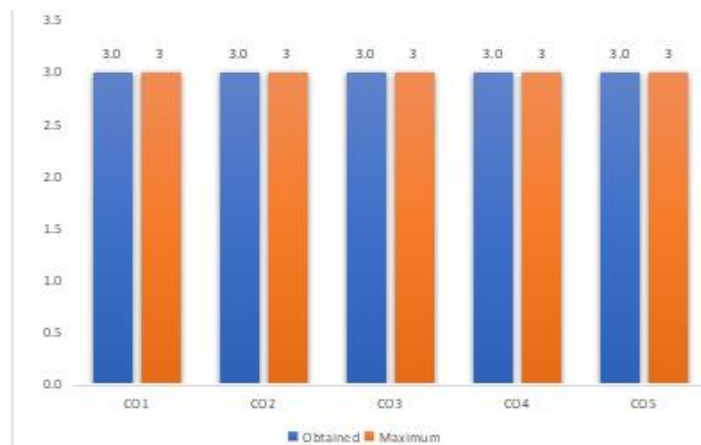
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CO2	100.0	3.0			98.0	3.0			100.0	3.0	96.0	3.0	3.0	94.0	3.0	3.0	3.0
CO3	100.0	3.0	94.0	3.0	98.0	3.0			100.0	3.0	96.0	3.0	3.0	94.0	3.0	3.0	3.0
CO4			94.0	3.0	98.0	3.0			100.0	3.0	96.0	3.0	3.0	94.0	3.0	3.0	3.0
CO5			94.0	3.0	98.0	3.0			100.0	3.0	96.0	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	H 3	H 3				H 3
CO2	H 3		H 3	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	H 3
CO5	H 3		H 3	H 3			H 3	
AVERAGE OF COS FOR POS	3	3	3	3	3		3	3
AVERAGE OF POS	3	3	3	3	3		3	3
AVERAGE	3							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: PROBLEM SOLVING AND PROGRAMMING IN C

COURSE CODE: BS21104

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 Basic concepts of C programming	VI(CREATE)
CO2	CO2: Develop programs using 'C' control structures.	VI(CREATE)
CO3	CO3: Organise data using arrays and strings	VI(CREATE)
CO4	CO4: Sub divides larger problems into smaller ones using 'C' functions.	VI(CREATE)
CO5	CO5: Create programs using the concept of structures, union and file handling in 'C'.	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		S	H			S	H	H	H		H	

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

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

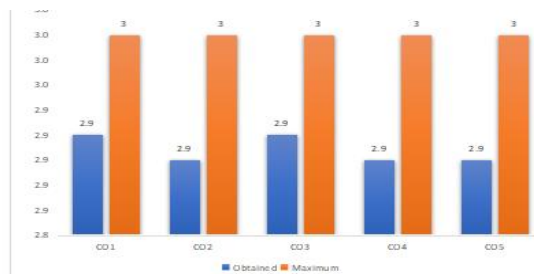
ATTAINMENT SCALE:

Pass percent of 85% and above= 3

Pass percent between 75% - 85%= 2

Pass percent between 65%- 75%= 1

Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			98.0	3.0	100.0	3.0	100.0	3.0	78.0	2.0	2.8	94.0	3.0	3.0	2.9
CO2	100.0	3.0			98.0	3.0			100.0	3.0	78.0	2.0	2.8	94.0	3.0	3.0	2.9
CO3	100.0	3.0	88.0	3.0	98.0	3.0			100.0	3.0	78.0	2.0	2.8	94.0	3.0	3.0	2.9
CO4			88.0	3.0	98.0	3.0			100.0	3.0	78.0	2.0	2.8	94.0	3.0	3.0	2.9
CO5			88.0	3.0	98.0	3.0			100.0	3.0	78.0	2.0	2.8	94.0	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
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		H 2.9	
AVERAGE OF COS FOR POS	2.908		2.9	2.908	2.9		2.90666667	2.91
AVERAGE OF POS	2.9056		2.9	2.9056	2.9		2.906667	2.9075
AVERAGE	2.904227778							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE:GENERAL ENGLISH -II

COURSE CODE: ES18201

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	To identify a sound understanding on the formation of words and to demonstrate the functional grammatical component in the sentence.	I (REMEMBER)
CO2	To paraphrase ideas and thoughts in a coherent, neat and organized manner in order to utilize the writing skills for sound writing propagandas.	II(UNDERSTAND)
CO3	To create an understanding on Indian Literature, alongside to develop and chisel their communication skills.	II(UNDERSTAND)
CO4	To recognize the moral element which underlies in the short story; an exposure to informal language.	VI(CREATE)
CO5	To develop listening and speaking skills through effective sentence constructions and efficient delivery.	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		S			
2	H		H	H	S		H	S		H			
3	H		H	H	H		H	S		H			
4	H		H	H	S		H	S		H			
5	H		H	H	S		S	H		H			

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

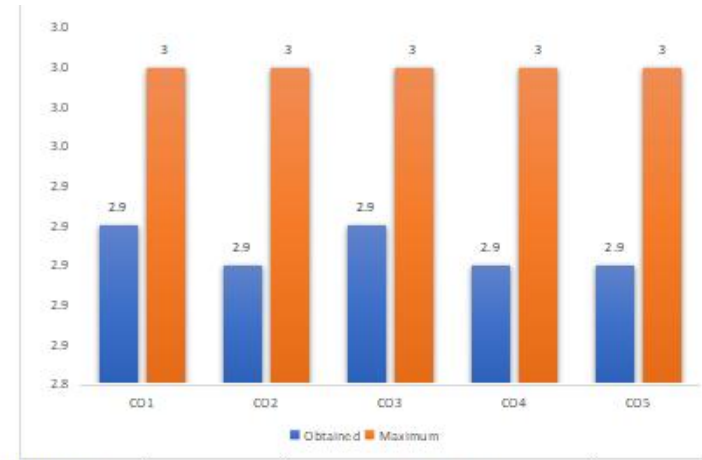
ATTAINMENT SCALE:

Pass percent of 85% and above= 3

Pass percent between 75% - 85%= 2

Pass percent between 75%- 65%= 1

Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDENCE		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	78.0	2.0	2.8	94.0	3.0	3.0	2.9
CO2	100.0	3.0			100.0	3.0			100.0	3.0	78.0	2.0	2.8	94.0	3.0	3.0	2.9
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	78.0	2.0	2.8	94.0	3.0	3.0	2.9
CO4			100.0	3.0	100.0	3.0			100.0	3.0	78.0	2.0	2.8	94.0	3.0	3.0	2.9
CO5			100.0	3.0	100.0	3.0			100.0	3.0	78.0	2.0	2.8	94.0	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	2.92		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	
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		2.908	2.905	2.92		2.91	2.9
AVERAGE OF POS	2.9056		2.9056	2.905	2.92		2.9075	2.9
AVERAGE	2.907283333							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: INDIAN HERITAGE AND CULTURE

COURSE CODE: IC19201

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 better about the origin of ancient indian culture and the contributions of great rulers from both north and south india for indian culture in ancient days	II (UNDERSTAND)
CO2	CO2: Analyse how Persian culture entered into India and it influence the fine arts of Indian society like classical music dance and architecture	IV(ANALYZE)
CO3	CO3 Assess how the Indian orthodox society turn into modern and western society in the 19 th century. It also edifies the students with spiritual doctrines of various religions	III (APPLY)
CO4	CO4: Evaluate various challenges face by the youth and the evils effects of terrorism on society	V(EVALUATE)
CO5	CO5: Create belonging among the students by bringing awareness of the rights and duties to make the world a better place and it throw light on gender sensitization issues of women children and LGBT	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	S	H	H		S		S	S	S				
2	S	H	H		S		S	S	S				
3	S	H	H		S		S	S	S				
4	S	H	H		S		S	S	S				
5	S	H	H		S		S	S	S				

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

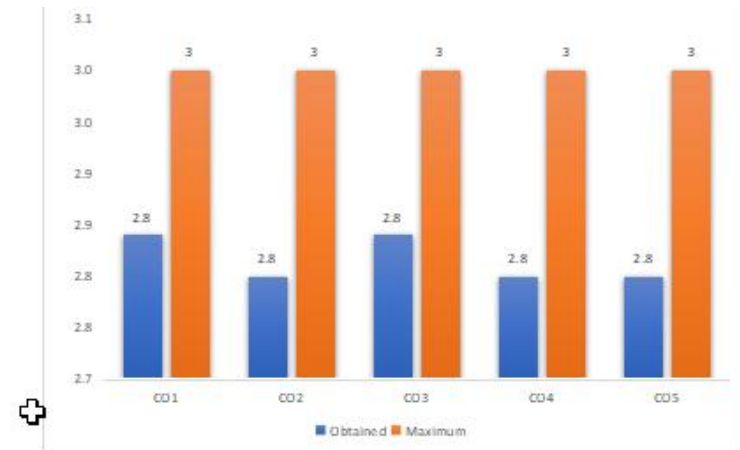
ATTAINMENT SCALE:

Pass percent of 85% and above= 3

Pass percent between 75% - 85%= 2

Pass percent between 65%- 75%= 1

Pass percent of less than 65%= 0



CO	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		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	96.0	3.0	100.0	3.0	74.0	1.0	2.6	98.0	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	74.0	1.0	2.5	98.0	3.0	3.0	2.8
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.6	98.0	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.5	98.0	3.0	3.0	2.8
CO5			100.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.5	98.0	3.0	3.0	2.8

AVERAGE	AVERAGE
3	2.816



OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1		H 2.84	H 2.84					
CO2		H 2.8	H 2.8					
CO3		H 2.84	H 2.84					
CO4		H 2.8	H 2.8					
CO5		H 2.8	H 2.8					
AVERAGE OF COS FOR POS		2.816	2.816					
AVERAGE OF POS		2.8112	2.8112					
AVERAGE	2.8112							



COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: COMPUTER NETWORKS

COURSE CODE: CSCS21201

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: Identify basic computer network topologies and protocols and explain Data Communication System components	I(REMEMBER)

CO2	CO2: Classify different error detecting techniques.	IV(ANALYZE)
CO3	CO3: Construct subnetting and routing mechanisms.	III (APPLY)
CO4	CO4: Sketch the routing protocols and analyse how to assign the IP addresses for the given network	IV(ANALYZE)
CO5	CO5: Develop network design and implementation	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	H	S	H	H	S	S	H	H	
2	H	H	H	H	H	S	H	H	S	H	H	H	
3	H	H	H	H	H	S	H	H	S	H	H	H	

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

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

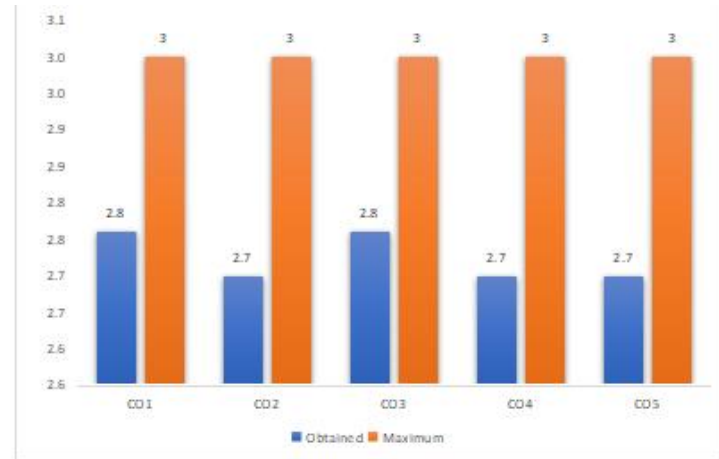
ATTAINMENT SCALE:

Pass percent of 85% and above= 3

Pass percent between 75% - 85%= 2

Pass percent between 65%- 75%= 1

Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		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			96.0	3.0	100.0	3.0	100.0	3.0	64.0	0.0	2.4	98.0	3.0	3.0	2.8
CO2	92.0	3.0			96.0	3.0			100.0	3.0	64.0	0.0	2.3	98.0	3.0	3.0	2.7
CO3	92.0	3.0	98.0	3.0	96.0	3.0			100.0	3.0	64.0	0.0	2.4	98.0	3.0	3.0	2.8
CO4			98.0	3.0	96.0	3.0			100.0	3.0	64.0	0.0	2.3	98.0	3.0	3.0	2.7
CO5			98.0	3.0	96.0	3.0			100.0	3.0	64.0	0.0	2.3	98.0	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	2.76	H 2.76	H 2.76	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		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	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
CO5	H 2.7	H 2.7	H 2.7	H 2.7	H 2.7		H 2.7	H 2.7
AVERAGE OF COS FOR POS	2.724	2.724	2.724	2.724	2.724		2.724	2.724
AVERAGE OF POS	2.7168	2.7168	2.7168	2.7168	2.7168		2.7168	2.7168
AVERAGE	2.7168							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: ELEMENTARY NUMBER THEORY AND LAPLACE TRNASFORMS

COURSE CODE: CSCS21202

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.
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- **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: Solve challenging problems in Number Theory.	III (APPLY)
CO2	CO2: Demonstrate knowledge and understanding of topics including divisibility, prime numbers, congruences, Diophantine equations.	IV(ANALYZE)
CO3	CO3: Identify methods and techniques used in number theory.	III (APPLY)
CO4	CO4: Develop a deeper conceptual understanding of the theoretical basis of number theory and cryptography.	VI(CREATE)
CO5	CO5: Calculate the Laplace transform, Inverse Laplace Transform of standard functions.	III (APPLY)

Table 1: CO, PO, PSO MAPPING

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

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

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

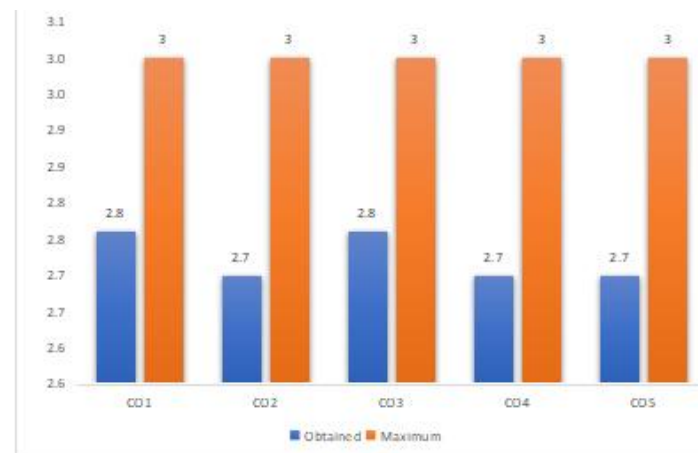
ATTAINMENT SCALE:

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	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			96.0	3.0	100.0	3.0	100.0	3.0	64.0	0.0	2.4	98.0	3.0	3.0	2.8
CO2	100.0	3.0			96.0	3.0			100.0	3.0	64.0	0.0	2.3	98.0	3.0	3.0	2.7
CO3	100.0	3.0	98.0	3.0	96.0	3.0			100.0	3.0	64.0	0.0	2.4	98.0	3.0	3.0	2.8
CO4			98.0	3.0	96.0	3.0			100.0	3.0	64.0	0.0	2.3	98.0	3.0	3.0	2.7
CO5			98.0	3.0	96.0	3.0			100.0	3.0	64.0	0.0	2.3	98.0	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	2.76		H 2.76					
CO2	H 2.7		H 2.7	H 2.7				
CO3	H 2.76		H 2.76	H 2.76				
CO4	H 2.7		H 2.7	H 2.7				
CO5	H 2.7		H 2.7	H 2.7				H 2.7
AVERAGE OF COS FOR POS	2.724		2.724	2.715				2.7
AVERAGE OF POS	2.7168		2.7168	2.715				2.7
AVERAGE	2.71215							

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.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Explain concepts of confidentiality, availability and integrity (CIA) in context of Information security	VI(CREATE)
CO2	CO2: Identify the risk, assess and risk control strategies.	IV(ANALYZE)
CO3	CO3: Demonstrate expertise in configuring host and network level technical security controls to include host firewalls, user access controls, host logging, network filtering, intrusion detection and prevention	III (APPLY)
CO4	CO4: Analyse systems, tools, methods, and techniques for securing digital information within an organisation	IV(ANALYZE)
CO5	CO5: Develop encryption and decryption techniques.	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	H	H	H	S	S	H	S	H	H	H	
2	H	H	H	H	H	S	S	H	S	H	H	H	
3	H	H	H	H	H	S	S	H	S	H	H	H	
4	H	H	H	H	H	S	S	H	S	H	H	H	
5	H	H	H	H	H	S	S	H	S	H	H	H	

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

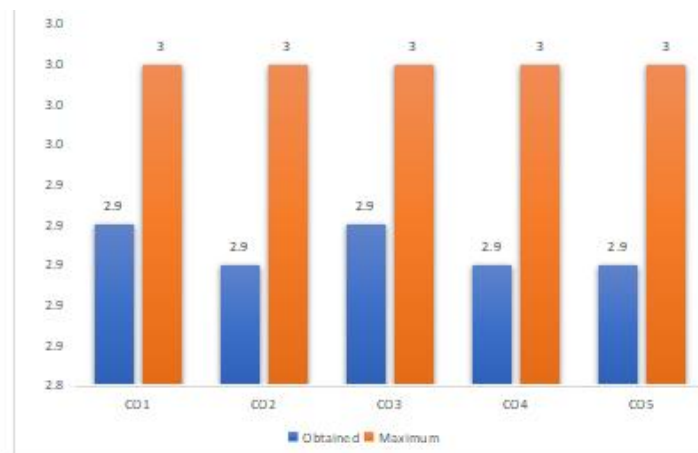
ATTAINMENT SCALE:

Pass percent of 85% and above= 3

Pass percent between 75% - 85%= 2

Pass percent between 65%- 75%= 1

Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		co wise external average	co wise total average		
001	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	84.0	2.0	2.8	100.0	3.0	3.0	2.9
002	100.0	3.0			100.0	3.0			100.0	3.0	84.0	2.0	2.8	100.0	3.0	3.0	2.9
003	100.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	100.0	3.0	3.0	2.9
004			98.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	100.0	3.0	3.0	2.9
005			98.0	3.0	100.0	3.0			100.0	3.0	84.0	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	2.92	H 2.92	H 2.92	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			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	H 2.9			H 2.9
CO5	H 2.9	H 2.9	H 2.9	H 2.9	H 2.9			H 2.9
AVERAGE OF COS FOR POS	2.908	2.908	2.908	2.908	2.908			2.908
AVERAGE OF POS	2.9056	2.9056	2.9056	2.9056	2.9056			2.9056
AVERAGE	2.9056							

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: C++ and DATA STRUCTURES

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.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Differentiate between object-oriented programming and procedure-oriented programming.	IV(ANALYZE)
CO2	CO2: Develop programs using object oriented programming features.	VI(CREATE)
CO3	CO3: Organise the data using sorting and various linear data structures and determine the time complexity	VI(CREATE)
CO4	CO4: Illustrate non-linear data structures like trees, graph	IV(ANALYZE)
CO5	CO5: Choose appropriate data structures to represent data items in real world problems	III(APPLY)

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

H: Highly Supportive

S: Supportive

Table 2: COURSE OUTCOME ATTAINMENT

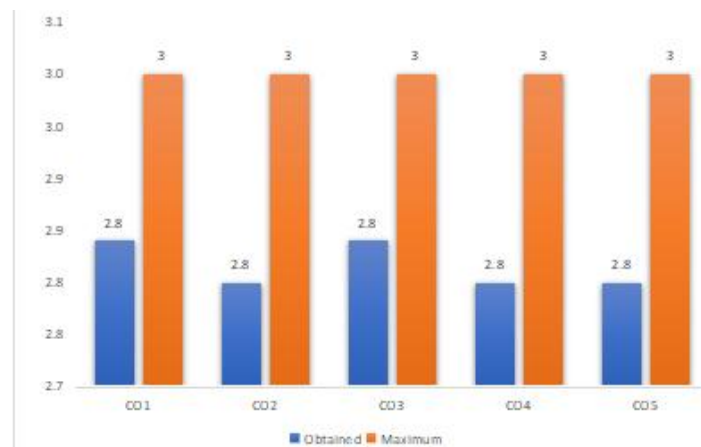
ATTAINMENT SCALE:

Pass percent of 85% and above= 3

Pass percent between 75% - 85%= 2

Pass percent between 65%- 75%= 1

Pass percent of less than 65%= 0



co	WEEKLY TEST		MID SEM		PREFINAL		ASSIGNMENT		VIVA-VOCE		ATTENDANCE		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	98.0	3.0			94.0	3.0	100.0	3.0	100.0	3.0	68.0	1.0	2.6	96.0	3.0	3.0	2.8
CO2	98.0	3.0			94.0	3.0			100.0	3.0	68.0	1.0	2.5	96.0	3.0	3.0	2.8
CO3	98.0	3.0	92.0	3.0	94.0	3.0			100.0	3.0	68.0	1.0	2.6	96.0	3.0	3.0	2.8
CO4			92.0	3.0	94.0	3.0			100.0	3.0	68.0	1.0	2.5	96.0	3.0	3.0	2.8
CO5			92.0	3.0	94.0	3.0			100.0	3.0	68.0	1.0	2.5	96.0	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	2.84			H 2.84				H 2.84
CO2	H 2.8		H 2.8	H 2.8			H 2.8	H 2.8
CO3	H 2.84			H 2.84			H 2.84	H 2.84
CO4	H 2.8		H 2.8	H 2.8	H 2.8			H 2.8
CO5	H 2.8		H 2.8	H 2.8	H 2.8		H 2.8	
AVERAGE OF COS FOR POS	2.816		2.8	2.816	2.8		2.813333333	2.82
AVERAGE OF POS	2.8112		2.8	2.8112	2.8		2.813333	2.815
AVERAGE	2.808455556							