MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: WEB PROGRAMMING   **COURSE CODE: CSC20201**   **CREDITS:3**
DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVE SYSTEMS
Programme Outcomes – (B. Sc.)   **B. Sc.:**   - **PO1. Scientific Knowledge**: Apply the knowledge of Science, Mathematics, Engineering& Technology fundamentals to solve thecomplex 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, andenvironmental

considerations.

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

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1:** Illustrate basic html scripts to design web pages	IV(ANALYZE)
CO2	**CO2:** Explain about cascading style sheets.	II (UNDERSTAND)
CO3	**CO3:** Analyze java script programming using operators, expressions, functions	IV(ANALYZE)
CO4	**CO4 :** Classify event handling in java script.	V (EVALUATE)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	S	H	S	S	S	S	S	H	S	H	H
C02	H		H	H		H	H	S	S	H		H
C03	H	H	H	H	H		H	S		H	S	H
C04	H		H	H	S	S	H	S	H	H		S
C05	H	H	H	H	S	H	S	H	S	H	H	H

H: Highly Supportive
S: Supportive

H:HighlySupportive   **S: Supportive**

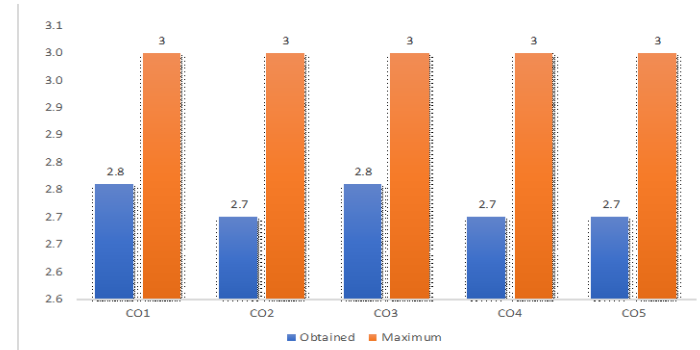**Table 2: COURSE OUTCOME ATTAINMENT**

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		Attendence			External Exam			co wise total average
	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	
CO1	85.1	3.0			100.0	3.0	100.0	3.0	100.0	3.0	34.0	0.0	2.4	91.5	3.0	3.0	2.8
CO2	85.1	3.0			100.0	3.0			100.0	3.0	34.0	0.0	2.3	91.5	3.0	3.0	2.7
CO3	85.1	3.0	93.6	3.0	100.0	3.0			100.0	3.0	34.0	0.0	2.4	91.5	3.0	3.0	2.8
CO4			93.6	3.0	100.0	3.0			100.0	3.0	34.0	0.0	2.3	91.5	3.0	3.0	2.7
CO5			93.6	3.0	100.0	3.0			100.0	3.0	34.0	0.0	2.3	91.5	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

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

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

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table1.

2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]

3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	2.76			H	2.76										
CO2	H	2.7			H	2.7	H	2.7			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			H	2.7			H	2.7
AVERAGE OF COS FOR POS	2.724		2.73		2.724		2.715		2.76		2.7		2.72		2.7	
AVERAGE OF POS		2.7168		2.73		2.7168		2.715		2.76		2.7		2.72		2.7
AVERAGE		2.719825														

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: ARTIFICIAL INTELLIGENCE **COURSE CODE: CSC21403** **CREDITS: 4**
DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVE SYSTEMS
Programme Outcomes – (B. Sc.) **B. Sc.:**   **PO1. Scientific Knowledge**: Apply the knowledge of Science, Mathematics, Engineering& Technology fundamentals to solve thecomplex 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, andenvironmental

considerations.

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

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1:** : Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning	III (APPLY)
CO2	**CO2:** Understand predicate logic and transform the real life information in different representation.	II (UNDERSTAND)
CO3	**CO3:** Understand formal methods of knowledge representation	II (UNDERSTAND)
CO4	**CO4 :** Demonstrate Knowledge representation techniques.	III (APPLY)
CO5	**CO5:** Analyze the underlying mathematical relationships and build expert system	IV (ANALYZE)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H		H	S			S	S		S		H
C02	H		H	H			H	S		H		H
C03	H		H	H	H		H	S		H		H
C04	H		H	H	S		H	S		H		S
C05	H		H	H	S		S	H		H		H

H: Highly Supportive
S: Supportive

H:HighlySupportive   **S: Supportive**

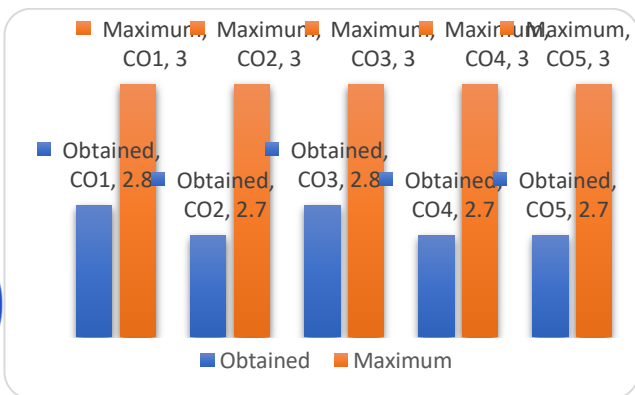**Table 2: COURSE OUTCOME ATTAINMENT**

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		Attendence			External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	98.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	48.0	0.0	2.4	94.0	3.0	3.0	2.8
CO2	98.0	3.0			100.0	3.0			100.0	3.0	48.0	0.0	2.3	94.0	3.0	3.0	2.7
CO3	98.0	3.0	96.0	3.0	100.0	3.0			100.0	3.0	48.0	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	48.0	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	48.0	0.0	2.3	94.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

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

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

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table1.

2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]

3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: COGNITIVE COMPUTING **COURSE CODE: CSC22601B** **CREDITS:4**
DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVE SYSTEMS
Programme Outcomes – (B. Sc.) **B. Sc.:** • **PO1. Scientific Knowledge**: Apply the knowledge of Science, Mathematics, Engineering& Technology fundamentals to solve thecomplex 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, andenvironmental

considerations.

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

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1:** Understand the fundamental concepts of cognitive computing	II (UNDERSTAND)
CO2	**CO2:** Recognize the use of cognitive computing in various industries	I(REMEMBER)
CO3	**CO3:** Understand the principles of NLP in cognitive computing	II (UNDERSTAND)
CO4	**CO4:** Understand the principles of cloud & cognitive computing	II (UNDERSTAND)
CO5	**CO5:** Create and build the cognitive application and understand their usages.	V(CREATE)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	H	H	S	H		S	S	S	S	S	H
C02	H		H	H		H	H	S	H	H	H	H
C03	H	S	H	H	H	S	H	S	S	H		H
C04	H		H	H	S		H	S		H	S	S
C05	H	S	H	H	S	H	S	H	H	H	S	H

H: Highly Supportive
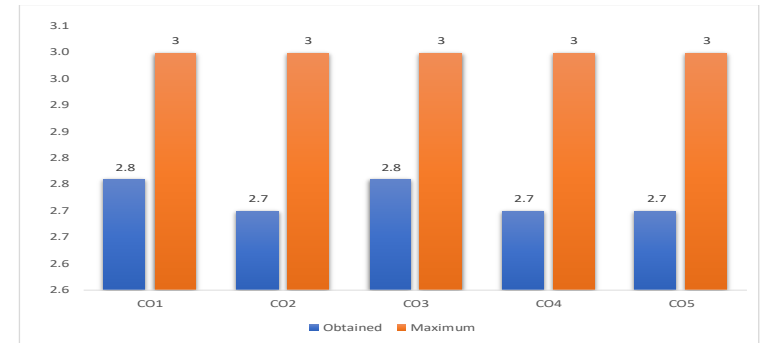S: Supportive

H:HighlySupportive   **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		Attendence		co wise internal average	External Exam		co wise external average	co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	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

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

AVERA	AVERA
3	2.816

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

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table1.

2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]

3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	2.76	H	2.76	H	2.76			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		
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	2.724		2.76		2.724		2.715		2.76		2.7		2.72		2.7	
AVERAGE OF POS	2.7168		2.76		2.7168		2.715		2.76		2.7		2.72		2.7	
AVERAGE	2.723575															

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: C++ AND DATA STRUCTURES

COURSE CODE:CSC20204

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVE SYSTEMS

Programme Outcomes – (B. Sc.)

B. Sc.:

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

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PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

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PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	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.	V(EVALUATE)
CO3	**CO3:** Organize 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

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	S	H	S	S		S	S	H	S	H	H
C02	H		H	H		H	H	S	S	H		H
C03	H	H	H	H	H		H	S	H	H	H	H
C04	H		H	H	S	S	H	S		H	H	S
C05	H	S	H	H	S	H	S	H	S	H	S	H

H: Highly Supportive
S: Supportive
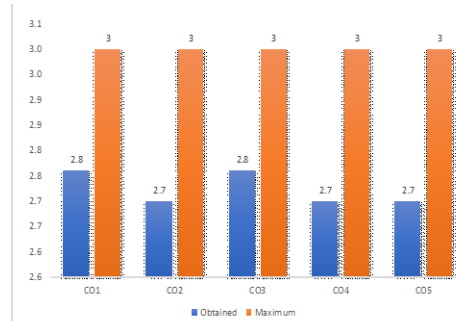
H:HighlySupportive   **S: Supportive**

Table 2: COURSE OUTCOME ATTAINMENT

ATTAINMENT SCALE:

Pass percent of 85% and above= 3
Pass percent between 75% - 85%= 2
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co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence		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	95.7	3.0			100.0	3.0	100.0	3.0	100.0	3.0	27.7	0.0	2.4	95.7	3.0	3.0	2.8
CO2	95.7	3.0			100.0	3.0			100.0	3.0	27.7	0.0	2.3	95.7	3.0	3.0	2.7
CO3	95.7	3.0	91.5	3.0	100.0	3.0			100.0	3.0	27.7	0.0	2.4	95.7	3.0	3.0	2.8
CO4			91.5	3.0	100.0	3.0			100.0	3.0	27.7	0.0	2.3	95.7	3.0	3.0	2.7
CO5			91.5	3.0	100.0	3.0			100.0	3.0	27.7	0.0	2.3	95.7	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

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

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

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Instruction:

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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			H	2.7
AVERAGE OF COS FOR POS	2.724		2.76		2.724		2.715		2.76		2.7		2.72		2.7	
AVERAGE OF POS	2.7168		2.76		2.7168		2.715		2.76		2.7		2.72		2.7	
AVERAGE	2.723575															

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: OBJECT ORIENTED SYSTEM DEVELOPMENT

COURSE CODE:CSC21402

CREDITS:3

DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVE SYSTEMS

Programme Outcomes – (B. Sc.)

B. Sc.:

- **PO1. Scientific Knowledge**: Apply the knowledge of Science, Mathematics, Engineering& Technology fundamentals to solve thecomplex problems.
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PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1:** Explain basics of OOSD concepts	II (UNDERSTAND)
CO2	**CO2:** Categorize Object oriented methodologies and UML diagrams.	V (CREATE)
CO3	**CO3:** Choose classification theory and performing case studies	III (APPLY)
CO4	**CO4 :** Design models based on Object oriented concept	V (CREATE)
CO5	**CO5:** Identify software quality, system usability, measuring and satisfaction	IV(ANALYZE)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H		H	S			S	S		S		H
C02	H		H	H			H	S		H		H
C03	H		H	H	H		H	S		H		H
C04	H		H	H	S		H	S		H		S
C05	H		H	H	S		S	H		H		H

H: Highly Supportive
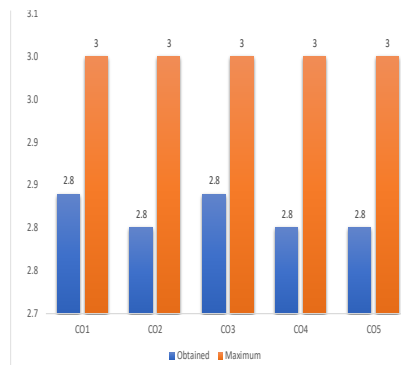S: Supportive

H:HighlySupportive   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		Attendence		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	96.0	3.0			100.0	3.0	98.0	3.0	100.0	3.0	72.0	1.0	2.6	98.0	3.0	3.0	2.8
CO2	96.0	3.0			100.0	3.0			100.0	3.0	72.0	1.0	2.5	98.0	3.0	3.0	2.8
CO3	96.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	72.0	1.0	2.6	98.0	3.0	3.0	2.8
CO4			98.0	3.0	100.0	3.0			100.0	3.0	72.0	1.0	2.5	98.0	3.0	3.0	2.8
CO5			98.0	3.0	100.0	3.0			100.0	3.0	72.0	1.0	2.5	98.0	3.0	3.0	2.8

AVERAGE	AVERAGE
3	2.816

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

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

attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table1.

2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]

3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]

OUTCOME	PO1		PO2	PO3		PO4		PO5		PO6	PO7		PO8	
CO1	H	2.84		H	2.84									
CO2	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		H	2.84		
CO4	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
AVERAGE OF COS FOR POS	2.816			2.816		2.81		2.84			2.813333333		2.8	
AVERAGE OF POS		2.8112			2.8112		2.81		2.84			2.813333		2.8
AVERAGE		2.814288889												

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: JAVA PROGRAMMING   **COURSE CODE:CSC21406**   **CREDITS:4**
   DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVE SYSTEMS
Programme Outcomes – (B. Sc.)   **B. Sc.:**   **PO1. Scientific Knowledge**: Apply the knowledge of Science, Mathematics, Engineering& Technology fundamentals to solve thecomplex 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, andenvironmental

considerations.

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

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1:** Understand fundamentals of object oriented concept, classes, objects and methods	II (UNDERSTAND)
CO2	**CO2:** Apply inheritance, packages and exceptional handling techniques	III(APPLY)
CO3	**CO3:** Demonstrate Threads and applet programming.	V(EVALUATE)
CO4	**CO4:** Express event handling and swing components.	IV(ANALYZE)
CO5	**CO5:** Design interactive programs using swing	VI(CREATE)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	S	H	S	S	H	S	S	S	S	H	H
C02	H		H	H			H	S		H	S	H
C03	H	H	H	H	H	H	H	S	S	H		H
C04	H		H	H	S		H	S		H	S	S
C05	H	H	H	H	S	S	S	H	H	H	H	H

H: Highly Supportive
S: Supportive

H:HighlySupportive   **S: Supportive**
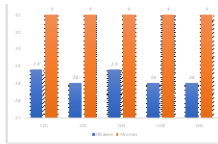
Table 2: COURSE OUTCOME ATTAINMENT

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		Attendence		co wise internal average	External Exam		co wise external average	co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	72.0	1.0	2.6	94.0	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	72.0	1.0	2.5	94.0	3.0	3.0	2.8
CO3	100.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	72.0	1.0	2.6	94.0	3.0	3.0	2.8
CO4			98.0	3.0	100.0	3.0			100.0	3.0	72.0	1.0	2.5	94.0	3.0	3.0	2.8
CO5			98.0	3.0	100.0	3.0			100.0	3.0	72.0	1.0	2.5	94.0	3.0	3.0	2.8

AVERAGE	AVERAGE
3	2.816

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

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

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table1.

2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]

3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	2.84			H	2.84					H	2.84				
CO2	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	H	2.84	H	2.84	H	2.84		
CO4	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		2.82		2.816		2.81		2.84		2.84		2.813333333		2.8	
AVERAGE OF POS	2.8112		2.82		2.8112		2.81		2.84		2.84		2.813333		2.8	
AVERAGE		2.818216667														

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: COMPUTER NETWORKS
COURSE CODE: CSC20203
CREDITS: 4
DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVE SYSTEMS
Programme Outcomes – (B. Sc.) **B. Sc.:**

- **PO1. Scientific Knowledge**: Apply the knowledge of Science, Mathematics, Engineering& Technology fundamentals to solve thecomplex 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 substantiatedconclusions using first principles of mathematics, natural sciences, and engineeringsciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complexscience and technologicalactivities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societaland environmental contexts and for sustainabledevelopment.
- **PO6.Individual and team work:** Function objectively as an individual and as a member in diverseteams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to writeeffective reports anddocumentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context oftechnological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety

of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1:** Identify basic computer network topologies and protocols and explain Data Communication System components	IV(ANALYZE)
CO2	**CO2:** : Describe Wireless Transmission	V (EVALUATE)
CO3	**CO3:** : Understand IP Addressing Version and Switch Basic	II (UNDERSTAND)
CO4	**CO4:** Configure RIP, EIGRP and OSPF protocols	IV(ANALYZE)
CO5	**CO5 :** Understand operation of Wireless networks, NAT and ACL	II (UNDERSTAND)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	S	H	S	H	H	S	H	S	S	S	H
C02	S	H	H	H		S	H	S	H	H		H
C03	H	H	H	H	H	H	H	H	H	H	H	H
C04	S	S	H	H	S		H	S		H	S	S
C05	H	H	H	H	S	H	S	H	H	H	H	H

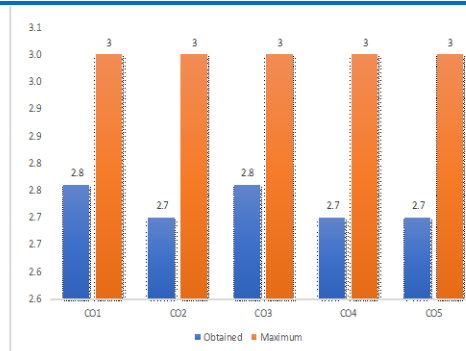H: Highly Supportive
S: Supportive

H:HighlySupportive

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

AVERA	AVERAGE
	2.72

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence		co wise internal average	External Exam		co wise external average	co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	31.9	0.0	2.4	91.5	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	31.9	0.0	2.3	91.5	3.0	3.0	2.7
CO3	100.0	3.0	97.9	3.0	100.0	3.0			100.0	3.0	31.9	0.0	2.4	91.5	3.0	3.0	2.8
CO4			97.9	3.0	100.0	3.0			100.0	3.0	31.9	0.0	2.3	91.5	3.0	3.0	2.7
CO5			97.9	3.0	100.0	3.0			100.0	3.0	31.9	0.0	2.3	91.5	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

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

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

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table1.

2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]

3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	2.76			H	2.76			H	2.76	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	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			H	2.7
AVERAGE OF COS FOR POS	2.74		2.72		2.724		2.715		2.76		2.74		2.72		2.74	
AVERAGE OF POS	2.733333		2.72		2.7168		2.715		2.76		2.733333		2.72		2.733333	
AVERAGE	2.728975															

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: DATABASE MANAGEMENT SYSTEMS   **COURSE CODE: CSC21404**   **CREDITS: 4**
DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVE SYSTEMS
Programme Outcomes – (B. Sc.)   **B. Sc.:**   **PO1. Scientific Knowledge**: Apply the knowledge of Science, Mathematics, Engineering& Technology fundamentals to solve thecomplex 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, andenvironmental

considerations.

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

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1:** Represent logical database using Entity Relationship and Enhanced ER model	V (EVALUATE)
CO2	**CO2:** Formulate database using relational algebra and organize relation using normalization.	IV(ANALYZE)
CO3	**CO3:** Design SQL queries and implements PL/SQL.	VI (CREATE)
CO4	**CO4:** Classify the storage and file structure, storage access, indexing and hashing techniques of the database	III (APPLY)
CO5	**CO5:** Explain the concept of Transactions, recovery system and concurrency control..	II(UNDERSTAND)

Table 1: CO, PO, PSO MAPPING

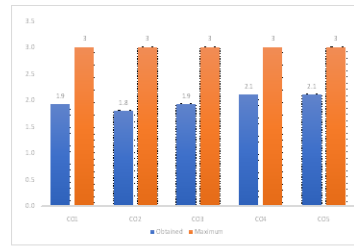| outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	H	H	H	H	H	S	H	H	S	S	H
C02	H		H	H			H	S		H		H
C03	H	H	H	H	H	S	H	H	S	H	H	H
C04	H		H	H	S		H	S	H	H		S
C05	H	H	H	H	S	H	S	H	H	H	H	H

H: Highly Supportive
S: Supportive

H:HighlySupportive   **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		Attendence		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	24.0	0.0			100.0	3.0	100.0	3.0	96.0	3.0	62.0	0.0	1.8	76.0	2.0	2.0	1.9
CO2	24.0	0.0			100.0	3.0			96.0	3.0	62.0	0.0	1.5	76.0	2.0	2.0	1.8
CO3	24.0	0.0	98.0	3.0	100.0	3.0			96.0	3.0	62.0	0.0	1.8	76.0	2.0	2.0	1.9
CO4			98.0	3.0	100.0	3.0			96.0	3.0	62.0	0.0	2.3	76.0	2.0	2.0	2.1
CO5			98.0	3.0	100.0	3.0			96.0	3.0	62.0	0.0	2.3	76.0	2.0	2.0	2.1

AVERAGE	AVERAGE
3	2.5

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

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

Table 3: PROGRAMME OUTCOME MAPPING

 Instruction:

1. Copy the completed table1.

2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]

3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	1.92	H	1.92	H	1.92	H	1.92	H	1.92	H	1.92			H	1.92
CO2	H	1.8			H	1.8	H	1.8					H	1.8		
CO3	H	1.92	H	1.92	H	1.92	H	1.92	H	1.92			H	1.92	H	1.92
CO4	H	2.1			H	2.1	H	2.1					H	2.1		
CO5	H	2.1	H	2.1	H	2.1	H	2.1			H	2.1			H	2.1
AVERAGE OF COS FOR POS	1.968		1.98		1.968		1.968		1.92		2.01		1.94		1.98	
AVERAGE OF POS	1.9776		2		1.9776		1.9776		1.92		2.055		1.94		2	
AVERAGE	2.5408															

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: BIG DATA ANALYTICS

COURSE CODE: CSC22603

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVESYSTEMS

Programme Outcomes – (B. Sc.)

B. Sc.:

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

considerations.

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

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

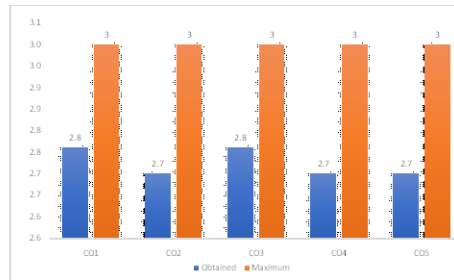|	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1:** The student will demonstrate knowledge of Big Data, and will be able to analyze the data to deliver an effective data model using various big data technologies.	III (APPLY)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	H	H	S	S		S	S	H	S	H	H
C02	H		H	H		H	H	S		H		H
C03	H	S	H	H	H		H	H	H	H	S	H
C04	H		H	H	S	H	H	S	S	H		S
C05	H	H	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 75%- 65%= 1
Pass percent of less than 65%= 0

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence		co wise internal average	External Exam		co wise external average	co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	32.7	0.0	2.4	98.0	3.0	3.0	2.8
CO2	100.0	3.0			100.0	3.0			100.0	3.0	32.7	0.0	2.3	98.0	3.0	3.0	2.7
CO3	100.0	3.0	93.9	3.0	100.0	3.0			100.0	3.0	32.7	0.0	2.4	98.0	3.0	3.0	2.8
CO4			93.9	3.0	100.0	3.0			100.0	3.0	32.7	0.0	2.3	98.0	3.0	3.0	2.7
CO5			93.9	3.0	100.0	3.0			100.0	3.0	32.7	0.0	2.3	98.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

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

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

attainment level.

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

1. Copy the completed table1.

2. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]

3. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	2.76	H	2.76	H	2.76										
CO2	H	2.7			H	2.7	H	2.7			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	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		2.73		2.724		2.715		2.76		2.7		2.72		2.73	
AVERAGE OF POS		2.7168		2.715		2.7168		2.715		2.76		2.7		2.72		2.73
AVERAGE		2.7217														

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: GENERAL ENGLISH II
COURSE CODE: EN18201
CREDITS: 3
DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVESYSTEMS

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 substantiatedconclusions using first principles of mathematics, natural sciences, and engineeringsciences.
- **PO4. Modern tool usage:** Create, select and apply appropriate techniques, resources, modern technology and IT tools to complexscience and technologicalactivities.
- **PO5. Environment and sustainability:** Understand the impact of professional science and technological solutions in societaland environmental contexts and for sustainabledevelopment.
- **PO6.Individual and team work:** Function objectively as an individual and as a member in diverseteams.
- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to writeeffective reports anddocumentation.
- **PO8. Life-long learning:** Recognise the need and ability to engage in independent and lifelong learning in the context oftechnological change.

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

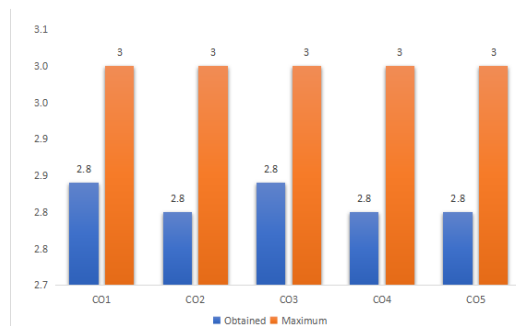|	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1:** To identify a sound understanding on the formation of words and to demonstrate the functional grammatical component in the sentence	I(REMEMBER)
C02	**C02:** : To paraphrase ideas and thoughts in a coherent, neat and organized manner in order to utilize the writing skills for sound writing propagandas.	I V(CREATE)
CO3	**CO3**: To create an understanding on Indian Literature, alongside to develop and chisel their communication skills.	I V(CREATE)
CO4	**CO4**:To recognize the moral element which underlies in the short story; an exposure to informal language.	I(REMEMBER)
CO5	**CO5**: To develop listening and speaking skills through effective sentence constructions and efficient delivery.	V(EVALUATE)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	S	H	S	H		S	S	S	S	H	H
C02	H	H	H	H		H	H	S	H	H	S	H
C03	H	H	S	S	H	S	S	H	H	S	S	H
C04	H	S	H	H	S	S	H	S	S	H	H	S
C05	H		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 75%- 65%= 1
Pass percent of less than 65%= 0

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence			External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	97.9	3.0			93.6	3.0	95.7	3.0	100.0	3.0	68.1	1.0	2.6	97.9	3.0	3.0	2.8
CO2	97.9	3.0			93.6	3.0			100.0	3.0	68.1	1.0	2.5	97.9	3.0	3.0	2.8
CO3	97.9	3.0	95.7	3.0	93.6	3.0			100.0	3.0	68.1	1.0	2.6	97.9	3.0	3.0	2.8
CO4			95.7	3.0	93.6	3.0			100.0	3.0	68.1	1.0	2.5	97.9	3.0	3.0	2.8
CO5			95.7	3.0	93.6	3.0			100.0	3.0	68.1	1.0	2.5	97.9	3.0	3.0	2.8

AVERAGE	AVERAGE
3	2.816

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

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

Table 3: PROGRAMME OUTCOME MAPPING

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	2.84			H	2.84			H	2.84						
CO2	H	2.8	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		
CO5	H	2.8			H	2.8	H	2.8							H	2.8
AVERAGE OF COS FOR POS	2.816		2.82		2.81		2.8		2.84		2.8		2.8		2.82	
AVERAGE OF POS	2.8112		2.82		2.8025		2.8		2.84		2.8		2.8		2.82	
AVERAGE	2.8117125															

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: MATHEMATICS FOR COGNITIVE SCIENCE   **COURSE CODE: CSC20202**   **CREDITS: 4**
DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVESYSTEMS
Programme Outcomes – (B. Sc.)   **B. Sc.:**   **PO1. Scientific Knowledge**: Apply the knowledge of Science, Mathematics, Engineering& Technology fundamentals to solve thecomplex 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, andenvironmental

considerations.

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

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1: Construct simple mathematical proofs and possess the ability to verify them.**	IV(CREATE)
C02	**C02:** : Apply basic counting techniques to solve combinatorial problems.	III(APPLY)
CO3	**CO3**: Solve problems using recurrence relations and recursion to analyze algorithms and programs such as finding Fibonacci numbers and Tower of Hanoi problems..	V(EVALUATE)
CO4	**CO4**: Understand to find the rank of a matrix and to solve systems of linear equations applying matrix techniques.	II(UNDERSTAND)
CO5	**CO5**: Determine Eigen values and eigenvectors..	V(EVALUATE)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4
CO1	H	H	H	H	H	H	S	S	H	S	H	H
CO2	H		H	H	H	S	H	S	S	H	H	H
CO3	H	H	H	H	H		H	H	H	H		H
CO4	H		H	H	H	H	H	S		H	S	S
CO5	H	H	H	H	H	H	S	H	H	H	H	H

H: Highly Supportive

S: Supportive

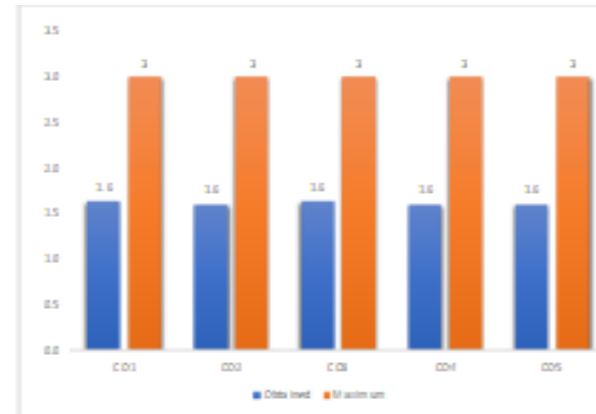**Table 2: COURSE OUTCOME ATTAINMENT**

ATTAINMENT SCALE:

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

co	mid exam1		mid exam2		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	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	72.3	1.0	26	74.5	1.0	1.0	1.6
CO2	100.0	3.0			100.0	3.0			100.0	3.0	72.3	1.0	25	74.5	1.0	1.0	1.6
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	72.3	1.0	26	74.5	1.0	1.0	1.6
CO4			100.0	3.0	100.0	3.0			100.0	3.0	72.3	1.0	25	74.5	1.0	1.0	1.6
CO5			100.0	3.0	100.0	3.0			100.0	3.0	72.3	1.0	25	74.5	1.0	1.0	1.6

AVERAGE	AVERAGE
2	2.345

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

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

Table 3: PROGRAMME OUTCOME MAPPING

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	1.64	H	1.64	H	1.64	H	1.64	H	1.64	H	1.64				
CO2	H	1.6			H	1.6	H	1.6	H	1.6			H	1.6		
CO3	H	1.64	H	1.64	H	1.64	H	1.64	H	1.64			H	1.64	H	1.64
CO4	H	1.6			H	1.6	H	1.6	H	1.6	H	1.6	H	1.6		
CO5	H	1.6	H	1.6	H	1.6	H	1.6	H	1.6	H	1.6			H	1.6
AVERAGE OF COS FOR POS	1.616		1.626666667		1.616		1.616		1.616		1.613333333		1.613333333		1.62	
AVERAGE OF POS	1.6112		1.622222		1.6112		1.6112		1.6112		1.606664		1.613333		1.62	
AVERAGE							2.275									

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: INDIAN HERITAGE AND CULTURE

COURSE CODE: IC19201

CREDITS: 2

DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVESYSTEMS

Programme Outcomes – (B. Sc.)

B. Sc.:

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

considerations.

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

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1: The student can 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)
C02	Students will analyse how Persian culture entered into India and how it influenced the Fine Arts of Indian society like Classical Music, Dance and Architecture.	IV(ANALYZE)
CO3	**CO3**: Student can able to assess how the Indian orthodox society turn into modern and western society in the 19th century .It also edifies the students with spiritual doctrines of various Religions.	III(APPLY)
CO4	**CO4**: Students will evaluate various challenges face by the youth and the evil affects of terrorism on society.	V(EVALUATE)
CO5	**CO5**: The topics in the unit create belongingness 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

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	S	H	S	H	S	S	S	H	S	S	H
C02	H	H	H	H		H	H	S	H	H	H	S
C03	S	S	S	S	H		S	S		S	H	H
C04	H	H	H	H	S	H	H	S	S	H	H	S
C05	H	S	H	H	S	S	S	H	S	H		H

H: Highly Supportive
S: Supportive

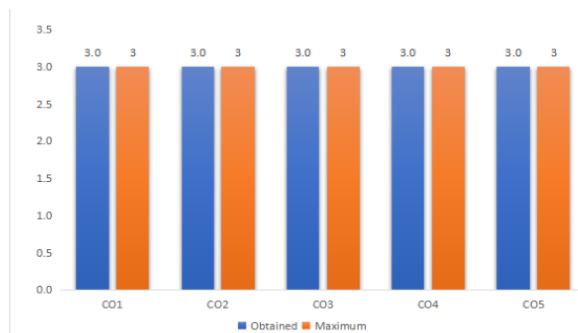**Table 2: COURSE OUTCOME ATTAINMENT**

ATTAINMENT SCALE:

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

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence		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	97.9	3.0			100.0	3.0	100.0	3.0	100.0	3.0	91.5	3.0	3.0	93.6	3.0	3.0	3.0
CO2	97.9	3.0			100.0	3.0			100.0	3.0	91.5	3.0	3.0	93.6	3.0	3.0	3.0
CO3	97.9	3.0	93.6	3.0	100.0	3.0			100.0	3.0	91.5	3.0	3.0	93.6	3.0	3.0	3.0
CO4			93.6	3.0	100.0	3.0			100.0	3.0	91.5	3.0	3.0	93.6	3.0	3.0	3.0
CO5			93.6	3.0	100.0	3.0			100.0	3.0	91.5	3.0	3.0	93.6	3.0	3.0	3.0

AVERAGE	AVERAGE
3	3

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

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

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

10. **Copy the completed table1.**

11. **Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]**

12. **Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]**

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	3			H	3			H	3						
CO2	H	3	H	3	H	3	H	3			H	3	H	3		
CO3									H	3						
CO4	H	3	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		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: INFRASTRUCTURE SECURITY

COURSE CODE: CSC22602A

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVESYSTEMS

Programme Outcomes – (B. Sc.)

B. Sc.:

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

considerations.

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

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

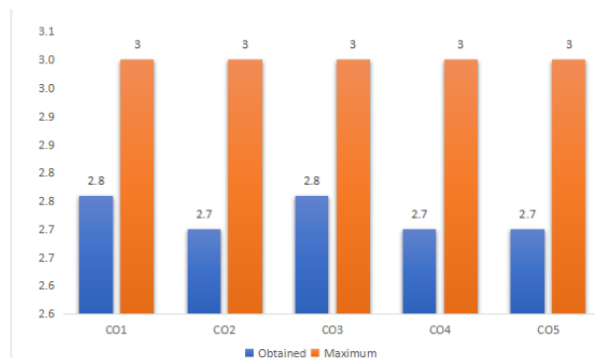|	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1: Understand the concept of attacks and Security protection mechanisms**	II(UNDERSTAND)
C02	**CO2**: Analyze and evaluate attacks on databases and cloud	IV(ANALYZE)
CO3	**CO3**: Explain the need for OS and Multilevel security	III(APPLY)
CO4	**CO4**: Explain various risk assessment and IT security.	II(UNDERSTAND)
CO5	**CO5**: Evaluate different attacks on Open Web Applications	V(EVALUATE)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	H	H	S	H	H	S	S	H	S	H	H
C02	H		H	H		S	H	S	H	H	H	H
C03	H	H	H	H	H		H	H		H	S	H
C04	H		H	H	S	H	H	S	S	H	S	S
C05	H	S	H	H	S	H	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 75%- 65%= 1
Pass percent of less than 65%= 0

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	93.1	3.0			100.0	3.0	100.0	3.0	100.0	3.0	37.9	0.0	2.4	100.0	3.0	3.0	2.8
CO2	93.1	3.0			100.0	3.0			100.0	3.0	37.9	0.0	2.3	100.0	3.0	3.0	2.7
CO3	93.1	3.0	93.1	3.0	100.0	3.0			100.0	3.0	37.9	0.0	2.4	100.0	3.0	3.0	2.8
CO4			93.1	3.0	100.0	3.0			100.0	3.0	37.9	0.0	2.3	100.0	3.0	3.0	2.7
CO5			93.1	3.0	100.0	3.0			100.0	3.0	37.9	0.0	2.3	100.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

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

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

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

13. Copy the completed table1.

14. **Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]**

15. **Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]**

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	2.76	H	2.76	H	2.76			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			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		2.76		2.724		2.715		2.76		2.72		2.72		2.73	
AVERAGE OF POS		2.7168		2.76		2.7168		2.715		2.76		2.706667		2.72		2.73
AVERAGE	2.728158333															

COURSE OUTCOME MAPPING

COURSE TITLE: INFORMATION TECHNOLOGY INFRASTRUCTURE LIBRARY

COURSE CODE: CSC22602B

CREDITS: 4

DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVESYSTEMS

Programme Outcomes – (B. Sc.)

B. Sc.:

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

considerations.

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

PROGRAMME SPECIFIC OUTCOMES (DEPARTMENTAL):

Students will be able to:

PSO1. Demonstrate in-depth knowledge in the foundational areas of the mathematical sciences and Communicate mathematical ideas using numerical, graphical and symbolic representations.

PSO2. Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.

PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

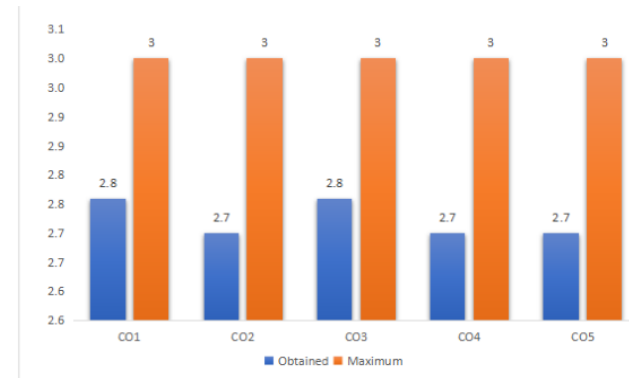|	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	CO1: Understand service lifecycle model	II(UNDERSTAND)
C02	CO2: Know the key principles models and concepts of service management	I(REMEMBER)
CO3	CO3: Understand the process management and risk management	II(UNDERSTAND)
CO4	CO4: Know the challenges in providing IT infrastructure services	I(REMEMBER)
CO5	CO5: Understand the event management concepts	II(UNDERSTAND)

Table 1: CO, PO, PSO MAPPING

outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	H	H	S	S	H	S	S	H	S	S	H
C02	H		H	H		S	H	H		H	H	H
C03	H	H	H	H	H		H	S	H	H	H	H
C04	H		H	H	S	S	H	S		H		S
C05	H	S	H	H	S	H	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 75%- 65%= 1
Pass percent of less than 65%= 0

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence		co wise internal average	External Exam		co wise external average	co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	40.0	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	40.0	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	40.0	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	40.0	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	40.0	0.0	2.3	100.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724

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

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

Table 3: PROGRAMME OUTCOME MAPPING

Instruction:

16. Copy the completed table1.

17. Retain only the POs and the Highly supportive (H) points. [Delete the PSO columns and the 'S'points]

18. Write the respective CO-wise total average (column K in table 2) wherever each CO is mapped as (H) under each PO.]

OUTCOME	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8	
CO1	H	2.76	H	2.76	H	2.76					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			H	2.7
AVERAGE OF COS FOR POS	2.724		2.76		2.724		2.715		2.76		2.73		2.72		2.7	
AVERAGE OF POS	2.7168		2.76		2.7168		2.715		2.76		2.715		2.72		2.7	
AVERAGE	2.72545															

COURSE OUTCOME MAPPING

MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES

COURSE TITLE: PRINCIPLES OF INFORMATION SECURITY **COURSE CODE: CSC22601A** **CREDITS: 4**
DEPARTMENT: B. Sc. COMPUTER SCIENCE & COGNITIVESYSTEMS

Programme Outcomes – (B. Sc.)

B. Sc.:

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

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considerations.
- **PO3.Problem analysis:** Identify, formulate, research literature, and analyze complex scientific problems reaching substantiatedconclusions using first principles of mathematics, natural sciences, and engineeringsciences.
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PSO3. Use emerging technologies and computing concepts.

PSO4. Apply mathematical, computational and statistical tools to detect patterns and model performance.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	**CO1: Explain concepts of Security System Development Life Cycle, Need for Security**	II(UNDERSTAND)
C02	**CO2**: Identify the risk, assess and risk control strategies.	I(REMEMBER)
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**: Analyze systems, tools, methods, and techniques for securing digital information within an organization	IV(ANALYZE)
CO5	**CO5**: Explain the concepts of Security Considerations in Mobile and Wireless Computing	II(UNDERSTAND)

Table 1: CO, PO, PSO MAPPING

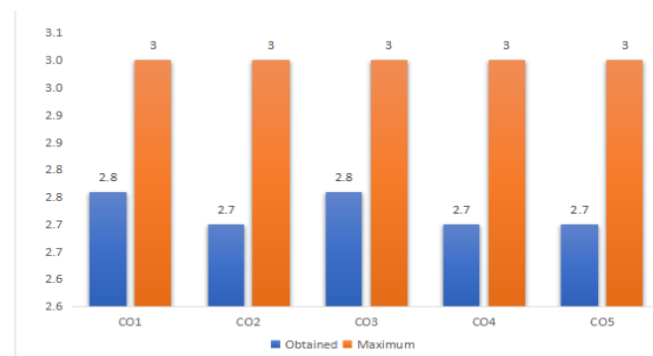| outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PS01	PS02	PS03	PS04
C01	H	H	H	S	H	S	S	S	H	S	H	H
C02	H		H	H		H	H	H		H	H	H
C03	H	H	H	H	H	S	H	S	H	H		H
C04	H		H	H	S	S	H	H		H	S	S
C05	H	H	H	H	S		S	H	S	H	H	H

H: Highly Supportive
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Table 2: COURSE OUTCOME ATTAINMENT

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CO2	100.0	3.0			100.0	3.0			100.0	3.0	40.0	0.0	2.3	100.0	3.0	3.0	2.7
CO3	100.0	3.0	96.0	3.0	100.0	3.0			100.0	3.0	40.0	0.0	2.4	100.0	3.0	3.0	2.8
CO4			96.0	3.0	100.0	3.0			100.0	3.0	40.0	0.0	2.3	100.0	3.0	3.0	2.7
CO5			96.0	3.0	100.0	3.0			100.0	3.0	40.0	0.0	2.3	100.0	3.0	3.0	2.7

AVERAGE	AVERAGE
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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
CO5	H	2.7	H	2.7	H	2.7	H	2.7							H	2.7
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AVERAGE OF POS		2.7168		2.733333		2.7168		2.715		2.76		2.7		2.72		2.7
AVERAGE		2.720241667														