

## **B.Sc. COMPUTER SCIENCE & ARTIFICIAL INTELLIGENCE**

### **PROBLEM SOLVING AND PROGRAMMING IN C**

**MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES:**

**COURSE TITLE: PROBLEM SOLVING AND PROGRAMMING IN C**

**COURSE CODE: B S 21104**

**CREDITS: 5**

**DEPARTMENT: B.Sc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

**PROGRAMME OUTCOMES Or POS(MDS):**

#### **PROGRAM OBJECTIVES (POs)**

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

- **PSO1:** ability to understand and adapt to the contemporary trends and best practices of industry and research standards
- **PSO2:** Ability to design and implement ethical sustainable solutions with a cutting-edge combination of Artificial Intelligence , Machine Learning, Natural Language Processing etc
- **PSO3:** ability to design smart machines
- **PSO4:** Ability to represent the knowledge and transform the real-life information into a different representation.
- **PSO 5:** implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Explain</b> the basic introduction of computer and programming languages.	II (Explain)
<b>CO2</b>	<b>Categorize</b> different data types, operators and data input /output functions in 'C' . .	III (Categorise)
<b>CO3</b>	<b>Develop</b> programs using 'C' control structures, arrays and string concept.	III (Develop)
<b>CO4</b>	<b>Analyse</b> larger problems into smaller ones using 'C' functions.	IV (Analyse)
<b>CO5</b>	<b>Create</b> programs using the concept of structures, union and file handling in 'C'.	V (Create)



**COS,POS,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

**Marks List :**

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	11.75	12	5	3	3	3.6	49
111723038002	6.75	4.75	4	3	2	3.6	37
111723038003	12	11	4	3	3	4	48
111723038004	7.75	7.75	4	3	2	2	37
111723038005	11	9.5	4	3	3	4	47
111723038006	6	6.25	5	3	2	3.2	42
111723038007	11.5	9	5	3	3	3.6	48
111723038008	8.25	6	4	3	3	2	45
111723038009	8.75	10.25	5	3	3	3.2	47
111723038010	8.75	9.5	5	3	3	3.6	47
111723038011	7.75	8.5	5	3	3	4	43
111723038012	7	7.25	5	3	3	1.2	40
111723038013	5.5	9.5	5	3	3	3.2	44
111723038014	10.75	10.5	5	3	3	3.2	47
111723038015	11.75	11.5	5	3	3	2.8	49
111723038016	9	10.5	5	3	3	4	44
111723038017	6.75	10.5	5	3	3	3.6	37
111723038018	8.25	10.5	5	3	3	3.2	47
111723038019	7	9.25	5	3	3	3.2	44
111723038020	12	11.75	5	3	3	4	50

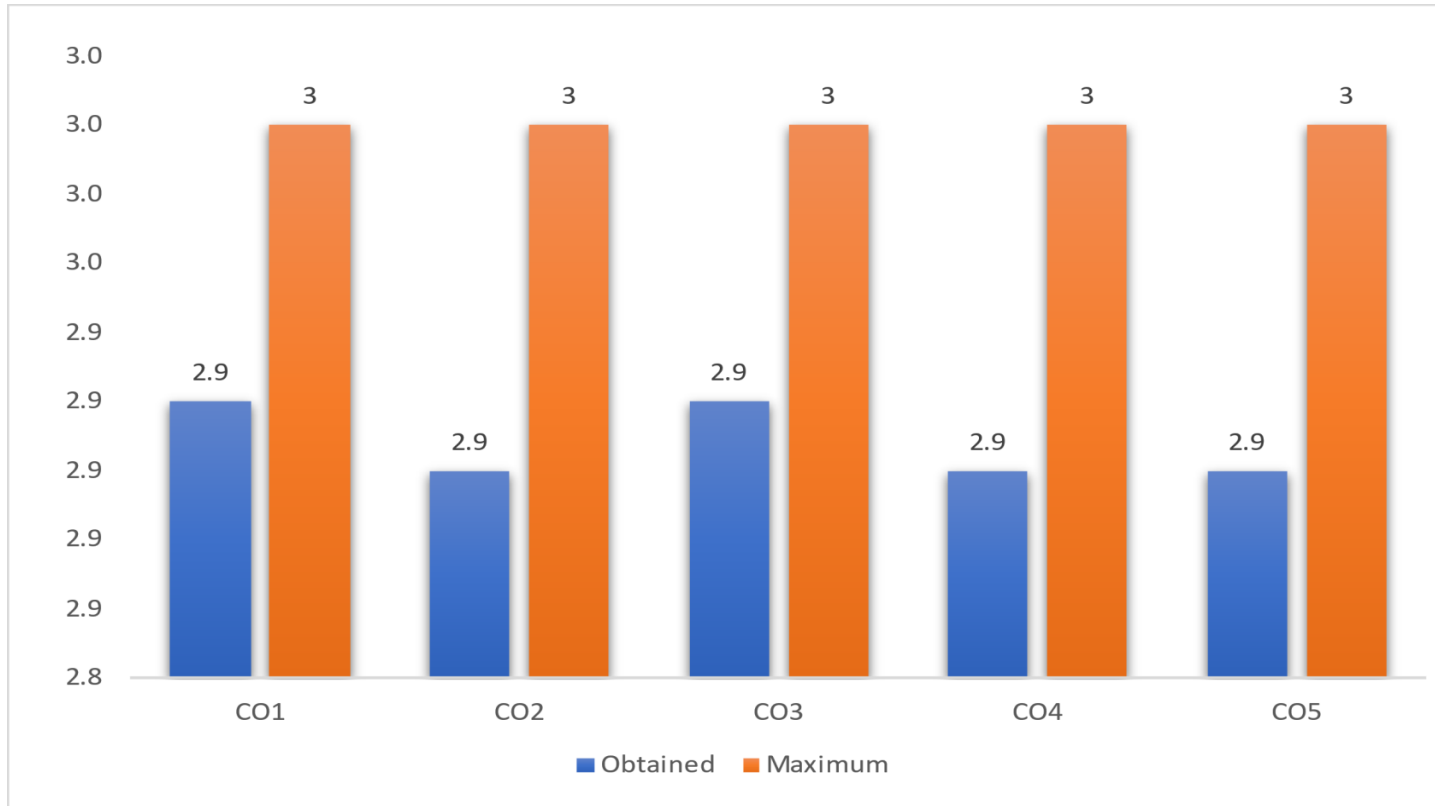
111723038021	10	11.5	5	3	3	4	52
111723038022	9.75	11.75	5	3	3	4	47
111723038023	9.5	10.5	4	3	3	3.2	40
111723038024	7.75	9	5	3	3	2	43
111723038025	7.5	7.75	5	3	3	1.6	34
111723038026	3	5.75	4	3	2	1.6	31
111723038027	5.75	9	4	3	3	3.6	38
111723038028	7.5	7.5	4	3	3	2.4	30
111723038029	10.75	11	5	3	3	3.2	43
111723038030	6	5.5	4	3	2	2.8	42
111723038031	8	8	4	3	3	2.4	43
111723038032	10.25	12	5	3	3	2.4	43
111723038033	5	6	4	3	3	1.2	35
111723038034	7.25	9.5	4	3	3	3.6	37
111723038035	3	5.5	4	3	3	0	34
111723038036	5.75	8.75	4	3	3	0.8	50
111723038037	7.5	8	4	3	3	3.6	42
111723038038	6.75	6.75	4	3	3	3.2	38
111723038039	4.75	6	4	3	3	1.2	33
111723038040	5.5	4.5	4	3	3	3.2	21
111723038041	7	8	4	3	3	3.6	47
111723038042	9.25	9	4	3	3	3.6	41
111723038043	6.75	7.5	4	3	3	0.8	42
111723038044	6.5	4.75	4	3	3	2.4	28
111723038045	7.75	5	4	3	3	1.2	38

111723038046	3.25	2.5	4	3	3	0	42
111723038047	7	5.25	4	3	3	2.4	42
111723038048	10	10.5	5	3	3	2.4	42
111723038049	8	7.25	4	3	3	1.6	42
111723038050	9.5	9.5	5	3	3	3.2	49

## CO Mapping:

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	92.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	84.0	2.0	2.8	70.0	1.0	1.0	1.7
CO2	92.0	3.0			100.0	3.0			100.0	3.0	84.0	2.0	2.8	70.0	1.0	1.0	1.7
CO3	92.0	3.0	92.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	70.0	1.0	1.0	1.7
CO4			92.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	70.0	1.0	1.0	1.7
CO5			92.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	70.0	1.0	1.0	1.7

AVERAGE	AVERAGE
1	1.708



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.72		H 1.72					
CO2	H 1.7		H 1.7	H 1.7			H 1.7	
CO3	H 1.72		H 1.72	H 1.72	H 1.72		H 1.72	
CO4	H 1.7		H 1.7	H 1.7			H 1.7	
CO5	H 1.7		H 1.7	H 1.7				H 1.7
AVERAGE OF COS FOR POS	1.708		1.708	1.705	1.72		1.706666667	1.7
AVERAGE OF POS	1.7056		1.7056	1.705	1.72		1.706666667	1.7
AVERAGE	1.707144444							

## VALUE EDUCATION AND PERSONALITY DEVELOPMENT

**COURSE TITLE: VALUE EDUCATION AND PERSONALITY DEVELOPMENT**

**COURSE CODE: VE18101**

**CREDITS: 2**

**DEPARTMENT: Computer Science and Artificial Intelligence.**

**PROGRAMME OUTCOMES(BSC):**

**Programme Outcomes – (B.Sc. Computer Science and Artificial Intelligence.)**

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

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Students will be able to <b>differentiate</b> Accepted norms and Counter values and be able to identify the various Dimensions of Human Development.	II (Understand)
<b>CO2</b>	Students will be able to <b>demonstrate</b> Love and Experience of God and identify the Basic Issues of Life and Happiness as a life goal.	VI (Create)
<b>CO3</b>	They will able to <b>understand</b> the importance of Concern for others and critique the various problems that deter the growth of the society.	VI (Create)
<b>CO4</b>	The students will be able to <b>recognize</b> the traits of a good personality and practice Self-exploration.	III (Apply)
<b>CO5</b>	Students will be able to <b>interpret</b> the Purpose of Life and Goal Setting and demonstrate Self-management.	VI (Create)

**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

**Marks List :**

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	12.25	12.5	5	3	3	3.6	53
111723038002	6.25	9.75	5	3	3	3.2	40
111723038003	10.5	12.5	5	3	3	4	58
111723038004	11.5	11.5	5	3	3	2	54
111723038005	11.75	9.5	5	3	3	4	58
111723038006	7.5	7.25	5	3	3	3.2	43
111723038007	10	10.5	5	3	3	3.6	43
111723038008	11	10.5	5	3	3	1.2	53
111723038009	10.5	12	5	3	3	3.2	58
111723038010	9	12.5	5	3	3	3.6	56
111723038011	8.25	9.5	5	3	3	3.2	38
111723038012	9.5	10.25	5	3	3	2	48
111723038013	7	11.25	5	3	3	3.2	52
111723038014	10.25	12.25	5	3	3	3.2	58
111723038015	12.5	12.5	5	3	3	2	56
111723038016	10.25	11.5	5	3	3	4	46
111723038017	10.25	11.5	5	3	3	3.2	51
111723038018	10.75	11.25	5	3	3	3.2	58
111723038019	10.25	12.25	5	3	3	3.2	56
111723038020	11	11.5	5	3	3	4	60

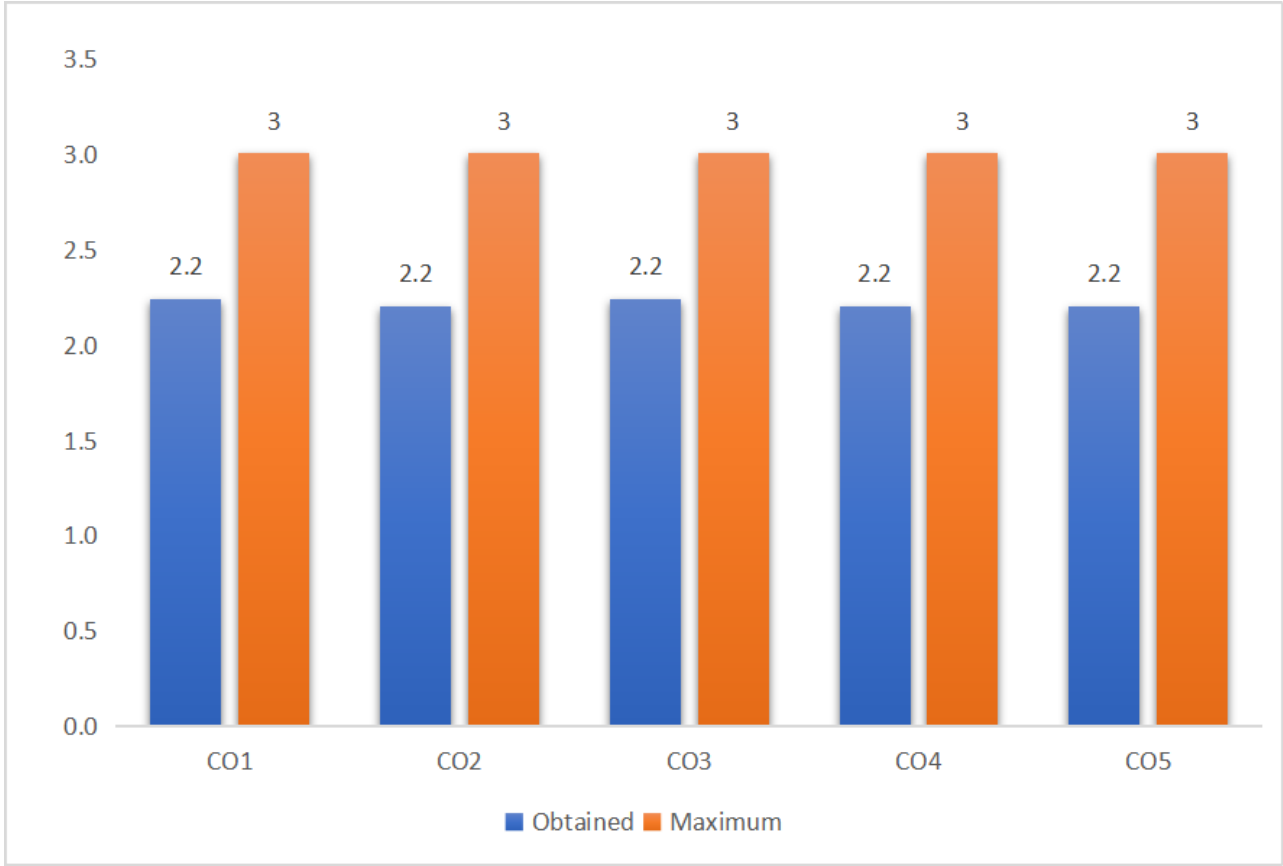
111723038021	10.75	11.75	5	3	3	4	56
111723038022	10	10.5	5	3	3	4	43
111723038023	10	11.75	5	3	3	3.2	44
111723038024	11	10.5	5	3	3	1.2	52
111723038025	6.75	9	5	3	3	1.2	56
111723038026	0.5	6.25	5	3	3	0	37
111723038027	6.25	7.75	5	3	3	3.6	38
111723038028	8.75	0	5	3	3	0.4	43
111723038029	10.25	10.5	5	3	3	2.4	43
111723038030	7.75	9.25	5	3	3	2.4	48
111723038031	8	7.75	5	3	3	3.6	48
111723038032	8.25	7.5	5	3	3	0.4	48
111723038033	7.5	7.5	5	3	3	0	27
111723038034	7.75	8.25	5	3	3	3.2	34
111723038035	10.25	10.75	5	3	3	0	45
111723038036	8.5	11.25	5	3	3	1.2	53
111723038037	9.25	11	5	3	3	3.6	47
111723038038	8.25	8	5	3	3	2.4	38
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111723038041	9	10.5	5	3	3	3.6	45
111723038042	7.25	12.25	5	3	3	3.6	56
111723038043	7.75	7.75	5	3	3	0	39
111723038044	3.25	7.5	5	3	3	1.6	33
111723038045	5	7.25	5	3	3	0.4	38

111723038046	1.5	5	5	3	3	0	44
111723038047	6.25	9	5	3	3	3.6	43
111723038048	8.5	12	5	3	3	1.6	53
111723038049	8	9	5	3	3	1.6	54
111723038050	11	12.25	5	3	3	3.2	53

## CO Mapping:

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	94.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	74.0	1.0	2.6	80.0	2.0	2.0	2.2
CO2	94.0	3.0			100.0	3.0			100.0	3.0	74.0	1.0	2.5	80.0	2.0	2.0	2.2
CO3	94.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.6	80.0	2.0	2.0	2.2
CO4			98.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.5	80.0	2.0	2.0	2.2
CO5			98.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.5	80.0	2.0	2.0	2.2

AVERAGE	AVERAGE
2	2.216



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.24		H 2.24					
CO2	H 2.2		H 2.2	H 2.2			H 2.2	
CO3	H 2.24		H 2.24	H 2.24	H 2.24		H 2.24	
CO4	H 2.2		H 2.2	H 2.2			H 2.2	
CO5	H 2.2		H 2.2	H 2.2				H 2.2
AVERAGE OF COS FOR POS	2.216		2.216	2.21	2.24		2.213333333	2.2
AVERAGE OF POS	2.2112		2.2112	2.21	2.24		2.213333333	2.2
<b>AVERAGE</b>	2.214288889							

## GENERAL ENGLISH - I

**COURSE TITLE: GENERAL ENGLISH - I**  
**COURSE CODE: EN23101**  
**CREDITS: 3**

**DEPARTMENT: Computer Science and Artificial Intelligence.**

**PROGRAMME OUTCOMES(BSC):**

### **Programme Outcomes – (B.ScComputer Science and Artificial Intelligence)**

- **PO1. Scientific Knowledge.** Apply the knowledge of Science, Mathematics, Engineering & Technology fundamentals to solve the complex problems.
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PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	To <b>distinguish</b> between words which are either spelt or pronounced alike, yet render distinct meanings; imparting a sound clarity on everyday usage of language and for developing the art of parallel listening and writing.	(Distinguish)
<b>CO2</b>	To <b>construct</b> vocabulary and to gain understanding on the tense component, a pivotal constituent for language structuring and vocabulary building.	(Construct)
<b>CO3</b>	To <b>identify</b> with economical word constructions, paying specific attention in constructing sound writing skills.	(Identify)
<b>CO4</b>	To <b>interpret</b> functional grammar, the basic part involved in sentence constructing to improve linguistic skills.	(Interpret)
<b>CO5</b>	To <b>develop</b> communication skills to provide a platform for language efficiency for effective language delivery.	(Develop)

**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

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## Marks List :

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111723038003	8.5	10	5	3	3	4	45
111723038004	8.5	7.5	5	3	3	1.6	42
111723038005	7	9.5	5	3	3	4	43
111723038006	5	5.5	5	3	3	3.2	38
111723038007	7	10	5	3	3	3.6	43
111723038008	9.5	8.75	5	3	3	1.2	46
111723038009	7.5	8.5	5	3	3	2.8	45
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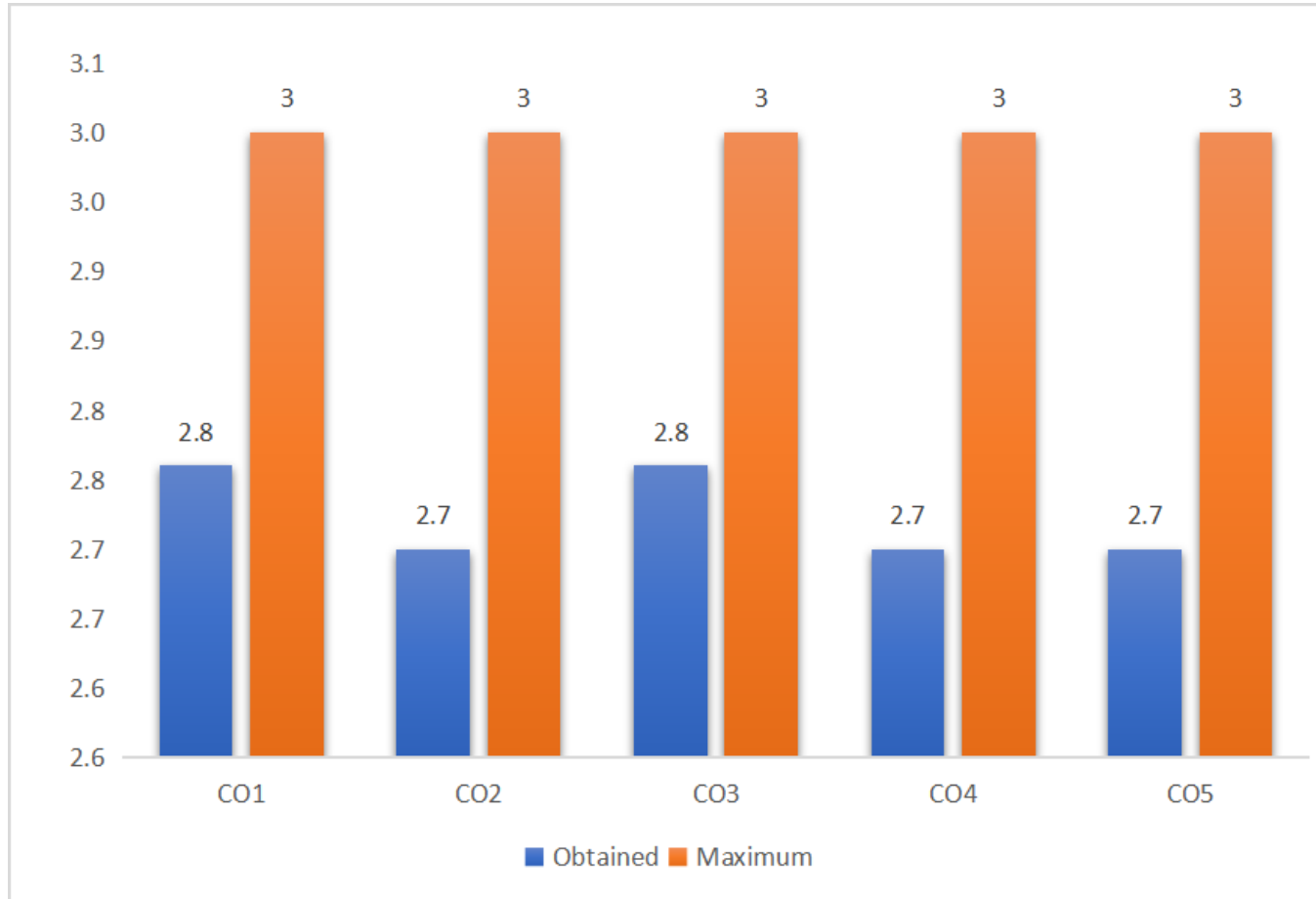
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111723038024	7.75	7	5	3	3	0.4	42
111723038025	7	5	5	3	3	0.8	44
111723038026	7.5	5	1	3	3	0	41
111723038027	7.5	6.75	5	3	3	3.6	36
111723038028	10.25	7.5	5	3	3	1.2	40
111723038029	9.25	8	5	3	3	3.2	45
111723038030	7.75	5.75	1	3	3	0.8	44
111723038031	7.5	6.5	5	3	3	1.6	43
111723038032	6	10	5	3	3	1.2	43
111723038033	5.75	3.75	5	3	3	0	40
111723038034	7	6.25	5	3	3	1.6	40
111723038035	7.25	6.75	5	3	3	0	44
111723038036	8	6	5	3	3	1.2	43
111723038037	6.75	7.5	5	3	3	3.6	42
111723038038	5.5	5.75	5	3	3	1.2	33
111723038039	10	8.25	1	3	3	0	43
111723038040	5	3	5	3	3	1.2	33
111723038041	7.25	6.75	5	3	3	2.4	47
111723038042	8.25	8.5	5	3	3	2	44
111723038043	8	7	1	3	3	0	46
111723038044	6.75	5.5	5	3	3	0	36

111723038045	6.75	5	5	3	3	1.2	44
111723038046	6.5	3.5	5	3	3	0.8	40
111723038047	6	5	5	3	3	0.8	45
111723038048	9.5	8	5	3	3	2.4	45
111723038049	6.5	6.25	5	3	3	1.6	40
111723038050	8.25	8.75	5	3	3	3.6	42

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	100.0	3.0			92.0	3.0	100.0	3.0	100.0	3.0	64.0	0.0	2.4	90.0	3.0	3.0	2.8
CO2	100.0	3.0			92.0	3.0			100.0	3.0	64.0	0.0	2.3	90.0	3.0	3.0	2.7
CO3	100.0	3.0	94.0	3.0	92.0	3.0			100.0	3.0	64.0	0.0	2.4	90.0	3.0	3.0	2.8
CO4			94.0	3.0	92.0	3.0			100.0	3.0	64.0	0.0	2.3	90.0	3.0	3.0	2.7
CO5			94.0	3.0	92.0	3.0			100.0	3.0	64.0	0.0	2.3	90.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7		H 2.7	H 2.7			H 2.7	
CO3	H 2.76		H 2.76	H 2.76	H 2.76		H 2.76	
CO4	H 2.7		H 2.7	H 2.7			H 2.7	
CO5	H 2.7		H 2.7	H 2.7				H 2.7
AVERAGE OF COS FOR POS	2.724		2.724	2.715	2.76		2.72	2.7
AVERAGE OF POS	2.7168		2.7168	2.715	2.76		2.72	2.7
AVERAGE	2.721433333							

## Fundamentals of IoT & Robotics

**COURSE TITLE: FUNDAMENTALS OF IoT AND ROBOTICS**

**COURSE CODE: CSAI21102**

**CREDITS: 4**

**DEPARTMENT: Computer Science & Artificial Intelligence.**

**PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

### **Programme Outcomes – (B.Sc.Computer Science & Artificial Intelligence.)**

- **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:** Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Students will be <b>Understand</b> fundamentals of IoT.	(Understand)
<b>CO2</b>	Students will be able to <b>classify</b> and familiarized with broad range of topics in robotics with emphasis on basics of manipulators, coordinate transformation and kinematics.	(Classify)
<b>CO3</b>	Students will be able <b>understand</b> the concepts of actuators and their implementation.	(Understand)
<b>CO4</b>	Students will be able to learn types of sensors and they can <b>apply</b> in real-time.	III (Apply)
<b>CO5</b>	Students will be able to <b>demonstrate</b> with trajectory planning and Robotic control techniques.	(Demonstrate)



**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

## Marks List :

uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	12	12.25	5	3	3	4	42
111723038002	7	6.5	5	3	3	3.6	31
111723038003	11.5	12.25	5	3	3	4	33
111723038004	7	8.25	5	3	3	0	30
111723038005	10.75	9	5	3	3	4	43
111723038006	7.5	5.5	5	3	3	0	28
111723038007	11.5	10.5	5	3	3	3.6	35
111723038008	10.5	7.5	5	3	3	2.4	28
111723038009	11.5	11.25	5	3	3	2.8	29
111723038010	12	11.5	5	3	3	3.2	35
111723038011	10.75	8	5	3	3	3.2	23
111723038012	8	8.25	5	3	3	0	ABSENT
111723038013	8.25	8.5	5	3	3	1.6	32
111723038014	10.75	11	5	3	3	2	37
111723038015	12	12.25	5	3	3	2.4	40
111723038016	10.5	10.75	5	3	3	4	34
111723038017	9.75	7.75	5	3	3	3.6	37
111723038018	10	9.5	5	3	3	2.8	35
111723038019	10.5	10.5	5	3	3	2.4	35
111723038020	12	11.75	5	3	3	4	40

111723038021	9	11.5	5	3	3	4	41
111723038022	10	8.5	5	3	3	4	32
111723038023	8.75	10.75	5	3	3	1.2	28
111723038024	8.75	8.5	5	3	3	1.2	24
111723038025	7.75	6.25	5	3	3	2.8	28
111723038026	2	1.25	5	3	3	0	28
111723038027	7.5	9.75	5	3	3	4	23
111723038028	8.25	6.25	5	3	3	1.2	26
111723038029	11.5	10	5	3	3	2.8	27
111723038030	9.25	7.75	5	3	3	1.2	22
111723038031	6.25	9	5	3	3	2	33
111723038032	10	9.75	5	3	3	0.4	33
111723038033	8	5.25	5	3	3	0	30
111723038034	6.75	8.75	5	3	3	2	31
111723038035	6.25	9.75	5	3	3	0	28
111723038036	10	11	5	3	3	0	34
111723038037	9.75	9.5	5	3	3	4	38
111723038038	5.5	8.5	5	3	3	3.2	32
111723038039	4.5	6.5	5	3	3	0	22
111723038040	1.25	3.25	5	3	3	0	14
111723038041	11.25	8.5	5	3	3	4	40
111723038042	2.25	7.75	5	3	3	1.2	37
111723038043	6.75	5.5	5	3	3	0	30
111723038044	7	7.5	5	3	3	0	26
111723038045	8	5.75	5	3	3	0.8	22

111723038046	4.75	0.5	5	3	3	0	30
111723038047	5	8	5	3	3	0	27
111723038048	12.25	12.25	5	3	3	2.4	38
111723038049	7.5	8.25	5	3	3	1.2	28
111723038050	10	11.25	5	3	3	3.6	38

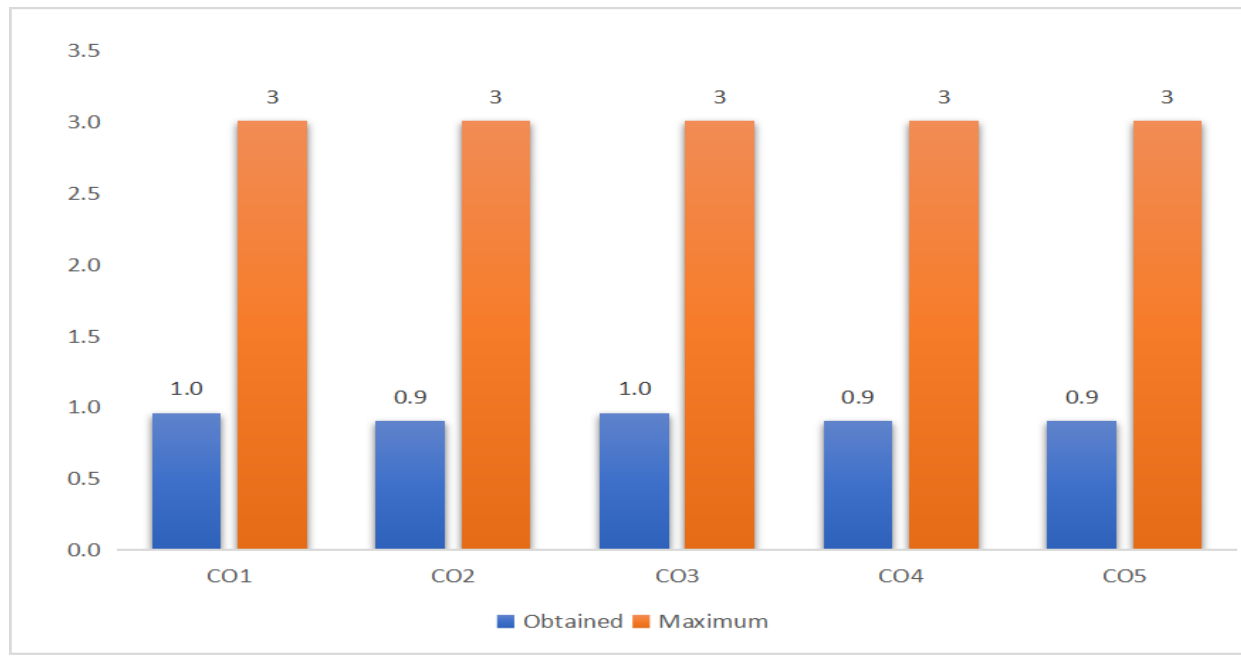


## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	90.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	58.0	0.0	2.4	12.0	0.0	0.0	1.0
CO2	90.0	3.0			100.0	3.0			100.0	3.0	58.0	0.0	2.3	12.0	0.0	0.0	0.9
CO3	90.0	3.0	94.0	3.0	100.0	3.0			100.0	3.0	58.0	0.0	2.4	12.0	0.0	0.0	1.0
CO4			94.0	3.0	100.0	3.0			100.0	3.0	58.0	0.0	2.3	12.0	0.0	0.0	0.9
CO5			94.0	3.0	100.0	3.0			100.0	3.0	58.0	0.0	2.3	12.0	0.0	0.0	0.9

AVERAGE	AVERAGE
0	0.924





### PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.924		0.924	0.915	0.96		0.92	0.9
AVERAGE OF POS	0.9168		0.9168	0.915	0.96		0.92	0.9
AVERAGE	0.921433333							

## Mathematics For AI

**COURSE TITLE: MATHEMATICS FOR AI**

**COURSE CODE: CSAI21103**

**CREDITS: 4**

**DEPARTMENT: Computer Science and Artificial Intelligence.**

**PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

### Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Construct</b> simple mathematical proofs and possess the ability to verify them.	II (Construct)
<b>CO2</b>	<b>Apply</b> basic counting techniques to solve combinatorial problems.	VI (Apply)
<b>CO3</b>	<b>Solve</b> problems using recurrence relations and recursion to analyze algorithms and programs such as finding Fibonacci numbers and Tower of Hanoi problems.	VI (Solve)
<b>CO4</b>	<b>Understand</b> to find the rank of a matrix and to solve systems of linear equations applying matrix techniques.	III (Understand)
<b>CO5</b>	<b>Determine</b> eigen values and eigenvectors.	VI (Determine)

**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

## Marks List :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	12.25	12.5	5	3	3	3.2	42
111723038002	8.25	10.5	5	3	3	2.8	32
111723038003	12	12.5	5	3	3	4	34
111723038004	10	5.75	5	3	3	0.8	24
111723038005	12.25	12.5	5	3	3	4	42
111723038006	6.75	8.5	5	3	3	2	28
111723038007	12.25	12	5	3	3	3.6	28
111723038008	6.25	6.25	5	3	3	3.2	32
111723038009	10.75	10.75	5	3	3	3.2	38
111723038010	11.5	12	5	3	3	3.6	47
111723038011	11	8.75	5	3	3	2.8	31
111723038012	9.75	6.25	5	3	3	0.4	30
111723038013	9.5	12.25	5	3	3	2.8	33
111723038014	11.25	9.5	5	3	3	2	41
111723038015	12.5	12	5	3	3	2.8	40
111723038016	11.5	12.25	5	3	3	3.6	37
111723038017	9.75	10.5	5	3	3	3.6	26
111723038018	12	11.25	5	3	3	3.2	38
111723038019	12.25	10	5	3	3	2.4	27
111723038020	12.5	12.5	5	3	3	4	43
111723038021	12.25	12.5	5	3	3	3.2	40

111723038022	12.5	12.5	5	3	3	4	45
111723038023	12.5	12.5	5	3	3	2.4	37
111723038024	11	10.75	5	3	3	2.4	32
111723038025	5.5	7.75	5	3	3	2.8	27
111723038026	0.5	5	5	2	3	0.8	26
111723038027	11.25	9	5	3	3	4	28
111723038028	9.75	7.5	5	3	2	1.6	27
111723038029	11	11.5	5	3	3	3.6	36
111723038030	10.25	5.5	5	3	3	1.6	27
111723038031	12.25	10	5	3	3	2.4	36
111723038032	10	10	5	3	3	1.6	44
111723038033	9.25	6	5	2	3	0.4	20
111723038034	12.25	9.5	5	3	3	3.2	26
111723038035	11.5	6	5	2	2	0	33
111723038036	11.5	8.25	5	3	3	1.6	34
111723038037	12.25	11.75	5	3	3	4	31
111723038038	7.75	5	5	3	3	3.6	27
111723038039	8	5.75	5	3	3	0.4	32
111723038040	3.75	5	5	3	2	2.8	21
111723038041	7.75	9	5	3	3	4	30
111723038042	6	6	5	3	3	2.8	27
111723038043	7.75	6	5	3	3	0	36
111723038044	2.75	3.75	5	3	2	0	24
111723038045	5.5	5	5	3	3	1.6	26
111723038046	6	5	5	3	2	0	24

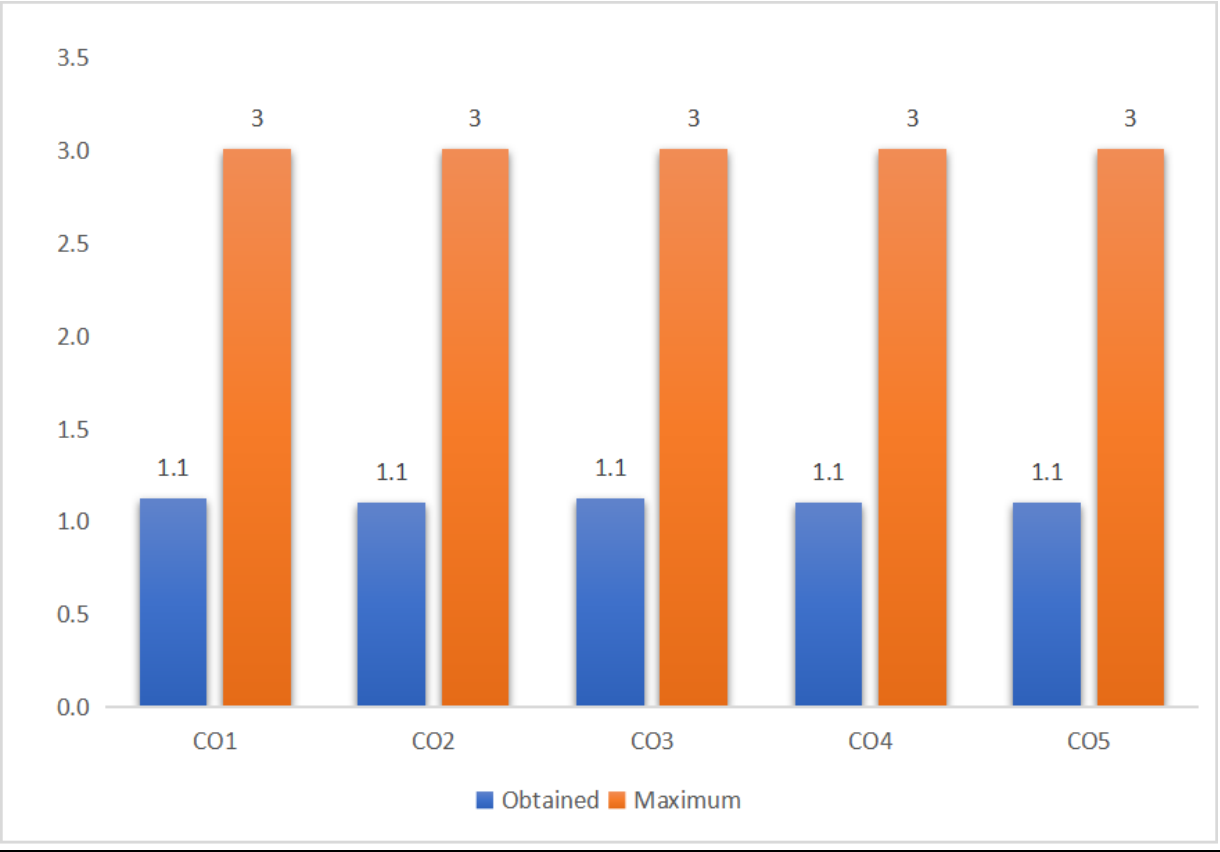
111723038047	8.5	10.75	5	3	3	2	27
111723038048	9.75	11	5	3	3	2.4	32
111723038049	11.5	9.75	5	3	3	1.6	32
111723038050	12.5	12	5	3	3	2.8	53



## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	94.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	82.0	2.0	2.8	20.0	0.0	0.0	1.1
CO2	94.0	3.0			100.0	3.0			100.0	3.0	82.0	2.0	2.8	20.0	0.0	0.0	1.1
CO3	94.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	20.0	0.0	0.0	1.1
CO4			98.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	20.0	0.0	0.0	1.1
CO5			98.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	20.0	0.0	0.0	1.1

AVERAGE	AVERAGE
0	1.108





**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.12		H 1.12					
CO2	H 1.1		H 1.1	H 1.1			H 1.1	
CO3	H 1.12		H 1.12	H 1.12	H 1.12		H 1.12	
CO4	H 1.1		H 1.1	H 1.1			H 1.1	
CO5	H 1.1		H 1.1	H 1.1				H 1.1
AVERAGE OF COS FOR POS	1.108		1.108	1.105	1.12		1.106666667	1.1
AVERAGE OF POS	1.1056		1.1056	1.105	1.12		1.106666667	1.1
AVERAGE	1.107144444							

## Computer Fundamentals

**COURSE TITLE: COMPUTER FUNDAMENTALS**  
**COURSE CODE: CSAI21101**  
**CREDITS: 4**

**DEPARTMENT: Computer Science and Artificial Intelligence.**

**PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Understand</b> various I/O devices and functionality of computer.	II (Understand)
<b>CO2</b>	<b>Understand</b> types of memory and software.	II (Understand)
<b>CO3</b>	<b>Solve</b> arithmetic operations using different types of number systems.	VI (Solve)
<b>CO4</b>	<b>Distinguish</b> different types of networks, networking devices and topologies.	III (Distinguish)
<b>CO5</b>	<b>Explain</b> various IP addressing mechanisms.	VI (Explain)

**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

## Marks List :

uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	12.5	12.5	5	3	3	4	43
111723038002	10.25	11.75	5	3	3	3.6	36
111723038003	12.5	12.5	5	3	3	4	47
111723038004	12.25	12.25	5	3	3	2	38
111723038005	12.5	12.5	5	3	3	4	50
111723038006	12.25	12.5	5	3	3	2.4	41
111723038007	12.25	12.5	5	3	3	4	37
111723038008	12.5	12	5	3	3	2.8	33
111723038009	12.5	12.5	5	3	3	3.6	48
111723038010	12.5	12.5	5	3	3	3.2	48
111723038011	12.5	12.5	5	3	3	3.2	32
111723038012	12.5	11	5	3	3	2.4	34
111723038013	12	12.5	5	3	3	2.8	46
111723038014	12.5	12.5	5	3	3	1.6	42
111723038015	12.5	12.5	5	3	3	3.6	52
111723038016	12.5	12.5	5	3	3	3.6	40
111723038017	11.5	12.5	5	3	3	4	41
111723038018	12.5	12	5	3	3	3.6	47
111723038019	12.25	12.25	5	3	3	2.4	49
111723038020	12.5	12.5	5	3	3	4	57

111723038021	12.5	12.5	5	3	3	4	41
111723038022	12.5	12.5	5	3	3	4	38
111723038023	11.5	12.5	5	3	3	4	42
111723038024	12.25	12.5	5	3	3	3.2	32
111723038025	11	11.5	5	3	3	2.4	43
111723038026	8.5	11.25	5	3	3	2.8	25
111723038027	10.5	11.5	5	3	3	4	28
111723038028	11	12	5	3	3	2.4	23
111723038029	12.5	12.5	5	3	3	3.6	36
111723038030	11	12	5	3	3	3.2	39
111723038031	12.5	12	5	3	3	4	39
111723038032	11.5	12.5	5	3	3	2.4	35
111723038033	11.5	10.75	5	3	3	3.2	37
111723038034	12.25	12.25	5	3	3	3.2	37
111723038035	10.5	11.75	5	3	3	1.6	34
111723038036	12.25	12.5	5	3	3	0	49
111723038037	12.5	12.25	5	3	3	3.2	45
111723038038	11	11.25	5	3	3	3.2	30
111723038039	0	9	5	3	3	2.4	30
111723038040	10.5	7.5	5	3	3	3.2	27
111723038041	12.25	11.25	5	3	3	3.6	47
111723038042	10	12	5	3	3	3.2	43
111723038043	11	12.5	5	3	3	2.4	43
111723038044	9.5	7.5	5	3	3	1.6	32
111723038045	10.5	7.75	5	3	3	1.2	32

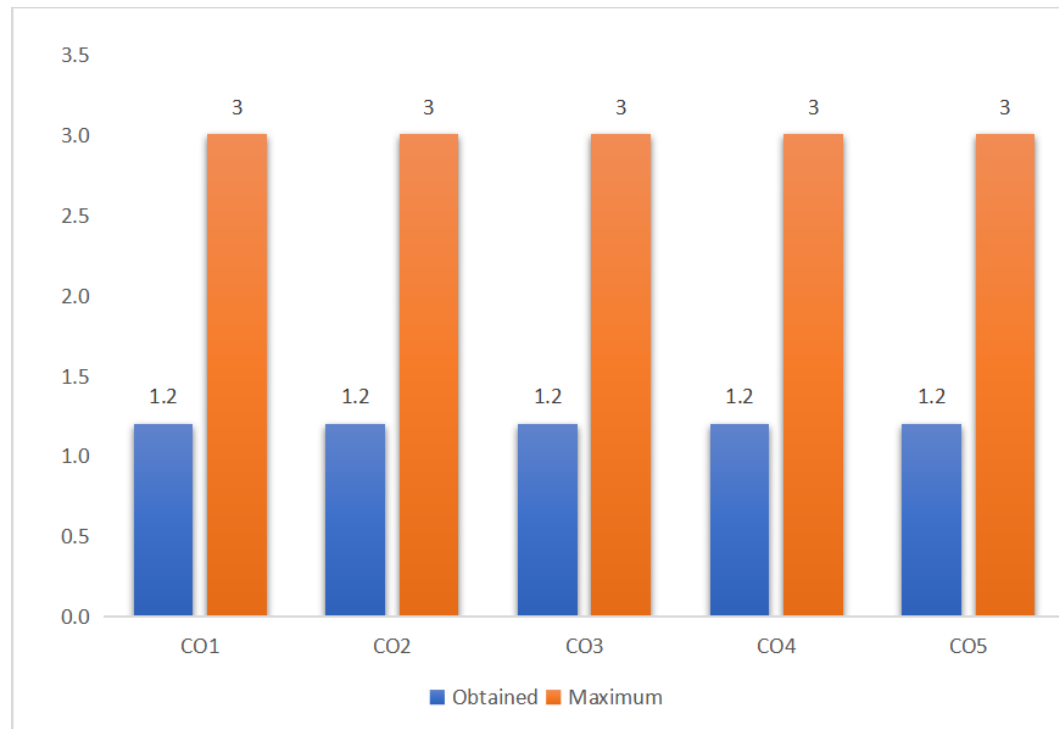
111723038046	8.75	10	5	3	3	2.4	37
111723038047	12.25	12.5	5	3	3	2.8	34
111723038048	12.5	12.5	5	3	3	2.8	40
111723038049	11.75	12	5	3	3	2	26
111723038050	12.5	12.25	5	3	3	3.2	48



## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	98.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	96.0	3.0	3.0	48.0	0.0	0.0	1.2
CO2	98.0	3.0			100.0	3.0			100.0	3.0	96.0	3.0	3.0	48.0	0.0	0.0	1.2
CO3	98.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	96.0	3.0	3.0	48.0	0.0	0.0	1.2
CO4			100.0	3.0	100.0	3.0			100.0	3.0	96.0	3.0	3.0	48.0	0.0	0.0	1.2
CO5			100.0	3.0	100.0	3.0			100.0	3.0	96.0	3.0	3.0	48.0	0.0	0.0	1.2

AVERAGE	AVERAGE
0	1.2





## PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.2		H 1.2					
CO2	H 1.2		H 1.2	H 1.2			H 1.2	
CO3	H 1.2		H 1.2	H 1.2	H 1.2		H 1.2	
CO4	H 1.2		H 1.2	H 1.2			H 1.2	
CO5	H 1.2		H 1.2	H 1.2				H 1.2
AVERAGE OF COS FOR POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE OF POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE	1.2							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **ARTIFICIAL INTELLIGENCE (CSAI22304)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
CO1	<b>Explain</b> types and AI applications.	II (Explain)
CO2	<b>Apply</b> search algorithms to solve AI problems	III (Apply)
CO3	<b>Infer</b> first order logic to represent knowledge	II (Infer)
CO4	<b>Explain</b> varicus reasoning in AI	II (Explain)
CO5	<b>Develop</b> AI problems using prolog.	III(Develop)

**CO'S PO'S 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

**MARKS LIST :**

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	11	10.5	5	3	3	2.4	50
111722038002	11.25	10.5	5	3	3	3.2	48
111722038003	10.25	10.75	5	3	3	2.8	45
111722038004	7.25	10.25	5	3	3	3.2	42
111722038005	9.25	9.5	5	3	3	2.8	41
111722038006	11.5	9.25	5	3	3	0.8	49
111722038007	8	6.5	5	3	3	0	0
111722038008	11.5	12	5	3	3	3.2	46
111722038009	12.5	11	5	3	3	0.8	40
111722038010	9.75	9.5	5	3	3	1.6	42
111722038011	11	10	5	3	3	2.8	43
111722038012	12.25	11.75	5	3	3	3.2	44
111722038013	4.5	5	4	3	3	0	32
111722038014	5.5	7.5	4	3	3	0.4	42
111722038015	6	5.75	4	3	3	0.8	34
111722038016	11.25	11.25	5	3	3	1.6	51
111722038017	5.5	6	4	3	3	0.4	34
111722038018	5.25	5	4	3	3	0.4	43
111722038019	10.5	8	5	3	3	0	45
111722038020	9.75	8	4	3	3	0.4	42

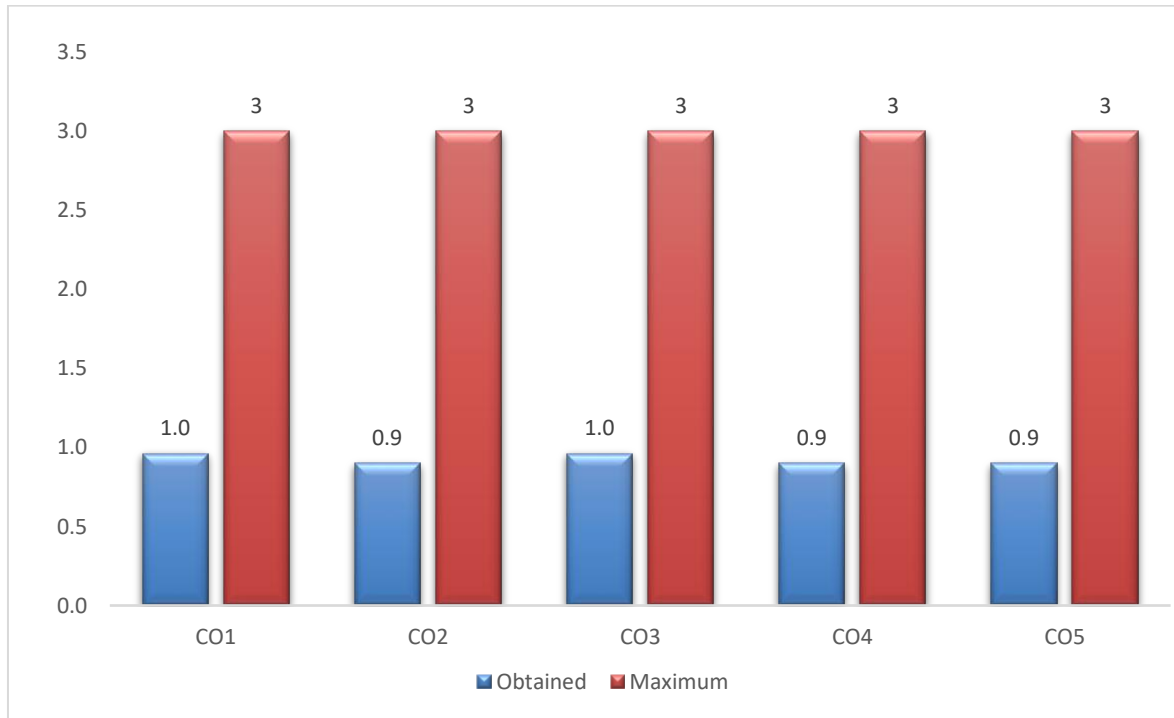
111722038021	6.75	5.25	4	3	3	0	43
111722038022	11.75	11.25	5	3	3	2.4	49
111722038023	9.25	8.25	4	3	3	0	42
111722038024	8	10	4	3	3	0.4	36
111722038025	6.5	7.75	4	3	3	1.6	45
111722038026	10	10	4	3	3	1.2	44
111722038027	9.5	7.5	5	3	3	3.2	37
111722038028	5.75	5.25	4	3	3	0	31
111722038029	4.5	5	4	3	3	0	31
111722038030	10	7	4	3	3	0	42
111722038031	6.5	7.5	4	3	3	0	42
111722038032	8.25	8.25	4	3	3	2	47
111722038033	4	4.5	4	3	3	0	31
111722038034	10.25	7.25	4	3	3	2.4	39
111722038035	12	10.5	5	3	3	0.4	41
111722038036	10.25	7.5	4	3	3	0.8	33
111722038037	6.75	8.75	4	3	3	0	42
111722038038	12.5	11	4	3	3	0	34
111722038039	7.25	8.5	4	3	3	1.6	34
111722038041	7.5	5	4	3	3	0	27
111722038042	8.25	10	5	3	3	0	44
111722038043	4.75	7.25	4	3	3	1.2	35
111722038044	5	7	4	3	3	2.4	45
111722038045	5.25	7.5	4	3	3	1.6	42
111722038046	7.25	7.5	4	3	3	3.2	41

<b>111722038047</b>	8.75	10.25	4	3	3	0	45
<b>111722038048</b>	5.5	7	4	3	3	0	26
<b>111722038049</b>	7.5	7.75	4	3	3	0	36
<b>111722038050</b>	4.5	5	4	3	3	2.8	27

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise i aver
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	
CO1	89.8	3.0			100.0	3.0	100.0	3.0	100.0	3.0	40.8	0.0	2.4
CO2	89.8	3.0			100.0	3.0			100.0	3.0	40.8	0.0	2.4
CO3	89.8	3.0	98.0	3.0	100.0	3.0			100.0	3.0	40.8	0.0	2.4
CO4			98.0	3.0	100.0	3.0			100.0	3.0	40.8	0.0	2.4
CO5			98.0	3.0	100.0	3.0			100.0	3.0	40.8	0.0	2.4

AVERAGE	AVERAGE
0	0.924



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.924		0.924	0.915	0.96		0.92	0.9
AVERAGE OF POS	0.9168		0.9168	0.915	0.96		0.92	0.9
AVERAGE	0.921433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DATABASE MANAGEMENT SYSTEMS (CSAI22302)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

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

**CO's PO's 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

**MARKS LIST :**

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	11.5	11.25	5	3	3	3.6	48
111722038002	11	11	5	3	3	4	43
111722038003	11.5	10.5	5	3	3	3.6	43
111722038004	10.75	10.75	5	3	3	2	48
111722038005	10.5	10.5	5	3	3	2.4	41
111722038006	11	10.75	5	3	3	0	53
111722038007	11	11	5	3	3	0.8	0
111722038008	10.5	10.75	5	3	3	3.2	43
111722038009	10.75	11	5	3	3	2.8	46
111722038010	10.25	10.25	5	3	3	2.4	39
111722038011	10.5	11	5	3	3	2.8	41
111722038012	10.25	11	5	3	3	4	37
111722038013	8.5	10.5	5	3	3	1.2	33
111722038014	8.75	8.5	5	3	3	2.4	45
111722038015	8.25	11.25	5	3	3	1.2	38
111722038016	11.25	10.75	5	3	3	2.4	55
111722038017	9.75	9	5	3	3	1.6	28
111722038018	7.5	7.25	5	3	3	3.2	30
111722038019	10.25	10.5	5	3	3	1.2	42
111722038020	8.25	10.25	5	3	3	1.6	39

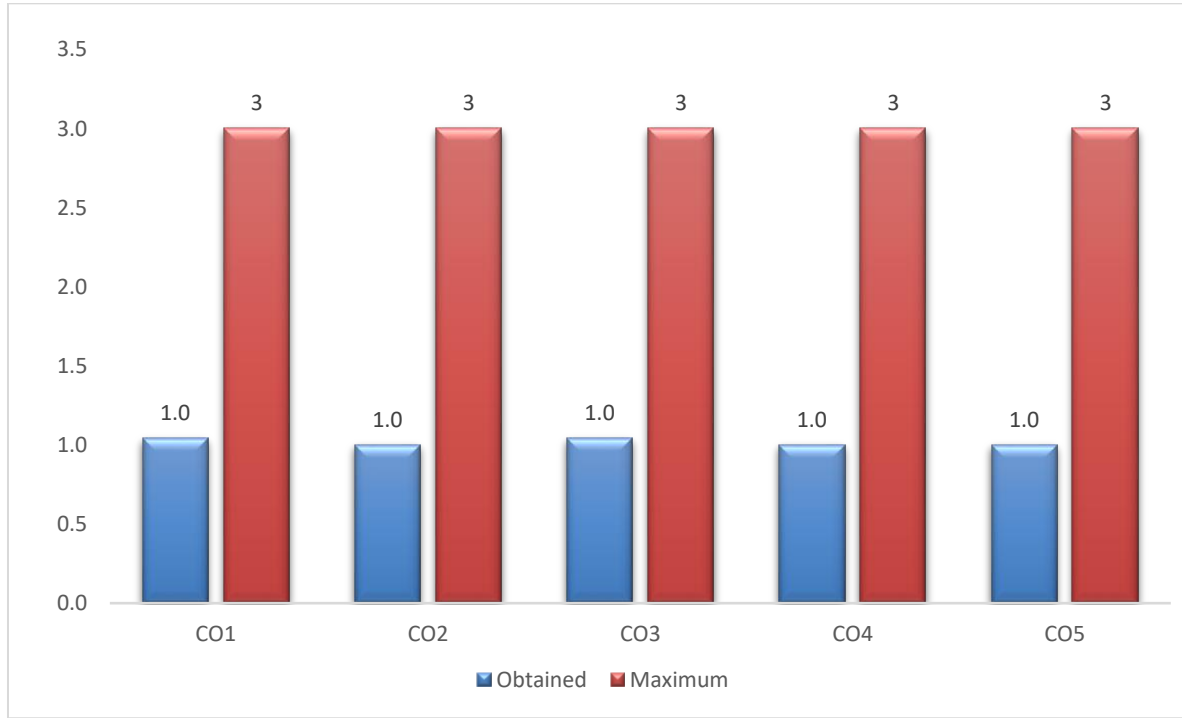
111722038021	7.75	10	5	3	3	2	40
111722038022	11.5	10.75	5	3	3	3.2	50
111722038023	10.25	9.75	5	3	3	1.6	36
111722038024	9	9.75	5	3	3	0	29
111722038025	7	10.25	5	3	3	3.6	37
111722038026	9.5	11.25	5	3	3	1.6	45
111722038027	9	10.25	5	3	3	2.4	42
111722038028	5.75	8.5	5	3	3	0.8	27
111722038029	6	10	5	3	3	2	39
111722038030	9.5	10.75	5	3	3	1.2	43
111722038031	9.5	11.25	5	3	3	0	33
111722038032	9.75	9.5	5	3	3	2.4	34
111722038033	9.75	10	5	3	3	0	34
111722038034	10	10.5	5	3	3	3.2	42
111722038035	7	9.5	5	3	3	2.4	42
111722038036	5	8.5	5	3	3	0.8	38
111722038037	8.5	10.25	5	3	3	3.2	34
111722038038	10.5	10.5	5	3	3	0.8	34
111722038039	10.5	10.75	5	3	3	1.2	30
111722038041	11	10	5	3	3	0.8	37
111722038042	10.5	11.25	5	3	3	2	46
111722038043	10	10.75	5	3	3	1.6	34
111722038044	10	10.25	5	3	3	3.2	43
111722038045	10	11.25	5	3	3	2.4	39
111722038046	8.25	11	5	3	3	2.4	42

<b>111722038047</b>	11	10	5	3	3	1.2	49
<b>111722038048</b>	8	9	5	3	3	1.6	33
<b>111722038049</b>	7.75	10.5	5	3	3	1.2	33
<b>111722038050</b>	9	6	5	3	3	2.8	27

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co ext ave
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	67.3	1.0	2.6	46.9	0.0	0
CO2	100.0	3.0			100.0	3.0			100.0	3.0	67.3	1.0	2.5	46.9	0.0	0
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.6	46.9	0.0	0
CO4			100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.5	46.9	0.0	0
CO5			100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.5	46.9	0.0	0

AVERAGE	AVERAGE
0	1.016



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.04		H 1.04					
CO2	H 1		H 1	H 1			H 1	
CO3	H 1.04		H 1.04	H 1.04	H 1.04		H 1.04	
CO4	H 1		H 1	H 1			H 1	
CO5	H 1		H 1	H 1				H 1
AVERAGE OF COS FOR POS	1.016		1.016	1.01	1.04		1.013333333	1
AVERAGE OF POS	1.0112		1.0112	1.01	1.04		1.013333	1
AVERAGE	1.014288889							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DISTRIBUTED SYSTEMS (CSAI22301)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	To <b>inculcate</b> knowledge on Hardware requirement of distributed systems and communications.	(Inculcate)
<b>CO2</b>	To <b>demonstrate</b> the concepts of naming, synchronization issues and Consistency and replication.	II (Demonstrate)
<b>CO3</b>	To <b>inculcate</b> knowledge on Distributed Object based Systems, replication consistency, fault tolerance	(Inculcate)
<b>CO4</b>	To <b>illustrate</b> the concepts of Distributed File Systems and Distributed Web-based Systems.	III (Illustrate)
<b>CO5</b>	To <b>illustrate</b> the concepts of Distributed Coordination-Based Systems and Map-Reduce	III(Illustrate)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	11.25	11.75	5	3	3	3.2	58
111722038002	11.25	11.5	5	3	3	3.6	50
111722038003	12	12	5	3	3	3.2	54
111722038004	8.75	11.25	4	2	3	2	47
111722038005	11	11.25	5	3	3	1.2	46
111722038006	10.75	10.5	5	2	3	0	56
111722038007	8.75	9.25	5	3	3	0.4	0
111722038008	11	11.75	4	2	3	2	52
111722038009	12	11.75	4	3	3	2.4	53
111722038010	11	10	5	2	3	2.4	48
111722038011	10.75	11.75	4	3	3	2.8	55
111722038012	11	12	5	2	3	4	49
111722038013	7.75	11.25	5	3	3	0.8	44
111722038014	6.25	11.25	5	2	3	3.2	51
111722038015	5	10.25	5	3	3	0.8	45
111722038016	11.75	10.25	5	3	3	1.2	52
111722038017	9.5	6.75	4	3	3	1.2	32
111722038018	7.25	7.5	5	3	3	3.2	30
111722038019	10.75	10	5	2	3	0.4	38
111722038020	10	9.5	4	3	3	1.6	52

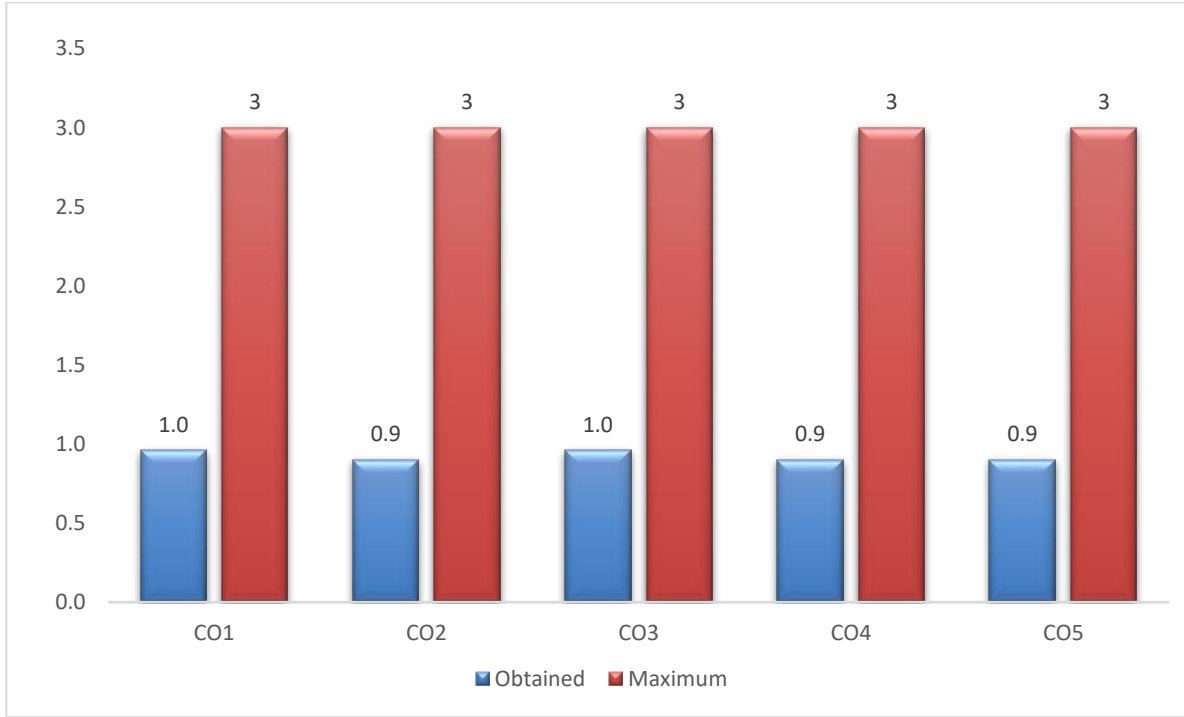
111722038021	7	6.5	5	3	3	0.4	38
111722038022	11	10.5	4	2	3	2	40
111722038023	10	10	5	3	3	2	36
111722038024	8.75	10	5	3	3	0.4	32
111722038025	8.5	7.5	4	3	3	1.6	40
111722038026	10.5	11	5	3	3	1.6	48
111722038027	9.25	7.5	4	3	3	2.8	36
111722038028	6.5	5	5	3	3	0.8	33
111722038029	7.5	6.5	4	3	3	1.6	38
111722038030	10	10	5	3	3	2	52
111722038031	8.5	10.25	4	3	3	1.6	43
111722038032	9.5	8	5	3	3	3.2	40
111722038033	10.25	8.75	5	3	3	0.8	37
111722038034	9.5	11.5	5	3	3	3.6	48
111722038035	9.75	8.75	5	3	3	1.6	54
111722038036	6	4.5	4	3	3	1.2	41
111722038037	7	7.5	5	3	3	2	49
111722038038	9.5	11	4	3	3	0.8	32
111722038039	7.5	10	5	3	3	2.8	35
111722038041	11	10	5	3	3	0.8	37
111722038042	8	9.25	4	3	3	2	56
111722038043	6	8	5	3	3	0.8	32
111722038044	8.25	9.25	5	3	3	2.8	45
111722038045	6.25	11.5	4	3	3	2	47
111722038046	6.25	10	5	3	3	2.4	48

<b>111722038047</b>	10	9	4	3	3	0.4	46
<b>111722038048</b>	6.25	6.75	5	3	3	1.2	31
<b>111722038049</b>	8.75	9.75	4	3	3	0.8	30
<b>111722038050</b>	7	6.75	5	2	3	2.8	17

**CO Mapping :**

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co ext ave
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	61.2	0.0	2.4	63.3	0.0	0
CO2	100.0	3.0			100.0	3.0			100.0	3.0	61.2	0.0	2.3	63.3	0.0	0
CO3	100.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	61.2	0.0	2.4	63.3	0.0	0
CO4			98.0	3.0	100.0	3.0			100.0	3.0	61.2	0.0	2.3	63.3	0.0	0
CO5			98.0	3.0	100.0	3.0			100.0	3.0	61.2	0.0	2.3	63.3	0.0	0

AVERAGE	AVERAGE
0	0.924



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.924		0.924	0.915	0.96		0.92	0.9
AVERAGE OF POS	0.9168		0.9168	0.915	0.96		0.92	0.9
AVERAGE	0.921433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **ENVIRONMENTAL SCIENCE AND GENDER SENSITIZATION(ES18101)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Understand</b> the importance of Environmental education, conservation of natural resources & Understand the importance of ecosystems and biodiversity	II (Understand)
<b>CO2</b>	<b>Understand</b> the pollution problems and Apply the environmental science knowledge on solid waste management, disaster management	II (Understand)
<b>CO3</b>	<b>Apply</b> the environmental science knowledge to Improve the resources and Evaluate and understand the sustainable environmental conditions and control methods	III (Apply)
<b>CO4</b>	<b>Identify</b> the interactions and intersections of identities (e.g.; gender, race, ethnicity, class, sexuality, and so on) and assess the ways in which they contribute to instances of privilege and power dynamics across cultures, space, and time And their problems	I(Identify)
<b>CO5</b>	<b>Understand</b> the gender problems and ways of addressing them, including interactions across local to global scales in communities and overcome inequalities with legislations	II(Understand)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	11.5	11.25	5	3	3	3.6	50
111722038002	11	11	5	3	3	4	43
111722038003	11.5	10.5	5	3	3	3.6	50
111722038004	10.75	10.75	5	3	3	2	49
111722038005	10.5	10.5	5	3	3	2.4	46
111722038006	11	10.75	5	3	3	0	35
111722038007	11	11	5	3	3	0.8	0
111722038008	10.5	10.75	5	3	3	3.2	47
111722038009	10.75	11	5	3	3	2.8	48
111722038010	10.25	10.25	5	3	3	2.4	45
111722038011	10.5	11	5	3	3	2.8	49
111722038012	10.25	11	5	3	3	4	47
111722038013	8.5	10.5	5	3	3	1.2	41
111722038014	8.75	8.5	5	3	3	2.4	44
111722038015	8.25	11.25	5	3	3	1.2	37
111722038016	11.25	10.75	5	3	3	2.4	53
111722038017	9.75	9	5	3	3	1.6	35
111722038018	7.5	7.25	5	3	3	3.2	48
111722038019	10.25	10.5	5	3	3	1.2	36
111722038020	8.25	10.25	5	3	3	1.6	41

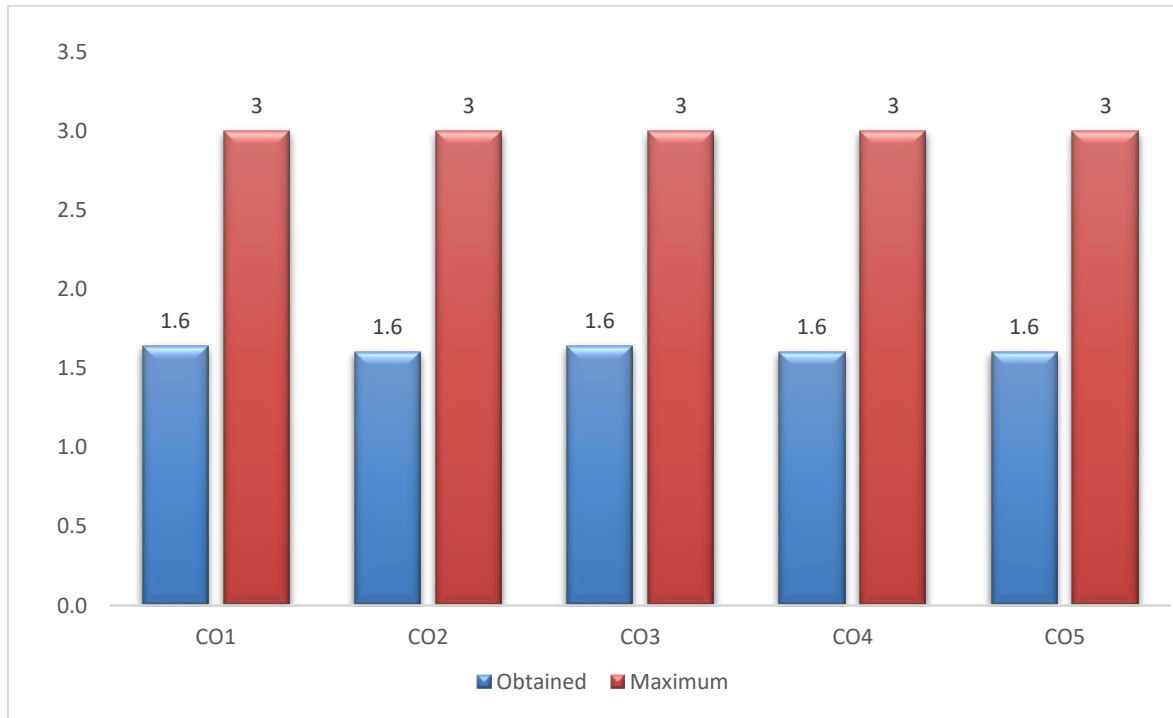
111722038021	7.75	10	5	3	3	2	44
111722038022	11.5	10.75	5	3	3	3.2	55
111722038023	10.25	9.75	5	3	3	1.6	38
111722038024	9	9.75	5	3	3	0	39
111722038025	7	10.25	5	3	3	3.6	38
111722038026	9.5	11.25	5	3	3	1.6	50
111722038027	9	10.25	5	3	3	2.4	41
111722038028	5.75	8.5	5	3	3	0.8	31
111722038029	6	10	5	3	3	2	40
111722038030	9.5	10.75	5	3	3	1.2	46
111722038031	9.5	11.25	5	3	3	0	43
111722038032	9.75	9.5	5	3	3	2.4	42
111722038033	9.75	10	5	3	3	0	32
111722038034	10	10.5	5	3	3	3.2	40
111722038035	7	9.5	5	3	3	2.4	50
111722038036	5	8.5	5	3	3	0.8	38
111722038037	8.5	10.25	5	3	3	3.2	39
111722038038	10.5	10.5	5	3	3	0.8	43
111722038039	10.5	10.75	5	3	3	1.2	41
111722038041	11	10	5	3	3	0.8	44
111722038042	10.5	11.25	5	3	3	2	46
111722038043	10	10.75	5	3	3	1.6	39
111722038044	10	10.25	5	3	3	3.2	43
111722038045	10	11.25	5	3	3	2.4	46
111722038046	8.25	11	5	3	3	2.4	42

<b>111722038047</b>	11	10	5	3	3	1.2	40
<b>111722038048</b>	8	9	5	3	3	1.6	37
<b>111722038049</b>	7.75	10.5	5	3	3	1.2	38
<b>111722038050</b>	9	6	5	3	3	2.8	31

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Ex	
	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	67.3	1.0	2.6	67.3	1.0
CO2	100.0	3.0			100.0	3.0			100.0	3.0	67.3	1.0	2.5	67.3	1.0
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.6	67.3	1.0
CO4			100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.5	67.3	1.0
CO5			100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.5	67.3	1.0

AVERAGE	AVERAGE
1	1.616



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.64		H 1.64					
CO2	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	
CO4	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
AVERAGE OF COS FOR POS	1.616		1.616	1.61	1.64		1.613333333	1.6
AVERAGE OF POS	1.6112		1.6112	1.61	1.64		1.613333	1.6
AVERAGE	1.614288889							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **PYTHON PROGRAMMING (CSAI22303)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Explain</b> the basics of Python Programming constructs.	II (Explain)
<b>CO2</b>	Sub <b>divides</b> larger problems into smaller ones using functions	IV (Divides)
<b>CO3</b>	<b>Apply</b> various data structures problem-solving	III (Apply)
<b>CO4</b>	<b>Construct</b> Python programs as a set of objects.	III (Construct)
<b>CO5</b>	<b>Select</b> an appropriate exception handling depending on application and design file operations and concurrent programming using Python standard library	I(Select)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	10.75	12	5	3	3	3.2	34
111722038002	8	8	5	3	3	2.4	40
111722038003	11.25	11.75	5	3	3	3.2	34
111722038004	8.5	8.75	5	3	3	3.2	31
111722038005	12	9.5	5	3	3	0.8	49
111722038006	10.25	11.25	5	3	3	1.6	45
111722038007	9.5	8.75	5	3	3	2.4	0
111722038008	12	12.25	5	3	3	3.2	45
111722038009	12.5	9.75	5	3	3	1.2	51
111722038010	6.75	10	5	3	3	4	25
111722038011	12	11.25	5	3	3	2	39
111722038012	12.5	12.5	5	3	3	4	51
111722038013	2	7	4	3	3	0.4	28
111722038014	3	8.25	5	3	3	1.2	42
111722038015	4.25	4.5	3	3	3	0	35
111722038016	12	12.5	5	3	3	2.4	60
111722038017	8	6.25	5	3	3	1.6	27
111722038018	8.25	5	5	3	3	1.2	22
111722038019	8	8	5	3	3	1.2	33

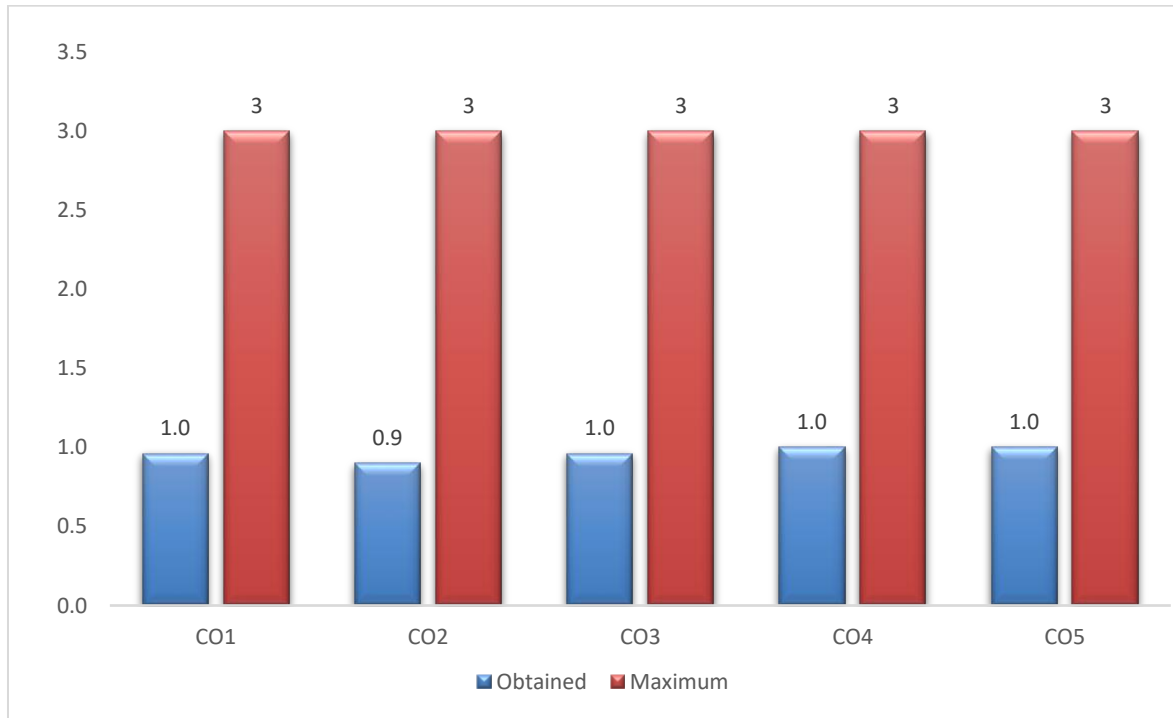
111722038020	5.5	8.5	5	3	3	3.2	30
111722038021	2	2.5	3	3	3	1.2	30
111722038022	12	12.5	5	3	3	3.2	53
111722038023	12.5	11.5	5	3	3	2	54
111722038024	11.75	12.25	5	3	3	0.8	52
111722038025	7	8.25	5	3	3	2.4	25
111722038026	10.5	11	5	3	3	2	40
111722038027	8.75	11	5	3	3	3.2	28
111722038028	2.5	4.5	5	3	3	1.6	25
111722038029	3	6.5	4	3	2	2	32
111722038030	11.25	12	5	3	3	2	40
111722038031	11	9.25	5	3	3	0	33
111722038032	11.75	11.25	5	3	3	4	45
111722038033	6	1	5	3	3	0.4	36
111722038034	7.5	8.5	5	3	3	2	27
111722038035	9.5	10.75	5	3	3	2.8	45
111722038036	11	9.5	5	3	3	1.6	30
111722038037	3.75	10.25	5	3	3	2	24
111722038038	10.25	12.5	5	3	3	0.8	44
111722038039	7.5	10	5	3	3	0.4	27
111722038041	6.25	8.5	5	3	3	0.4	24
111722038042	2.75	3.25	5	3	3	2.4	37
111722038043	5	1	5	3	3	0	28
111722038044	7.25	7.5	5	3	3	3.2	45
111722038045	9.25	9.75	5	3	3	1.6	26

<b>111722038046</b>	6.75	11	3	3	3	2	25
<b>111722038047</b>	11.25	9	5	3	3	1.2	37
<b>111722038048</b>	11.25	7	5	3	3	0.4	23
<b>111722038049</b>	9.75	8.25	5	3	3	1.6	27
<b>111722038050</b>	4.25	2.5	5	3	3	2.8	5

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass %	Attainment level	pass %	Attainment level	pass %	Attainment level	pass %	Attainment level	pass %	Attainment level	pass %	Attainment level		pass %	Attainment level	co wise external average	
CO1	81.6	2.0			100.0	3.0	100.0	3.0	100.0	3.0	65.3	1.0	2.4	34.7	0.0	0.0	1.0
CO2	81.6	2.0			100.0	3.0			100.0	3.0	65.3	1.0	2.3	34.7	0.0	0.0	0.9
CO3	81.6	2.0	85.7	3.0	100.0	3.0			100.0	3.0	65.3	1.0	2.4	34.7	0.0	0.0	1.0
CO4			85.7	3.0	100.0	3.0			100.0	3.0	65.3	1.0	2.5	34.7	0.0	0.0	1.0
CO5			85.7	3.0	100.0	3.0			100.0	3.0	65.3	1.0	2.5	34.7	0.0	0.0	1.0

AVERAGE	AVERAGE
0	0.964



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 1		H 1	H 1			H 1	
CO5	H 1		H 1	H 1				H 1
AVERAGE OF COS FOR POS	0.964		0.964	0.965	0.96		0.953333333	1
AVERAGE OF POS	0.9648		0.9648	0.965	0.96		0.953333333	1
AVERAGE	0.967988889							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **Software Engineering(CSAI23501A)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Explain</b> engineering through various process models.	II (Explain)
<b>CO2</b>	<b>Identify</b> analyze Requirements, Object Oriented and various modeling's.	III (Identify)
<b>CO3</b>	<b>Categorize</b> design and architecture	II (categorize)
<b>CO4</b>	<b>Classify</b> Components, golden rules and design evaluation.	II (classify)
<b>CO5</b>	To <b>understand</b> testing techniques to evaluate quality metrics	III(understand)

**CO'S PO'S 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

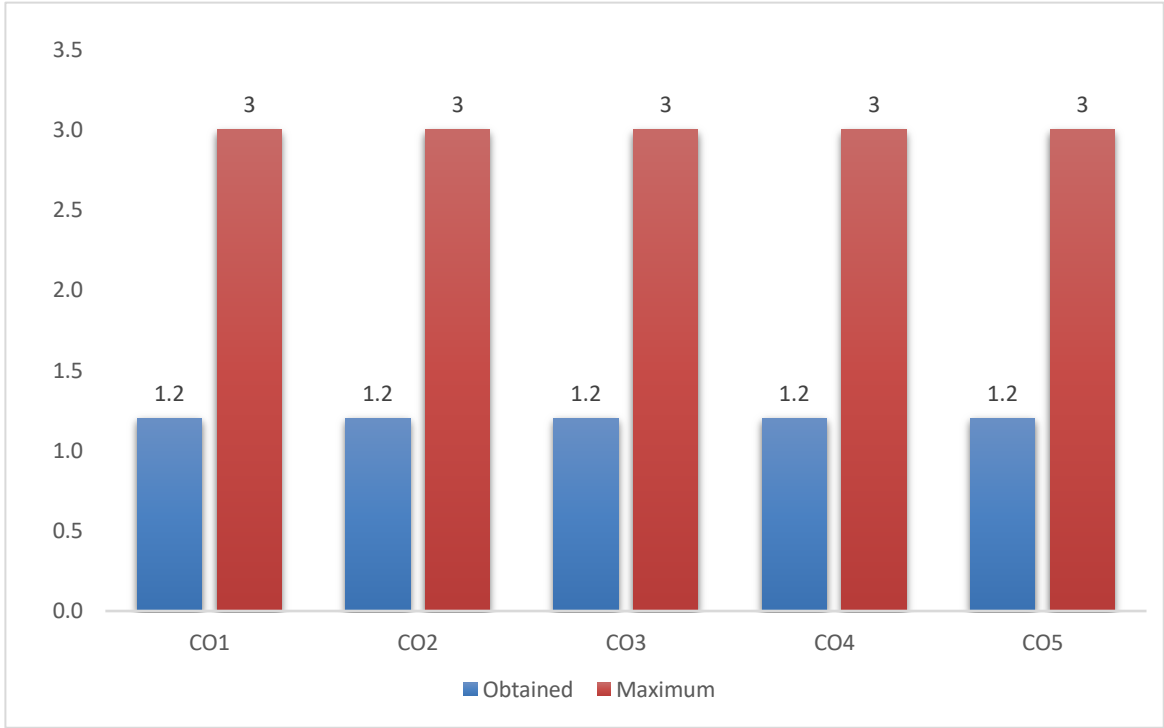
## MARKS LIST :

uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038002	12.25	12.5	5	3	3	4	49
111721038003	12.25	12.5	5	3	3	4	39
111721038005	12.5	12.5	5	3	3	4	51
111721038007	12.5	12.5	5	3	3	3.2	50
111721038008	12.5	12.5	5	3	3	4	51
111721038009	11.75	11.5	5	3	3	4	41
111721038010	11.25	12	5	3	3	4	43
111721038011	10.25	11.25	5	3	3	4	32
111721038014	12.5	10.75	5	3	3	4	41
111721038017	12.25	12.25	5	3	3	4	42
111721038019	11.75	12	5	3	3	4	43
111721038022	10.25	7.5	5	3	3	4	39
111721038024	11	7.5	5	3	3	4	36
111721038025	12.5	12.5	5	3	3	4	51
111721038027	7.5	7.5	5	3	3	2.8	18
111721038032	12	12.5	5	3	3	4	49
111721038033	12.25	12.25	5	3	3	4	36
111721038034	12.25	12.5	5	3	3	4	46
111721038035	12.25	11	5	3	3	4	46
111721038036	9.75	8.75	5	3	3	3.2	45

111721038039	11.5	11.75	5	3	3	4	39
111721038042	9.5	6.25	5	3	3	4	23
111721038043	12.5	12.5	5	3	3	4	49
111721038044	7.5	10.25	5	3	3	4	33

**CO Mapping :**

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass %	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	100.0	3.0	3.0	62.5	0.0	0.0	1.2
CO2	100.0	3.0			100.0	3.0			100.0	3.0	100.0	3.0	3.0	62.5	0.0	0.0	1.2
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	62.5	0.0	0.0	1.2
CO4			100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	62.5	0.0	0.0	1.2
CO5			100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	62.5	0.0	0.0	1.2



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.2		H 1.2					
CO2	H 1.2		H 1.2	H 1.2			H 1.2	
CO3	H 1.2		H 1.2	H 1.2	H 1.2		H 1.2	
CO4	H 1.2		H 1.2	H 1.2			H 1.2	
CO5	H 1.2		H 1.2	H 1.2				H 1.2
AVERAGE OF COS FOR POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE OF POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE	1.2							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **FUZZY LOGIC AND EXPERT SYSTEMS(CSAI23501B)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Identify and describe Fuzzy Logic techniques in building intelligent machines	III (Identify)
<b>CO2</b>	Apply Fuzzy Logic models to handle uncertainty and solve engineering problems.	V (Apply)
<b>CO3</b>	Discuss the architecture of an expert system and its tools.	VI (Discuss)
<b>CO4</b>	Understand the importance of building an expert systems.	II(understand)
<b>CO5</b>	Understand various problems with an expertsystems.	II(understand)

**CO's PO's 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

## **MARKS LIST :**

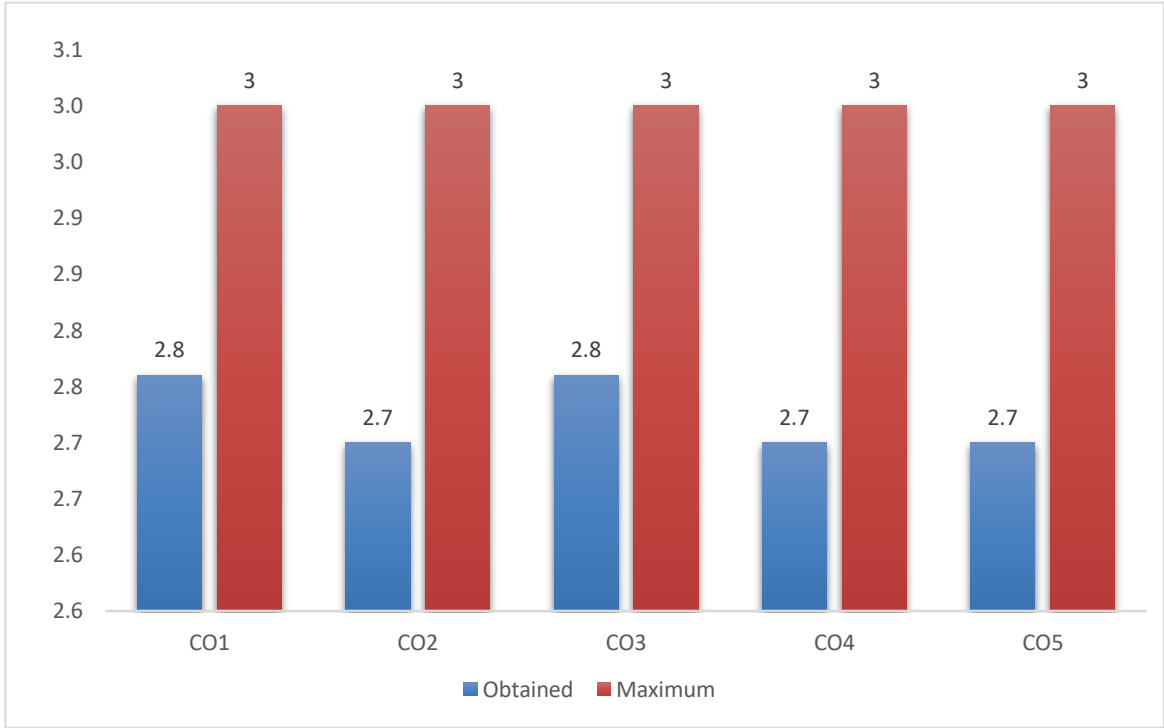
	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12	12.5	5	3	3	2.4	50
111721038004	9.25	8.25	5	3	3	1.6	44
111721038006	10.5	9.5	5	3	2	2.4	52
111721038012	10.5	10.25	5	3	2	1.2	51
111721038013	9.5	9.25	5	3	3	1.6	43
111721038015	10.5	11	5	3	3	2	54
111721038016	0	10.75	5	2	2	0	0
111721038018	9.75	11.75	5	3	2	2.4	51
111721038020	11	10.75	5	3	3	1.6	48
111721038021	11.5	12.5	5	3	3	1.2	53
111721038023	10.5	10.75	5	3	3	1.2	49
111721038026	10	9	5	3	3	2	50
111721038029	10.75	9.5	5	3	3	0	50
111721038030	9.5	8.75	5	3	2	0.8	53
111721038031	9.25	9	5	3	3	1.6	46
111721038037	11.25	11.75	5	3	3	2.8	48
111721038038	8.25	7.5	5	3	2	1.6	31
111721038041	10.75	3.5	5	3	3	0.8	40
111721038045	11.25	11.75	5	3	3	4	51
111721038046	9.75	11.25	5	3	3	2.4	54
111721038047	11.25	11.75	5	3	3	3.6	54

<b>111721038048</b>	8.75	10.75	5	3	3	0	42
<b>111721038049</b>	11.25	11.5	5	3	3	0	55
<b>111721038050</b>	9.75	11	5	3	3	1.2	48

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	95.8	3.0			100.0	3.0	100.0	3.0	100.0	3.0	58.3	0.0	2.4	91.7	3.0	3.0	2.8
CO2	95.8	3.0			100.0	3.0			100.0	3.0	58.3	0.0	2.3	91.7	3.0	3.0	2.7
CO3	95.8	3.0	95.8	3.0	100.0	3.0			100.0	3.0	58.3	0.0	2.4	91.7	3.0	3.0	2.8
CO4			95.8	3.0	100.0	3.0			100.0	3.0	58.3	0.0	2.3	91.7	3.0	3.0	2.7
CO5			95.8	3.0	100.0	3.0			100.0	3.0	58.3	0.0	2.3	91.7	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7		H 2.7	H 2.7			H 2.7	
CO3	H 2.76		H 2.76	H 2.76	H 2.76		H 2.76	
CO4	H 2.7		H 2.7	H 2.7			H 2.7	
CO5	H 2.7		H 2.7	H 2.7				H 2.7
AVERAGE OF COS FOR POS	2.724		2.724	2.715	2.76		2.72	2.7
AVERAGE OF POS	2.7168		2.7168	2.715	2.76		2.72	2.7
AVERAGE	2.721433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DATA ENGINEERING (CSAI23503)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Describe the features added to modern database systems to distinguish them from Standard relational systems.	(Inculcate)
<b>CO2</b>	Understand different algorithms used in the implementation of query evaluation engine	II (Demonstrate)
<b>CO3</b>	Understand the different concurrency control and commit protocols in distributed databases	(Inculcate)
<b>CO4</b>	Demonstrate an understanding of the role and the concepts involved in special purpose databases such as Temporal, Spatial, Mobile and other similar database types	III (Illustrate)
<b>CO5</b>	Design Advanced Application Development	III(Illustrate)

**CO's PO's 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

## MARKS LIST :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12.5	12.5	5	3	3	4	56
111721038002	11.25	12.25	5	3	3	1.6	51
111721038003	11	11.25	5	3	3	1.6	43
111721038004	9.5	8.5	5	3	3	1.6	38
111721038005	11.75	10.5	5	3	3	0.8	58
111721038006	11.75	12.25	5	3	3	2.8	51
111721038007	11.75	11.25	5	3	3	0	56
111721038008	11	11.5	5	3	3	1.2	57
111721038009	10	8	4	3	3	1.2	40
111721038010	9.25	8	5	3	3	1.6	46
111721038011	8.25	7.5	4	3	3	2.4	30
111721038012	10	9.75	5	3	3	1.6	41
111721038013	11.5	9.25	5	3	3	3.2	36
111721038014	10.75	8.75	4	3	3	1.2	41
111721038015	10.5	9	4	3	3	1.6	48
111721038016	0	5.5	4	3	3	0	0
111721038017	11	11	5	3	3	2.4	53
111721038018	12	11	5	3	3	2.4	44
111721038019	8.25	7.25	4	3	3	1.6	47

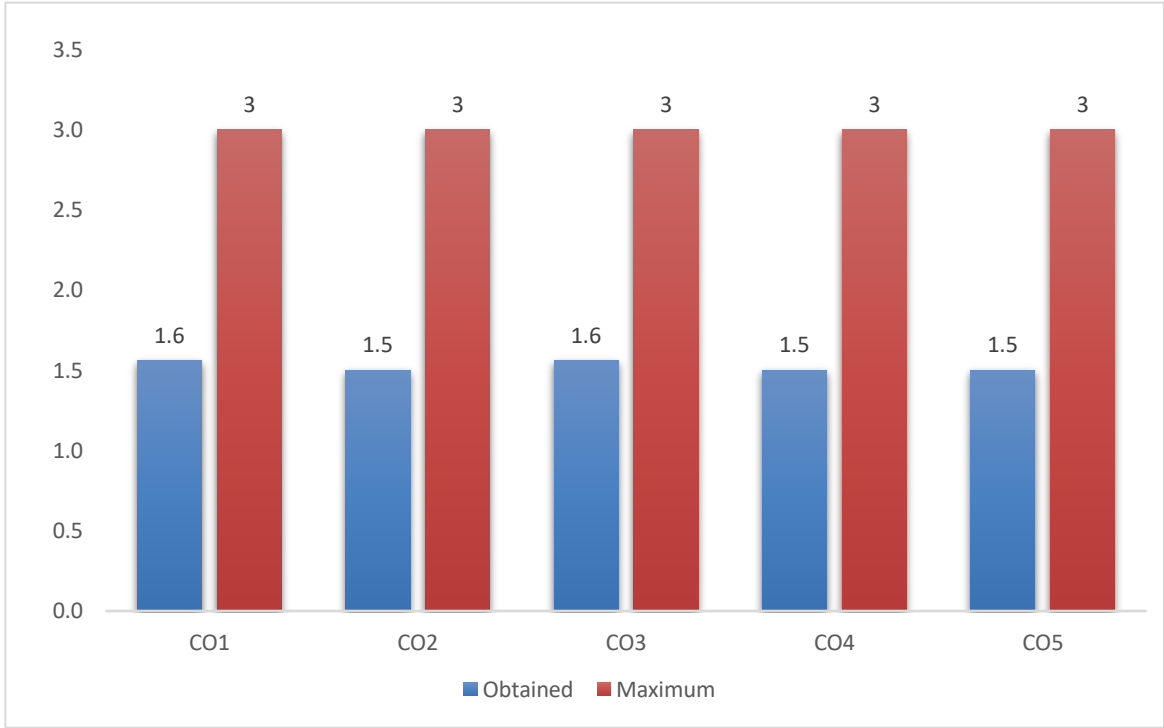
111721038020	11.5	9.25	5	3	3	2.8	46
111721038021	12.25	12.25	5	3	3	2.4	51
111721038022	6.5	5	4	3	3	0	26
111721038023	10.5	9.25	4	3	3	0.8	42
111721038024	0	4.25	4	3	3	0	42
111721038025	9	11.25	4	3	3	3.2	50
111721038026	0	8	4	3	3	0	36
111721038027	5.75	4.5	4	3	3	2.4	20
111721038029	9.75	10	5	3	3	0.8	39
111721038030	8.25	7	4	3	3	1.6	31
111721038031	10.25	10	4	3	3	1.2	40
111721038032	11	11.75	4	3	3	1.2	47
111721038033	10	10.25	4	3	3	2	45
111721038034	11	10.5	4	3	3	1.2	43
111721038035	9.75	10	4	3	3	1.2	41
111721038036	7.75	7.25	4	3	3	0	35
111721038037	12.25	12.25	5	3	3	3.2	43
111721038038	7.5	6.75	4	3	3	3.2	24
111721038039	9	10.75	4	3	3	1.6	37
111721038041	7.75	6.75	5	3	3	2.4	32
111721038042	3.25	0	4	3	3	0	30
111721038043	11.25	12.5	5	3	3	2	56
111721038044	5	9.75	4	3	3	1.6	29
111721038045	10.75	11.75	5	3	3	3.6	49
111721038046	10.75	11.75	5	3	3	2.8	48

111721038047	12.5	12.5	5	3	3	4	55
111721038048	7.75	6.75	4	3	3	1.2	35
111721038049	11	12.25	5	3	3	2	54
111721038050	11	10	5	3	3	2	41

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	91.7	3.0			100.0	3.0	100.0	3.0	100.0	3.0	62.5	0.0	2.4	66.7	1.0	1.0	1.6
CO2	91.7	3.0			100.0	3.0			100.0	3.0	62.5	0.0	2.3	66.7	1.0	1.0	1.5
CO3	91.7	3.0	93.8	3.0	100.0	3.0			100.0	3.0	62.5	0.0	2.4	66.7	1.0	1.0	1.6
CO4			93.8	3.0	100.0	3.0			100.0	3.0	62.5	0.0	2.3	66.7	1.0	1.0	1.5
CO5			93.8	3.0	100.0	3.0			100.0	3.0	62.5	0.0	2.3	66.7	1.0	1.0	1.5

AVERAGE	AVERAGE
1	1.524



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.56		H 1.56					
CO2	H 1.5		H 1.5	H 1.5			H 1.5	
CO3	H 1.56		H 1.56	H 1.56	H 1.56		H 1.56	
CO4	H 1.5		H 1.5	H 1.5			H 1.5	
CO5	H 1.5		H 1.5	H 1.5				H 1.5
AVERAGE OF COS FOR POS	1.524		1.524	1.515	1.56		1.52	1.5
AVERAGE OF POS	1.5168		1.5168	1.515	1.56		1.52	1.5
AVERAGE	1.521433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DATA VISUALIZATION TOOLS(ES18101)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
CO1	<b>Understand</b> the way of representing visual data and its applications	II (Understand)
CO2	<b>Demonstrate</b> data visualization using combination of various charts.	II (Demonstrate)
CO3	<b>Apply</b> visualizing techniques using matplotlib package.	III (Apply)
CO4	<b>Design</b> effective graphical analysis in R	I(Design)
CO5	<b>Construt</b> data visualizations with Tableau to create customized dash boards and reports	IV(Construct)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12.5	12.5	5	3	3	3.6	54
111721038002	10.5	12.25	3	3	3	1.6	49
111721038003	9.75	10	3	3	3	1.6	48
111721038004	9.75	9.25	5	3	3	2.4	29
111721038005	12.25	12.25	5	3	3	2	51
111721038006	11.5	12.25	5	3	3	2.4	45
111721038007	12.25	11.75	5	3	3	0.8	48
111721038008	12.25	12.25	5	3	3	2.4	46
111721038009	10.25	10	4	3	3	1.2	34
111721038010	11	5.75	4	3	3	1.6	36
111721038011	8.75	6.75	3	3	3	2.4	27
111721038012	11	11.75	5	3	3	1.2	38
111721038013	9.75	9	5	3	3	2.8	45
111721038014	11.5	10.75	5	3	3	2	45
111721038015	11.25	10.75	3	3	3	1.6	47
111721038016	0	5.5	3	3	3	0	30
111721038017	12	12	5	3	3	2.4	37
111721038018	10.75	11	5	3	3	2.4	42

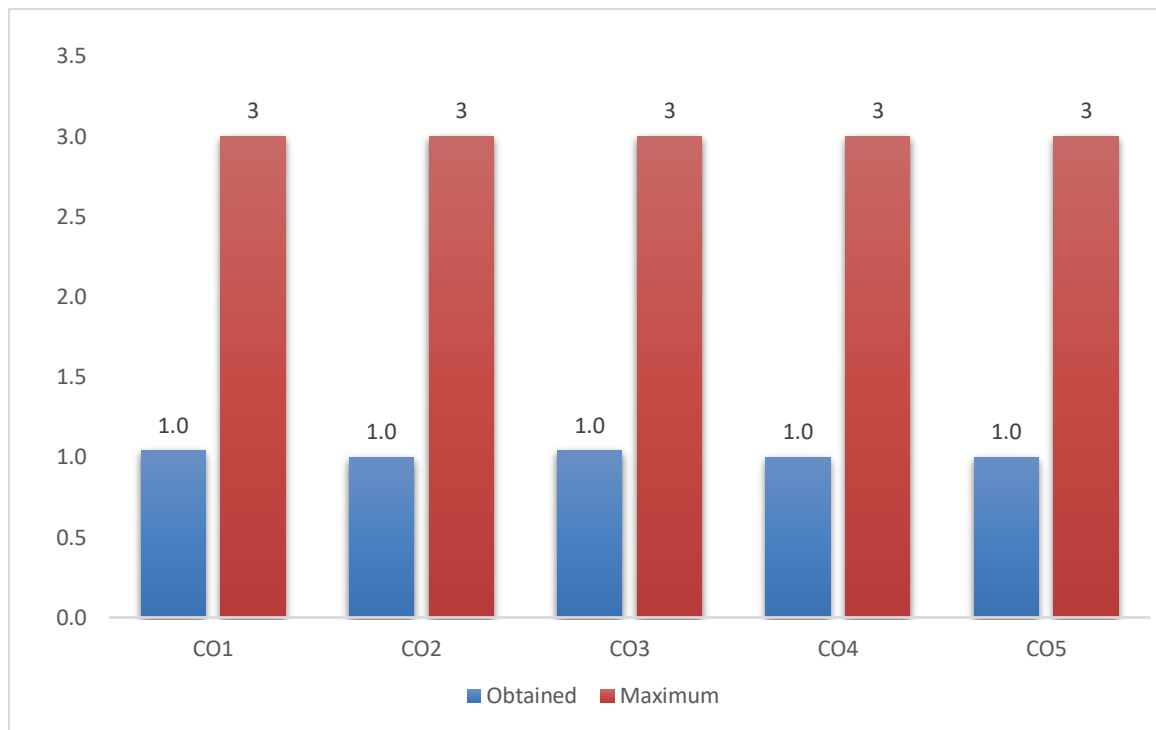
111721038019	2	6.75	4	3	3	0.8	43
111721038020	11	12.25	5	3	3	2.4	40
111721038021	12.25	12.5	5	3	3	2.8	50
111721038022	4.75	3.5	3	3	3	0.8	27
111721038023	9	10.5	3	3	3	0.4	36
111721038024	2.5	5.75	3	3	3	0	37
111721038025	11.5	11.75	5	3	3	3.2	46
111721038026	8.75	4.75	3	3	3	0	37
111721038027	6	5	3	3	3	3.2	16
111721038029	11.5	8.75	5	3	3	0	39
111721038030	9	5.5	5	3	3	1.6	36
111721038031	10.25	8.5	5	3	3	1.6	37
111721038032	11.75	10.25	4	3	3	0.8	45
111721038033	8.75	11.5	5	3	3	2.4	38
111721038034	12	10.75	5	3	3	0.8	52
111721038035	10.75	7.5	5	3	3	0.8	44
111721038036	9	6.75	3	3	3	0.4	38
111721038037	12.25	12	4	3	3	3.6	43
111721038038	10	5.25	5	3	3	2.8	24
111721038039	10.25	9	4	3	3	2.4	37
111721038041	9.75	7	5	3	3	2	30
111721038042	4.75	4	4	3	3	0	23
111721038043	12.25	12.5	5	3	3	2.4	48
111721038044	5.75	4	4	3	3	0.4	44
111721038045	11.5	12.5	5	3	3	3.6	44

111721038046	12.25	11.5	5	3	3	2.8	39
111721038047	12.25	12.5	5	3	3	4	53
111721038048	8.75	7	3	3	3	2	25
111721038049	11.5	11.25	5	3	3	2	43
111721038050	11.5	9.75	5	3	3	2	40

**CO Mapping :**

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	89.6	3.0			100.0	3.0	100.0	3.0	100.0	3.0	66.7	1.0	2.6	52.1	0.0	0.0	1.0
CO2	89.6	3.0			100.0	3.0			100.0	3.0	66.7	1.0	2.5	52.1	0.0	0.0	1.0
CO3	89.6	3.0	91.7	3.0	100.0	3.0			100.0	3.0	66.7	1.0	2.6	52.1	0.0	0.0	1.0
CO4			91.7	3.0	100.0	3.0			100.0	3.0	66.7	1.0	2.5	52.1	0.0	0.0	1.0
CO5			91.7	3.0	100.0	3.0			100.0	3.0	66.7	1.0	2.5	52.1	0.0	0.0	1.0

AVERAGE	AVERAGE
0	1.016



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.04		H 1.04					
CO2	H 1		H 1	H 1			H 1	
CO3	H 1.04		H 1.04	H 1.04	H 1.04		H 1.04	
CO4	H 1		H 1	H 1			H 1	
CO5	H 1		H 1	H 1				H 1
AVERAGE OF COS FOR POS	1.016		1.016	1.01	1.04		1.013333333	1
AVERAGE OF POS	1.0112		1.0112	1.01	1.04		1.01333	1
AVERAGE	1.014288889							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **NATURAL LANGUAGE PROCESSING (CSAI23505)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Write Python programs to manipulate and analyze language data	II (WRITE)
<b>CO2</b>	Understand key concepts from NLP and linguistics to describe and analyze language	III(UNDERSRAND)
<b>CO3</b>	Understand the data structures and algorithms that are used in NLP	III (UNDERSRANDt)
<b>CO4</b>	Classify texts using machine learning and deep learning	II (Classify)
<b>CO5</b>	Write Python programs to manipulate and analyze language data	I( analyze)

**CO's PO's 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

## MARKS LIST :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12	12.5	5	3	3	4	53
111721038002	10.75	12	4	3	3	1.6	53
111721038003	8.75	8.5	5	3	3	2	42
111721038004	5.5	8.5	4	3	3	2	32
111721038005	11.5	11.25	5	3	3	0.8	49
111721038006	11.25	12	5	3	3	2.4	54
111721038007	11.75	10.75	5	3	3	0	46
111721038008	11.75	12	5	3	3	1.6	49
111721038009	7.75	7.5	4	3	3	0.4	43
111721038010	5.25	6	4	3	3	0	41
111721038011	3.75	6	4	3	3	1.2	26
111721038012	10.25	9.5	4	3	3	0	40
111721038013	1.5	10.75	4	3	3	2	38
111721038014	5	6	4	3	3	2.4	33
111721038015	10.25	8.75	4	3	3	1.6	46
111721038016	0	3.75	4	3	3	0	0
111721038017	8.5	10.75	4	3	3	2.4	45
111721038018	10	10.25	4	3	3	2	51
111721038019	10.5	4.75	4	3	3	0	39

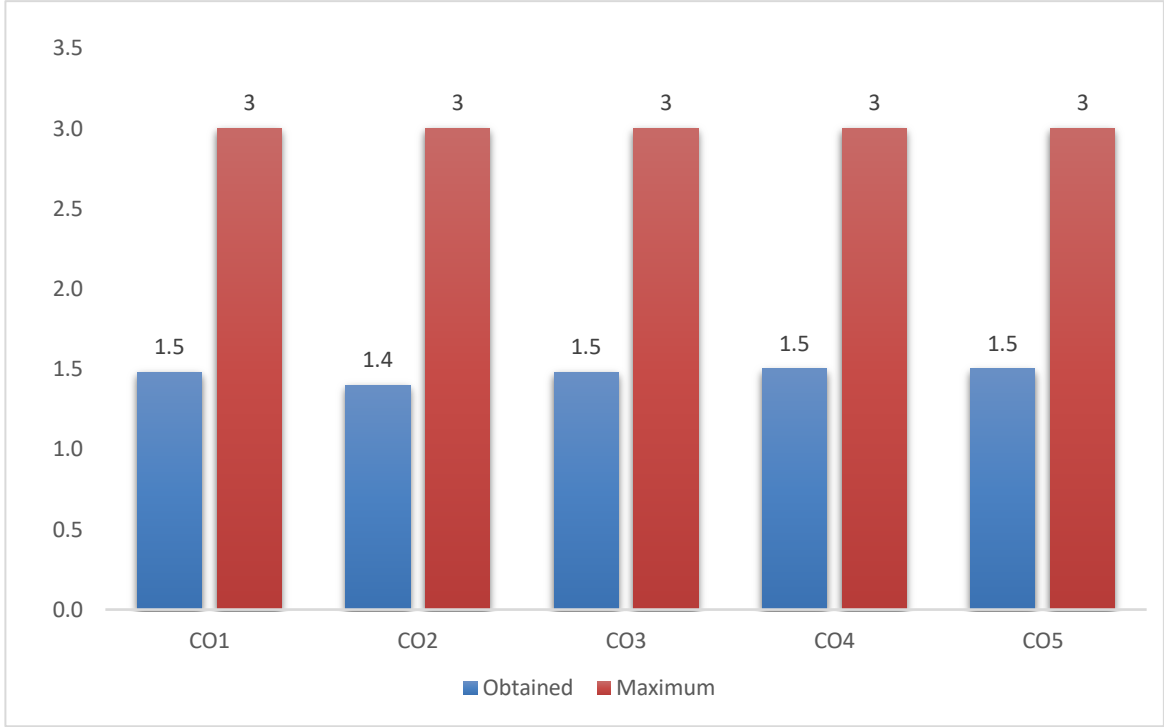
111721038020	10.5	10	5	3	3	2.8	42
111721038021	12	12	5	3	3	2.4	49
111721038022	5	3.75	3	3	3	0	30
111721038023	3	9	4	3	3	0	40
111721038024	2.5	3.75	4	2	3	0	43
111721038025	11.25	8	4	3	3	2.4	51
111721038026	8	6.75	4	2	3	0	40
111721038027	2.5	5	4	3	3	2.4	26
111721038029	8.75	11.75	4	3	3	0	40
111721038030	1.5	8.5	5	3	3	0.8	29
111721038031	6	9	4	3	3	1.2	36
111721038032	11.75	10.75	4	3	3	0	52
111721038033	9.5	9	5	3	3	1.2	44
111721038034	11.25	11	4	3	3	0	46
111721038035	9.75	6.25	4	3	3	0	45
111721038036	5.75	8.5	3	3	3	0	56
111721038037	10.25	12	5	3	3	4	49
111721038038	3.5	7.5	4	3	3	3.2	22
111721038039	5.75	7.5	4	3	3	0.8	40
111721038041	4.5	6	5	3	3	1.2	32
111721038042	0	6.25	4	3	3	0	26
111721038043	11.25	12.25	5	3	3	2	53
111721038044	1	5	4	3	3	0	31
111721038045	11	11.75	5	3	3	4	44
111721038046	10	11.5	5	3	3	3.6	45

111721038047	12	12.25	5	3	3	4	53
111721038048	5	5.5	4	3	3	2.4	40
111721038049	11.75	12	5	3	3	2	51
111721038050	5	6	4	3	3	0	30

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	77.1	2.0			100.0	3.0	100.0	3.0	100.0	3.0	47.9	0.0	2.2	68.8	1.0	1.0	1.5
CO2	77.1	2.0			100.0	3.0			100.0	3.0	47.9	0.0	2.0	68.8	1.0	1.0	1.4
CO3	77.1	2.0	91.7	3.0	100.0	3.0			100.0	3.0	47.9	0.0	2.2	68.8	1.0	1.0	1.5
CO4			91.7	3.0	100.0	3.0			100.0	3.0	47.9	0.0	2.3	68.8	1.0	1.0	1.5
CO5			91.7	3.0	100.0	3.0			100.0	3.0	47.9	0.0	2.3	68.8	1.0	1.0	1.5

AVERAGE	AVERAGE
1	1.472



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.48		H 1.48					
CO2	H 1.4		H 1.4	H 1.4			H 1.4	
CO3	H 1.48		H 1.48	H 1.48	H 1.48		H 1.48	
CO4	H 1.5		H 1.5	H 1.5			H 1.5	
CO5	H 1.5		H 1.5	H 1.5				H 1.5
AVERAGE OF COS FOR POS	1.472		1.472	1.47	1.48		1.46	1.5
AVERAGE OF POS	1.4704		1.4704	1.47	1.48		1.46	1.5
AVERAGE	1.475133333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **ROBOTIC PROCESS AUTOMATION (CSAI23506)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Understand the fundamental concepts of digital technology	III (UNDERSRAND)
<b>CO2</b>	Recognize the use of Digital technology in various Industries	IV(RECOGNIZE)
<b>CO3</b>	Understand the principles of UI Path	III (UNDERSRAND)
<b>CO4</b>	Understand the principles of Automation Anywhere	II (UNDERSRAND)
<b>CO5</b>	Design bots and understand their various types	I( DESIGN)

**CO's PO's 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

## MARKS LIST :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12.5	12.5	5	3	3	2.4	57
111721038002	12.5	12.5	5	3	3	0.8	54
111721038003	12.25	12.5	5	3	3	0.4	46
111721038004	11	11	5	3	3	1.2	44
111721038005	12.5	12.25	5	3	3	0	50
111721038006	12.5	12.5	5	3	3	2.4	54
111721038007	12.5	12	5	3	3	0.4	52
111721038008	12.5	12.25	5	3	3	0	51
111721038009	10.25	11.5	5	3	3	0	44
111721038010	12	9.75	5	3	3	0.8	52
111721038011	8.75	10	5	3	3	0.4	40
111721038012	12.5	12.5	5	3	3	0	50
111721038013	10	12	5	3	3	0.8	47
111721038014	12.25	12	5	3	3	0.4	50
111721038015	12.5	12.5	5	3	3	0	52
111721038016	0	12	5	3	3	0	42
111721038017	12.25	11.75	5	3	3	0.8	53
111721038018	12	12.25	5	3	3	0.8	50
111721038019	2.5	7.5	5	3	3	0	47

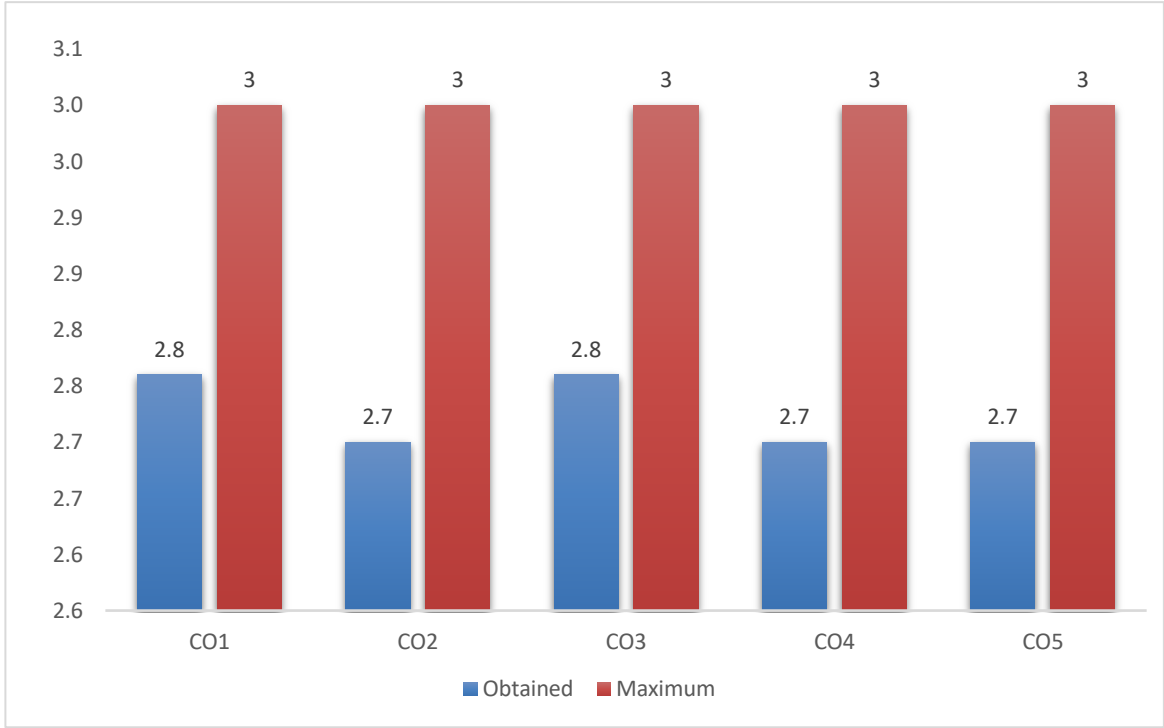
111721038020	12.25	11.75	5	3	3	1.6	52
111721038021	12.5	12.5	5	3	3	0.8	56
111721038022	4	9	5	3	3	0	43
111721038023	12	9.75	5	3	3	0	49
111721038024	9.5	8.5	5	3	3	0	51
111721038025	12.5	12.25	5	3	3	1.2	52
111721038026	12	11	5	3	3	0	48
111721038027	8.75	6	5	3	3	0.8	38
111721038029	12.5	12	5	3	3	0	50
111721038030	1.5	10.75	5	3	3	0	50
111721038031	10	10.5	5	3	3	0	45
111721038032	12	12	5	3	3	0	51
111721038033	11.75	11.5	5	3	3	0	46
111721038034	12.5	11.75	5	3	3	0	52
111721038035	9.5	12.25	5	3	3	0	50
111721038036	7.75	8.5	5	3	3	0	48
111721038037	12.5	12.5	5	3	3	4	54
111721038038	9.5	6.75	5	3	3	1.2	41
111721038039	11	9.5	5	3	3	0	48
111721038041	8.75	10	5	3	3	0	42
111721038042	0	9.5	5	3	3	0	41
111721038043	12.5	12.5	5	3	3	1.6	55
111721038044	2.5	12	5	3	3	1.6	47
111721038045	12.5	12.5	5	3	3	4	52
111721038046	12.5	12.5	5	3	3	3.2	50

111721038047	12.5	12.5	5	3	3	4	56
111721038048	10.75	7.5	5	3	3	0	48
111721038049	12.5	12.5	5	3	3	0	55
111721038050	11.5	12.25	5	3	3	0	47

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	87.5	3.0			100.0	3.0	100.0	3.0	100.0	3.0	18.8	0.0	2.4	97.9	3.0	3.0	2.8
CO2	87.5	3.0			100.0	3.0			100.0	3.0	18.8	0.0	2.3	97.9	3.0	3.0	2.7
CO3	87.5	3.0	100.0	3.0	100.0	3.0			100.0	3.0	18.8	0.0	2.4	97.9	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	18.8	0.0	2.3	97.9	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	18.8	0.0	2.3	97.9	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7		H 2.7	H 2.7			H 2.7	
CO3	H 2.76		H 2.76	H 2.76	H 2.76		H 2.76	
CO4	H 2.7		H 2.7	H 2.7			H 2.7	
CO5	H 2.7		H 2.7	H 2.7				H 2.7
AVERAGE OF COS FOR POS	2.724		2.724	2.715	2.76		2.72	2.7
AVERAGE OF POS	2.7168		2.7168	2.715	2.76		2.72	2.7
AVERAGE	2.721433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **BIG DATA ANALYTICS (CSAI23504)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
CO1	<b>Explain</b> the motivation for big data systems and identify the main sources of Big Data in here al world.	II (Explain)
CO2	<b>Develop</b> technical skills in predicative and prescriptive modeling to support business decision-making.	IV (Develop)
CO3	<b>Implement</b> several Data Intensive tasks using the Map Reduce Paradigm.	III (implement)
CO4	<b>Understand</b> Hadoop ecosystem such as YARN and HIVE-QL for structured databases.	II (understand)
CO5	<b>Demonstrate</b> anability map-reduce programming using PIG and NoSQL databases for storing purpose and process for Big Data Analytics	I(demonstrate)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12.25	12.5	5	3	3	3.6	50
111721038002	8.25	12.25	5	3	3	1.2	54
111721038003	5	9.5	5	3	3	1.2	30
111721038004	5	6.5	5	3	3	2	29
111721038005	5	11.5	5	3	3	1.6	46
111721038006	8.25	12.5	5	3	3	3.2	48
111721038007	5.25	11.25	5	3	3	0	50
111721038008	9	12.25	5	3	3	0.8	54
111721038009	4.5	8.5	5	3	3	0	42
111721038010	4	6	4	3	3	0.4	40
111721038011	3.75	6	5	3	3	0.8	29
111721038012	7.25	11.5	5	3	3	0.8	43
111721038013	9.25	11.25	5	3	3	3.2	37
111721038014	6	7.75	5	3	3	2	31
111721038015	8.25	10.5	4	3	3	0	49
111721038016	5	5.75	5	3	3	0	33
111721038017	8.75	11.25	5	3	3	1.6	46
111721038018	9.5	10.75	5	3	3	1.2	39
111721038019	5.25	10.5	5	3	3	0	35

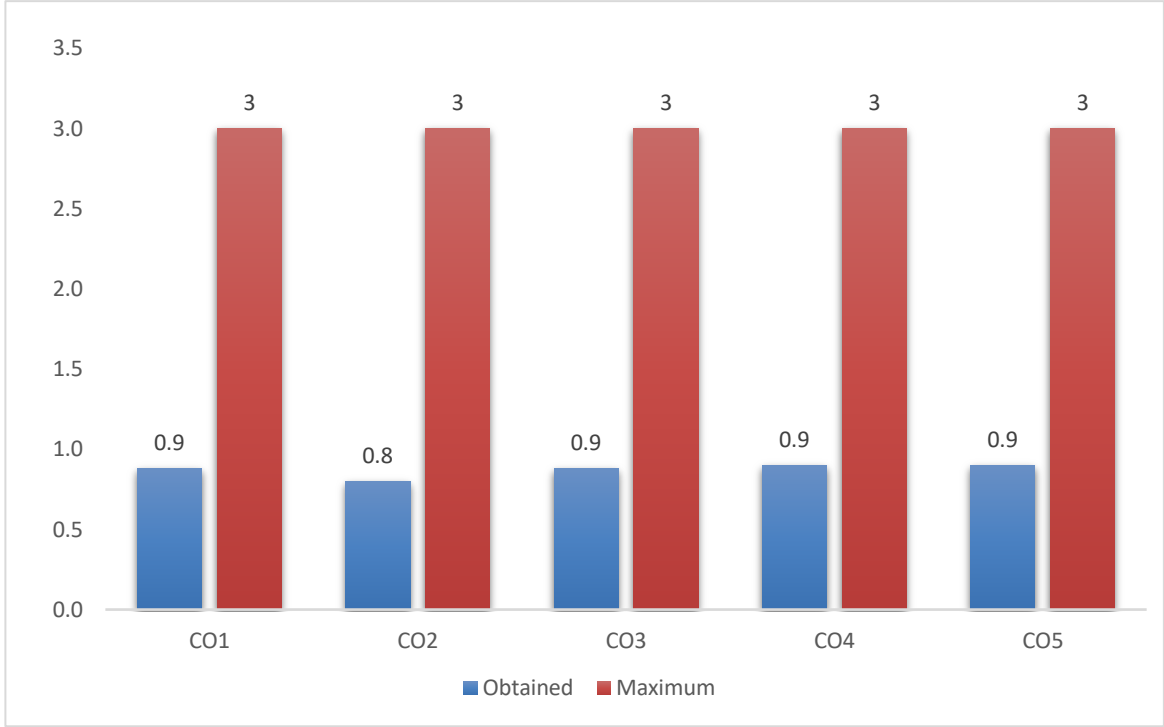
111721038020	9.5	9	5	3	3	1.6	37
111721038021	12.25	12.5	5	3	3	2.8	50
111721038022	2.5	6.5	4	3	3	0	30
111721038023	6	9.25	4	3	3	0	46
111721038024	5	8.25	5	3	3	0	44
111721038025	7.5	11.75	5	3	3	1.6	46
111721038026	0	6.5	4	3	3	0	37
111721038027	3.75	5	4	3	3	1.6	23
111721038029	5	10.5	5	3	3	0	43
111721038030	4	5.75	4	3	3	0.4	38
111721038031	7	8.75	5	3	3	1.2	43
111721038032	8	9.25	5	3	3	0	43
111721038033	5.75	9.25	5	3	3	1.6	45
111721038034	7.75	8.5	5	3	3	0.8	46
111721038035	7.5	11	5	3	3	0	40
111721038036	4	5.25	4	3	3	0	27
111721038037	8	12	5	3	3	3.6	46
111721038038	6.25	6.25	5	3	3	2.4	23
111721038039	8	8.25	5	3	3	1.2	38
111721038041	6.25	6.5	5	3	3	0.8	33
111721038042	4.5	6.25	4	3	3	0	26
111721038043	10.75	11.75	5	3	3	1.2	55
111721038044	3.75	4.5	4	3	3	0	18
111721038045	9.75	11.75	5	3	3	3.2	45
111721038046	9.25	11.25	5	3	3	2	42

111721038047	12.25	12.5	5	3	3	4	49
111721038048	6.25	6.25	4	3	3	0	25
111721038049	10.5	12	5	3	3	1.2	50
111721038050	7.25	10.25	5	3	3	1.2	33

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	79.2	2.0			100.0	3.0	100.0	3.0	100.0	3.0	35.4	0.0	2.2	56.3	0.0	0.0	0.9
CO2	79.2	2.0			100.0	3.0			100.0	3.0	35.4	0.0	2.0	56.3	0.0	0.0	0.8
CO3	79.2	2.0	97.9	3.0	100.0	3.0			100.0	3.0	35.4	0.0	2.2	56.3	0.0	0.0	0.9
CO4			97.9	3.0	100.0	3.0			100.0	3.0	35.4	0.0	2.3	56.3	0.0	0.0	0.9
CO5			97.9	3.0	100.0	3.0			100.0	3.0	35.4	0.0	2.3	56.3	0.0	0.0	0.9

AVERAGE	AVERAGE
0	0.872



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.88		H 0.88					
CO2	H 0.8		H 0.8	H 0.8			H 0.8	
CO3	H 0.88		H 0.88	H 0.88	H 0.88		H 0.88	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.872		0.872	0.87	0.88		0.86	0.9
AVERAGE OF POS	0.8704		0.8704	0.87	0.88		0.86	0.9
AVERAGE	0.875133333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **GENERAL ENGLISH -II(EN23201)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	To identify a sound understanding on the formation of words and to demonstrate the functional grammatical component in the sentence.	II (Explain)
<b>CO2</b>	To paraphrase ideas and thoughts in a coherent, neat and organized manner in order to utilize the writing skills for sound writing propagandas.	III (Identify)
<b>CO3</b>	To create an understanding on Indian Literature, alongside to develop and chisel their communication skills.	II (categorize)
<b>CO4</b>	To recognize the moral element which underlies in the short story; an exposure to informal language.	II (classify)
<b>CO5</b>	To develop listening and speaking skills through effective sentence constructions and efficient delivery.	III(understand)

**CO'S PO'S 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

**MARKS LIST :**

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	11.25	11.75	5	3	3	3.6	50
111723038002	6.5	8.5	5	3	3	1.2	46
111723038003	10	10	5	3	3	4	50
111723038004	6.25	8.25	2	3	3	0	50
111723038005	6	7.25	5	3	3	3.2	51
111723038006	5	7.25	5	3	3	0.8	48
111723038007	8.25	9	5	3	3	2.8	51
111723038008	8.25	8.75	5	3	3	1.6	51
111723038009	8.25	10.25	5	3	3	1.6	51
111723038010	7.25	7.5	5	3	3	1.6	48
111723038011	8.25	8	5	3	3	2.4	49
111723038012	5.75	7.75	5	3	3	0	23
111723038013	7	9	5	3	3	0.8	50
111723038014	9.25	10.25	5	3	3	2.8	51
111723038015	10.25	10.75	5	3	3	2.4	53
111723038016	10	9.25	5	3	3	3.6	49
111723038017	10.25	7	5	3	3	1.6	45
111723038018	7.5	8.75	5	3	3	2.4	48
111723038019	9.25	8.5	5	3	3	3.6	47
111723038020	8.25	8	5	3	3	4	43

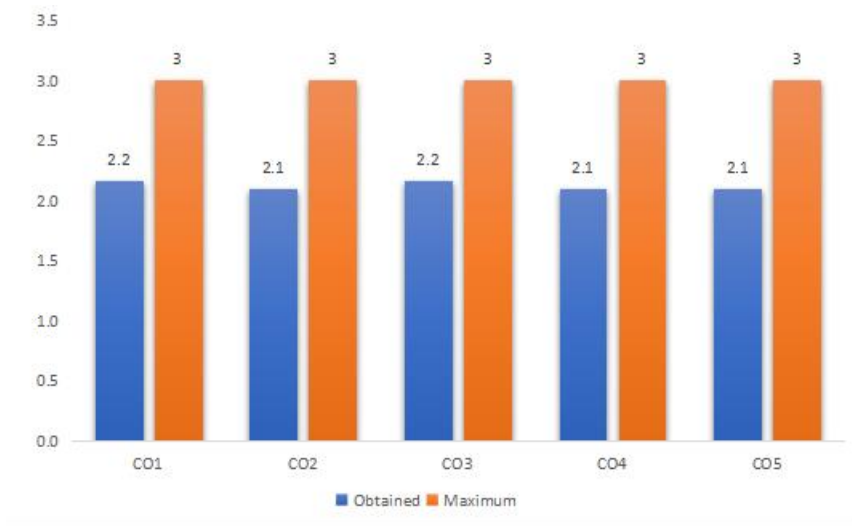
111723038021	10.5	10.25	5	3	3	3.2	42
111723038022	7	9.5	5	3	3	3.2	53
111723038023	10.25	8.75	5	3	3	0	52
111723038024	8	9.75	5	3	3	1.2	41
111723038025	7.25	6	5	3	3	0	48
111723038026	9.5	5.75	2	3	3	0	39
111723038027	6.5	7.75	5	3	3	4	42
111723038028	10	8.75	5	3	3	0	43
111723038029	8	10.25	5	3	3	1.2	39
111723038030	6.75	6.75	5	3	3	0	45
111723038031	7	6.75	5	3	3	0.4	41
111723038032	10.25	9.25	5	3	3	2	42
111723038033	5	5.75	5	3	3	0	36
111723038034	8.25	7	5	3	3	0.8	44
111723038035	8.75	7.75	2	3	3	0	41
111723038036	7.75	7.75	5	3	3	0	47
111723038037	8.5	9.25	5	3	3	3.6	44
111723038038	6	7.5	5	3	3	2	39
111723038039	6.25	6.75	5	3	3	0	32
111723038040	5	5.25	2	3	3	0	33
111723038041	8	9.5	5	3	3	3.2	44
111723038042	7.75	9	5	3	3	1.2	48
111723038043	8.75	8.5	5	3	3	0	46
111723038044	7.25	6	2	3	3	0	34

111723038045	5	6.5	5	3	3	0	48
111723038046	5.75	6	2	3	3	0.4	44
111723038047	7	7.5	5	3	3	0	48
111723038048	10	10.5	5	3	3	0.4	49
111723038049	7.75	6.75	2	3	3	0	47
111723038050	10	8.75	5	3	3	2.4	48

### CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	46.0	0.0	2.4	84.0	2.0	2.0	2.2
CO2	100.0	3.0			100.0	3.0			100.0	3.0	46.0	0.0	2.3	84.0	2.0	2.0	2.1
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	46.0	0.0	2.4	84.0	2.0	2.0	2.2
CO4			100.0	3.0	100.0	3.0			100.0	3.0	46.0	0.0	2.3	84.0	2.0	2.0	2.1
CO5			100.0	3.0	100.0	3.0			100.0	3.0	46.0	0.0	2.3	84.0	2.0	2.0	2.1

AVERAGE	AVERAGE
2	2.124



### PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.16		H 2.16					
CO2	H 2.1		H 2.1	H 2.1			H 2.1	
CO3	H 2.16		H 2.16	H 2.16	H 2.16		H 2.16	
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
AVERAGE OF COS FOR POS	2.124		2.124	2.115	2.16		2.12	2.1
AVERAGE OF POS	2.1168		2.1168	2.115	2.16		2.12	2.1
AVERAGE	2.121433333							

**BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**  
**INDIAN HERITAGE & CULTURE(IC23201)**

**PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

**Programme Outcomes – (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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- **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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Student will have knowledge about Indian Customs and Traditions.	III (Represent)
<b>CO2</b>	Student can make use of the subject knowledge to attempt all kinds of competitive especially civil services.	V (Formulate)
<b>CO3</b>	The Subject helps the student community to have knowledge of historical and contemporary social, religious and political issues of the nation.	VI (Design)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	12	12	5	3	3	4	51
111723038002	9.25	9.75	5	3	3	3.2	33
111723038003	12	12	5	3	3	4	50
111723038004	12	11.75	5	3	3	1.6	50
111723038005	12	12	5	3	3	4	50
111723038006	11.25	12	5	3	3	2.8	47
111723038007	12	12	5	3	3	1.6	46
111723038008	11.5	12	5	3	3	1.6	50
111723038009	12	12	5	3	3	2.8	47
111723038010	12	12	5	3	3	4	45
111723038011	11.75	12	5	3	3	2.8	49
111723038012	10.5	11	5	3	3	1.6	51
111723038013	11.75	12	5	3	3	2.8	48
111723038014	12	12	5	3	3	2.8	49
111723038015	12	12	5	3	3	3.6	50
111723038016	12	12	5	3	3	2.4	46
111723038017	12	12	5	3	3	1.6	51
111723038018	11.75	12	5	3	3	3.2	44
111723038019	11.75	12	5	3	3	2.4	36
111723038020	12	12.25	5	3	3	3.6	48

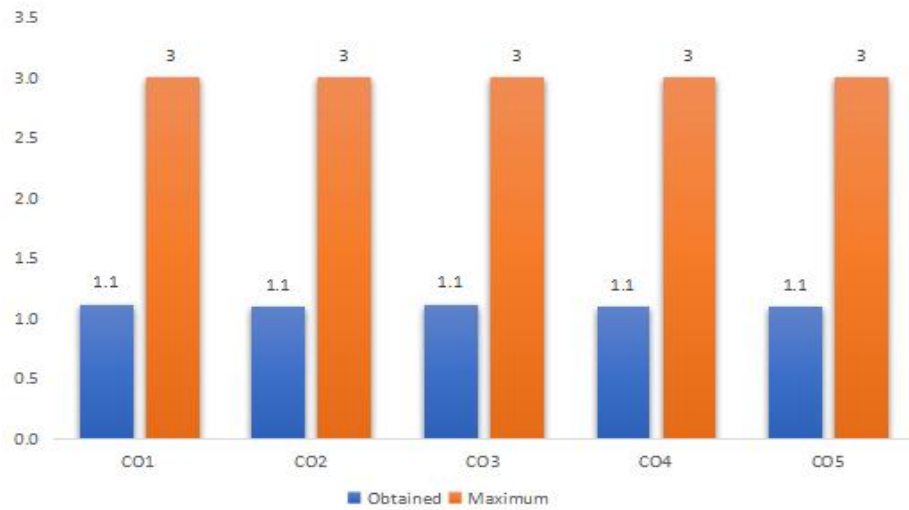
111723038021	12	12.25	5	3	3	4	39
111723038022	11.75	12	5	3	3	4	41
111723038023	11.75	12	5	3	3	4	30
111723038024	11.25	12	5	3	3	0.8	33
111723038025	11	9.5	5	3	3	0	39
111723038026	11.75	10.75	5	3	3	0.8	36
111723038027	12	12	5	3	3	4	29
111723038028	12	11.75	5	3	3	1.6	26
111723038029	11.75	11.5	5	3	3	1.2	30
111723038030	11.75	11.25	5	3	3	1.6	33
111723038031	11.5	12	5	3	3	3.2	33
111723038032	11.75	11.5	5	3	3	1.6	37
111723038033	12	11.5	5	3	3	1.6	39
111723038034	11.25	12	5	3	3	3.2	31
111723038035	11.75	10.5	5	3	3	1.6	27
111723038036	12	12.25	5	3	3	0.8	37
111723038037	12	12	5	3	3	4	37
111723038038	11.75	12	5	3	3	2.8	34
111723038039	11.25	10	5	3	3	1.6	34
111723038040	11.25	9.5	5	3	3	2.4	33
111723038041	11.75	12	5	3	3	3.6	43
111723038042	12	11.75	5	3	3	2.4	34
111723038043	11.75	12	5	3	3	1.6	39
111723038044	8	8	5	3	3	1.2	28
111723038045	10	8.75	5	3	3	1.6	26

111723038046	11.5	8.75	5	3	3	0	43
111723038047	11.75	12	5	3	3	2.4	30
111723038048	12	12.25	5	3	3	2.4	42
111723038049	12	12		3	3	1.2	33
111723038050	12	12	5	3	3	3.6	32

### CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	100.0	3.0			98.0	3.0	100.0	3.0	100.0	3.0	84.0	2.0	2.8	44.0	0.0	0.0	1.1
CO2	100.0	3.0			98.0	3.0			100.0	3.0	84.0	2.0	2.8	44.0	0.0	0.0	1.1
CO3	100.0	3.0	100.0	3.0	98.0	3.0			100.0	3.0	84.0	2.0	2.8	44.0	0.0	0.0	1.1
CO4			100.0	3.0	98.0	3.0			100.0	3.0	84.0	2.0	2.8	44.0	0.0	0.0	1.1
CO5			100.0	3.0	98.0	3.0			100.0	3.0	84.0	2.0	2.8	44.0	0.0	0.0	1.1

AVERAGE	AVERAGE
0	1.108



### PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.12		H 1.12					
CO2	H 1.1		H 1.1	H 1.1			H 1.1	
CO3	H 1.12		H 1.12	H 1.12	H 1.12		H 1.12	
CO4	H 1.1		H 1.1	H 1.1			H 1.1	
CO5	H 1.1		H 1.1	H 1.1				H 1.1
AVERAGE OF COS FOR POS	1.108		1.108	1.105	1.12		1.106666667	1.1
AVERAGE OF POS	1.1056		1.1056	1.105	1.12		1.10667	1.1
AVERAGE	1.107144444							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **PROBABILITY & STATISTICS (CSAI21201)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Employ</b> the principles of linear regression and correlation, including least square method, predicting a particular value of Y for a given value of X and significance of the correlation coefficient.	(Inculcate)
<b>CO2</b>	<b>Use</b> discrete and continuous probability distributions, including requirements, mean and variance, and making decisions.	II (Demonstrate)
<b>CO3</b>	<b>Able</b> to perform and analyze hypotheses tests of means, proportions and variances using both one-and two-sample data sets..	(Inculcate)
<b>CO4</b>	<b>Able</b> to apply the appropriate Chi-Squared test for independence and goodness of fit.can differentiate between the test statistics to be used for dependent and independent samples	III (Illustrate)
<b>CO5</b>	<b>Understand</b> the concepts of quality control, chance and assignable causes of variation, control	III(Illustrate)

**CO's PO's 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

**MARKS LIST :**

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
<b>111723038001</b>	11.5	11.5	5	3	3	4	53
<b>111723038002</b>	9.25	2.75	5	3	3	2	40
<b>111723038003</b>	10.25	10	5	3	3	4	60
<b>111723038004</b>	9.5	9	5	3	3	0	42
<b>111723038005</b>	11.75	11.25	5	3	3	3.6	60
<b>111723038006</b>	9	6.75	5	3	3	0.8	39
<b>111723038007</b>	9	10.25	5	3	3	1.6	46
<b>111723038008</b>	5	6.75	5	3	3	0	38
<b>111723038009</b>	10	8.75	5	3	3	2.4	59
<b>111723038010</b>	10.5	9.25	5	3	3	2.4	55
<b>111723038011</b>	5	8.25	5	3	3	2.4	40
<b>111723038012</b>	5	6.5	5	3	3	0	45
<b>111723038013</b>	8.25	8.5	5	3	3	0.8	51
<b>111723038014</b>	9.75	11	5	3	3	1.2	60
<b>111723038015</b>	9.5	11	5	3	3	2.8	60
<b>111723038016</b>	10	9	5	3	3	2.8	60
<b>111723038017</b>	7.5	8.5	5	3	3	0	49
<b>111723038018</b>	8	8.75	5	3	3	1.6	60
<b>111723038019</b>	9.25	8.5	5	3	3	2	57
<b>111723038020</b>	11	10.75	5	3	3	3.6	60
<b>111723038021</b>	10.25	9.25	5	3	3	3.6	52

111723038022	10.5	11.5	5	3	3	3.6	55
111723038023	11.25	10	5	3	3	0.8	59
111723038024	7.25	10.25	5	3	3	0	49
111723038025	7.5	6	5	3	3	0	35
111723038026	6.5	6.75	5	3	3	0	29
111723038027	8.25	9.5	5	3	3	4	39
111723038028	8.5	9.5	5	3	3	0.4	17
111723038029	9.75	11.25	5	3	3	0.8	39
111723038030	9.5	10.25	5	3	3	0	21
111723038031	8.5	10	5	3	3	1.2	46
111723038032	8	10	5	3	3	1.2	49
111723038033	5	2.5	5	3	3	0	46
111723038034	7.5	4	5	3	3	2.4	38
111723038035	4	6.5	5	3	3	0	33
111723038036	7	8.5	5	3	3	0.4	43
111723038037	9	9.5	5	3	3	3.6	54
111723038038	5	8.75	5	3	3	0.8	29
111723038039	3.25	6.25	5	3	3	0	36
111723038040	1.5	0.75	5	3	3	0	33
111723038041	8	8	5	3	3	3.2	49
111723038042	4	8	5	3	3	0.8	28
111723038043	8.75	9.75	5	3	3	0	36
111723038044	3	2.5	5	3	3	0	28
111723038045	5.25	2	5	3	3	0	28
111723038046	5.25	2	5	3	3	0	37

111723038047	6.25	5.75	5	3	3	0	31
111723038048	8.25	6.75	5	3	3	0	44
111723038049	10.5	8.75	5	3	3	0	55
111723038050	10.75	9.25	5	3	3	3.6	60

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	90.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	40.0	0.0	2.4	62.0	0.0	0.0	1.0
CO2	90.0	3.0			100.0	3.0			100.0	3.0	40.0	0.0	2.3	62.0	0.0	0.0	0.9
CO3	90.0	3.0	86.0	3.0	100.0	3.0			100.0	3.0	40.0	0.0	2.4	62.0	0.0	0.0	1.0
CO4			86.0	3.0	100.0	3.0			100.0	3.0	40.0	0.0	2.3	62.0	0.0	0.0	0.9
CO5			86.0	3.0	100.0	3.0			100.0	3.0	40.0	0.0	2.3	62.0	0.0	0.0	0.9

AVERAGE	AVERAGE
0	0.924

**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.924		0.924	0.915	0.96		0.92	0.9
AVERAGE OF POS	0.9168		0.9168	0.915	0.96		0.92	0.9
AVERAGE	0.921433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **WEB TECHNOLOGIES(CSAI21202)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
CO1	<b>Illustrate</b> basic html scripts to design webpages	II (Illustrate)
CO2	<b>Explain</b> about cascading style sheets	II (Explain)
CO3	<b>Analyze</b> javascript programming using operators, expressions, functions	III (Analyze)
CO4	<b>Classify</b> event handling in java script and introduction to xml	I(classify)
CO5	<b>Develop</b> PHP programs and database connectivity through mysql	II(Develop)

**CO's PO's 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

**MARKS LIST :**

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	12	12	5	3	3	3.6	56
111723038002	7	6.75	4	3	3	2.4	49
111723038003	12	12.25	5	3	3	4	49
111723038004	6	7.5	5	3	3	0.4	40
111723038005	9	11.75	5	3	3	3.6	50
111723038006	4.5	8.75	4	3	3	2.8	34
111723038007	10	10	4	3	3	2.8	40
111723038008	5.75	5.25	5	3	3	2.4	52
111723038009	10	12.25	4	3	3	2.8	54
111723038010	7.25	12	5	3	3	2	51
111723038011	6.5	9.75	4	3	3	3.2	25
111723038012	4.75	7.5	4	3	3	1.6	33
111723038013	8.5	10	4	3	3	3.2	40
111723038014	11.5	12.25	4	3	3	2.8	55
111723038015	11.75	12	5	3	3	2.8	50
111723038016	11.25	11.75	5	3	3	3.6	43
111723038017	10.25	8.75	5	3	3	2	42
111723038018	11	11.75	5	3	3	2.8	50
111723038019	10.25	12.25	5	3	3	3.2	55
111723038020	10.5	11.75	5	3	3	4	50
111723038021	9.5	10	5	3	3	4	41

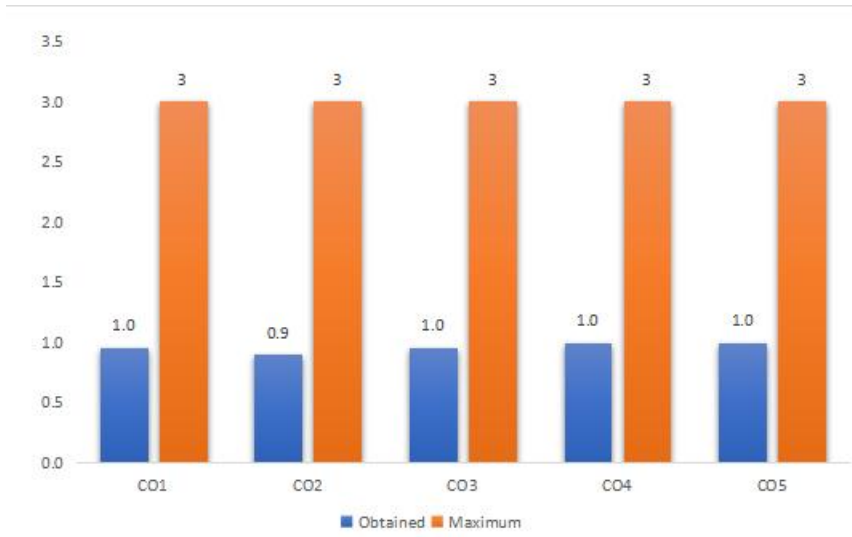
111723038022	9.75	12	5	3	3	3.6	43
111723038023	9.25	9	4	3	3	4	45
111723038024	7.25	10	3	3	3	1.2	33
111723038025	4.5	6.75	4	3	3	0	30
111723038026	4.5	5.25	4	3	3	1.2	26
111723038027	5.5	9.25	4	3	3	4	27
111723038028	5.25	6.25	4	3	3	1.6	27
111723038029	7.25	8.5	5	3	3	2	34
111723038030	5	5	4	3	3	0	43
111723038031	8.75	10.25	5	3	3	2.8	38
111723038032	10.5	10	5	3	3	1.2	40
111723038033	6.25	7.5	4	3	3	0.8	33
111723038034	5.75	9.5	5	3	3	2.8	36
111723038035	6.5	7.5	5	3	3	1.6	30
111723038036	7.75	9.75	4	3	3	0	36
111723038037	8	11	4	3	3	2.8	43
111723038038	7.25	9	4	3	3	3.2	27
111723038039	4.5	9	4	3	3	0	22
111723038040	3.75	5	4	3	3	1.2	28
111723038041	6.5	10	4	3	3	3.6	51
111723038042	4.5	7	4	3	3	2.8	47
111723038043	10	10.25	4	3	3	0	46
111723038044	5	5	4	3	3	0	25
111723038045	3	5.25	4	3	3	0	32
111723038046	4.5	6	4	3	3	1.6	39

111723038047	4	8.5	4	3	3	2.4	32
111723038048	11.25	11.5	5	3	3	0.8	42
111723038049	9.75	8.5	4	3	3	0	35
111723038050	10	10.25	5	3	3	3.6	55

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	80.0	2.0			100.0	3.0	100.0	3.0	100.0	3.0	70.0	1.0	2.4	56.0	0.0	0.0	1.0
CO2	80.0	2.0			100.0	3.0			100.0	3.0	70.0	1.0	2.3	56.0	0.0	0.0	0.9
CO3	80.0	2.0	100.0	3.0	100.0	3.0			100.0	3.0	70.0	1.0	2.4	56.0	0.0	0.0	1.0
CO4			100.0	3.0	100.0	3.0			100.0	3.0	70.0	1.0	2.5	56.0	0.0	0.0	1.0
CO5			100.0	3.0	100.0	3.0			100.0	3.0	70.0	1.0	2.5	56.0	0.0	0.0	1.0

AVERAGE	AVERAGE
0	0.964



### PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 1		H 1	H 1			H 1	
CO5	H 1		H 1	H 1				H 1
AVERAGE OF COS FOR POS	0.964		0.964	0.965	0.96		0.953333333	1
AVERAGE OF POS	0.9648		0.9648	0.965	0.96		0.95333	1
AVERAGE	0.967988889							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **OPERATING SYSTEMS ( CSAI21203)**

**PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Explain</b> functions, types and structures of operating system	II (Explain)
<b>CO2</b>	<b>Analyze</b> various process management concepts including scheduling and synchronization	IV (Analyze)
<b>CO3</b>	<b>Demonstrate</b> process synchronization and dead locks	III (Demonstrate)
<b>CO4</b>	<b>Solve</b> issues related to file system interface	III (solve)
<b>CO5</b>	<b>Choose</b> an appropriate Page replacement algorithm	I(choose)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
<b>111723038001</b>	12.5	12.5	5	3	3	3.6	46
<b>111723038002</b>	11.5	10	5	3	3	2	33
<b>111723038003</b>	12.5	12.5	5	3	3	4	38
<b>111723038004</b>	12.5	12.25	5	3	3	2.4	34
<b>111723038005</b>	12.25	12.5	5	3	3	3.6	42
<b>111723038006</b>	11.5	12	5	3	3	2.4	32
<b>111723038007</b>	12.5	12.5	5	3	3	3.6	35
<b>111723038008</b>	12.25	10.75	5	3	3	2.8	39
<b>111723038009</b>	12.5	12.25	5	3	3	1.6	38
<b>111723038010</b>	12.5	12.5	5	3	3	3.2	39
<b>111723038011</b>	12.5	12	5	3	3	2.8	31
<b>111723038012</b>	11.25	12	5	3	3	2.4	33
<b>111723038013</b>	11.25	12.5	5	3	3	2.4	41
<b>111723038014</b>	12.5	12.5	5	3	3	2.4	43
<b>111723038015</b>	12.5	12.5	5	3	3	2.4	43
<b>111723038016</b>	12.5	12.5	5	3	3	3.2	38
<b>111723038017</b>	12.5	12.5	5	3	3	2.4	41
<b>111723038018</b>	12.5	12.5	5	3	3	2.4	35
<b>111723038019</b>	12.5	12.5	5	3	3	3.2	39
<b>111723038020</b>	12.5	12.5	5	3	3	4	46

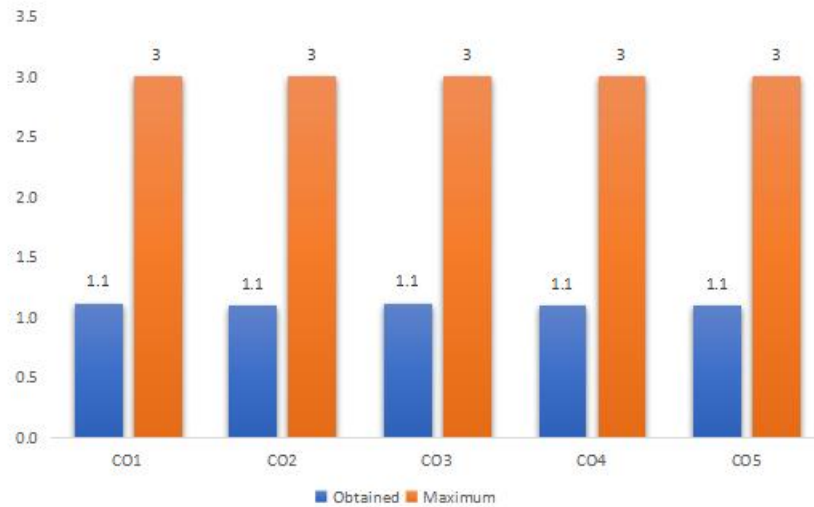
111723038021	12.5	12.5	5	3	3	4	38
111723038022	12.5	12.5	5	3	3	3.2	40
111723038023	12.25	12.25	5	3	3	2.8	39
111723038024	12.5	10.25	5	3	3	1.6	32
111723038025	10.25	11.25	5	3	3	1.6	33
111723038026	11	9	5	3	3	2.4	31
111723038027	11.75	11.5	5	3	3	4	32
111723038028	11.75	11.25	5	3	3	2.4	28
111723038029	12.25	12.25	5	3	3	3.2	34
111723038030	12	8.25	5	3	3	0.8	40
111723038031	12.25	12	5	3	3	3.6	38
111723038032	11.5	11.75	5	3	3	3.2	39
111723038033	11.75	10	5	3	3	2	32
111723038034	11.25	10.25	5	3	3	2.4	35
111723038035	10.75	10.75	5	3	3	0.4	29
111723038036	12.5	12.25	5	3	3	0.8	41
111723038037	12.25	12.25	5	3	3	4	37
111723038038	11.75	12.25	5	3	3	3.6	34
111723038039	11.5	6.75	5	3	3	0.4	31
111723038040	8.5	6.75	5	3	3	1.2	30
111723038041	12.5	10	5	3	3	3.6	41
111723038042	10.25	9.5	5	3	3	2.4	36
111723038043	12	10	5	3	3	2	41
111723038044	10.5	9.25	5	3	3	1.2	31
111723038045	8.5	11	5	3	3	1.2	35

111723038046	11.75	7.75	5	3	3	3.2	39
111723038047	10.75	10.75	5	3	3	2.4	33
111723038048	12.25	12.5	5	3	3	1.6	42
111723038049	11.25	11.25	5	3	3	1.2	39
111723038050	12.5	12.5	5	3	3	3.2	45

### CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
C01	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	84.0	2.0	2.8	28.0	0.0	0.0	1.1
C02	100.0	3.0			100.0	3.0			100.0	3.0	84.0	2.0	2.8	28.0	0.0	0.0	1.1
C03	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	28.0	0.0	0.0	1.1
C04			100.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	28.0	0.0	0.0	1.1
C05			100.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	28.0	0.0	0.0	1.1

AVERAGE	AVERAGE
0	1.108



### PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.12		H 1.12					
CO2	H 1.1		H 1.1	H 1.1			H 1.1	
CO3	H 1.12		H 1.12	H 1.12	H 1.12		H 1.12	
CO4	H 1.1		H 1.1	H 1.1			H 1.1	
CO5	H 1.1		H 1.1	H 1.1				H 1.1
AVERAGE OF COS FOR POS	1.108		1.108	1.105	1.12		1.106666667	1.1
AVERAGE OF POS	1.1056		1.1056	1.105	1.12		1.10667	1.1
AVERAGE	1.107144444							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **C++ and DATA STRUCTURES (BS21204)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Differentiate</b> between object-oriented programming and procedure-oriented programming.	II (Differentiate)
<b>CO2</b>	<b>Develop</b> programs using object oriented programming features.	IV (Develop)
<b>CO3</b>	<b>Organize</b> the data using sorting and various linear data structures and determine the time complexity	III (Organize)
<b>CO4</b>	<b>Illustrate</b> non-linear data structures like trees, graph	III (illustrate)
<b>CO5</b>	<b>Choose</b> appropriate data structures to represent data items in real world problems	I(choose)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
<b>111723038001</b>	12.5	12.25	5	3	3	3.2	58
<b>111723038002</b>	4.75	7.75	5	3	3	2.4	43
<b>111723038003</b>	12	10.75	5	3	3	4	55
<b>111723038004</b>	11	10.75	5	3	3	1.2	50
<b>111723038005</b>	11.5	11.5	5	3	3	4	56
<b>111723038006</b>	8.75	8.5	5	3	3	3.2	50
<b>111723038007</b>	10.75	12	5	3	3	4	44
<b>111723038008</b>	9.5	9.5	5	3	3	2.4	51
<b>111723038009</b>	12	9.5	5	3	3	0.8	55
<b>111723038010</b>	12.25	12	5	3	3	2.8	54
<b>111723038011</b>	10.25	10.5	5	3	3	3.2	51
<b>111723038012</b>	9.75	6.75	5	3	3	1.2	49
<b>111723038013</b>	11.25	11	5	3	3	2.8	52
<b>111723038014</b>	12	12.25	5	3	3	3.2	55
<b>111723038015</b>	11.25	12.25	5	3	3	3.2	56
<b>111723038016</b>	11.25	11.75	5	3	3	3.2	54
<b>111723038017</b>	11.25	10	5	3	3	1.6	49
<b>111723038018</b>	12	12	5	3	3	3.6	50

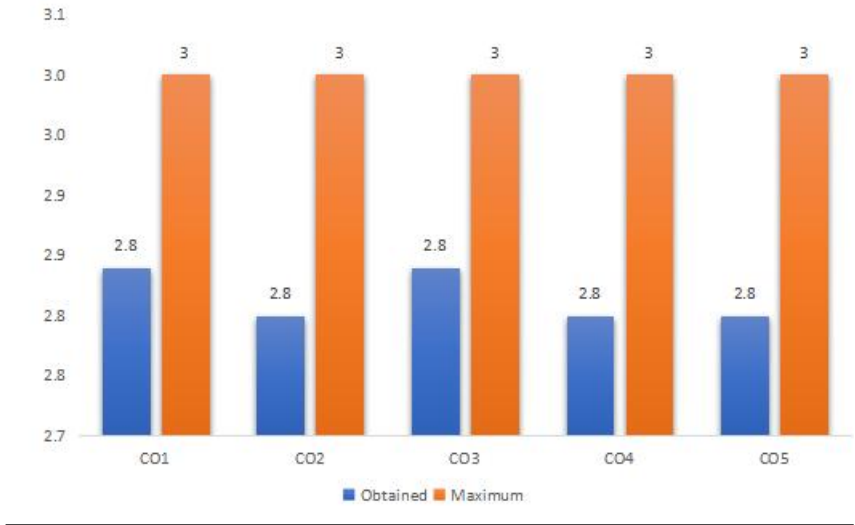
111723038019	12.5	10.75	5	3	3	3.6	55
111723038020	12.5	12.5	5	3	3	4	54
111723038021	10	12	5	3	3	3.6	56
111723038022	12.5	12.25	5	3	3	4	55
111723038023	10.25	11.25	5	3	3	2.4	51
111723038024	10.75	9	5	3	3	2.4	54
111723038025	9	7	5	3	3	0.8	41
111723038026	8.5	1.75	5	3	3	0.4	41
111723038027	10.25	10.75	5	3	3	4	51
111723038028	8.25	8.75	5	3	3	1.2	43
111723038029	11	12	5	3	3	2.8	50
111723038030	7	10.75	5	3	3	0	52
111723038031	8.25	12	5	3	3	2	53
111723038032	12.25	12.25	5	3	3	2.4	51
111723038033	8.5	7.25	5	3	3	1.2	31
111723038034	11.5	9.75	5	3	3	2.4	50
111723038035	9.25	8.5	5	3	3	0	41
111723038036	8.75	11.25	5	3	3	0.8	48
111723038037	12	11.5	5	3	3	4	54
111723038038	10.25	8.25	5	3	3	3.6	40
111723038039	6.25	9	5	3	3	0.4	42
111723038040	5.75	4	5	3	3	0	26
111723038041	9	9.75	5	3	3	4	48
111723038042	10	9.5	5	3	3	2	50
111723038043	9	10.5	5	3	3	0.8	47

111723038044	5.75	5.75	5	3	3	0	37
111723038045	7.5	5.5	5	3	3	0.4	46
111723038046	10	3	5	3	3	0.8	50
111723038047	10	10.75	5	3	3	2.4	50
111723038048	12.25	11.25	5	3	3	2	53
111723038049	10	12.25	5	3	3	2	47
111723038050	12.5	12.5	5	3	3	3.2	55

### CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	98.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	68.0	1.0	2.6	94.0	3.0	3.0	2.8
CO2	98.0	3.0			100.0	3.0			100.0	3.0	68.0	1.0	2.5	94.0	3.0	3.0	2.8
CO3	98.0	3.0	94.0	3.0	100.0	3.0			100.0	3.0	68.0	1.0	2.6	94.0	3.0	3.0	2.8
CO4			94.0	3.0	100.0	3.0			100.0	3.0	68.0	1.0	2.5	94.0	3.0	3.0	2.8
CO5			94.0	3.0	100.0	3.0			100.0	3.0	68.0	1.0	2.5	94.0	3.0	3.0	2.8

AVERAGE	AVERAGE
3	2.816



**PO Mapping :**

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		2.81333	2.8
AVERAGE	2.814288889							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **OPERATIONS RESEARCH(CSAI21401 )**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Describe, contrast and compare differing structures for operating systems.	II (Analyze)
<b>CO2</b>	Understand and analyze theory and implementation of processes.	III (Identify)
<b>CO3</b>	Understand what deadlock is and how it can occur when giving mutually exclusive access to multiple resources	I (Understand)
<b>CO4</b>	Understand the concepts of file system interface.	I (understand)
<b>CO5</b>	Define segmentation of Memory management in an Operating System.	III(define)

**CO'S PO'S 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:  
Supportiv

**MARKS LIST :**

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	11.25	11.75	5	3	3	3.6	50
111723038002	6.5	8.5	5	3	3	1.2	46
111723038003	10	10	5	3	3	4	50
111723038004	6.25	8.25	2	3	3	0	50
111723038005	6	7.25	5	3	3	3.2	51
111723038006	5	7.25	5	3	3	0.8	48
111723038007	8.25	9	5	3	3	2.8	51
111723038008	8.25	8.75	5	3	3	1.6	51
111723038009	8.25	10.25	5	3	3	1.6	51
111723038010	7.25	7.5	5	3	3	1.6	48
111723038011	8.25	8	5	3	3	2.4	49
111723038012	5.75	7.75	5	3	3	0	23
111723038013	7	9	5	3	3	0.8	50
111723038014	9.25	10.25	5	3	3	2.8	51
111723038015	10.25	10.75	5	3	3	2.4	53
111723038016	10	9.25	5	3	3	3.6	49
111723038017	10.25	7	5	3	3	1.6	45
111723038018	7.5	8.75	5	3	3	2.4	48
111723038019	9.25	8.5	5	3	3	3.6	47
111723038020	8.25	8	5	3	3	4	43

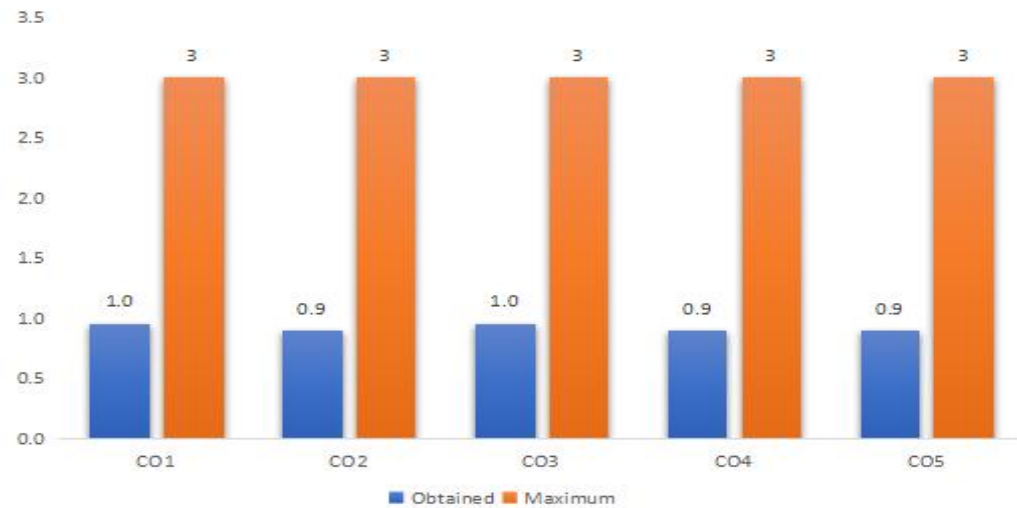
111723038021	10.5	10.25	5	3	3	3.2	42
111723038022	7	9.5	5	3	3	3.2	53
111723038023	10.25	8.75	5	3	3	0	52
111723038024	8	9.75	5	3	3	1.2	41
111723038025	7.25	6	5	3	3	0	48
111723038026	9.5	5.75	2	3	3	0	39
111723038027	6.5	7.75	5	3	3	4	42
111723038028	10	8.75	5	3	3	0	43
111723038029	8	10.25	5	3	3	1.2	39
111723038030	6.75	6.75	5	3	3	0	45
111723038031	7	6.75	5	3	3	0.4	41
111723038032	10.25	9.25	5	3	3	2	42
111723038033	5	5.75	5	3	3	0	36
111723038034	8.25	7	5	3	3	0.8	44
111723038035	8.75	7.75	2	3	3	0	41
111723038036	7.75	7.75	5	3	3	0	47
111723038037	8.5	9.25	5	3	3	3.6	44
111723038038	6	7.5	5	3	3	2	39
111723038039	6.25	6.75	5	3	3	0	32
111723038040	5	5.25	2	3	3	0	33
111723038041	8	9.5	5	3	3	3.2	44
111723038042	7.75	9	5	3	3	1.2	48
111723038043	8.75	8.5	5	3	3	0	46
111723038044	7.25	6	2	3	3	0	34

111723038045	5	6.5	5	3	3	0	48
111723038046	5.75	6	2	3	3	0.4	44
111723038047	7	7.5	5	3	3	0	48
111723038048	10	10.5	5	3	3	0.4	49
111723038049	7.75	6.75	2	3	3	0	47
111723038050	10	8.75	5	3	3	2.4	48

**CO Mapping :**

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		co wise external average
CO1	85.7	3.0			100.0	3.0	100.0	3.0	100.0	3.0	38.8	0.0	2.4	24.5	0.0	0.0	1.0
CO2	85.7	3.0			100.0	3.0			100.0	3.0	38.8	0.0	2.3	24.5	0.0	0.0	0.9
CO3	85.7	3.0	93.9	3.0	100.0	3.0			100.0	3.0	38.8	0.0	2.4	24.5	0.0	0.0	1.0
CO4			93.9	3.0	100.0	3.0			100.0	3.0	38.8	0.0	2.3	24.5	0.0	0.0	0.9
CO5			93.9	3.0	100.0	3.0			100.0	3.0	38.8	0.0	2.3	24.5	0.0	0.0	0.9

AVERAGE	AVERAGE
0	0.924



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.924		0.924	0.915	0.96		0.92	0.9
AVERAGE OF POS	0.9168		0.9168	0.915	0.96		0.92	0.9
AVERAGE	0.921433333							

**BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**  
**COMPUTER NETWORKS(BS20409)**

**PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

**Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Understand and identify basic computer network topologies and protocols and explain Data Communication system components.	III (Understand)
<b>CO2</b>	Describe the functions of each layer in OSI model and its protocols.	V (Describe)
<b>CO3</b>	Classify different error detecting techniques.	VI (classify)
<b>CO4</b>	Build skills of sub-netting and routing mechanisms.	II(Classify)
<b>CO5</b>	Classify the routing protocols and analyze how to assign the IP addresses for the given network.	II(Develop)

**CO's PO's 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

**MARKS LIST :**

	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	11.25	11.75	5	3	3	3.2	49
111722038002	10.75	11.25	5	3	3	3.6	42
111722038003	12.5	10.25	5	3	3	2.8	45
111722038004	7.25	10	5	3	3	2.8	41
111722038005	12	11.25	5	3	3	1.6	43
111722038006	10.25	9.25	5	3	3	1.6	46
111722038007	9.25	7	5	3	3	2.4	42
111722038008	12.25	12.25	5	3	3	3.2	52
111722038009	12.25	12.25	5	3	3	0.8	52
111722038010	10.75	7.5	5	3	3	0.8	37
111722038011	10	10.75	5	3	3	2.4	46
111722038012	12	12	5	3	3	2.8	42
111722038013	2.5	1.5	5	3	3	0.8	29
111722038014	7.25	5	5	3	3	0	47
111722038015	5	5.75	5	3	3	0	48
111722038016	12	12.5	5	3	3	1.6	54
111722038017	9.25	2.75	5	3	3	0	32
111722038018	6.25	6.25	5	3	3	0.4	32
111722038019	8	6.25	5	3	3	1.2	45
111722038020	9.25	10	5	3	3	1.2	48
111722038021	7.75	8.5	5	3	3	0.8	36

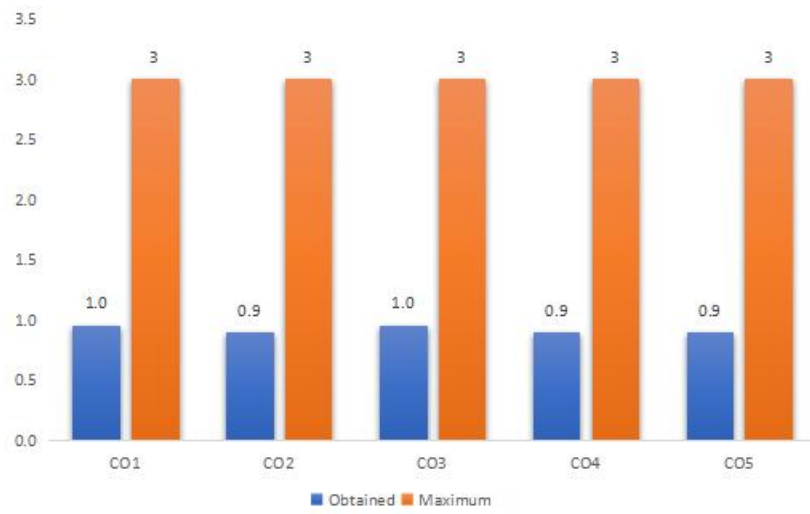
111722038022	11.75	12.25	5	3	3	2.4	46
111722038023	9.5	10	5	3	3	0.4	25
111722038024	11	9.5	5	3	3	0	29
111722038025	5.25	3.75	5	3	3	0	41
111722038026	9.5	8.75	5	3	3	0	51
111722038027	8.5	7.75	5	3	3	2.8	27
111722038028	3.75	2.5	5	3	3	0.4	20
111722038029	3.75	2.5	5	3	3	0	22
111722038030	8.25	11.5	5	3	3	0	27
111722038031	7.75	8	5	3	3	0	35
111722038032	5	5.25	5	3	3	2.4	41
111722038033	6.75	5.25	5	3	3	0	47
111722038034	11	9.25	5	3	3	0	33
111722038035	11	9	5	3	3	0	30
111722038036	9	5	5	3	3	0	18
111722038037	5.75	5	5	3	3	0.8	34
111722038038	9	9	5	3	3	0	32
111722038039	8.25	8.5	5	3	3	0	29
111722038041	5.5	7	5	3	3	0	26
111722038042	5	1.75	5	3	3	1.6	34
111722038043	5.25	5	5	3	3	0	24
111722038044	8.5	6.25	5	3	3	1.6	42
111722038045	6.5	6	5	3	3	0	31
111722038046	7.5	7.5	5	3	3	2	28
111722038047	7.75	10.25	5	3	3	0.4	36

111722038048	7.25	11.25	5	3	3	1.6	41
111722038049	8	7.5	5	3	3	0	28
111722038050	3.75	3.25	5	3	3	2.4	30

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
C01	91.8	3.0			100.0	3.0	100.0	3.0	100.0	3.0	38.8	0.0	2.4	46.9	0.0	0.0	1.0
C02	91.8	3.0			100.0	3.0			100.0	3.0	38.8	0.0	2.3	46.9	0.0	0.0	0.9
C03	91.8	3.0	85.7	3.0	100.0	3.0			100.0	3.0	38.8	0.0	2.4	46.9	0.0	0.0	1.0
C04			85.7	3.0	100.0	3.0			100.0	3.0	38.8	0.0	2.3	46.9	0.0	0.0	0.9
C05			85.7	3.0	100.0	3.0			100.0	3.0	38.8	0.0	2.3	46.9	0.0	0.0	0.9

AVERAGE	AVERAGE
0	0.924



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.924		0.924	0.915	0.96		0.92	0.9
AVERAGE OF POS	0.9168		0.9168	0.915	0.96		0.92	0.9
AVERAGE	0.921433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **MACHINE LEARNING (CSAI22403 )**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
CO1	<b>Illustrate</b> various machine learning algorithms	II(Illustrate)
CO2	<b>Apply</b> basic concepts of mathematics for machine learning	IV (Apply)
CO3	<b>Examine</b> various regression models for supervised learning	III(Examine)
CO4	<b>Choose</b> appropriate classifier for performing classification.	I (Choose)
CO5	<b>Design</b> model for clustering	II(Design)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	Mid Exam1	Mid Exam2	group discussion	assignment	viva	Attendance	External Exam
	-12.5	-12.5	5	3	3	4	60
111722038001	12.25	12.5	5	3	3	3.6	60
111722038002	12.5	12.5	5	3	3	3.2	56
111722038003	12.5	12.5	5	3	3	3.2	50
111722038004	12.25	12.25	4	3	3	3.2	51
111722038005	11.25	12.25	5	3	3	3.2	54
111722038006	12.25	12.25	5	3	3	3.6	51
111722038007	11	12.25	4	3	3	2.8	53
111722038008	12.25	12.25	4	3	3	3.2	57
111722038009	12.25	12.5	5	3	3	2.4	59
111722038010	12	11.5	4	3	3	2	49
111722038011	12.25	12.5	5	3	3	3.2	46
111722038012	12.5	12.5	5	3	3	3.6	51
111722038013	9	9	4	3	3	0.8	15
111722038014	11	11.5	4	3	3	0.8	44
111722038015	10.25	11.5	4	3	3	0.8	43
111722038016	12.5	12.5	5	3	3	2.8	56
111722038017	7.75	10.5	4	3	3	1.6	38
111722038018	5.75	8	4	3	3	0.8	33
111722038019	10	10	4	3	3	2.8	52
111722038020	11.75	12	5	3	3	2.4	45

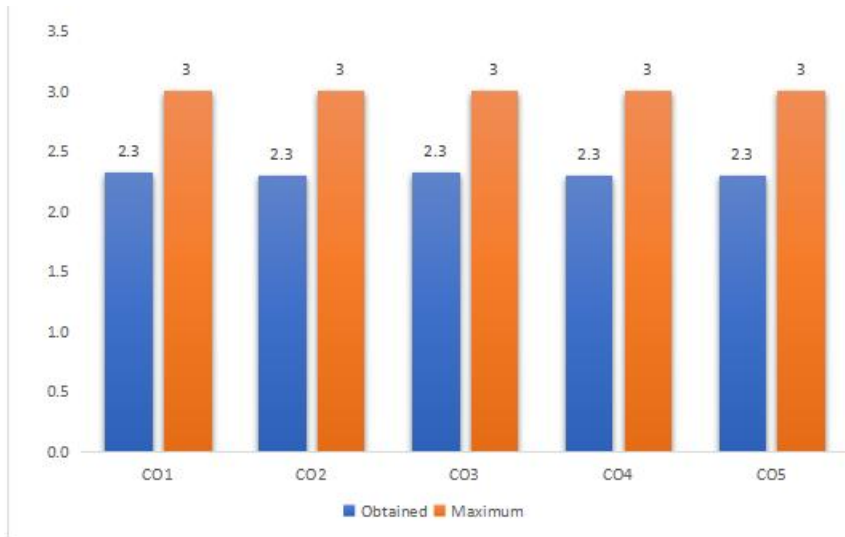
111722038021	9.25	10.75	4	3	3	1.6	39
111722038022	11.25	11.75	4	3	3	2.8	55
111722038023	9.75	12	5	3	3	0.4	40
111722038024	9.25	10.5	4	3	3	1.2	41
111722038025	6.5	9	5	3	3	2.8	47
111722038026	12.5	12.5	5	3	3	2.4	53
111722038027	11	12	5	3	3	2.8	45
111722038028	7.5	8.75	4	3	3	0.8	19
111722038029	5.75	8.25	4	3	3	0.8	32
111722038030	10.25	11	5	3	3	2	40
111722038031	9.75	11.25	4	3	3	0	44
111722038032	10	10.5	5	3	3	2.4	36
111722038033	3	5.5	4	3	3	1.6	41
111722038034	10.5	10.5	4	3	3	2	54
111722038035	10	11.75	5	3	3	2.4	49
111722038036	8.25	10.5	5	3	3	2.4	48
111722038037	8.5	10.75	4	3	3	1.6	44
111722038038	11.5	12	4	3	3	1.2	54
111722038039	11.25	12	4	3	3	1.2	41
111722038041	10	5.5	5	3	3	1.6	45
111722038042	10.25	10	4	3	3	1.6	49
111722038043	7.5	10.75	5	3	3	1.6	35
111722038044	11.75	12	5	3	3	2.8	47
111722038045	9.5	10.5	5	3	3	2	43
111722038046	10.75	10.25	5	3	3	3.6	50

111722038047	11	12	4	3	3	0.8	53
111722038048	11.25	11.75	5	3	3	2.4	38
111722038049	11.5	11.25	5	3	3	1.6	38
111722038050	7	9	4	3	3	2.4	32

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	98.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	75.5	2.0	2.8	77.6	2.0	2.0	2.3
CO2	98.0	3.0			100.0	3.0			100.0	3.0	75.5	2.0	2.8	77.6	2.0	2.0	2.3
CO3	98.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	75.5	2.0	2.8	77.6	2.0	2.0	2.3
CO4			100.0	3.0	100.0	3.0			100.0	3.0	75.5	2.0	2.8	77.6	2.0	2.0	2.3
CO5			100.0	3.0	100.0	3.0			100.0	3.0	75.5	2.0	2.8	77.6	2.0	2.0	2.3

AVERAGE	AVERAGE
2	2.308



## PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.32		H 2.32					
CO2	H 2.3		H 2.3	H 2.3			H 2.3	
CO3	H 2.32		H 2.32	H 2.32	H 2.32		H 2.32	
CO4	H 2.3		H 2.3	H 2.3			H 2.3	
CO5	H 2.3		H 2.3	H 2.3				H 2.3
AVERAGE OF COS FOR POS	2.308		2.308	2.305	2.32		2.306666667	2.3
AVERAGE OF POS	2.3056		2.3056	2.305	2.32		2.30667	2.3
AVERAGE	2.307144444							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **CLOUD COMPUTING(CSAI23602B)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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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- **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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Understand</b> distributed systems for cloud computing	<i>III (understand)</i>
<b>CO2</b>	<b>Identify</b> cloud servers, types and components	<i>I (Identify)</i>
<b>CO3</b>	<b>Analyse</b> cloud architectural information in the present generation of market	<i>v(Analyze)</i>
<b>CO4</b>	<b>Compare</b> types of clients in the cloud and virtualization	<i>Iv(compare)</i>
<b>CO5</b>	<b>Examine</b> virtual machines the market and usage	<i>II (Examine)</i>

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	11	11	5	3	3	2	57
111722038002	11	11	5	3	3	3	56
111722038003	10	11	5	3	3	3	54
111722038004	7	10	5	3	3	3	44
111722038005	9	10	5	3	3	3	54
111722038006	12	9	5	3	3	1	47
111722038007	8	7	5	3	3	0	57
111722038008	12	12	5	3	3	3	52
111722038009	13	11	5	3	3	1	54
111722038010	10	10	5	3	3	2	51
111722038011	11	10	5	3	3	3	46
111722038012	12	12	5	3	3	3	47
111722038013	5	5	4	3	3	0	28
111722038014	6	8	4	3	3	0	43
111722038015	6	6	4	3	3	1	32
111722038016	11	11	5	3	3	2	58
111722038017	6	6	4	3	3	0	44
111722038018	5	5	4	3	3	0	35
111722038019	11	8	5	3	3	0	41

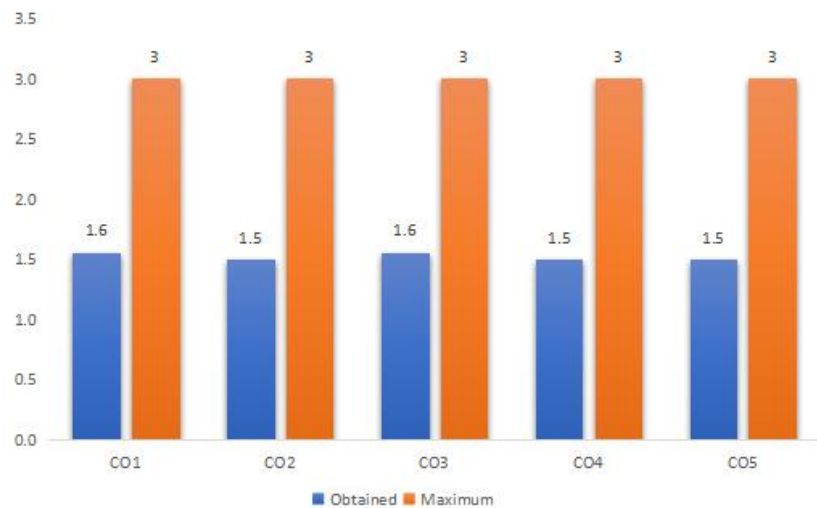
111722038020	10	8	4	3	3	0	51
111722038021	7	5	4	3	3	0	49
111722038022	12	11	5	3	3	2	48
111722038023	9	8	4	3	3	0	48
111722038024	8	10	4	3	3	0	44
111722038025	7	8	4	3	3	2	44
111722038026	10	10	4	3	3	1	48
111722038027	10	8	5	3	3	3	43
111722038028	6	5	4	3	3	0	31
111722038029	5	5	4	3	3	0	36
111722038030	10	7	4	3	3	0	46
111722038031	7	8	4	3	3	0	29
111722038032	8	8	4	3	3	2	44
111722038033	4	7	4	3	3	0	37
111722038034	10	7	4	3	3	2	53
111722038035	12	11	5	3	3	0	45
111722038036	5	8	4	3	3	1	38
111722038037	7	9	4	3	3	0	41
111722038038	13	11	4	3	3	0	41
111722038039	7	9	4	3	3	2	33
111722038041	8	5	4	3	3	0	38
111722038042	8	10	5	3	3	0	49
111722038043	5	7	4	3	3	1	36
111722038044	5	7	4	3	3	2	53
111722038045	5	8	4	3	3	2	41

111722038046	7	8	4	3	3	3	50
111722038047	9	10	4	3	3	0	43
111722038048	6	7	4	3	3	0	39
111722038049	8	9	4	3	3	0	37
111722038050	5	5	4	3	3	3	34

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	89.8	3.0			100.0	3.0	100.0	3.0	100.0	3.0	40.8	0.0	2.4	71.4	1.0	1.0	1.6
CO2	89.8	3.0			100.0	3.0			100.0	3.0	40.8	0.0	2.3	71.4	1.0	1.0	1.5
CO3	89.8	3.0	100.0	3.0	100.0	3.0			100.0	3.0	40.8	0.0	2.4	71.4	1.0	1.0	1.6
CO4			100.0	3.0	100.0	3.0			100.0	3.0	40.8	0.0	2.3	71.4	1.0	1.0	1.5
CO5			100.0	3.0	100.0	3.0			100.0	3.0	40.8	0.0	2.3	71.4	1.0	1.0	1.5

AVERAGE	AVERAGE
1	1.524



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.56		H 1.56					
CO2	H 1.5		H 1.5	H 1.5			H 1.5	
CO3	H 1.56		H 1.56	H 1.56	H 1.56		H 1.56	
CO4	H 1.5		H 1.5	H 1.5			H 1.5	
CO5	H 1.5		H 1.5	H 1.5				H 1.5
AVERAGE OF COS FOR POS	1.524		1.524	1.515	1.56		1.52	1.5
AVERAGE OF POS	1.5168		1.5168	1.515	1.56		1.52	1.5
AVERAGE	1.521433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DATA MINING(CSAI23603)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Understand</b> the concepts of data mining	II (Understand)
<b>CO2</b>	<b>Identify</b> the various sampling methods in data streams	I (Identify)
<b>CO3</b>	<b>Identify</b> the various algorithms used for mining data sets	I (Identify)
<b>CO4</b>	<b>Compare</b> the types of analysis techniques	III (Compare)
<b>CO5</b>	<b>Examine</b> the discriminate analysis	Iv(Examine)

**CO's PO's 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

## MARKS LIST :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	13	13	5	3	3	3	49
111722038002	12	13	5	3	3	3	45
111722038003	12	13	5	3	3	3	40
111722038004	12	13	5	3	3	4	40
111722038005	11	12	5	3	3	3	45
111722038006	12	12	5	3	3	3	42
111722038007	12	13	5	3	3	3	31
111722038008	13	13	5	3	3	3	49
111722038009	12	13	5	3	3	3	43
111722038010	11	12	5	3	3	2	44
111722038011	12	12	5	3	3	4	47
111722038012	11	12	5	3	3	4	45
111722038013	8	8	5	3	3	3	29
111722038014	7	10	5	3	3	2	36
111722038015	7	10	5	3	3	3	31
111722038016	13	13	5	3	3	2	51
111722038017	10	10	5	3	3	3	32
111722038018	6	8	5	3	3	2	28
111722038019	12	12	5	3	3	2	40
111722038020	11	12	5	3	3	3	40
111722038021	6	10	5	3	3	2	41

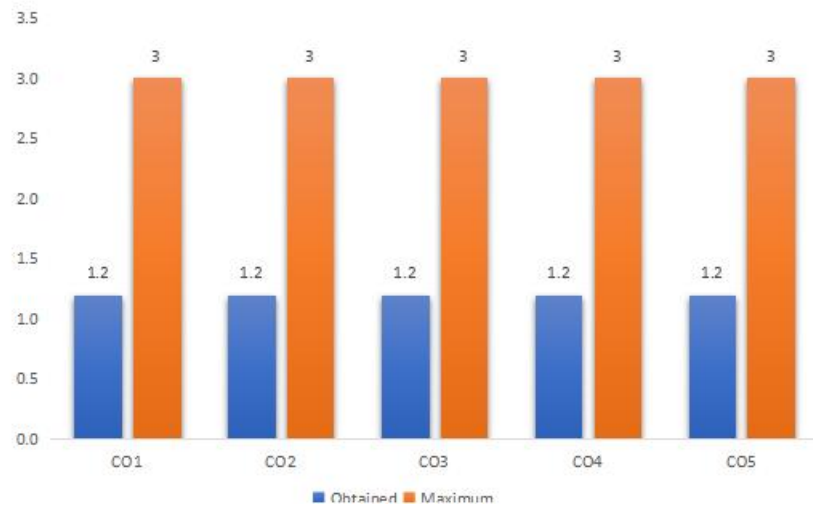
111722038022	12	13	5	3	3	3	50
111722038023	12	13	5	3	3	2	40
111722038024	9	11	5	3	3	2	37
111722038025	11	11	5	3	3	4	42
111722038026	12	13	5	3	3	3	42
111722038027	12	13	5	3	3	4	35
111722038028	8	10	5	3	3	3	25
111722038029	8	8	5	3	3	3	30
111722038030	11	12	5	3	3	3	49
111722038031	10	12	5	3	3	3	41
111722038032	12	11	5	3	3	4	38
111722038033	8	11	5	3	3	2	38
111722038034	11	9	5	3	3	3	43
111722038035	12	13	5	3	3	4	41
111722038036	11	10	5	3	3	3	38
111722038037	7	10	5	3	3	2	32
111722038038	12	12	5	3	3	2	50
111722038039	11	12	5	3	3	2	40
111722038041	12	12	5	3	3	4	37
111722038042	12	12	5	3	3	3	31
111722038043	11	11	5	3	3	3	32
111722038044	13	13	5	3	3	2	46
111722038045	8	8	5	3	3	2	36
111722038046	9	11	5	3	3	3	34
111722038047	10	12	5	3	3	3	42

111722038048	12	12	5	3	3	2	34
111722038049	11	11	5	3	3	3	42
111722038050	6	8	5	3	3	3	28

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	100.0	3.0	3.0	57.1	0.0	0.0	1.2
CO2	100.0	3.0			100.0	3.0			100.0	3.0	100.0	3.0	3.0	57.1	0.0	0.0	1.2
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	57.1	0.0	0.0	1.2
CO4			100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	57.1	0.0	0.0	1.2
CO5			100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	57.1	0.0	0.0	1.2

AVERAGE	AVERAGE
0	1.2



## PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.2		H 1.2					
CO2	H 1.2		H 1.2	H 1.2			H 1.2	
CO3	H 1.2		H 1.2	H 1.2	H 1.2		H 1.2	
CO4	H 1.2		H 1.2	H 1.2			H 1.2	
CO5	H 1.2		H 1.2	H 1.2				H 1.2
AVERAGE OF COS FOR POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE OF POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE	1.2							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DATA ENGINEERING THROUGH PYTHON CSAI22406**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Explain</b> data science concepts and working with files and text data.	II (Explain)
<b>CO2</b>	<b>Apply</b> regular expressions on strings	I (Apply)
<b>CO3</b>	<b>Explain</b> database operations using MySQL and working with NUMPY.	II (Explain)
<b>CO4</b>	<b>Select</b> appropriate plot techniques for visualizing data	III (Select)
<b>CO5</b>	<b>Formulate</b> graph theory using python modules	Iv(Formulate)

**CO's PO's 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

## MARKS LIST :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	13	11	5	3	3	3	45
111722038002	10	12	5	3	3	4	46
111722038003	13	12	5	3	3	2	43
111722038004	12	12	5	3	3	3	43
111722038005	12	11	5	3	3	3	42
111722038006	11	11	5	3	3	2	44
111722038007	8	8	5	3	3	3	33
111722038008	13	13	5	3	3	4	42
111722038009	13	12	5	3	3	2	48
111722038010	9	7	5	3	3	1	44
111722038011	11	11	5	3	3	3	35
111722038012	11	13	5	3	3	4	48
111722038013	10	4	5	3	3	2	44
111722038014	9	11	5	3	3	1	46
111722038015	8	8	5	3	3	0	33
111722038016	12	13	5	3	3	2	49
111722038017	10	5	5	3	3	1	37
111722038018	5	5	5	3	3	1	42
111722038019	10	9	5	3	3	2	41
111722038020	9	10	5	3	3	2	37
111722038021	8	4	5	3	3	2	49

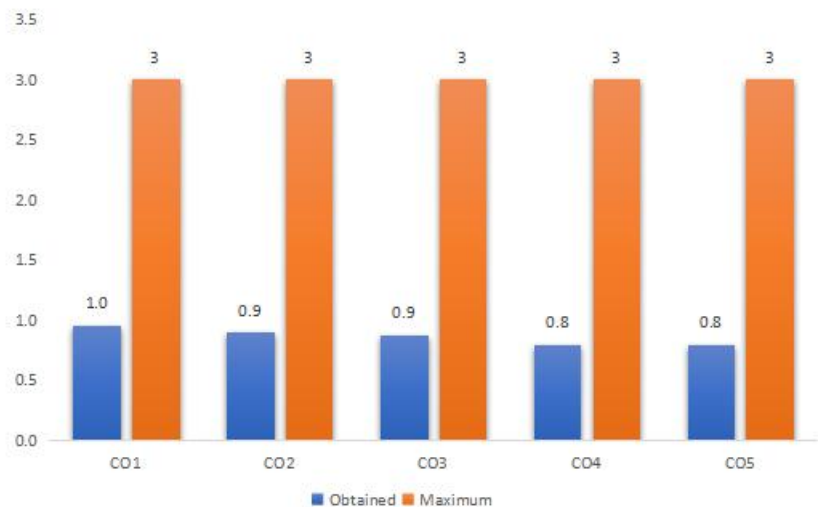
111722038022	10	12	5	3	3	2	42
111722038023	11	13	5	3	3	1	38
111722038024	12	11	5	3	3	2	54
111722038025	9	9	5	3	3	1	44
111722038026	13	12	5	3	3	1	44
111722038027	9	9	5	3	3	2	36
111722038028	6	6	5	3	3	1	36
111722038029	6	3	5	3	3	2	36
111722038030	10	11	5	3	3	1	44
111722038031	8	9	5	3	3	0	43
111722038032	6	13	5	3	3	2	41
111722038033	8	8	5	3	3	0	38
111722038034	9	9	5	3	3	0	42
111722038035	6	8	5	3	3	0	38
111722038036	10	12	5	3	3	1	42
111722038037	9	5	5	3	3	2	38
111722038038	13	13	5	3	3	1	46
111722038039	9	9	5	3	3	0	41
111722038041	9	9	5	3	3	0	36
111722038042	8	1	5	3	3	2	44
111722038043	6	3	5	3	3	1	41
111722038044	9	11	5	3	3	3	44
111722038045	9	7	5	3	3	1	36
111722038046	10	9	5	3	3	3	39
111722038047	11	11	5	3	3	0	41

111722038048	8	9	5	3	3	1	37
111722038049	10	7	5	3	3	0	32
111722038050	5	4	5	3	3	2	29

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		co wise external average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	53.1	0.0	2.4	63.3	0.0	0.0	1.0
CO2	100.0	3.0			100.0	3.0			100.0	3.0	53.1	0.0	2.3	63.3	0.0	0.0	0.9
CO3	100.0	3.0	83.7	2.0	100.0	3.0			100.0	3.0	53.1	0.0	2.2	63.3	0.0	0.0	0.9
CO4			83.7	2.0	100.0	3.0			100.0	3.0	53.1	0.0	2.0	63.3	0.0	0.0	0.8
CO5			83.7	2.0	100.0	3.0			100.0	3.0	53.1	0.0	2.0	63.3	0.0	0.0	0.8

AVERAGE	AVERAGE
0	0.868





## PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.88		H 0.88	H 0.88	H 0.88		H 0.88	
CO4	H 0.8		H 0.8	H 0.8			H 0.8	
CO5	H 0.8		H 0.8	H 0.8				H 0.8
AVERAGE OF COS FOR POS	0.868		0.868	0.845	0.88		0.86	0.8
AVERAGE OF POS	0.8496		0.8496	0.845	0.88		0.86	0.8
AVERAGE	0.847366667							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **SOFTWARE TESTING (CSAI23601A )**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Analyze</b> importance of testing in software development process, apply glass-box testing, black-box testing, and how to report and analyze bugs	II (Analyze)
<b>CO2</b>	<b>Identify</b> problem tracking system, different types of testing and test case design.	III (Identify)
<b>CO3</b>	<b>Understand</b> how to build testing strategy, establishing software testing methodology and software testing techniques.	I (Understand)
<b>CO4</b>	<b>Explain</b> the definition of quality, metrics for software quality and in section techniques.	II (Explain)
<b>CO5</b>	<b>Classify</b> software configuration management, software reengineering and software restructuring techniques.	III (classify)

**CO'S PO'S 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:  
Supportiv

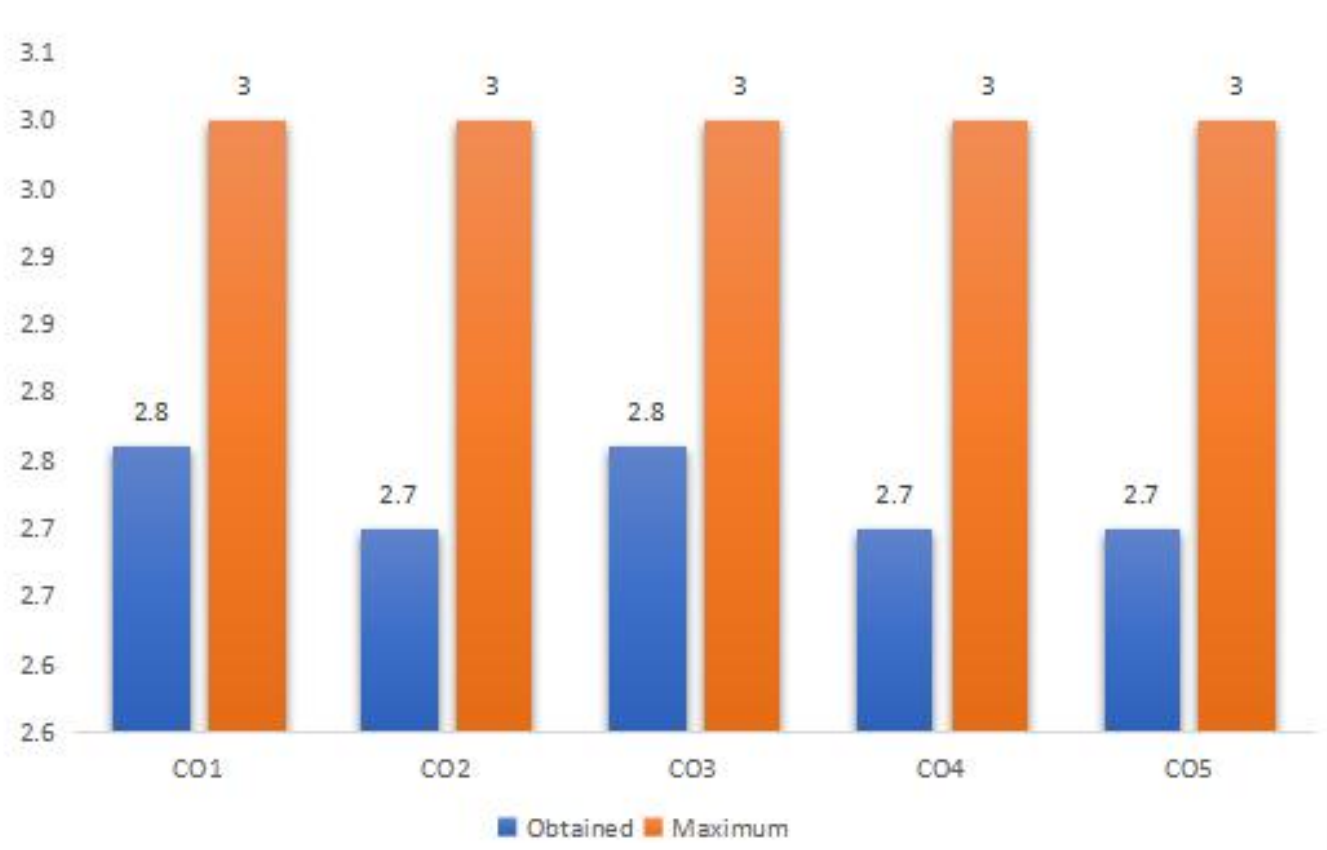
**MARKS LIST :**

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038002	12.25	12.25	5	3	3	1.6	59
111721038003	12	12	5	3	3	2.8	55
111721038005	12.5	12.5	5	3	3	1.2	60
111721038007	11.75	11.5	5	3	3	0.8	55
111721038008	12.5	12.5	5	3	3	1.6	59
111721038009	11.25	8.75	5	3	3	1.6	51
111721038011	8.5	7.5	5	3	3	2	44
111721038012	12.25	10	5	3	3	0	47
111721038019	5.5	0	5	3	3	0	47
111721038020	12.25	12.5	5	3	3	0.4	50
111721038022	3.5	5.5	5	3	3	0	41
111721038024	0	9.25	5	3	3	0	55
111721038025	12.25	11.75	5	3	3	3.6	58
111721038027	8	8.5	5	3	3	1.6	33
111721038030	11.5	9.5	5	3	3	0	45
111721038033	11	12	5	3	3	1.6	52
111721038036	11.25	9.5	5	3	3	0	54
111721038039	10.75	10	5	3	3	0.8	53
111721038043	12.25	12.5	5	3	3	1.6	58
111721038048	7	5	5	3	3	1.6	41
111721038049	11	12.25	5	3	3	0	55

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	90.5	3.0			100.0	3.0	100.0	3.0	100.0	3.0	47.6	0.0	2.4	95.2	3.0	3.0	2.8
CO2	90.5	3.0			100.0	3.0			100.0	3.0	47.6	0.0	2.3	95.2	3.0	3.0	2.7
CO3	90.5	3.0	95.2	3.0	100.0	3.0			100.0	3.0	47.6	0.0	2.4	95.2	3.0	3.0	2.8
CO4			95.2	3.0	100.0	3.0			100.0	3.0	47.6	0.0	2.3	95.2	3.0	3.0	2.7
CO5			95.2	3.0	100.0	3.0			100.0	3.0	47.6	0.0	2.3	95.2	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7		H 2.7	H 2.7			H 2.7	
CO3	H 2.76		H 2.76	H 2.76	H 2.76		H 2.76	
CO4	H 2.7		H 2.7	H 2.7			H 2.7	
CO5	H 2.7		H 2.7	H 2.7				H 2.7
AVERAGE OF COS FOR POS	2.724		2.724	2.715	2.76		2.72	2.7
AVERAGE OF POS	2.7168		2.7168	2.715	2.76		2.72	2.7
AVERAGE	2.721433333							

**BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**  
**COMPUTER VISION(CSAI23601B)**

**PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

**Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Understand basics concepts of Images	III (Undertand)
<b>CO2</b>	Compute manipulation on images	V (compute)
<b>CO3</b>	Differentiating and segmenting images	VI (Defferentiating)
<b>CO4</b>	Experimnet object detection using OpenCV	II(Classify)
<b>CO5</b>	Develop Object tracking and motion analysis	II(Develo)

**CO's PO's 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

**MARKS LIST :**

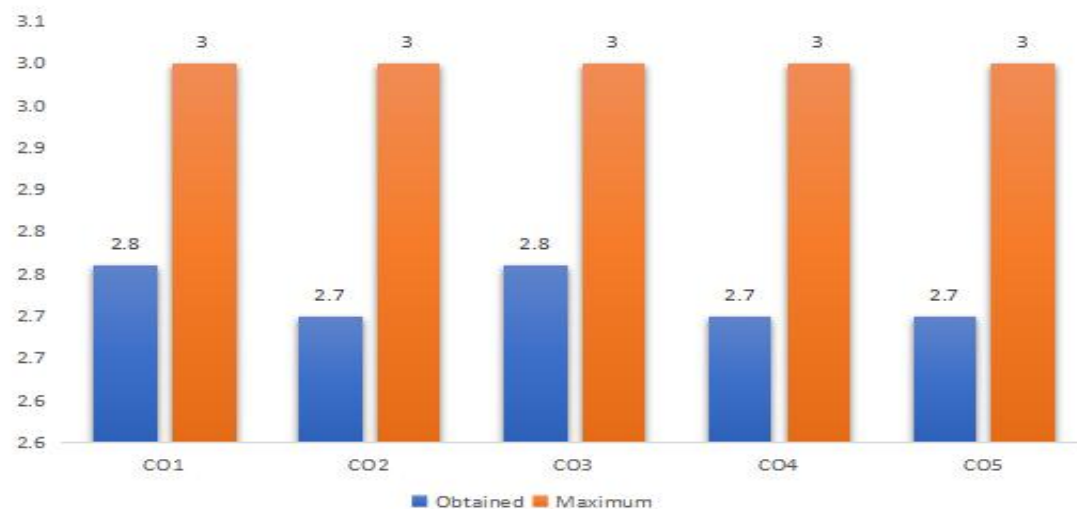
	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12.5	12.5	5	3	3	4	55
111721038004	10	10.5	5	3	3	1.6	50
111721038006	12.25	12.5	5	3	3	3.2	58
111721038010	9.25	5.5	5	3	3	0.4	52
111721038013	12.25	12.25	5	3	3	3.2	56
111721038014	10	8.5	5	3	3	0	57
111721038015	11.75	10.25	5	3	3	1.2	60
111721038016	0	8.5	5	3	3	0	40
111721038017	12.25	12	5	3	3	2.4	54
111721038018	12.25	12	5	3	3	2.4	54
111721038021	12.5	12.5	5	3	3	3.2	56
111721038023	10.5	6.5	5	3	3	0	52
111721038026	9.75	7.75	5	3	3	1.2	52
111721038029	11.5	8.5	5	3	3	0	53
111721038031	10.5	6.5	5	3	3	0	50
111721038032	11.5	10	5	3	3	0	57
111721038034	11.75	11	5	3	3	0.4	60
111721038035	11.5	10	5	3	3	0	58
111721038037	12.5	12.5	5	3	3	4	59
111721038038	8.25	7.5	5	3	3	4	38

<b>111721038041</b>	10.75	8.75	5	3	3	2.8	38
<b>111721038042</b>	0	8.5	5	3	3	0	36
<b>111721038044</b>	8.5	5.25	5	3	3	0	51
<b>111721038045</b>	12.5	12.5	5	3	3	4	55
<b>111721038046</b>	12.5	11.75	5	3	3	3.2	57
<b>111721038047</b>	12.5	12.5	5	3	3	4	60
<b>111721038050</b>	12	8.5	5	3	3	1.2	54

**CO Mapping :**

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	92.6	3.0			100.0	3.0	100.0	3.0	100.0	3.0	48.1	0.0	2.4	88.9	3.0	3.0	2.8
CO2	92.6	3.0			100.0	3.0			100.0	3.0	48.1	0.0	2.3	88.9	3.0	3.0	2.7
CO3	92.6	3.0	100.0	3.0	100.0	3.0			100.0	3.0	48.1	0.0	2.4	88.9	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	48.1	0.0	2.3	88.9	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	48.1	0.0	2.3	88.9	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7		H 2.7	H 2.7			H 2.7	
CO3	H 2.76		H 2.76	H 2.76	H 2.76		H 2.76	
CO4	H 2.7		H 2.7	H 2.7			H 2.7	
CO5	H 2.7		H 2.7	H 2.7				H 2.7
AVERAGE OF COS FOR POS	2.724		2.724	2.715	2.76		2.72	2.7
AVERAGE OF POS	2.7168		2.7168	2.715	2.76		2.72	2.7
AVERAGE	2.721433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **HUMAN COMPUTER INTERACTION (CSAI23602A)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Explain HCI and principles to interaction design.</b>	II(Explain)
<b>CO2</b>	<b>Design certain tools for blind or PH people.</b>	IV (Design)
<b>CO3</b>	<b>Understand</b> Navigation schemes	III(understand)
<b>CO4</b>	<b>Evaluation</b> through user participation	I (Evaluation)
<b>CO5</b>	<b>Design</b> Application	Iv (Explain)

**CO's PO's 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

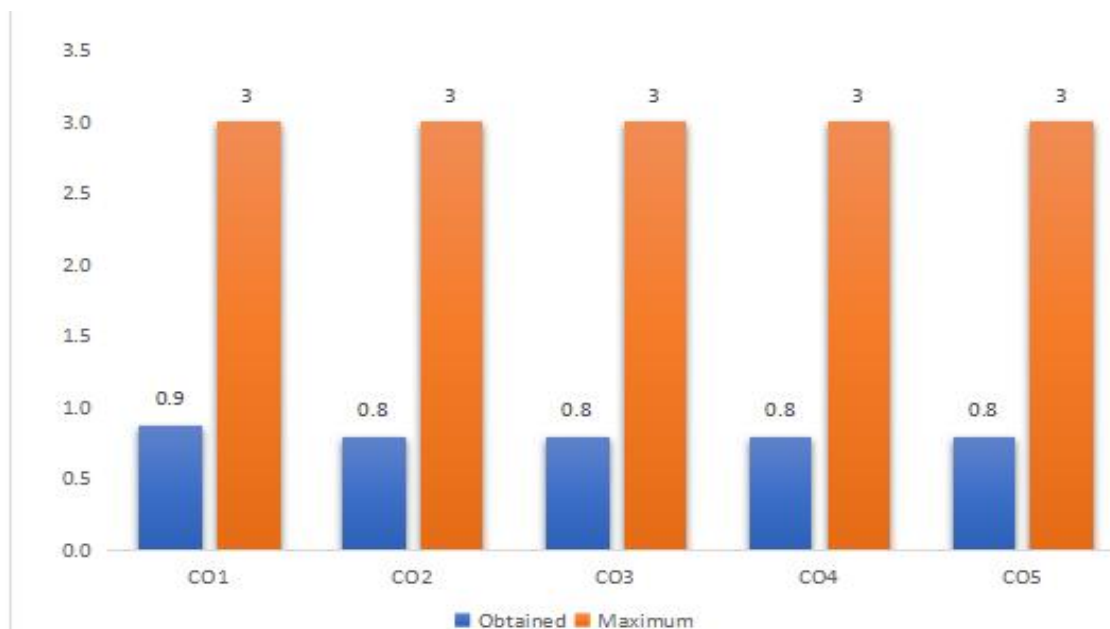
## MARKS LIST :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12.25	12.5	5	3	3	2.4	54
111721038004	8	7.5	5	3	3	2	30
111721038006	11.5	10.5	5	3	3	2.4	45
111721038013	9.5	2.5	5	3	3	0.4	47
111721038020	8	11.25	5	3	3	1.6	45
111721038021	12.25	12.5	5	3	3	2.8	51
111721038023	9.25	9.25	5	3	3	0	42
111721038024	0	6.25	5	3	3	0	48
111721038026	0	8.5	5	3	3	0	39
111721038027	3.25	5	5	2	3	0	25
111721038029	7.5	8.75	5	2	3	0	41
111721038030	5.75	4.25	5	3	2	0	36
111721038036	3	3.5	5	2	3	0	39
111721038037	11.75	11.25	5	3	3	3.6	50
111721038038	5	5	5	3	3	4	24
111721038041	8.25	10	5	3	3	1.2	40
111721038045	11.75	12.5	5	3	3	4	41
111721038046	10.5	12.25	5	3	3	2.4	48
111721038047	12.25	12.5	5	3	3	4	53
111721038048	5	5	5	3	3	0	39
111721038050	10.5	11.25	5	3	3	0	38

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	81.0	2.0			100.0	3.0	100.0	3.0	100.0	3.0	47.6	0.0	2.2	61.9	0.0	0.0	0.9
CO2	81.0	2.0			100.0	3.0			100.0	3.0	47.6	0.0	2.0	61.9	0.0	0.0	0.8
CO3	81.0	2.0	81.0	2.0	100.0	3.0			100.0	3.0	47.6	0.0	2.0	61.9	0.0	0.0	0.8
CO4			81.0	2.0	100.0	3.0			100.0	3.0	47.6	0.0	2.0	61.9	0.0	0.0	0.8
CO5			81.0	2.0	100.0	3.0			100.0	3.0	47.6	0.0	2.0	61.9	0.0	0.0	0.8

AVERAGE	AVERAGE
0	0.816



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.88		H 0.88					
CO2	H 0.8		H 0.8	H 0.8			H 0.8	
CO3	H 0.8		H 0.8	H 0.8	H 0.8		H 0.8	
CO4	H 0.8		H 0.8	H 0.8			H 0.8	
CO5	H 0.8		H 0.8	H 0.8				H 0.8
AVERAGE OF COS FOR POS	0.816		0.816	0.8	0.8		0.8	0.8
AVERAGE OF POS	0.8032		0.8032	0.8	0.8		0.8	0.8
AVERAGE	0.801066667							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DATA SECURITY(CSAI23602B)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
CO1	<b>Identify</b> some of the factors driving the need for data security	I (Identify)
CO2	<b>Examine</b> and classify particular examples of attacks	II (Examine)
CO3	<b>Classify</b> the terms vulnerability, threat and attack	III (Classify)
CO4	<b>Analyze physical points of vulnerability in simple</b> networks	v(Analyze)
CO5	<b>Compare</b> and contrast symmetric and asymmetric encryption	Iv(compare)

**CO's PO's 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

## MARKS LIST :

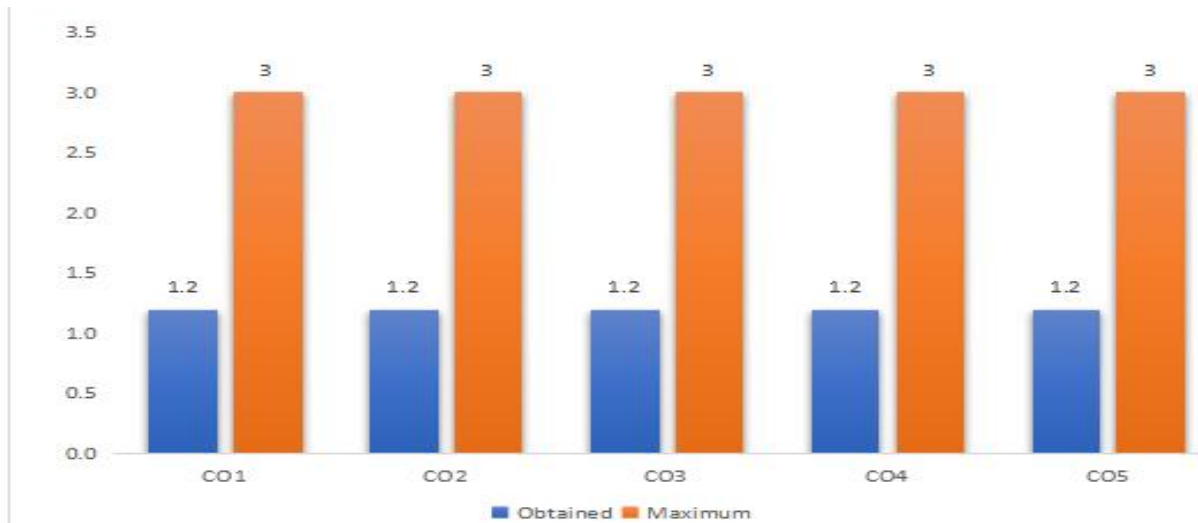
uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038002	12.5	12.5	5	3	3	4	45
111721038003	12	12.5	5	3	3	4	45
111721038005	12.5	12.5	5	3	3	4	48
111721038007	12.5	12.5	5	3	3	4	45
111721038008	12.5	12.5	5	3	3	4	50
111721038009	12	11.75	5	3	3	4	31
111721038010	10	10.5	5	3	3	2.4	35
111721038011	12.25	12	5	3	3	4	31
111721038012	11	10	5	3	3	4	31
111721038014	12	12.25	5	3	3	4	38
111721038015	12.5	12.25	5	3	3	4	43
111721038016	11.75	11.25	5	3	3	1.6	46
111721038017	12.5	12.25	5	3	3	4	38
111721038018	12.5	12.5	5	3	3	4	41
111721038019	12.25	12	5	3	3	4	32
111721038022	7.5	8.25	5	3	3	4	35
111721038025	12.5	12.5	5	3	3	4	40
111721038031	12	12.25	5	3	3	4	43

<b>111721038032</b>	12.5	12.5	5	3	3	3.2	42
<b>111721038033</b>	12.5	12	5	3	3	4	34
<b>111721038034</b>	12.5	12	5	3	3	4	46
<b>111721038035</b>	12.5	12.25	5	3	3	4	43
<b>111721038039</b>	12	12	5	3	3	4	42
<b>111721038042</b>	8.5	10.5	5	3	3	4	13
<b>111721038043</b>	12.5	12.5	5	3	3	4	53
<b>111721038044</b>	10	9.5	5	3	3	2.4	36
<b>111721038049</b>	12.5	12.5	5	3	3	4	50

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	100.0	3.0	3.0	59.3	0.0	0.0	1.2
CO2	100.0	3.0			100.0	3.0			100.0	3.0	100.0	3.0	3.0	59.3	0.0	0.0	1.2
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	59.3	0.0	0.0	1.2
CO4			100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	59.3	0.0	0.0	1.2
CO5			100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	59.3	0.0	0.0	1.2

AVERAGE	AVERAGE
0	1.2



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.2		H 1.2					
CO2	H 1.2		H 1.2	H 1.2			H 1.2	
CO3	H 1.2		H 1.2	H 1.2	H 1.2		H 1.2	
CO4	H 1.2		H 1.2	H 1.2			H 1.2	
CO5	H 1.2		H 1.2	H 1.2				H 1.2
AVERAGE OF COS FOR POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE OF POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE	1.2							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **Deep-learning(CSAI23603)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Understand</b> the basics of deep learning	II (Explain)
<b>CO2</b>	<b>Understand</b> the usage of tensors in deep learning	IV (Divides)
<b>CO3</b>	<b>Understand</b> the LSTM and GRU layers	III (Apply)
<b>CO4</b>	<b>Apply</b> Python deep-learning framework Keras, with Tensor-Flow as a backend engine.	III (Construct)
<b>CO5</b>	<b>Apply</b> Auto encoders	I(Select)

**CO's PO's 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

## MARKS LIST :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12.5	12.5	5	3	3	4	53
111721038002	12.5	12.5	5	3	3	2.8	51
111721038003	11	11.75	5	3	3	0.8	42
111721038004	11.25	8.75	5	3	3	2	34
111721038005	12.5	12.5	5	3	3	2	49
111721038006	9.5	12.5	5	3	3	0.4	48
111721038007	12.5	12.5	5	3	3	2	55
111721038008	12.5	12.25	5	3	3	0	52
111721038009	10.25	9.5	5	3	3	1.6	42
111721038010	9	6	5	3	2	0	42
111721038011	8	4.25	5	3	1	0	34
111721038012	8	7.5	5	3	1	0.8	43
111721038013	12	11.5	5	3	2	0	46
111721038014	9.25	5	5	3	3	1.6	37
111721038015	11.5	10.25	5	3	3	0	51
111721038016	3.25	5.75	5	3	3	0.4	37
111721038017	12	9	5	1	3	0	47
111721038018	12.5	11.5	5	3	3	0.8	53
111721038019	3	7	5	3	3	1.2	48
111721038020	7.5	10.5	5	3	2	0	50
111721038021	12.5	12.5	5	3	3	0	55

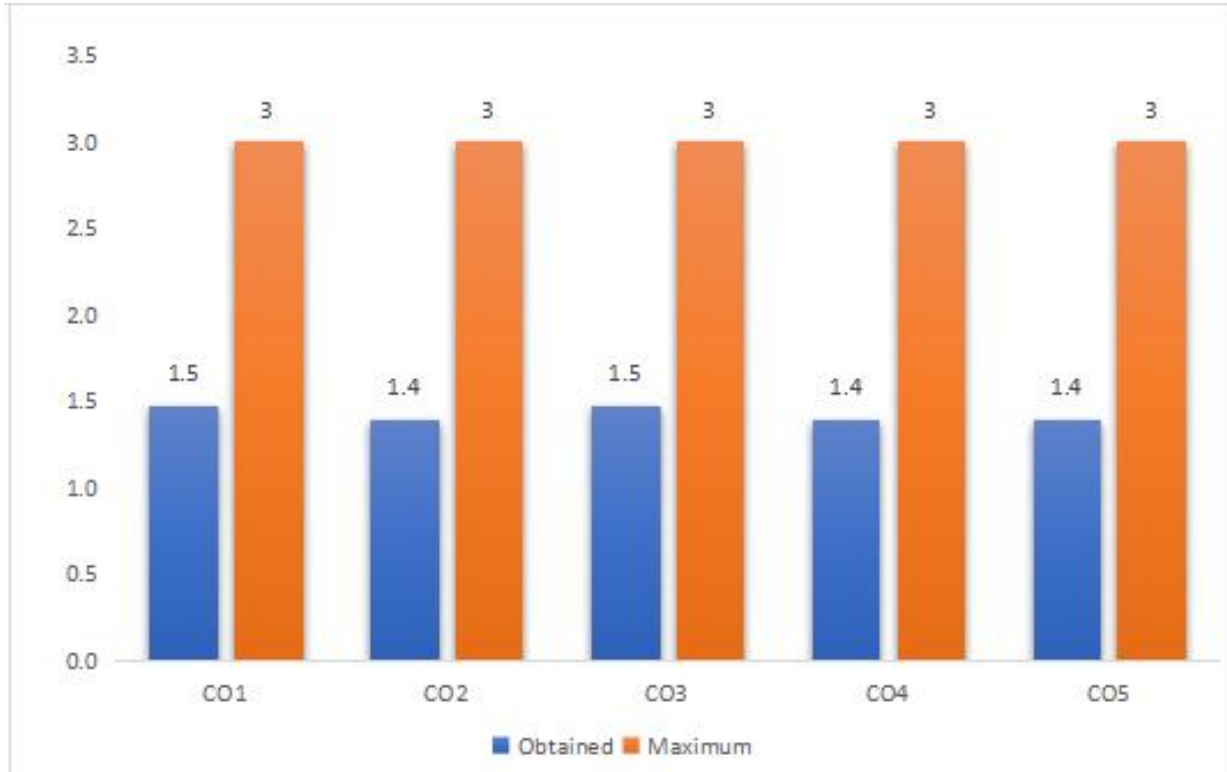
111721038022	5	9	5	3	3	2.8	33
111721038023	6.5	7	5	3	2	0	51
111721038024	2.75	12.5	5	3	2	0.4	50
111721038025	11.5	9.75	5	3	2	0	48
111721038026	11.25	11.5	5	3	1	2	40
111721038027	6.75	4	5	3	2	0	32
111721038029	12	10.75	5	3	1	0.8	44
111721038030	3	8.25	5	3	1	0	40
111721038031	10	8.5	5	1	3	0	40
111721038032	9.5	9	5	3	2	0	51
111721038033	10	9.5	5	3	2	0	40
111721038034	12.5	12.5	5	3	2	0.4	46
111721038035	8.5	10.5	5	3	2	0	48
111721038036	10.25	4.75	5	2	2	0	42
111721038037	12.5	12.5	5	3	1	0	53
111721038038	7.5	7.5	5	3	3	3.6	26
111721038039	9.5	9.75	5	3	1	3.2	46
111721038041	12	9.25	5	3	3	0	39
111721038042	0	1	5	3	3	2	26
111721038043	12.5	12.5	5	0	1	0	54
111721038044	0.25	6.5	5	3	3	1.2	26
111721038045	12.5	12.5	5	3	1	0	48
111721038046	12.5	11.25	5	3	3	3.6	49
111721038047	12.5	12.5	5	3	3	2	55
111721038048	1.5	4	5	3	3	3.6	39

111721038049	12.5	12.5	5	1	1	1.2	50
111721038050	12.5	8.25	5	3	3	0	39

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	85.4	3.0			100.0	3.0	91.7	3.0	79.2	2.0	31.3	0.0	2.2	75.0	1.0	1.0	1.5
CO2	85.4	3.0			100.0	3.0			79.2	2.0	31.3	0.0	2.0	75.0	1.0	1.0	1.4
CO3	85.4	3.0	89.6	3.0	100.0	3.0			79.2	2.0	31.3	0.0	2.2	75.0	1.0	1.0	1.5
CO4			89.6	3.0	100.0	3.0			79.2	2.0	31.3	0.0	2.0	75.0	1.0	1.0	1.4
CO5			89.6	3.0	100.0	3.0			79.2	2.0	31.3	0.0	2.0	75.0	1.0	1.0	1.4

AVERAGE	AVERAGE
1	1.432



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.48		H 1.48					
CO2	H 1.4		H 1.4	H 1.4			H 1.4	
CO3	H 1.48		H 1.48	H 1.48	H 1.48		H 1.48	
CO4	H 1.4		H 1.4	H 1.4			H 1.4	
CO5	H 1.4		H 1.4	H 1.4				H 1.4
AVERAGE OF COS FOR POS	1.432		1.432	1.42	1.48		1.426666667	1.4
AVERAGE OF POS	1.4224		1.4224	1.42	1.48		1.42667	1.4
AVERAGE	1.428577778							

## **B.Sc. COMPUTER SCIENCE & ARTIFICIAL INTELLIGENCE**

### **PROBLEM SOLVING AND PROGRAMMING IN C**

**MAPPING COURSE OUTCOMES LEADING TO THE ATTAINMENT OF PROGRAM OUTCOMES:**

**COURSE TITLE: PROBLEM SOLVING AND PROGRAMMING IN C**

**COURSE CODE: B S 21104**

**CREDITS: 5**

**DEPARTMENT: B.Sc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

**PROGRAMME OUTCOMES Or POS(MDS):**

#### **PROGRAM OBJECTIVES (POs)**

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

- **PSO1:** ability to understand and adapt to the contemporary trends and best practices of industry and research standards
- **PSO2:** Ability to design and implement ethical sustainable solutions with a cutting-edge combination of Artificial Intelligence , Machine Learning, Natural Language Processing etc
- **PSO3:** ability to design smart machines
- **PSO4:** Ability to represent the knowledge and transform the real-life information into a different representation.
- **PSO 5:** implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Explain</b> the basic introduction of computer and programming languages.	II (Explain)
<b>CO2</b>	<b>Categorize</b> different data types, operators and data input /output functions in 'C' . .	III (Categorise)
<b>CO3</b>	<b>Develop</b> programs using 'C' control structures, arrays and string concept.	III (Develop)
<b>CO4</b>	<b>Analyse</b> larger problems into smaller ones using 'C' functions.	IV (Analyse)
<b>CO5</b>	<b>Create</b> programs using the concept of structures, union and file handling in 'C'.	V (Create)



**COS,POS,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

**Marks List :**

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	11.75	12	5	3	3	3.6	49
111723038002	6.75	4.75	4	3	2	3.6	37
111723038003	12	11	4	3	3	4	48
111723038004	7.75	7.75	4	3	2	2	37
111723038005	11	9.5	4	3	3	4	47
111723038006	6	6.25	5	3	2	3.2	42
111723038007	11.5	9	5	3	3	3.6	48
111723038008	8.25	6	4	3	3	2	45
111723038009	8.75	10.25	5	3	3	3.2	47
111723038010	8.75	9.5	5	3	3	3.6	47
111723038011	7.75	8.5	5	3	3	4	43
111723038012	7	7.25	5	3	3	1.2	40
111723038013	5.5	9.5	5	3	3	3.2	44
111723038014	10.75	10.5	5	3	3	3.2	47
111723038015	11.75	11.5	5	3	3	2.8	49
111723038016	9	10.5	5	3	3	4	44
111723038017	6.75	10.5	5	3	3	3.6	37
111723038018	8.25	10.5	5	3	3	3.2	47
111723038019	7	9.25	5	3	3	3.2	44
111723038020	12	11.75	5	3	3	4	50

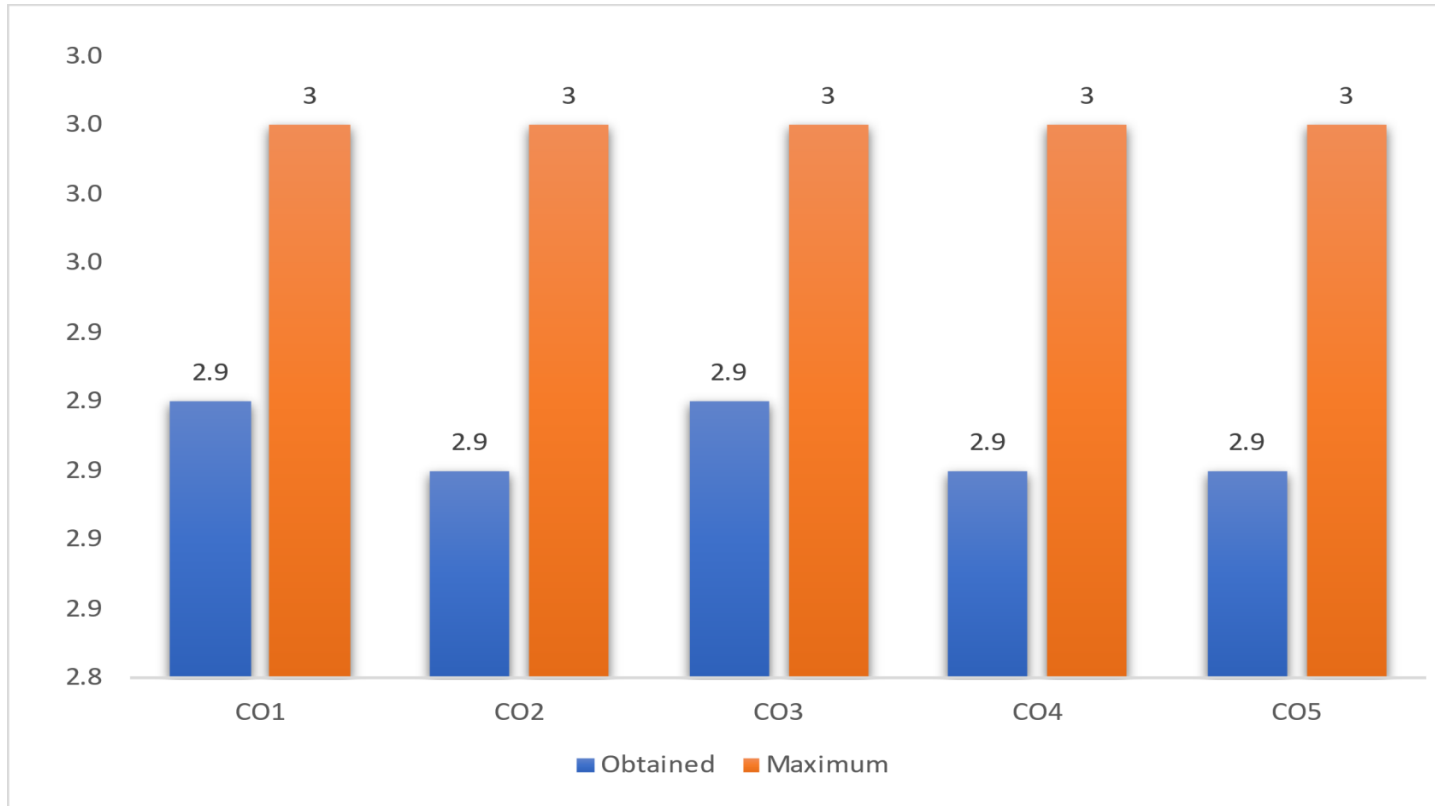
111723038021	10	11.5	5	3	3	4	52
111723038022	9.75	11.75	5	3	3	4	47
111723038023	9.5	10.5	4	3	3	3.2	40
111723038024	7.75	9	5	3	3	2	43
111723038025	7.5	7.75	5	3	3	1.6	34
111723038026	3	5.75	4	3	2	1.6	31
111723038027	5.75	9	4	3	3	3.6	38
111723038028	7.5	7.5	4	3	3	2.4	30
111723038029	10.75	11	5	3	3	3.2	43
111723038030	6	5.5	4	3	2	2.8	42
111723038031	8	8	4	3	3	2.4	43
111723038032	10.25	12	5	3	3	2.4	43
111723038033	5	6	4	3	3	1.2	35
111723038034	7.25	9.5	4	3	3	3.6	37
111723038035	3	5.5	4	3	3	0	34
111723038036	5.75	8.75	4	3	3	0.8	50
111723038037	7.5	8	4	3	3	3.6	42
111723038038	6.75	6.75	4	3	3	3.2	38
111723038039	4.75	6	4	3	3	1.2	33
111723038040	5.5	4.5	4	3	3	3.2	21
111723038041	7	8	4	3	3	3.6	47
111723038042	9.25	9	4	3	3	3.6	41
111723038043	6.75	7.5	4	3	3	0.8	42
111723038044	6.5	4.75	4	3	3	2.4	28
111723038045	7.75	5	4	3	3	1.2	38

111723038046	3.25	2.5	4	3	3	0	42
111723038047	7	5.25	4	3	3	2.4	42
111723038048	10	10.5	5	3	3	2.4	42
111723038049	8	7.25	4	3	3	1.6	42
111723038050	9.5	9.5	5	3	3	3.2	49

## CO Mapping:

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	92.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	84.0	2.0	2.8	70.0	1.0	1.0	1.7
CO2	92.0	3.0			100.0	3.0			100.0	3.0	84.0	2.0	2.8	70.0	1.0	1.0	1.7
CO3	92.0	3.0	92.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	70.0	1.0	1.0	1.7
CO4			92.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	70.0	1.0	1.0	1.7
CO5			92.0	3.0	100.0	3.0			100.0	3.0	84.0	2.0	2.8	70.0	1.0	1.0	1.7

AVERAGE	AVERAGE
1	1.708



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.72		H 1.72					
CO2	H 1.7		H 1.7	H 1.7			H 1.7	
CO3	H 1.72		H 1.72	H 1.72	H 1.72		H 1.72	
CO4	H 1.7		H 1.7	H 1.7			H 1.7	
CO5	H 1.7		H 1.7	H 1.7				H 1.7
AVERAGE OF COS FOR POS	1.708		1.708	1.705	1.72		1.706666667	1.7
AVERAGE OF POS	1.7056		1.7056	1.705	1.72		1.706666667	1.7
AVERAGE	1.707144444							

## VALUE EDUCATION AND PERSONALITY DEVELOPMENT

**COURSE TITLE: VALUE EDUCATION AND PERSONALITY DEVELOPMENT**

**COURSE CODE: VE18101**

**CREDITS: 2**

**DEPARTMENT: Computer Science and Artificial Intelligence.**

**PROGRAMME OUTCOMES(BSC):**

**Programme Outcomes – (B.Sc. Computer Science and Artificial Intelligence.)**

- **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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Students will be able to <b>differentiate</b> Accepted norms and Counter values and be able to identify the various Dimensions of Human Development.	II (Understand)
<b>CO2</b>	Students will be able to <b>demonstrate</b> Love and Experience of God and identify the Basic Issues of Life and Happiness as a life goal.	VI (Create)
<b>CO3</b>	They will able to <b>understand</b> the importance of Concern for others and critique the various problems that deter the growth of the society.	VI (Create)
<b>CO4</b>	The students will be able to <b>recognize</b> the traits of a good personality and practice Self-exploration.	III (Apply)
<b>CO5</b>	Students will be able to <b>interpret</b> the Purpose of Life and Goal Setting and demonstrate Self-management.	VI (Create)

**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

**Marks List :**

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	12.25	12.5	5	3	3	3.6	53
111723038002	6.25	9.75	5	3	3	3.2	40
111723038003	10.5	12.5	5	3	3	4	58
111723038004	11.5	11.5	5	3	3	2	54
111723038005	11.75	9.5	5	3	3	4	58
111723038006	7.5	7.25	5	3	3	3.2	43
111723038007	10	10.5	5	3	3	3.6	43
111723038008	11	10.5	5	3	3	1.2	53
111723038009	10.5	12	5	3	3	3.2	58
111723038010	9	12.5	5	3	3	3.6	56
111723038011	8.25	9.5	5	3	3	3.2	38
111723038012	9.5	10.25	5	3	3	2	48
111723038013	7	11.25	5	3	3	3.2	52
111723038014	10.25	12.25	5	3	3	3.2	58
111723038015	12.5	12.5	5	3	3	2	56
111723038016	10.25	11.5	5	3	3	4	46
111723038017	10.25	11.5	5	3	3	3.2	51
111723038018	10.75	11.25	5	3	3	3.2	58
111723038019	10.25	12.25	5	3	3	3.2	56
111723038020	11	11.5	5	3	3	4	60

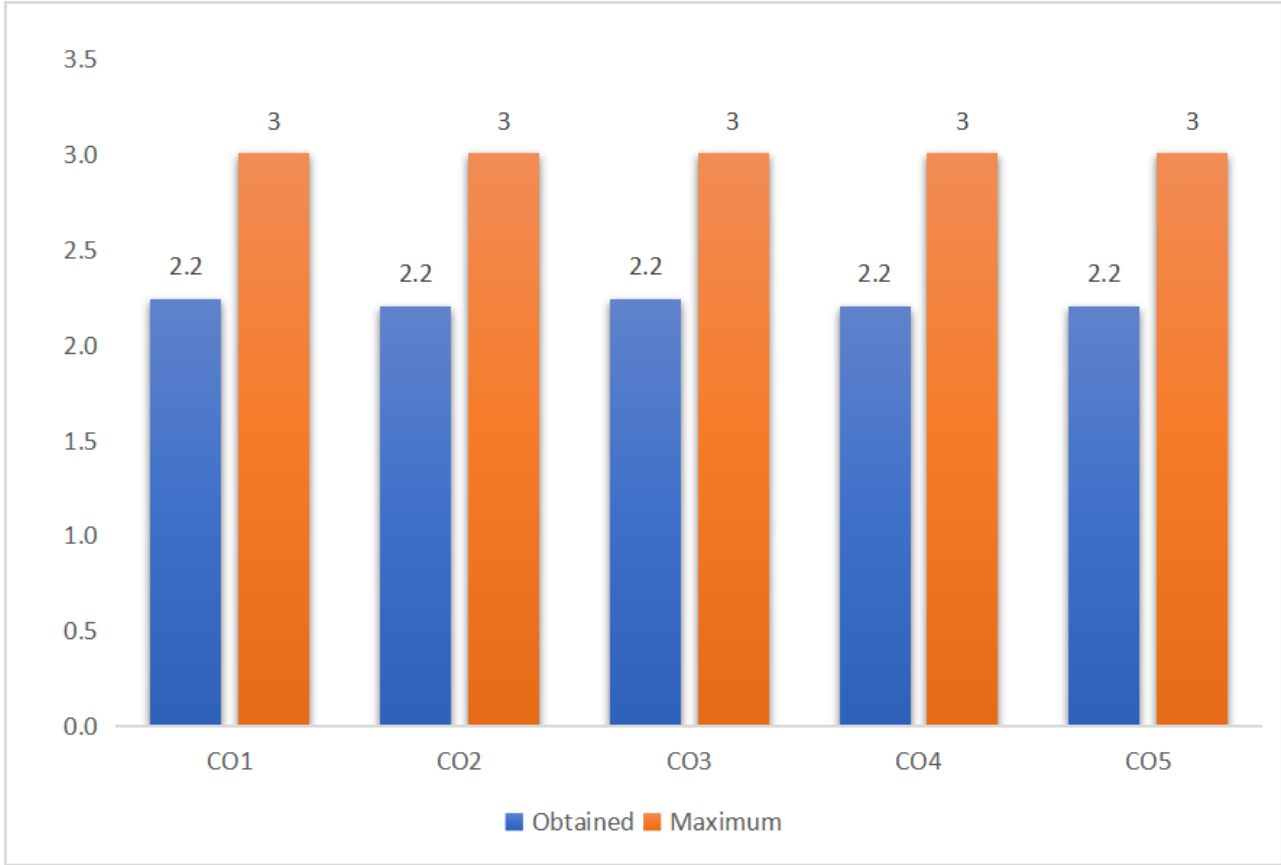
111723038021	10.75	11.75	5	3	3	4	56
111723038022	10	10.5	5	3	3	4	43
111723038023	10	11.75	5	3	3	3.2	44
111723038024	11	10.5	5	3	3	1.2	52
111723038025	6.75	9	5	3	3	1.2	56
111723038026	0.5	6.25	5	3	3	0	37
111723038027	6.25	7.75	5	3	3	3.6	38
111723038028	8.75	0	5	3	3	0.4	43
111723038029	10.25	10.5	5	3	3	2.4	43
111723038030	7.75	9.25	5	3	3	2.4	48
111723038031	8	7.75	5	3	3	3.6	48
111723038032	8.25	7.5	5	3	3	0.4	48
111723038033	7.5	7.5	5	3	3	0	27
111723038034	7.75	8.25	5	3	3	3.2	34
111723038035	10.25	10.75	5	3	3	0	45
111723038036	8.5	11.25	5	3	3	1.2	53
111723038037	9.25	11	5	3	3	3.6	47
111723038038	8.25	8	5	3	3	2.4	38
111723038039	5.75	5.25	5	3	3	0	38
111723038040	6.75	9.25	5	3	3	3.6	48
111723038041	9	10.5	5	3	3	3.6	45
111723038042	7.25	12.25	5	3	3	3.6	56
111723038043	7.75	7.75	5	3	3	0	39
111723038044	3.25	7.5	5	3	3	1.6	33
111723038045	5	7.25	5	3	3	0.4	38

111723038046	1.5	5	5	3	3	0	44
111723038047	6.25	9	5	3	3	3.6	43
111723038048	8.5	12	5	3	3	1.6	53
111723038049	8	9	5	3	3	1.6	54
111723038050	11	12.25	5	3	3	3.2	53

## CO Mapping:

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	94.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	74.0	1.0	2.6	80.0	2.0	2.0	2.2
CO2	94.0	3.0			100.0	3.0			100.0	3.0	74.0	1.0	2.5	80.0	2.0	2.0	2.2
CO3	94.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.6	80.0	2.0	2.0	2.2
CO4			98.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.5	80.0	2.0	2.0	2.2
CO5			98.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.5	80.0	2.0	2.0	2.2

AVERAGE	AVERAGE
2	2.216



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.24		H 2.24					
CO2	H 2.2		H 2.2	H 2.2			H 2.2	
CO3	H 2.24		H 2.24	H 2.24	H 2.24		H 2.24	
CO4	H 2.2		H 2.2	H 2.2			H 2.2	
CO5	H 2.2		H 2.2	H 2.2				H 2.2
AVERAGE OF COS FOR POS	2.216		2.216	2.21	2.24		2.213333333	2.2
AVERAGE OF POS	2.2112		2.2112	2.21	2.24		2.213333333	2.2
AVERAGE	2.214288889							

## GENERAL ENGLISH - I

**COURSE TITLE: GENERAL ENGLISH - I**  
**COURSE CODE: EN23101**  
**CREDITS: 3**

**DEPARTMENT: Computer Science and Artificial Intelligence.**

**PROGRAMME OUTCOMES(BSC):**

### **Programme Outcomes – (B.ScComputer Science and Artificial Intelligence)**

- **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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	To <b>distinguish</b> between words which are either spelt or pronounced alike, yet render distinct meanings; imparting a sound clarity on everyday usage of language and for developing the art of parallel listening and writing.	(Distinguish)
<b>CO2</b>	To <b>construct</b> vocabulary and to gain understanding on the tense component, a pivotal constituent for language structuring and vocabulary building.	(Construct)
<b>CO3</b>	To <b>identify</b> with economical word constructions, paying specific attention in constructing sound writing skills.	(Identify)
<b>CO4</b>	To <b>interpret</b> functional grammar, the basic part involved in sentence constructing to improve linguistic skills.	(Interpret)
<b>CO5</b>	To <b>develop</b> communication skills to provide a platform for language efficiency for effective language delivery.	(Develop)

**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

## Marks List :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	10.75	12	5	3	3	4	46
111723038002	6.25	6.75	5	3	3	4	41
111723038003	8.5	10	5	3	3	4	45
111723038004	8.5	7.5	5	3	3	1.6	42
111723038005	7	9.5	5	3	3	4	43
111723038006	5	5.5	5	3	3	3.2	38
111723038007	7	10	5	3	3	3.6	43
111723038008	9.5	8.75	5	3	3	1.2	46
111723038009	7.5	8.5	5	3	3	2.8	45
111723038010	6.25	8	5	3	3	3.6	46
111723038011	6.5	5.5	5	3	3	3.2	41
111723038012	8.75	8.5	5	3	3	1.6	44
111723038013	7	7.25	5	3	3	1.6	41
111723038014	8	8.5	5	3	3	1.6	46
111723038015	10.5	9	5	3	3	2.8	45
111723038016	7.75	9.75	5	3	3	4	45
111723038017	9.75	11.25	5	3	3	4	44
111723038018	11	8.25	5	3	3	3.6	50
111723038019	7.75	8.5	5	3	3	3.2	43

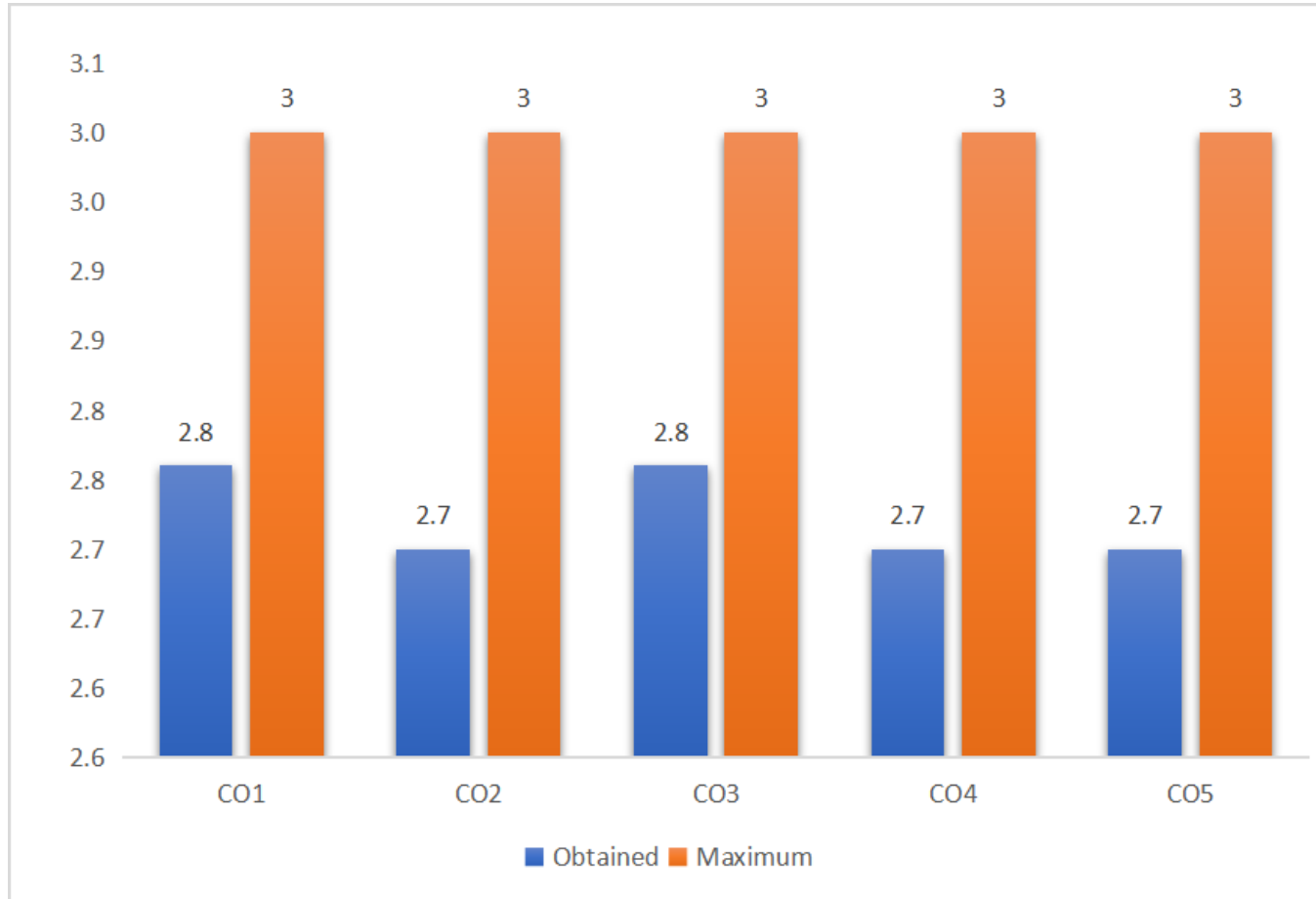
111723038020	8	10.25	5	3	3	4	49
111723038021	7.75	10	5	3	3	4	44
111723038022	8	10.25	5	3	3	4	45
111723038023	7.5	7	5	3	3	3.2	46
111723038024	7.75	7	5	3	3	0.4	42
111723038025	7	5	5	3	3	0.8	44
111723038026	7.5	5	1	3	3	0	41
111723038027	7.5	6.75	5	3	3	3.6	36
111723038028	10.25	7.5	5	3	3	1.2	40
111723038029	9.25	8	5	3	3	3.2	45
111723038030	7.75	5.75	1	3	3	0.8	44
111723038031	7.5	6.5	5	3	3	1.6	43
111723038032	6	10	5	3	3	1.2	43
111723038033	5.75	3.75	5	3	3	0	40
111723038034	7	6.25	5	3	3	1.6	40
111723038035	7.25	6.75	5	3	3	0	44
111723038036	8	6	5	3	3	1.2	43
111723038037	6.75	7.5	5	3	3	3.6	42
111723038038	5.5	5.75	5	3	3	1.2	33
111723038039	10	8.25	1	3	3	0	43
111723038040	5	3	5	3	3	1.2	33
111723038041	7.25	6.75	5	3	3	2.4	47
111723038042	8.25	8.5	5	3	3	2	44
111723038043	8	7	1	3	3	0	46
111723038044	6.75	5.5	5	3	3	0	36

111723038045	6.75	5	5	3	3	1.2	44
111723038046	6.5	3.5	5	3	3	0.8	40
111723038047	6	5	5	3	3	0.8	45
111723038048	9.5	8	5	3	3	2.4	45
111723038049	6.5	6.25	5	3	3	1.6	40
111723038050	8.25	8.75	5	3	3	3.6	42

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	100.0	3.0			92.0	3.0	100.0	3.0	100.0	3.0	64.0	0.0	2.4	90.0	3.0	3.0	2.8
CO2	100.0	3.0			92.0	3.0			100.0	3.0	64.0	0.0	2.3	90.0	3.0	3.0	2.7
CO3	100.0	3.0	94.0	3.0	92.0	3.0			100.0	3.0	64.0	0.0	2.4	90.0	3.0	3.0	2.8
CO4			94.0	3.0	92.0	3.0			100.0	3.0	64.0	0.0	2.3	90.0	3.0	3.0	2.7
CO5			94.0	3.0	92.0	3.0			100.0	3.0	64.0	0.0	2.3	90.0	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7		H 2.7	H 2.7			H 2.7	
CO3	H 2.76		H 2.76	H 2.76	H 2.76		H 2.76	
CO4	H 2.7		H 2.7	H 2.7			H 2.7	
CO5	H 2.7		H 2.7	H 2.7				H 2.7
AVERAGE OF COS FOR POS	2.724		2.724	2.715	2.76		2.72	2.7
AVERAGE OF POS	2.7168		2.7168	2.715	2.76		2.72	2.7
AVERAGE	2.721433333							

## Fundamentals of IoT & Robotics

**COURSE TITLE: FUNDAMENTALS OF IoT AND ROBOTICS**

**COURSE CODE: CSAI21102**

**CREDITS: 4**

**DEPARTMENT: Computer Science & Artificial Intelligence.**

**PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

### **Programme Outcomes – (B.Sc.Computer Science & Artificial Intelligence.)**

- **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:** Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.  
 PSO3: Ability to design smart machines.  
 PSO4: Ability to represent the knowledge and transform the real life information into a different representation.  
 PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Students will be <b>Understand</b> fundamentals of IoT.	(Understand)
<b>CO2</b>	Students will be able to <b>classify</b> and familiarized with broad range of topics in robotics with emphasis on basics of manipulators, coordinate transformation and kinematics.	(Classify)
<b>CO3</b>	Students will be able <b>understand</b> the concepts of actuators and their implementation.	(Understand)
<b>CO4</b>	Students will be able to learn types of sensors and they can <b>apply</b> in real-time.	III (Apply)
<b>CO5</b>	Students will be able to <b>demonstrate</b> with trajectory planning and Robotic control techniques.	(Demonstrate)



**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

## Marks List :

uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	12	12.25	5	3	3	4	42
111723038002	7	6.5	5	3	3	3.6	31
111723038003	11.5	12.25	5	3	3	4	33
111723038004	7	8.25	5	3	3	0	30
111723038005	10.75	9	5	3	3	4	43
111723038006	7.5	5.5	5	3	3	0	28
111723038007	11.5	10.5	5	3	3	3.6	35
111723038008	10.5	7.5	5	3	3	2.4	28
111723038009	11.5	11.25	5	3	3	2.8	29
111723038010	12	11.5	5	3	3	3.2	35
111723038011	10.75	8	5	3	3	3.2	23
111723038012	8	8.25	5	3	3	0	ABSENT
111723038013	8.25	8.5	5	3	3	1.6	32
111723038014	10.75	11	5	3	3	2	37
111723038015	12	12.25	5	3	3	2.4	40
111723038016	10.5	10.75	5	3	3	4	34
111723038017	9.75	7.75	5	3	3	3.6	37
111723038018	10	9.5	5	3	3	2.8	35
111723038019	10.5	10.5	5	3	3	2.4	35
111723038020	12	11.75	5	3	3	4	40

111723038021	9	11.5	5	3	3	4	41
111723038022	10	8.5	5	3	3	4	32
111723038023	8.75	10.75	5	3	3	1.2	28
111723038024	8.75	8.5	5	3	3	1.2	24
111723038025	7.75	6.25	5	3	3	2.8	28
111723038026	2	1.25	5	3	3	0	28
111723038027	7.5	9.75	5	3	3	4	23
111723038028	8.25	6.25	5	3	3	1.2	26
111723038029	11.5	10	5	3	3	2.8	27
111723038030	9.25	7.75	5	3	3	1.2	22
111723038031	6.25	9	5	3	3	2	33
111723038032	10	9.75	5	3	3	0.4	33
111723038033	8	5.25	5	3	3	0	30
111723038034	6.75	8.75	5	3	3	2	31
111723038035	6.25	9.75	5	3	3	0	28
111723038036	10	11	5	3	3	0	34
111723038037	9.75	9.5	5	3	3	4	38
111723038038	5.5	8.5	5	3	3	3.2	32
111723038039	4.5	6.5	5	3	3	0	22
111723038040	1.25	3.25	5	3	3	0	14
111723038041	11.25	8.5	5	3	3	4	40
111723038042	2.25	7.75	5	3	3	1.2	37
111723038043	6.75	5.5	5	3	3	0	30
111723038044	7	7.5	5	3	3	0	26
111723038045	8	5.75	5	3	3	0.8	22

111723038046	4.75	0.5	5	3	3	0	30
111723038047	5	8	5	3	3	0	27
111723038048	12.25	12.25	5	3	3	2.4	38
111723038049	7.5	8.25	5	3	3	1.2	28
111723038050	10	11.25	5	3	3	3.6	38

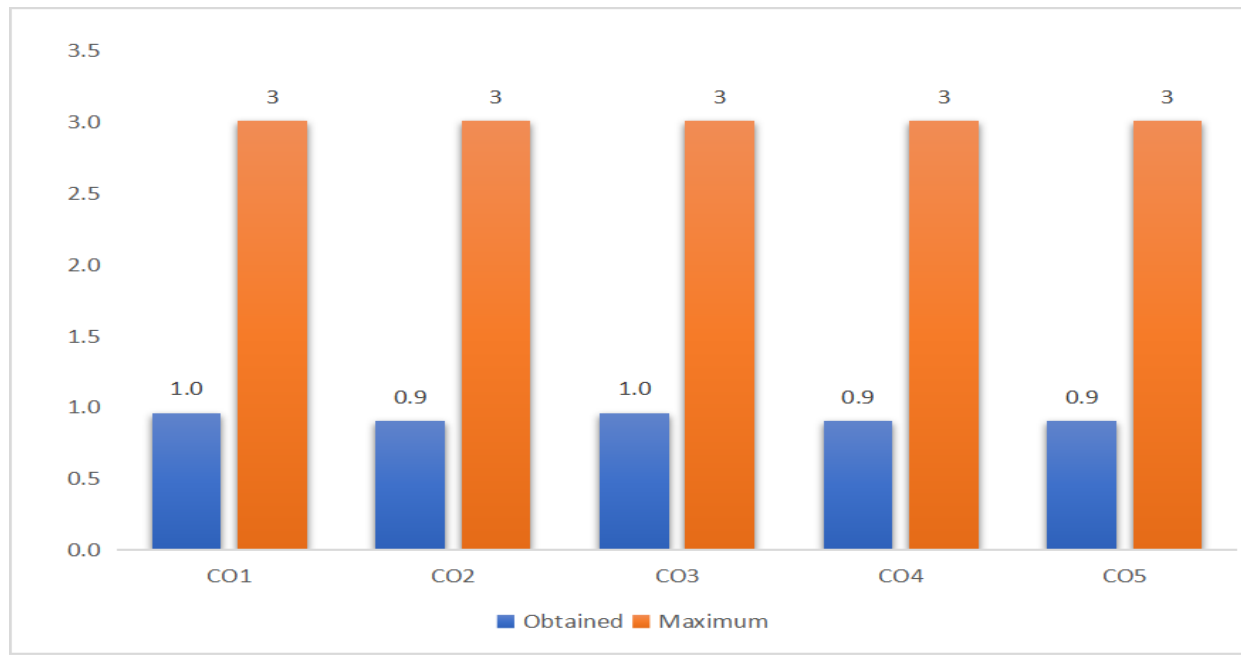


## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	90.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	58.0	0.0	2.4	12.0	0.0	0.0	1.0
CO2	90.0	3.0			100.0	3.0			100.0	3.0	58.0	0.0	2.3	12.0	0.0	0.0	0.9
CO3	90.0	3.0	94.0	3.0	100.0	3.0			100.0	3.0	58.0	0.0	2.4	12.0	0.0	0.0	1.0
CO4			94.0	3.0	100.0	3.0			100.0	3.0	58.0	0.0	2.3	12.0	0.0	0.0	0.9
CO5			94.0	3.0	100.0	3.0			100.0	3.0	58.0	0.0	2.3	12.0	0.0	0.0	0.9

AVERAGE	AVERAGE
0	0.924





### PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.924		0.924	0.915	0.96		0.92	0.9
AVERAGE OF POS	0.9168		0.9168	0.915	0.96		0.92	0.9
AVERAGE	0.921433333							

## Mathematics For AI

**COURSE TITLE: MATHEMATICS FOR AI**

**COURSE CODE: CSAI21103**

**CREDITS: 4**

**DEPARTMENT: Computer Science and Artificial Intelligence.**

**PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

### Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Construct</b> simple mathematical proofs and possess the ability to verify them.	II (Construct)
<b>CO2</b>	<b>Apply</b> basic counting techniques to solve combinatorial problems.	VI (Apply)
<b>CO3</b>	<b>Solve</b> problems using recurrence relations and recursion to analyze algorithms and programs such as finding Fibonacci numbers and Tower of Hanoi problems.	VI (Solve)
<b>CO4</b>	<b>Understand</b> to find the rank of a matrix and to solve systems of linear equations applying matrix techniques.	III (Understand)
<b>CO5</b>	<b>Determine</b> eigen values and eigenvectors.	VI (Determine)

**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

## Marks List :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	12.25	12.5	5	3	3	3.2	42
111723038002	8.25	10.5	5	3	3	2.8	32
111723038003	12	12.5	5	3	3	4	34
111723038004	10	5.75	5	3	3	0.8	24
111723038005	12.25	12.5	5	3	3	4	42
111723038006	6.75	8.5	5	3	3	2	28
111723038007	12.25	12	5	3	3	3.6	28
111723038008	6.25	6.25	5	3	3	3.2	32
111723038009	10.75	10.75	5	3	3	3.2	38
111723038010	11.5	12	5	3	3	3.6	47
111723038011	11	8.75	5	3	3	2.8	31
111723038012	9.75	6.25	5	3	3	0.4	30
111723038013	9.5	12.25	5	3	3	2.8	33
111723038014	11.25	9.5	5	3	3	2	41
111723038015	12.5	12	5	3	3	2.8	40
111723038016	11.5	12.25	5	3	3	3.6	37
111723038017	9.75	10.5	5	3	3	3.6	26
111723038018	12	11.25	5	3	3	3.2	38
111723038019	12.25	10	5	3	3	2.4	27
111723038020	12.5	12.5	5	3	3	4	43
111723038021	12.25	12.5	5	3	3	3.2	40

111723038022	12.5	12.5	5	3	3	4	45
111723038023	12.5	12.5	5	3	3	2.4	37
111723038024	11	10.75	5	3	3	2.4	32
111723038025	5.5	7.75	5	3	3	2.8	27
111723038026	0.5	5	5	2	3	0.8	26
111723038027	11.25	9	5	3	3	4	28
111723038028	9.75	7.5	5	3	2	1.6	27
111723038029	11	11.5	5	3	3	3.6	36
111723038030	10.25	5.5	5	3	3	1.6	27
111723038031	12.25	10	5	3	3	2.4	36
111723038032	10	10	5	3	3	1.6	44
111723038033	9.25	6	5	2	3	0.4	20
111723038034	12.25	9.5	5	3	3	3.2	26
111723038035	11.5	6	5	2	2	0	33
111723038036	11.5	8.25	5	3	3	1.6	34
111723038037	12.25	11.75	5	3	3	4	31
111723038038	7.75	5	5	3	3	3.6	27
111723038039	8	5.75	5	3	3	0.4	32
111723038040	3.75	5	5	3	2	2.8	21
111723038041	7.75	9	5	3	3	4	30
111723038042	6	6	5	3	3	2.8	27
111723038043	7.75	6	5	3	3	0	36
111723038044	2.75	3.75	5	3	2	0	24
111723038045	5.5	5	5	3	3	1.6	26
111723038046	6	5	5	3	2	0	24

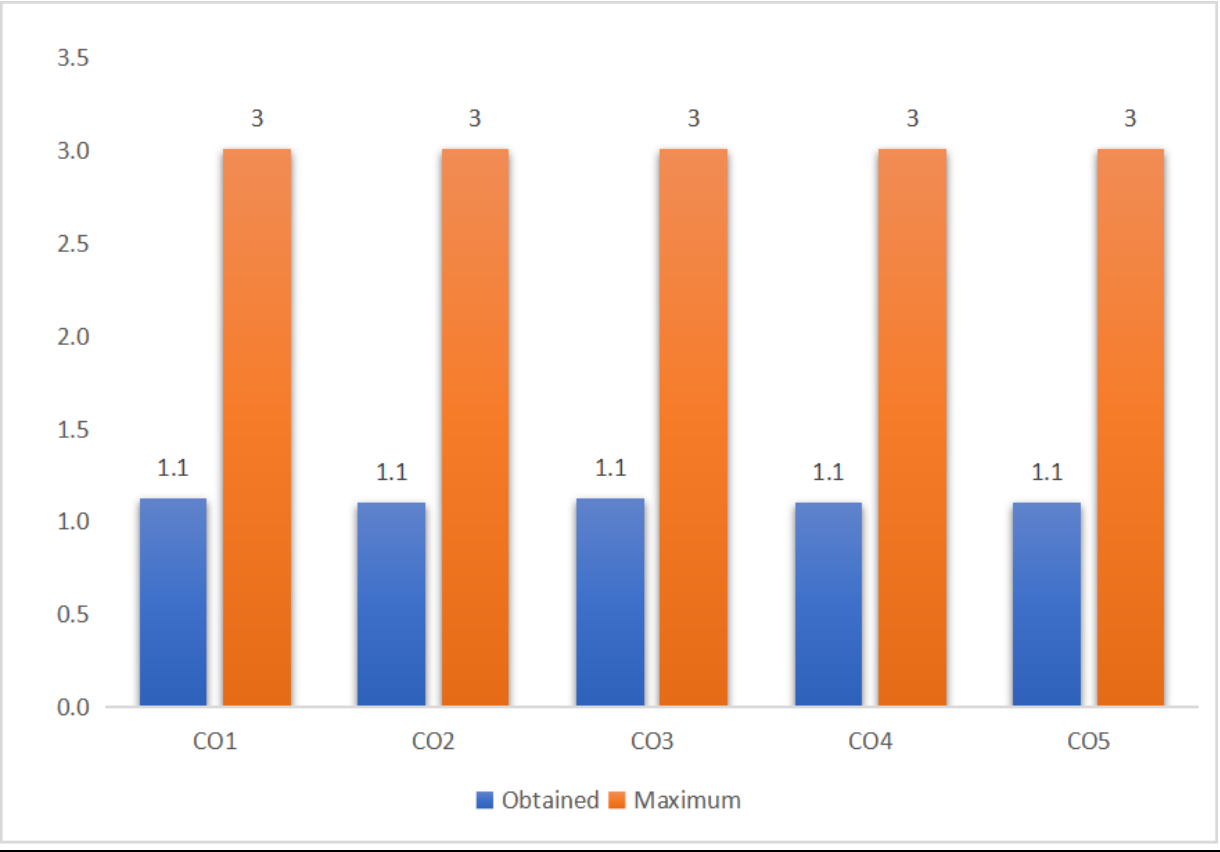
111723038047	8.5	10.75	5	3	3	2	27
111723038048	9.75	11	5	3	3	2.4	32
111723038049	11.5	9.75	5	3	3	1.6	32
111723038050	12.5	12	5	3	3	2.8	53



## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	94.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	82.0	2.0	2.8	20.0	0.0	0.0	1.1
CO2	94.0	3.0			100.0	3.0			100.0	3.0	82.0	2.0	2.8	20.0	0.0	0.0	1.1
CO3	94.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	20.0	0.0	0.0	1.1
CO4			98.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	20.0	0.0	0.0	1.1
CO5			98.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	20.0	0.0	0.0	1.1

AVERAGE	AVERAGE
0	1.108





**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.12		H 1.12					
CO2	H 1.1		H 1.1	H 1.1			H 1.1	
CO3	H 1.12		H 1.12	H 1.12	H 1.12		H 1.12	
CO4	H 1.1		H 1.1	H 1.1			H 1.1	
CO5	H 1.1		H 1.1	H 1.1				H 1.1
AVERAGE OF COS FOR POS	1.108		1.108	1.105	1.12		1.106666667	1.1
AVERAGE OF POS	1.1056		1.1056	1.105	1.12		1.106666667	1.1
AVERAGE	1.107144444							

## Computer Fundamentals

**COURSE TITLE: COMPUTER FUNDAMENTALS**  
**COURSE CODE: CSAI21101**  
**CREDITS: 4**

**DEPARTMENT: Computer Science and Artificial Intelligence.**

**PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Understand</b> various I/O devices and functionality of computer.	II (Understand)
<b>CO2</b>	<b>Understand</b> types of memory and software.	II (Understand)
<b>CO3</b>	<b>Solve</b> arithmetic operations using different types of number systems.	VI (Solve)
<b>CO4</b>	<b>Distinguish</b> different types of networks, networking devices and topologies.	III (Distinguish)
<b>CO5</b>	<b>Explain</b> various IP addressing mechanisms.	VI (Explain)

**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

## Marks List :

uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111723038001	12.5	12.5	5	3	3	4	43
111723038002	10.25	11.75	5	3	3	3.6	36
111723038003	12.5	12.5	5	3	3	4	47
111723038004	12.25	12.25	5	3	3	2	38
111723038005	12.5	12.5	5	3	3	4	50
111723038006	12.25	12.5	5	3	3	2.4	41
111723038007	12.25	12.5	5	3	3	4	37
111723038008	12.5	12	5	3	3	2.8	33
111723038009	12.5	12.5	5	3	3	3.6	48
111723038010	12.5	12.5	5	3	3	3.2	48
111723038011	12.5	12.5	5	3	3	3.2	32
111723038012	12.5	11	5	3	3	2.4	34
111723038013	12	12.5	5	3	3	2.8	46
111723038014	12.5	12.5	5	3	3	1.6	42
111723038015	12.5	12.5	5	3	3	3.6	52
111723038016	12.5	12.5	5	3	3	3.6	40
111723038017	11.5	12.5	5	3	3	4	41
111723038018	12.5	12	5	3	3	3.6	47
111723038019	12.25	12.25	5	3	3	2.4	49
111723038020	12.5	12.5	5	3	3	4	57

111723038021	12.5	12.5	5	3	3	4	41
111723038022	12.5	12.5	5	3	3	4	38
111723038023	11.5	12.5	5	3	3	4	42
111723038024	12.25	12.5	5	3	3	3.2	32
111723038025	11	11.5	5	3	3	2.4	43
111723038026	8.5	11.25	5	3	3	2.8	25
111723038027	10.5	11.5	5	3	3	4	28
111723038028	11	12	5	3	3	2.4	23
111723038029	12.5	12.5	5	3	3	3.6	36
111723038030	11	12	5	3	3	3.2	39
111723038031	12.5	12	5	3	3	4	39
111723038032	11.5	12.5	5	3	3	2.4	35
111723038033	11.5	10.75	5	3	3	3.2	37
111723038034	12.25	12.25	5	3	3	3.2	37
111723038035	10.5	11.75	5	3	3	1.6	34
111723038036	12.25	12.5	5	3	3	0	49
111723038037	12.5	12.25	5	3	3	3.2	45
111723038038	11	11.25	5	3	3	3.2	30
111723038039	0	9	5	3	3	2.4	30
111723038040	10.5	7.5	5	3	3	3.2	27
111723038041	12.25	11.25	5	3	3	3.6	47
111723038042	10	12	5	3	3	3.2	43
111723038043	11	12.5	5	3	3	2.4	43
111723038044	9.5	7.5	5	3	3	1.6	32
111723038045	10.5	7.75	5	3	3	1.2	32

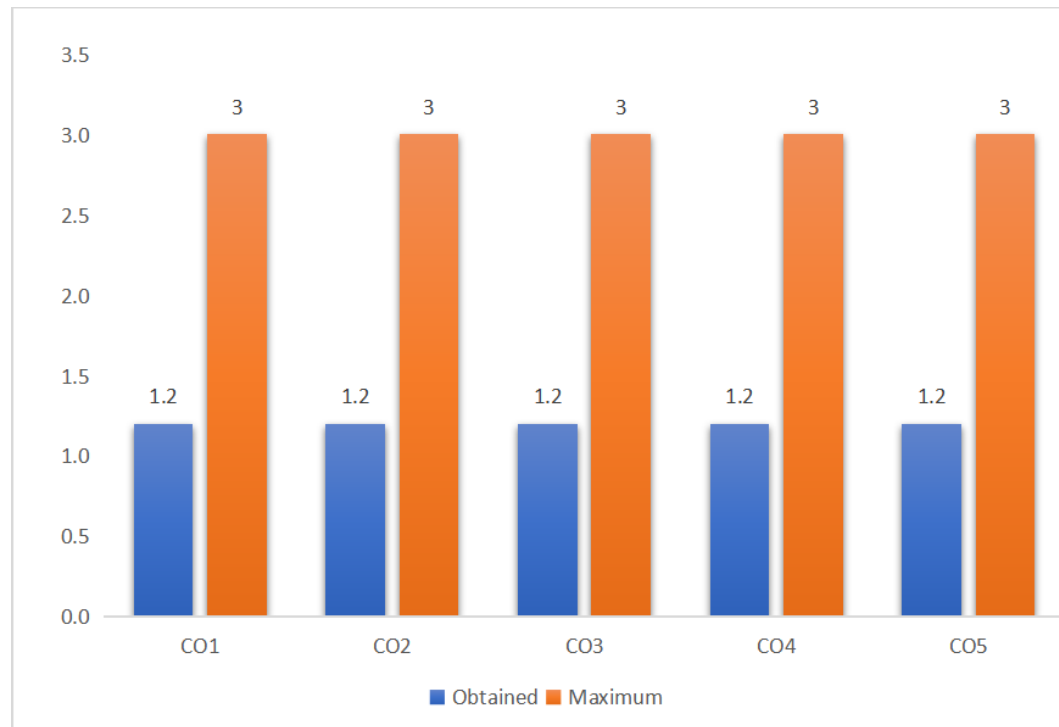
111723038046	8.75	10	5	3	3	2.4	37
111723038047	12.25	12.5	5	3	3	2.8	34
111723038048	12.5	12.5	5	3	3	2.8	40
111723038049	11.75	12	5	3	3	2	26
111723038050	12.5	12.25	5	3	3	3.2	48



## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	98.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	96.0	3.0	3.0	48.0	0.0	0.0	1.2
CO2	98.0	3.0			100.0	3.0			100.0	3.0	96.0	3.0	3.0	48.0	0.0	0.0	1.2
CO3	98.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	96.0	3.0	3.0	48.0	0.0	0.0	1.2
CO4			100.0	3.0	100.0	3.0			100.0	3.0	96.0	3.0	3.0	48.0	0.0	0.0	1.2
CO5			100.0	3.0	100.0	3.0			100.0	3.0	96.0	3.0	3.0	48.0	0.0	0.0	1.2

AVERAGE	AVERAGE
0	1.2





## PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.2		H 1.2					
CO2	H 1.2		H 1.2	H 1.2			H 1.2	
CO3	H 1.2		H 1.2	H 1.2	H 1.2		H 1.2	
CO4	H 1.2		H 1.2	H 1.2			H 1.2	
CO5	H 1.2		H 1.2	H 1.2				H 1.2
AVERAGE OF COS FOR POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE OF POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE	1.2							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **ARTIFICIAL INTELLIGENCE (CSAI22304)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
CO1	<b>Explain</b> types and AI applications.	II (Explain)
CO2	<b>Apply</b> search algorithms to solve AI problems	III (Apply)
CO3	<b>Infer</b> first order logic to represent knowledge	II (Infer)
CO4	<b>Explain</b> varicus reasoning in AI	II (Explain)
CO5	<b>Develop</b> AI problems using prolog.	III(Develop)

**CO'S PO'S 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

**MARKS LIST :**

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	11	10.5	5	3	3	2.4	50
111722038002	11.25	10.5	5	3	3	3.2	48
111722038003	10.25	10.75	5	3	3	2.8	45
111722038004	7.25	10.25	5	3	3	3.2	42
111722038005	9.25	9.5	5	3	3	2.8	41
111722038006	11.5	9.25	5	3	3	0.8	49
111722038007	8	6.5	5	3	3	0	0
111722038008	11.5	12	5	3	3	3.2	46
111722038009	12.5	11	5	3	3	0.8	40
111722038010	9.75	9.5	5	3	3	1.6	42
111722038011	11	10	5	3	3	2.8	43
111722038012	12.25	11.75	5	3	3	3.2	44
111722038013	4.5	5	4	3	3	0	32
111722038014	5.5	7.5	4	3	3	0.4	42
111722038015	6	5.75	4	3	3	0.8	34
111722038016	11.25	11.25	5	3	3	1.6	51
111722038017	5.5	6	4	3	3	0.4	34
111722038018	5.25	5	4	3	3	0.4	43
111722038019	10.5	8	5	3	3	0	45
111722038020	9.75	8	4	3	3	0.4	42

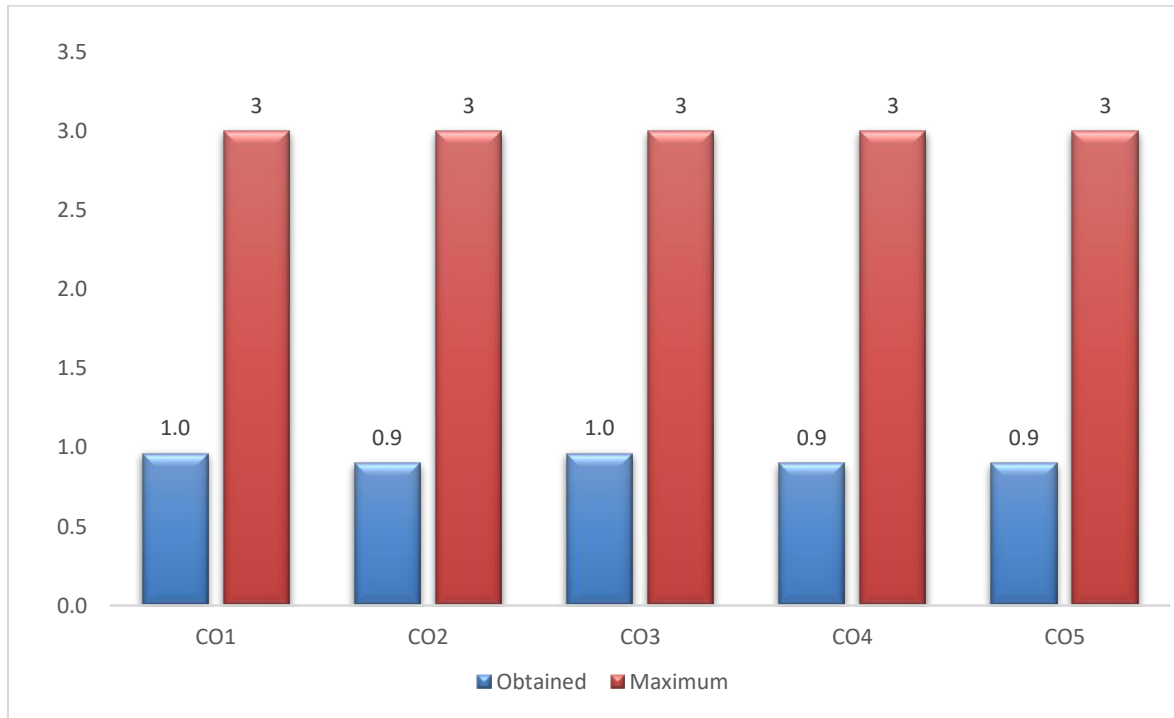
111722038021	6.75	5.25	4	3	3	0	43
111722038022	11.75	11.25	5	3	3	2.4	49
111722038023	9.25	8.25	4	3	3	0	42
111722038024	8	10	4	3	3	0.4	36
111722038025	6.5	7.75	4	3	3	1.6	45
111722038026	10	10	4	3	3	1.2	44
111722038027	9.5	7.5	5	3	3	3.2	37
111722038028	5.75	5.25	4	3	3	0	31
111722038029	4.5	5	4	3	3	0	31
111722038030	10	7	4	3	3	0	42
111722038031	6.5	7.5	4	3	3	0	42
111722038032	8.25	8.25	4	3	3	2	47
111722038033	4	4.5	4	3	3	0	31
111722038034	10.25	7.25	4	3	3	2.4	39
111722038035	12	10.5	5	3	3	0.4	41
111722038036	10.25	7.5	4	3	3	0.8	33
111722038037	6.75	8.75	4	3	3	0	42
111722038038	12.5	11	4	3	3	0	34
111722038039	7.25	8.5	4	3	3	1.6	34
111722038041	7.5	5	4	3	3	0	27
111722038042	8.25	10	5	3	3	0	44
111722038043	4.75	7.25	4	3	3	1.2	35
111722038044	5	7	4	3	3	2.4	45
111722038045	5.25	7.5	4	3	3	1.6	42
111722038046	7.25	7.5	4	3	3	3.2	41

<b>111722038047</b>	8.75	10.25	4	3	3	0	45
<b>111722038048</b>	5.5	7	4	3	3	0	26
<b>111722038049</b>	7.5	7.75	4	3	3	0	36
<b>111722038050</b>	4.5	5	4	3	3	2.8	27

**CO Mapping :**

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise i aver
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	
CO1	89.8	3.0			100.0	3.0	100.0	3.0	100.0	3.0	40.8	0.0	2.4
CO2	89.8	3.0			100.0	3.0			100.0	3.0	40.8	0.0	2.4
CO3	89.8	3.0	98.0	3.0	100.0	3.0			100.0	3.0	40.8	0.0	2.4
CO4			98.0	3.0	100.0	3.0			100.0	3.0	40.8	0.0	2.4
CO5			98.0	3.0	100.0	3.0			100.0	3.0	40.8	0.0	2.4

AVERAGE	AVERAGE
0	0.924



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.924		0.924	0.915	0.96		0.92	0.9
AVERAGE OF POS	0.9168		0.9168	0.915	0.96		0.92	0.9
AVERAGE	0.921433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DATABASE MANAGEMENT SYSTEMS (CSAI22302)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

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

**CO's PO's 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

**MARKS LIST :**

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	11.5	11.25	5	3	3	3.6	48
111722038002	11	11	5	3	3	4	43
111722038003	11.5	10.5	5	3	3	3.6	43
111722038004	10.75	10.75	5	3	3	2	48
111722038005	10.5	10.5	5	3	3	2.4	41
111722038006	11	10.75	5	3	3	0	53
111722038007	11	11	5	3	3	0.8	0
111722038008	10.5	10.75	5	3	3	3.2	43
111722038009	10.75	11	5	3	3	2.8	46
111722038010	10.25	10.25	5	3	3	2.4	39
111722038011	10.5	11	5	3	3	2.8	41
111722038012	10.25	11	5	3	3	4	37
111722038013	8.5	10.5	5	3	3	1.2	33
111722038014	8.75	8.5	5	3	3	2.4	45
111722038015	8.25	11.25	5	3	3	1.2	38
111722038016	11.25	10.75	5	3	3	2.4	55
111722038017	9.75	9	5	3	3	1.6	28
111722038018	7.5	7.25	5	3	3	3.2	30
111722038019	10.25	10.5	5	3	3	1.2	42
111722038020	8.25	10.25	5	3	3	1.6	39

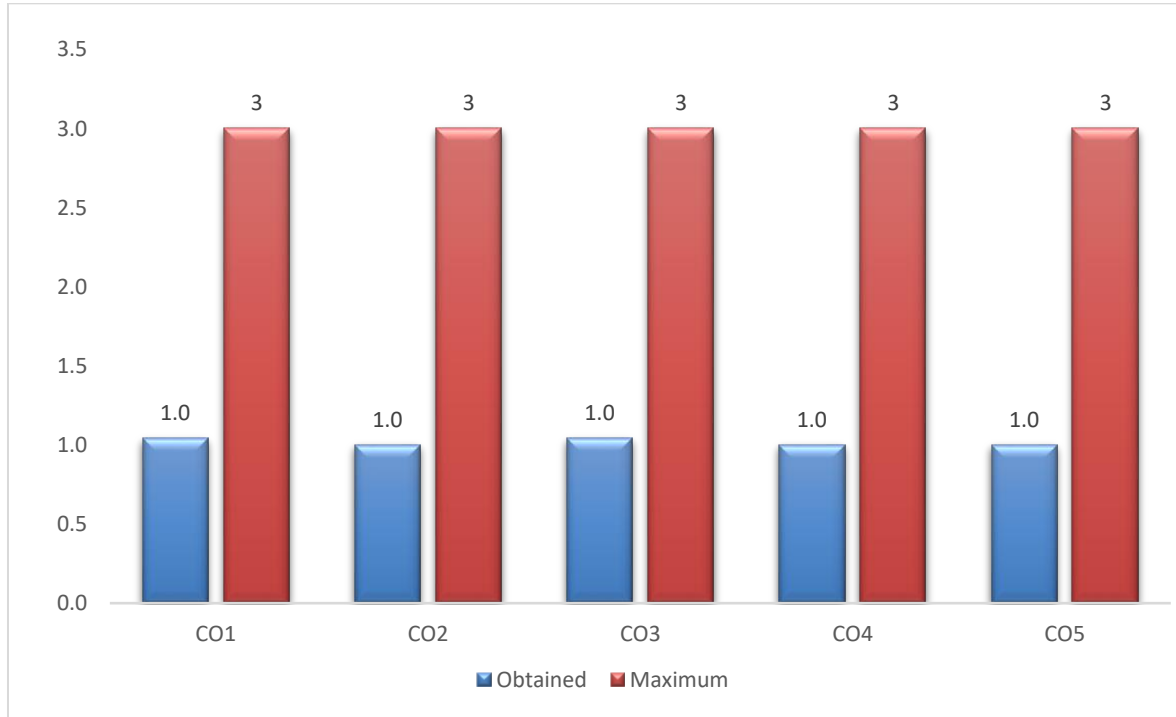
111722038021	7.75	10	5	3	3	2	40
111722038022	11.5	10.75	5	3	3	3.2	50
111722038023	10.25	9.75	5	3	3	1.6	36
111722038024	9	9.75	5	3	3	0	29
111722038025	7	10.25	5	3	3	3.6	37
111722038026	9.5	11.25	5	3	3	1.6	45
111722038027	9	10.25	5	3	3	2.4	42
111722038028	5.75	8.5	5	3	3	0.8	27
111722038029	6	10	5	3	3	2	39
111722038030	9.5	10.75	5	3	3	1.2	43
111722038031	9.5	11.25	5	3	3	0	33
111722038032	9.75	9.5	5	3	3	2.4	34
111722038033	9.75	10	5	3	3	0	34
111722038034	10	10.5	5	3	3	3.2	42
111722038035	7	9.5	5	3	3	2.4	42
111722038036	5	8.5	5	3	3	0.8	38
111722038037	8.5	10.25	5	3	3	3.2	34
111722038038	10.5	10.5	5	3	3	0.8	34
111722038039	10.5	10.75	5	3	3	1.2	30
111722038041	11	10	5	3	3	0.8	37
111722038042	10.5	11.25	5	3	3	2	46
111722038043	10	10.75	5	3	3	1.6	34
111722038044	10	10.25	5	3	3	3.2	43
111722038045	10	11.25	5	3	3	2.4	39
111722038046	8.25	11	5	3	3	2.4	42

<b>111722038047</b>	11	10	5	3	3	1.2	49
<b>111722038048</b>	8	9	5	3	3	1.6	33
<b>111722038049</b>	7.75	10.5	5	3	3	1.2	33
<b>111722038050</b>	9	6	5	3	3	2.8	27

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co ext ave
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	67.3	1.0	2.6	46.9	0.0	0
CO2	100.0	3.0			100.0	3.0			100.0	3.0	67.3	1.0	2.5	46.9	0.0	0
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.6	46.9	0.0	0
CO4			100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.5	46.9	0.0	0
CO5			100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.5	46.9	0.0	0

AVERAGE	AVERAGE
0	1.016



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.04		H 1.04					
CO2	H 1		H 1	H 1			H 1	
CO3	H 1.04		H 1.04	H 1.04	H 1.04		H 1.04	
CO4	H 1		H 1	H 1			H 1	
CO5	H 1		H 1	H 1				H 1
AVERAGE OF COS FOR POS	1.016		1.016	1.01	1.04		1.013333333	1
AVERAGE OF POS	1.0112		1.0112	1.01	1.04		1.013333	1
AVERAGE	1.014288889							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DISTRIBUTED SYSTEMS (CSAI22301)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	To <b>inculcate</b> knowledge on Hardware requirement of distributed systems and communications.	(Inculcate)
<b>CO2</b>	To <b>demonstrate</b> the concepts of naming, synchronization issues and Consistency and replication.	II (Demonstrate)
<b>CO3</b>	To <b>inculcate</b> knowledge on Distributed Object based Systems, replication consistency, fault tolerance	(Inculcate)
<b>CO4</b>	To <b>illustrate</b> the concepts of Distributed File Systems and Distributed Web-based Systems.	III (Illustrate)
<b>CO5</b>	To <b>illustrate</b> the concepts of Distributed Coordination-Based Systems and Map-Reduce	III(Illustrate)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	11.25	11.75	5	3	3	3.2	58
111722038002	11.25	11.5	5	3	3	3.6	50
111722038003	12	12	5	3	3	3.2	54
111722038004	8.75	11.25	4	2	3	2	47
111722038005	11	11.25	5	3	3	1.2	46
111722038006	10.75	10.5	5	2	3	0	56
111722038007	8.75	9.25	5	3	3	0.4	0
111722038008	11	11.75	4	2	3	2	52
111722038009	12	11.75	4	3	3	2.4	53
111722038010	11	10	5	2	3	2.4	48
111722038011	10.75	11.75	4	3	3	2.8	55
111722038012	11	12	5	2	3	4	49
111722038013	7.75	11.25	5	3	3	0.8	44
111722038014	6.25	11.25	5	2	3	3.2	51
111722038015	5	10.25	5	3	3	0.8	45
111722038016	11.75	10.25	5	3	3	1.2	52
111722038017	9.5	6.75	4	3	3	1.2	32
111722038018	7.25	7.5	5	3	3	3.2	30
111722038019	10.75	10	5	2	3	0.4	38
111722038020	10	9.5	4	3	3	1.6	52

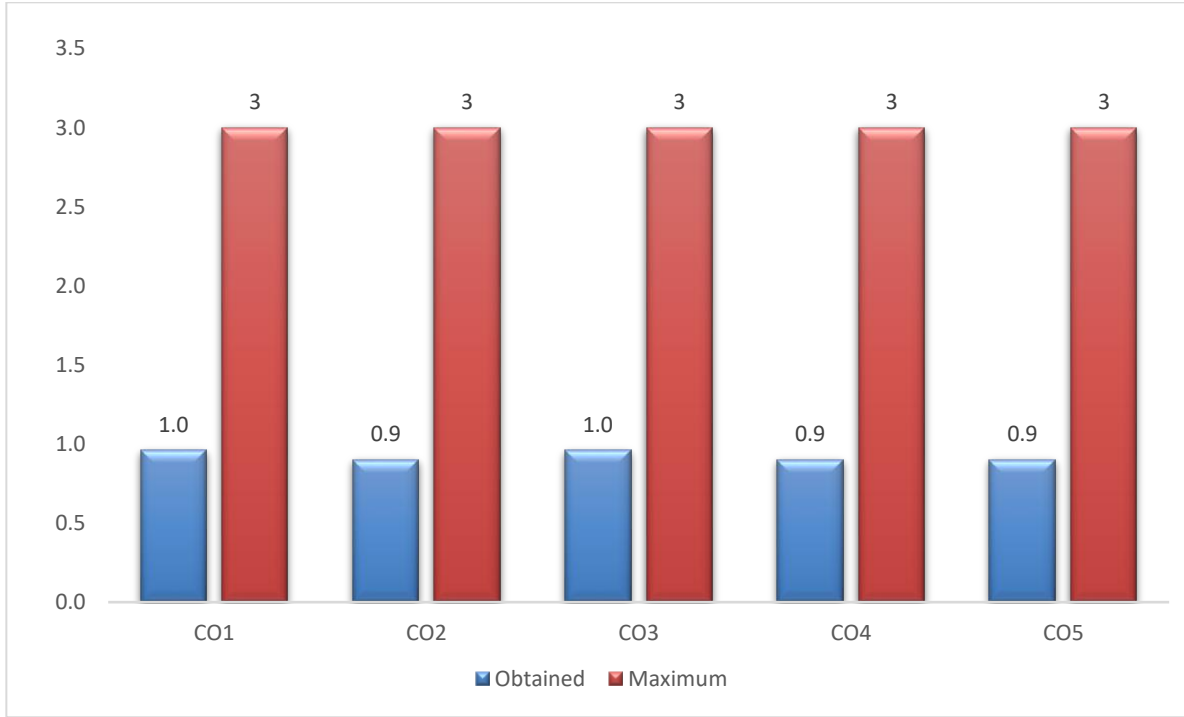
111722038021	7	6.5	5	3	3	0.4	38
111722038022	11	10.5	4	2	3	2	40
111722038023	10	10	5	3	3	2	36
111722038024	8.75	10	5	3	3	0.4	32
111722038025	8.5	7.5	4	3	3	1.6	40
111722038026	10.5	11	5	3	3	1.6	48
111722038027	9.25	7.5	4	3	3	2.8	36
111722038028	6.5	5	5	3	3	0.8	33
111722038029	7.5	6.5	4	3	3	1.6	38
111722038030	10	10	5	3	3	2	52
111722038031	8.5	10.25	4	3	3	1.6	43
111722038032	9.5	8	5	3	3	3.2	40
111722038033	10.25	8.75	5	3	3	0.8	37
111722038034	9.5	11.5	5	3	3	3.6	48
111722038035	9.75	8.75	5	3	3	1.6	54
111722038036	6	4.5	4	3	3	1.2	41
111722038037	7	7.5	5	3	3	2	49
111722038038	9.5	11	4	3	3	0.8	32
111722038039	7.5	10	5	3	3	2.8	35
111722038041	11	10	5	3	3	0.8	37
111722038042	8	9.25	4	3	3	2	56
111722038043	6	8	5	3	3	0.8	32
111722038044	8.25	9.25	5	3	3	2.8	45
111722038045	6.25	11.5	4	3	3	2	47
111722038046	6.25	10	5	3	3	2.4	48

<b>111722038047</b>	10	9	4	3	3	0.4	46
<b>111722038048</b>	6.25	6.75	5	3	3	1.2	31
<b>111722038049</b>	8.75	9.75	4	3	3	0.8	30
<b>111722038050</b>	7	6.75	5	2	3	2.8	17

**CO Mapping :**

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co ext ave
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	61.2	0.0	2.4	63.3	0.0	0
CO2	100.0	3.0			100.0	3.0			100.0	3.0	61.2	0.0	2.3	63.3	0.0	0
CO3	100.0	3.0	98.0	3.0	100.0	3.0			100.0	3.0	61.2	0.0	2.4	63.3	0.0	0
CO4			98.0	3.0	100.0	3.0			100.0	3.0	61.2	0.0	2.3	63.3	0.0	0
CO5			98.0	3.0	100.0	3.0			100.0	3.0	61.2	0.0	2.3	63.3	0.0	0

AVERAGE	AVERAGE
0	0.924



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.924		0.924	0.915	0.96		0.92	0.9
AVERAGE OF POS	0.9168		0.9168	0.915	0.96		0.92	0.9
AVERAGE	0.921433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **ENVIRONMENTAL SCIENCE AND GENDER SENSITIZATION(ES18101)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Understand</b> the importance of Environmental education, conservation of natural resources & Understand the importance of ecosystems and biodiversity	II (Understand)
<b>CO2</b>	<b>Understand</b> the pollution problems and Apply the environmental science knowledge on solid waste management, disaster management	II (Understand)
<b>CO3</b>	<b>Apply</b> the environmental science knowledge to Improve the resources and Evaluate and understand the sustainable environmental conditions and control methods	III (Apply)
<b>CO4</b>	<b>Identify</b> the interactions and intersections of identities (e.g.; gender, race, ethnicity, class, sexuality, and so on) and assess the ways in which they contribute to instances of privilege and power dynamics across cultures, space, and time And their problems	I(Identify)
<b>CO5</b>	<b>Understand</b> the gender problems and ways of addressing them, including interactions across local to global scales in communities and overcome inequalities with legislations	II(Understand)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	11.5	11.25	5	3	3	3.6	50
111722038002	11	11	5	3	3	4	43
111722038003	11.5	10.5	5	3	3	3.6	50
111722038004	10.75	10.75	5	3	3	2	49
111722038005	10.5	10.5	5	3	3	2.4	46
111722038006	11	10.75	5	3	3	0	35
111722038007	11	11	5	3	3	0.8	0
111722038008	10.5	10.75	5	3	3	3.2	47
111722038009	10.75	11	5	3	3	2.8	48
111722038010	10.25	10.25	5	3	3	2.4	45
111722038011	10.5	11	5	3	3	2.8	49
111722038012	10.25	11	5	3	3	4	47
111722038013	8.5	10.5	5	3	3	1.2	41
111722038014	8.75	8.5	5	3	3	2.4	44
111722038015	8.25	11.25	5	3	3	1.2	37
111722038016	11.25	10.75	5	3	3	2.4	53
111722038017	9.75	9	5	3	3	1.6	35
111722038018	7.5	7.25	5	3	3	3.2	48
111722038019	10.25	10.5	5	3	3	1.2	36
111722038020	8.25	10.25	5	3	3	1.6	41

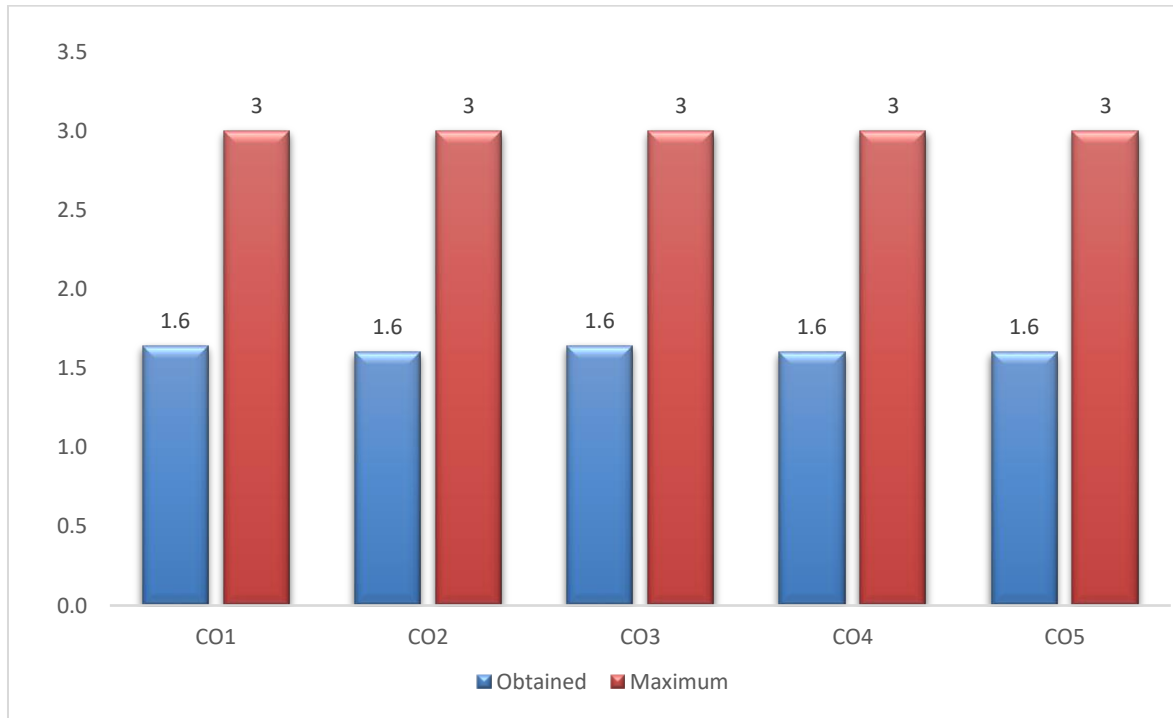
111722038021	7.75	10	5	3	3	2	44
111722038022	11.5	10.75	5	3	3	3.2	55
111722038023	10.25	9.75	5	3	3	1.6	38
111722038024	9	9.75	5	3	3	0	39
111722038025	7	10.25	5	3	3	3.6	38
111722038026	9.5	11.25	5	3	3	1.6	50
111722038027	9	10.25	5	3	3	2.4	41
111722038028	5.75	8.5	5	3	3	0.8	31
111722038029	6	10	5	3	3	2	40
111722038030	9.5	10.75	5	3	3	1.2	46
111722038031	9.5	11.25	5	3	3	0	43
111722038032	9.75	9.5	5	3	3	2.4	42
111722038033	9.75	10	5	3	3	0	32
111722038034	10	10.5	5	3	3	3.2	40
111722038035	7	9.5	5	3	3	2.4	50
111722038036	5	8.5	5	3	3	0.8	38
111722038037	8.5	10.25	5	3	3	3.2	39
111722038038	10.5	10.5	5	3	3	0.8	43
111722038039	10.5	10.75	5	3	3	1.2	41
111722038041	11	10	5	3	3	0.8	44
111722038042	10.5	11.25	5	3	3	2	46
111722038043	10	10.75	5	3	3	1.6	39
111722038044	10	10.25	5	3	3	3.2	43
111722038045	10	11.25	5	3	3	2.4	46
111722038046	8.25	11	5	3	3	2.4	42

<b>111722038047</b>	11	10	5	3	3	1.2	40
<b>111722038048</b>	8	9	5	3	3	1.6	37
<b>111722038049</b>	7.75	10.5	5	3	3	1.2	38
<b>111722038050</b>	9	6	5	3	3	2.8	31

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Ex	
	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	67.3	1.0	2.6	67.3	1.0
CO2	100.0	3.0			100.0	3.0			100.0	3.0	67.3	1.0	2.5	67.3	1.0
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.6	67.3	1.0
CO4			100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.5	67.3	1.0
CO5			100.0	3.0	100.0	3.0			100.0	3.0	67.3	1.0	2.5	67.3	1.0

AVERAGE	AVERAGE
1	1.616



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.64		H 1.64					
CO2	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	
CO4	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
AVERAGE OF COS FOR POS	1.616		1.616	1.61	1.64		1.613333333	1.6
AVERAGE OF POS	1.6112		1.6112	1.61	1.64		1.613333	1.6
AVERAGE	1.614288889							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **PYTHON PROGRAMMING (CSAI22303)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
CO1	<b>Explain</b> the basics of Python Programming constructs.	II (Explain)
CO2	Sub <b>divides</b> larger problems into smaller ones using functions	IV (Divides)
CO3	<b>Apply</b> various data structures problem-solving	III (Apply)
CO4	<b>Construct</b> Python programs as a set of objects.	III (Construct)
CO5	<b>Select</b> an appropriate exception handling depending on application and design file operations and concurrent programming using Python standard library	I(Select)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111722038001	10.75	12	5	3	3	3.2	34
111722038002	8	8	5	3	3	2.4	40
111722038003	11.25	11.75	5	3	3	3.2	34
111722038004	8.5	8.75	5	3	3	3.2	31
111722038005	12	9.5	5	3	3	0.8	49
111722038006	10.25	11.25	5	3	3	1.6	45
111722038007	9.5	8.75	5	3	3	2.4	0
111722038008	12	12.25	5	3	3	3.2	45
111722038009	12.5	9.75	5	3	3	1.2	51
111722038010	6.75	10	5	3	3	4	25
111722038011	12	11.25	5	3	3	2	39
111722038012	12.5	12.5	5	3	3	4	51
111722038013	2	7	4	3	3	0.4	28
111722038014	3	8.25	5	3	3	1.2	42
111722038015	4.25	4.5	3	3	3	0	35
111722038016	12	12.5	5	3	3	2.4	60
111722038017	8	6.25	5	3	3	1.6	27
111722038018	8.25	5	5	3	3	1.2	22
111722038019	8	8	5	3	3	1.2	33

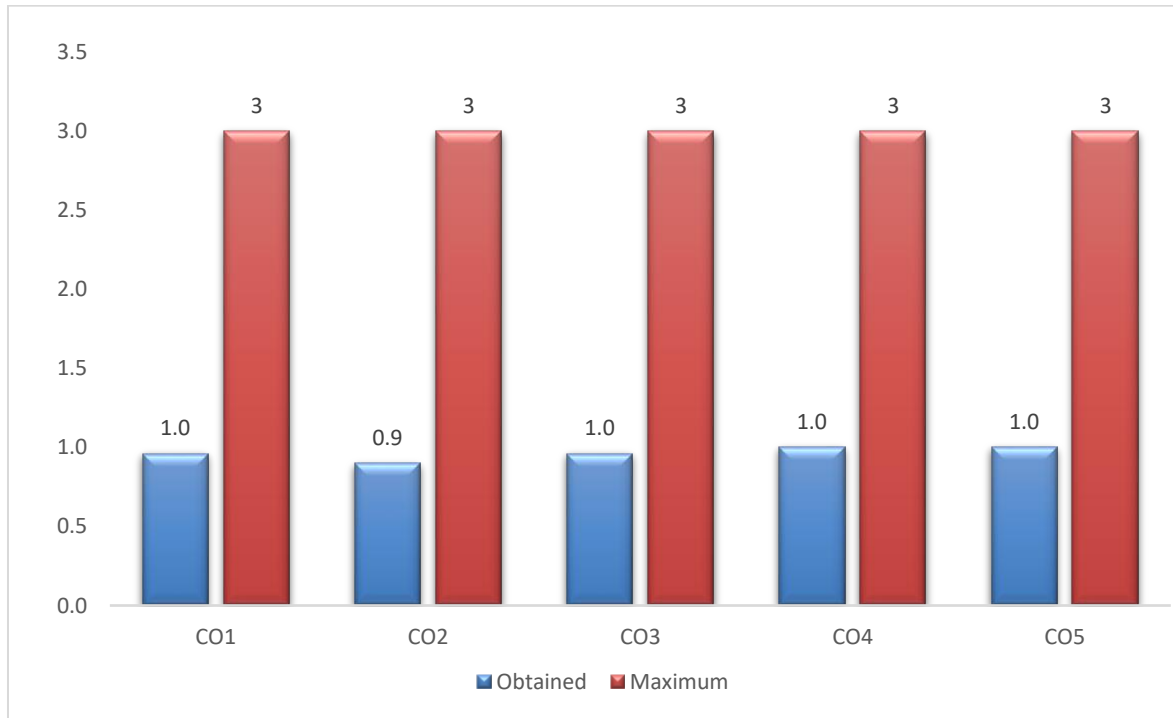
111722038020	5.5	8.5	5	3	3	3.2	30
111722038021	2	2.5	3	3	3	1.2	30
111722038022	12	12.5	5	3	3	3.2	53
111722038023	12.5	11.5	5	3	3	2	54
111722038024	11.75	12.25	5	3	3	0.8	52
111722038025	7	8.25	5	3	3	2.4	25
111722038026	10.5	11	5	3	3	2	40
111722038027	8.75	11	5	3	3	3.2	28
111722038028	2.5	4.5	5	3	3	1.6	25
111722038029	3	6.5	4	3	2	2	32
111722038030	11.25	12	5	3	3	2	40
111722038031	11	9.25	5	3	3	0	33
111722038032	11.75	11.25	5	3	3	4	45
111722038033	6	1	5	3	3	0.4	36
111722038034	7.5	8.5	5	3	3	2	27
111722038035	9.5	10.75	5	3	3	2.8	45
111722038036	11	9.5	5	3	3	1.6	30
111722038037	3.75	10.25	5	3	3	2	24
111722038038	10.25	12.5	5	3	3	0.8	44
111722038039	7.5	10	5	3	3	0.4	27
111722038041	6.25	8.5	5	3	3	0.4	24
111722038042	2.75	3.25	5	3	3	2.4	37
111722038043	5	1	5	3	3	0	28
111722038044	7.25	7.5	5	3	3	3.2	45
111722038045	9.25	9.75	5	3	3	1.6	26

<b>111722038046</b>	6.75	11	3	3	3	2	25
<b>111722038047</b>	11.25	9	5	3	3	1.2	37
<b>111722038048</b>	11.25	7	5	3	3	0.4	23
<b>111722038049</b>	9.75	8.25	5	3	3	1.6	27
<b>111722038050</b>	4.25	2.5	5	3	3	2.8	5

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass %	Attainment level	pass %	Attainment level	pass %	Attainment level	pass %	Attainment level	pass %	Attainment level	pass %	Attainment level		pass %	Attainment level	co wise external average	
CO1	81.6	2.0			100.0	3.0	100.0	3.0	100.0	3.0	65.3	1.0	2.4	34.7	0.0	0.0	1.0
CO2	81.6	2.0			100.0	3.0			100.0	3.0	65.3	1.0	2.3	34.7	0.0	0.0	0.9
CO3	81.6	2.0	85.7	3.0	100.0	3.0			100.0	3.0	65.3	1.0	2.4	34.7	0.0	0.0	1.0
CO4			85.7	3.0	100.0	3.0			100.0	3.0	65.3	1.0	2.5	34.7	0.0	0.0	1.0
CO5			85.7	3.0	100.0	3.0			100.0	3.0	65.3	1.0	2.5	34.7	0.0	0.0	1.0

AVERAGE	AVERAGE
0	0.964



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.96		H 0.96					
CO2	H 0.9		H 0.9	H 0.9			H 0.9	
CO3	H 0.96		H 0.96	H 0.96	H 0.96		H 0.96	
CO4	H 1		H 1	H 1			H 1	
CO5	H 1		H 1	H 1				H 1
AVERAGE OF COS FOR POS	0.964		0.964	0.965	0.96		0.953333333	1
AVERAGE OF POS	0.9648		0.9648	0.965	0.96		0.953333333	1
AVERAGE	0.967988889							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **Software Engineering(CSAI23501A)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	<b>Explain</b> engineering through various process models.	II (Explain)
<b>CO2</b>	<b>Identify</b> analyze Requirements, Object Oriented and various modeling's.	III (Identify)
<b>CO3</b>	<b>Categorize</b> design and architecture	II (categorize)
<b>CO4</b>	<b>Classify</b> Components, golden rules and design evaluation.	II (classify)
<b>CO5</b>	To <b>understand</b> testing techniques to evaluate quality metrics	III(understand)

**CO'S PO'S 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

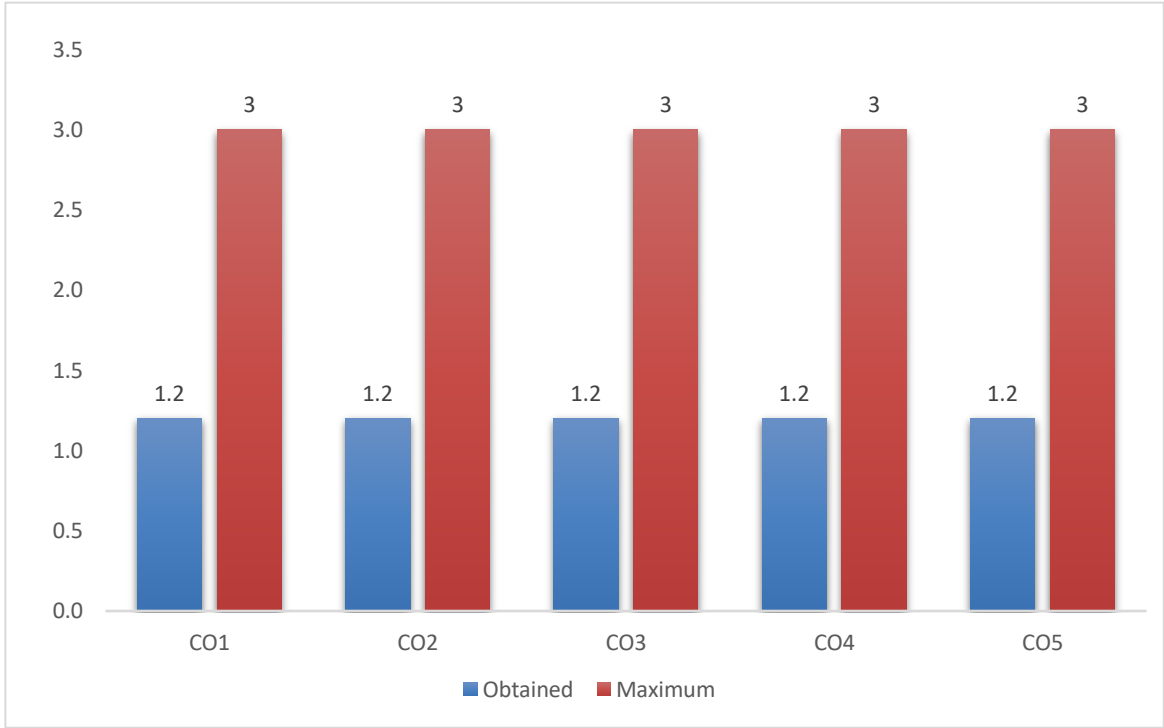
## MARKS LIST :

uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038002	12.25	12.5	5	3	3	4	49
111721038003	12.25	12.5	5	3	3	4	39
111721038005	12.5	12.5	5	3	3	4	51
111721038007	12.5	12.5	5	3	3	3.2	50
111721038008	12.5	12.5	5	3	3	4	51
111721038009	11.75	11.5	5	3	3	4	41
111721038010	11.25	12	5	3	3	4	43
111721038011	10.25	11.25	5	3	3	4	32
111721038014	12.5	10.75	5	3	3	4	41
111721038017	12.25	12.25	5	3	3	4	42
111721038019	11.75	12	5	3	3	4	43
111721038022	10.25	7.5	5	3	3	4	39
111721038024	11	7.5	5	3	3	4	36
111721038025	12.5	12.5	5	3	3	4	51
111721038027	7.5	7.5	5	3	3	2.8	18
111721038032	12	12.5	5	3	3	4	49
111721038033	12.25	12.25	5	3	3	4	36
111721038034	12.25	12.5	5	3	3	4	46
111721038035	12.25	11	5	3	3	4	46
111721038036	9.75	8.75	5	3	3	3.2	45

111721038039	11.5	11.75	5	3	3	4	39
111721038042	9.5	6.25	5	3	3	4	23
111721038043	12.5	12.5	5	3	3	4	49
111721038044	7.5	10.25	5	3	3	4	33

**CO Mapping :**

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		External Exam				
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass %	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	100.0	3.0	3.0	62.5	0.0	0.0	1.2
CO2	100.0	3.0			100.0	3.0			100.0	3.0	100.0	3.0	3.0	62.5	0.0	0.0	1.2
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	62.5	0.0	0.0	1.2
CO4			100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	62.5	0.0	0.0	1.2
CO5			100.0	3.0	100.0	3.0			100.0	3.0	100.0	3.0	3.0	62.5	0.0	0.0	1.2



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.2		H 1.2					
CO2	H 1.2		H 1.2	H 1.2			H 1.2	
CO3	H 1.2		H 1.2	H 1.2	H 1.2		H 1.2	
CO4	H 1.2		H 1.2	H 1.2			H 1.2	
CO5	H 1.2		H 1.2	H 1.2				H 1.2
AVERAGE OF COS FOR POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE OF POS	1.2		1.2	1.2	1.2		1.2	1.2
AVERAGE	1.2							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **FUZZY LOGIC AND EXPERT SYSTEMS(CSAI23501B)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Identify and describe Fuzzy Logic techniques in building intelligent machines	III (Identify)
<b>CO2</b>	Apply Fuzzy Logic models to handle uncertainty and solve engineering problems.	V (Apply)
<b>CO3</b>	Discuss the architecture of an expert system and its tools.	VI (Discuss)
<b>CO4</b>	Understand the importance of building an expert systems.	II(understand)
<b>CO5</b>	Understand various problems with an expertsystems.	II(understand)

**CO's PO's 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

**MARKS LIST :**

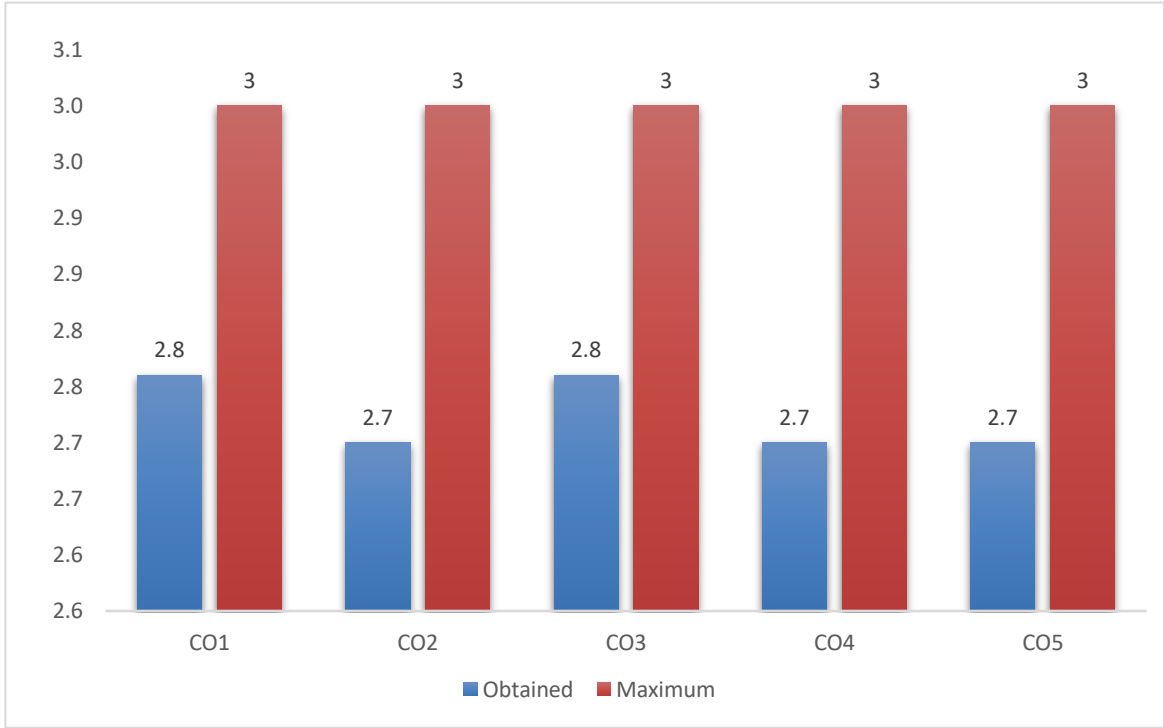
	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12	12.5	5	3	3	2.4	50
111721038004	9.25	8.25	5	3	3	1.6	44
111721038006	10.5	9.5	5	3	2	2.4	52
111721038012	10.5	10.25	5	3	2	1.2	51
111721038013	9.5	9.25	5	3	3	1.6	43
111721038015	10.5	11	5	3	3	2	54
111721038016	0	10.75	5	2	2	0	0
111721038018	9.75	11.75	5	3	2	2.4	51
111721038020	11	10.75	5	3	3	1.6	48
111721038021	11.5	12.5	5	3	3	1.2	53
111721038023	10.5	10.75	5	3	3	1.2	49
111721038026	10	9	5	3	3	2	50
111721038029	10.75	9.5	5	3	3	0	50
111721038030	9.5	8.75	5	3	2	0.8	53
111721038031	9.25	9	5	3	3	1.6	46
111721038037	11.25	11.75	5	3	3	2.8	48
111721038038	8.25	7.5	5	3	2	1.6	31
111721038041	10.75	3.5	5	3	3	0.8	40
111721038045	11.25	11.75	5	3	3	4	51
111721038046	9.75	11.25	5	3	3	2.4	54
111721038047	11.25	11.75	5	3	3	3.6	54

<b>111721038048</b>	8.75	10.75	5	3	3	0	42
<b>111721038049</b>	11.25	11.5	5	3	3	0	55
<b>111721038050</b>	9.75	11	5	3	3	1.2	48

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	95.8	3.0			100.0	3.0	100.0	3.0	100.0	3.0	58.3	0.0	2.4	91.7	3.0	3.0	2.8
CO2	95.8	3.0			100.0	3.0			100.0	3.0	58.3	0.0	2.3	91.7	3.0	3.0	2.7
CO3	95.8	3.0	95.8	3.0	100.0	3.0			100.0	3.0	58.3	0.0	2.4	91.7	3.0	3.0	2.8
CO4			95.8	3.0	100.0	3.0			100.0	3.0	58.3	0.0	2.3	91.7	3.0	3.0	2.7
CO5			95.8	3.0	100.0	3.0			100.0	3.0	58.3	0.0	2.3	91.7	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7		H 2.7	H 2.7			H 2.7	
CO3	H 2.76		H 2.76	H 2.76	H 2.76		H 2.76	
CO4	H 2.7		H 2.7	H 2.7			H 2.7	
CO5	H 2.7		H 2.7	H 2.7				H 2.7
AVERAGE OF COS FOR POS	2.724		2.724	2.715	2.76		2.72	2.7
AVERAGE OF POS	2.7168		2.7168	2.715	2.76		2.72	2.7
AVERAGE	2.721433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DATA ENGINEERING (CSAI23503)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (B.Sc.)**

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

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Describe the features added to modern database systems to distinguish them from Standard relational systems.	(Inculcate)
<b>CO2</b>	Understand different algorithms used in the implementation of query evaluation engine	II (Demonstrate)
<b>CO3</b>	Understand the different concurrency control and commit protocols in distributed databases	(Inculcate)
<b>CO4</b>	Demonstrate an understanding of the role and the concepts involved in special purpose databases such as Temporal, Spatial, Mobile and other similar database types	III (Illustrate)
<b>CO5</b>	Design Advanced Application Development	III(Illustrate)

**CO's PO's 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

## MARKS LIST :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12.5	12.5	5	3	3	4	56
111721038002	11.25	12.25	5	3	3	1.6	51
111721038003	11	11.25	5	3	3	1.6	43
111721038004	9.5	8.5	5	3	3	1.6	38
111721038005	11.75	10.5	5	3	3	0.8	58
111721038006	11.75	12.25	5	3	3	2.8	51
111721038007	11.75	11.25	5	3	3	0	56
111721038008	11	11.5	5	3	3	1.2	57
111721038009	10	8	4	3	3	1.2	40
111721038010	9.25	8	5	3	3	1.6	46
111721038011	8.25	7.5	4	3	3	2.4	30
111721038012	10	9.75	5	3	3	1.6	41
111721038013	11.5	9.25	5	3	3	3.2	36
111721038014	10.75	8.75	4	3	3	1.2	41
111721038015	10.5	9	4	3	3	1.6	48
111721038016	0	5.5	4	3	3	0	0
111721038017	11	11	5	3	3	2.4	53
111721038018	12	11	5	3	3	2.4	44
111721038019	8.25	7.25	4	3	3	1.6	47

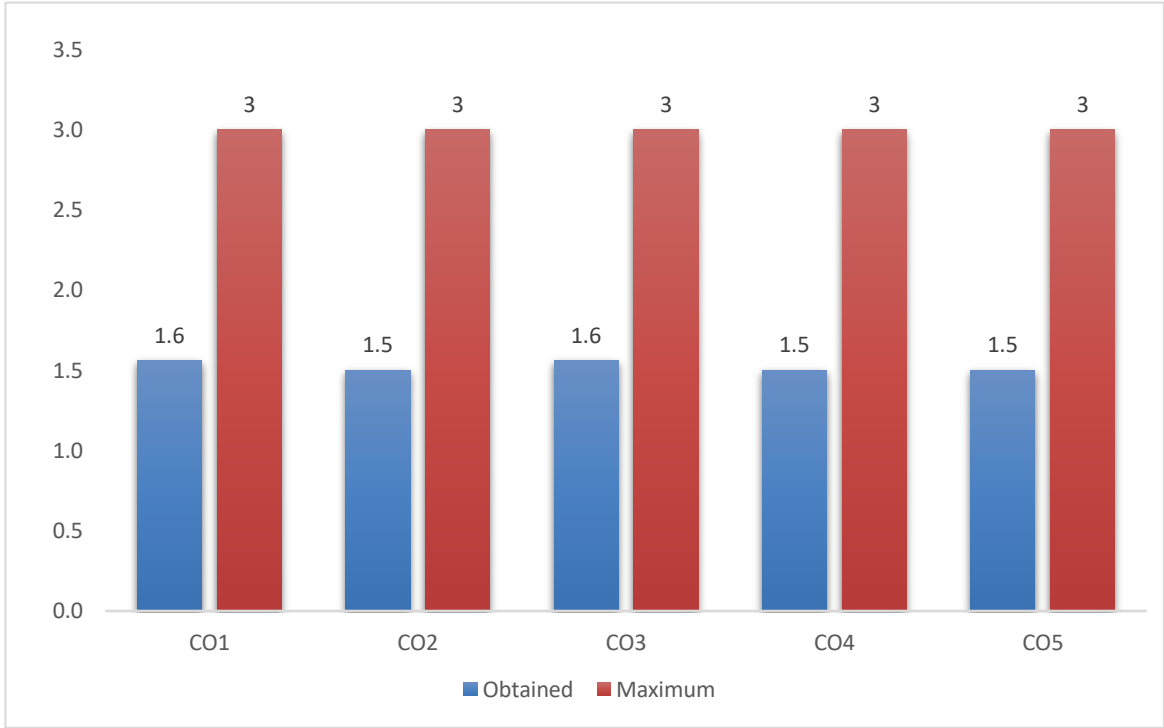
111721038020	11.5	9.25	5	3	3	2.8	46
111721038021	12.25	12.25	5	3	3	2.4	51
111721038022	6.5	5	4	3	3	0	26
111721038023	10.5	9.25	4	3	3	0.8	42
111721038024	0	4.25	4	3	3	0	42
111721038025	9	11.25	4	3	3	3.2	50
111721038026	0	8	4	3	3	0	36
111721038027	5.75	4.5	4	3	3	2.4	20
111721038029	9.75	10	5	3	3	0.8	39
111721038030	8.25	7	4	3	3	1.6	31
111721038031	10.25	10	4	3	3	1.2	40
111721038032	11	11.75	4	3	3	1.2	47
111721038033	10	10.25	4	3	3	2	45
111721038034	11	10.5	4	3	3	1.2	43
111721038035	9.75	10	4	3	3	1.2	41
111721038036	7.75	7.25	4	3	3	0	35
111721038037	12.25	12.25	5	3	3	3.2	43
111721038038	7.5	6.75	4	3	3	3.2	24
111721038039	9	10.75	4	3	3	1.6	37
111721038041	7.75	6.75	5	3	3	2.4	32
111721038042	3.25	0	4	3	3	0	30
111721038043	11.25	12.5	5	3	3	2	56
111721038044	5	9.75	4	3	3	1.6	29
111721038045	10.75	11.75	5	3	3	3.6	49
111721038046	10.75	11.75	5	3	3	2.8	48

111721038047	12.5	12.5	5	3	3	4	55
111721038048	7.75	6.75	4	3	3	1.2	35
111721038049	11	12.25	5	3	3	2	54
111721038050	11	10	5	3	3	2	41

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	co wise total average
CO1	91.7	3.0			100.0	3.0	100.0	3.0	100.0	3.0	62.5	0.0	2.4	66.7	1.0	1.0	1.6
CO2	91.7	3.0			100.0	3.0			100.0	3.0	62.5	0.0	2.3	66.7	1.0	1.0	1.5
CO3	91.7	3.0	93.8	3.0	100.0	3.0			100.0	3.0	62.5	0.0	2.4	66.7	1.0	1.0	1.6
CO4			93.8	3.0	100.0	3.0			100.0	3.0	62.5	0.0	2.3	66.7	1.0	1.0	1.5
CO5			93.8	3.0	100.0	3.0			100.0	3.0	62.5	0.0	2.3	66.7	1.0	1.0	1.5

AVERAGE	AVERAGE
1	1.524



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.56		H 1.56					
CO2	H 1.5		H 1.5	H 1.5			H 1.5	
CO3	H 1.56		H 1.56	H 1.56	H 1.56		H 1.56	
CO4	H 1.5		H 1.5	H 1.5			H 1.5	
CO5	H 1.5		H 1.5	H 1.5				H 1.5
AVERAGE OF COS FOR POS	1.524		1.524	1.515	1.56		1.52	1.5
AVERAGE OF POS	1.5168		1.5168	1.515	1.56		1.52	1.5
AVERAGE	1.521433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **DATA VISUALIZATION TOOLS(ES18101)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
CO1	<b>Understand</b> the way of representing visual data and its applications	II (Understand)
CO2	<b>Demonstrate</b> data visualization using combination of various charts.	II (Demonstrate)
CO3	<b>Apply</b> visualizing techniques using matplotlib package.	III (Apply)
CO4	<b>Design</b> effective graphical analysis in R	I(Design)
CO5	<b>Construt</b> data visualizations with Tableau to create customized dash boards and reports	IV(Construct)

**CO's PO's 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

## MARKS LIST :

uid	Internal assessment						External Assessment
	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12.5	12.5	5	3	3	3.6	54
111721038002	10.5	12.25	3	3	3	1.6	49
111721038003	9.75	10	3	3	3	1.6	48
111721038004	9.75	9.25	5	3	3	2.4	29
111721038005	12.25	12.25	5	3	3	2	51
111721038006	11.5	12.25	5	3	3	2.4	45
111721038007	12.25	11.75	5	3	3	0.8	48
111721038008	12.25	12.25	5	3	3	2.4	46
111721038009	10.25	10	4	3	3	1.2	34
111721038010	11	5.75	4	3	3	1.6	36
111721038011	8.75	6.75	3	3	3	2.4	27
111721038012	11	11.75	5	3	3	1.2	38
111721038013	9.75	9	5	3	3	2.8	45
111721038014	11.5	10.75	5	3	3	2	45
111721038015	11.25	10.75	3	3	3	1.6	47
111721038016	0	5.5	3	3	3	0	30
111721038017	12	12	5	3	3	2.4	37
111721038018	10.75	11	5	3	3	2.4	42

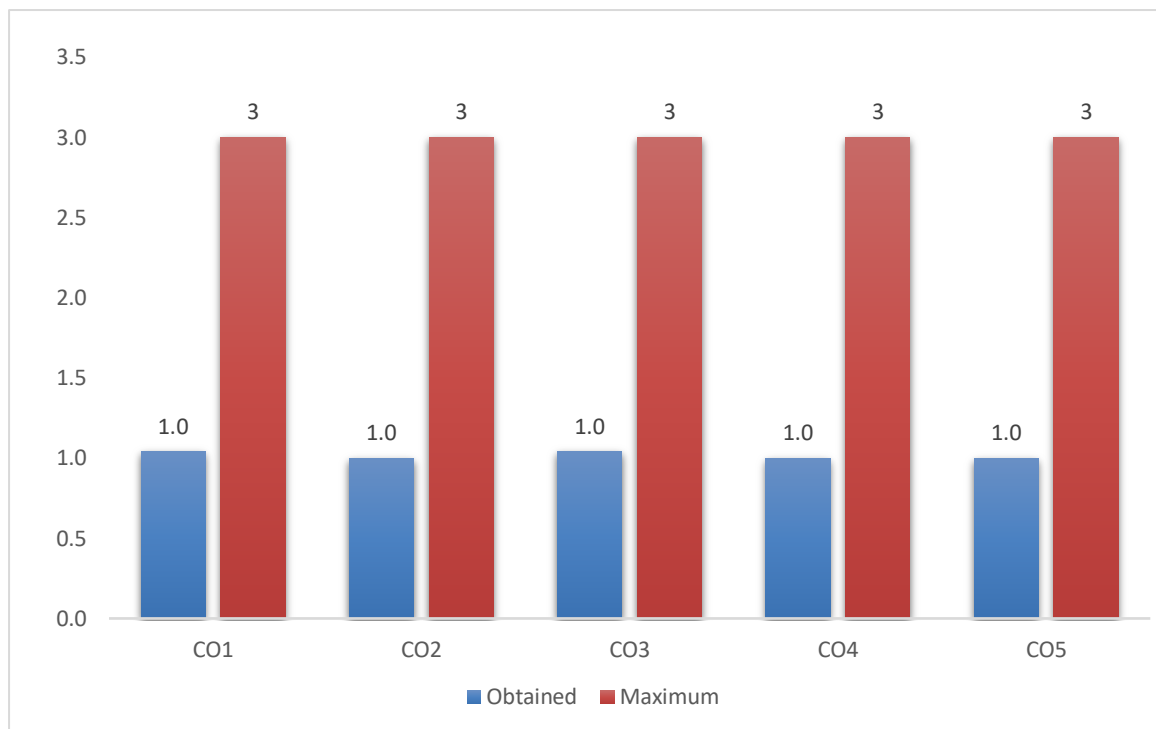
111721038019	2	6.75	4	3	3	0.8	43
111721038020	11	12.25	5	3	3	2.4	40
111721038021	12.25	12.5	5	3	3	2.8	50
111721038022	4.75	3.5	3	3	3	0.8	27
111721038023	9	10.5	3	3	3	0.4	36
111721038024	2.5	5.75	3	3	3	0	37
111721038025	11.5	11.75	5	3	3	3.2	46
111721038026	8.75	4.75	3	3	3	0	37
111721038027	6	5	3	3	3	3.2	16
111721038029	11.5	8.75	5	3	3	0	39
111721038030	9	5.5	5	3	3	1.6	36
111721038031	10.25	8.5	5	3	3	1.6	37
111721038032	11.75	10.25	4	3	3	0.8	45
111721038033	8.75	11.5	5	3	3	2.4	38
111721038034	12	10.75	5	3	3	0.8	52
111721038035	10.75	7.5	5	3	3	0.8	44
111721038036	9	6.75	3	3	3	0.4	38
111721038037	12.25	12	4	3	3	3.6	43
111721038038	10	5.25	5	3	3	2.8	24
111721038039	10.25	9	4	3	3	2.4	37
111721038041	9.75	7	5	3	3	2	30
111721038042	4.75	4	4	3	3	0	23
111721038043	12.25	12.5	5	3	3	2.4	48
111721038044	5.75	4	4	3	3	0.4	44
111721038045	11.5	12.5	5	3	3	3.6	44

111721038046	12.25	11.5	5	3	3	2.8	39
111721038047	12.25	12.5	5	3	3	4	53
111721038048	8.75	7	3	3	3	2	25
111721038049	11.5	11.25	5	3	3	2	43
111721038050	11.5	9.75	5	3	3	2	40

**CO Mapping :**

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	89.6	3.0			100.0	3.0	100.0	3.0	100.0	3.0	66.7	1.0	2.6	52.1	0.0	0.0	1.0
CO2	89.6	3.0			100.0	3.0			100.0	3.0	66.7	1.0	2.5	52.1	0.0	0.0	1.0
CO3	89.6	3.0	91.7	3.0	100.0	3.0			100.0	3.0	66.7	1.0	2.6	52.1	0.0	0.0	1.0
CO4			91.7	3.0	100.0	3.0			100.0	3.0	66.7	1.0	2.5	52.1	0.0	0.0	1.0
CO5			91.7	3.0	100.0	3.0			100.0	3.0	66.7	1.0	2.5	52.1	0.0	0.0	1.0

AVERAGE	AVERAGE
0	1.016



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.04		H 1.04					
CO2	H 1		H 1	H 1			H 1	
CO3	H 1.04		H 1.04	H 1.04	H 1.04		H 1.04	
CO4	H 1		H 1	H 1			H 1	
CO5	H 1		H 1	H 1				H 1
AVERAGE OF COS FOR POS	1.016		1.016	1.01	1.04		1.013333333	1
AVERAGE OF POS	1.0112		1.0112	1.01	1.04		1.01333	1
AVERAGE	1.014288889							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **NATURAL LANGUAGE PROCESSING (CSAI23505)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Write Python programs to manipulate and analyze language data	II (WRITE)
<b>CO2</b>	Understand key concepts from NLP and linguistics to describe and analyze language	III(UNDERSRAND)
<b>CO3</b>	Understand the data structures and algorithms that are used in NLP	III (UNDERSRANDt)
<b>CO4</b>	Classify texts using machine learning and deep learning	II (Classify)
<b>CO5</b>	Write Python programs to manipulate and analyze language data	I( analyze)

**CO's PO's 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

## MARKS LIST :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12	12.5	5	3	3	4	53
111721038002	10.75	12	4	3	3	1.6	53
111721038003	8.75	8.5	5	3	3	2	42
111721038004	5.5	8.5	4	3	3	2	32
111721038005	11.5	11.25	5	3	3	0.8	49
111721038006	11.25	12	5	3	3	2.4	54
111721038007	11.75	10.75	5	3	3	0	46
111721038008	11.75	12	5	3	3	1.6	49
111721038009	7.75	7.5	4	3	3	0.4	43
111721038010	5.25	6	4	3	3	0	41
111721038011	3.75	6	4	3	3	1.2	26
111721038012	10.25	9.5	4	3	3	0	40
111721038013	1.5	10.75	4	3	3	2	38
111721038014	5	6	4	3	3	2.4	33
111721038015	10.25	8.75	4	3	3	1.6	46
111721038016	0	3.75	4	3	3	0	0
111721038017	8.5	10.75	4	3	3	2.4	45
111721038018	10	10.25	4	3	3	2	51
111721038019	10.5	4.75	4	3	3	0	39

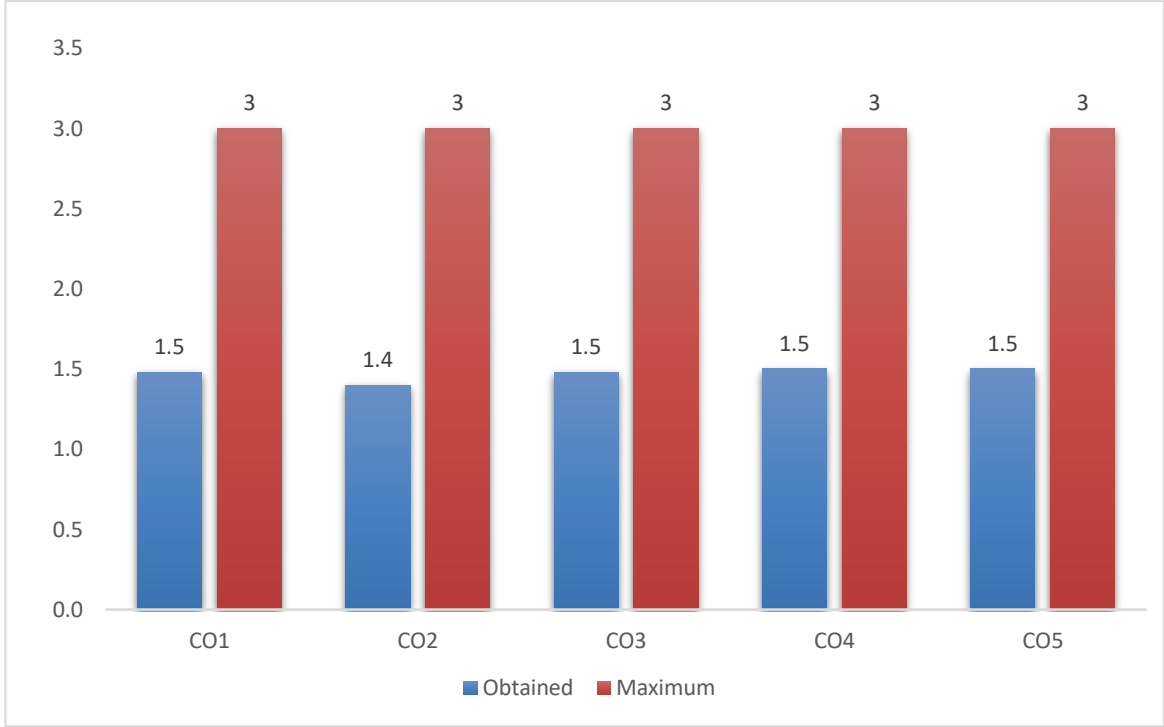
111721038020	10.5	10	5	3	3	2.8	42
111721038021	12	12	5	3	3	2.4	49
111721038022	5	3.75	3	3	3	0	30
111721038023	3	9	4	3	3	0	40
111721038024	2.5	3.75	4	2	3	0	43
111721038025	11.25	8	4	3	3	2.4	51
111721038026	8	6.75	4	2	3	0	40
111721038027	2.5	5	4	3	3	2.4	26
111721038029	8.75	11.75	4	3	3	0	40
111721038030	1.5	8.5	5	3	3	0.8	29
111721038031	6	9	4	3	3	1.2	36
111721038032	11.75	10.75	4	3	3	0	52
111721038033	9.5	9	5	3	3	1.2	44
111721038034	11.25	11	4	3	3	0	46
111721038035	9.75	6.25	4	3	3	0	45
111721038036	5.75	8.5	3	3	3	0	56
111721038037	10.25	12	5	3	3	4	49
111721038038	3.5	7.5	4	3	3	3.2	22
111721038039	5.75	7.5	4	3	3	0.8	40
111721038041	4.5	6	5	3	3	1.2	32
111721038042	0	6.25	4	3	3	0	26
111721038043	11.25	12.25	5	3	3	2	53
111721038044	1	5	4	3	3	0	31
111721038045	11	11.75	5	3	3	4	44
111721038046	10	11.5	5	3	3	3.6	45

111721038047	12	12.25	5	3	3	4	53
111721038048	5	5.5	4	3	3	2.4	40
111721038049	11.75	12	5	3	3	2	51
111721038050	5	6	4	3	3	0	30

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	77.1	2.0			100.0	3.0	100.0	3.0	100.0	3.0	47.9	0.0	2.2	68.8	1.0	1.0	1.5
CO2	77.1	2.0			100.0	3.0			100.0	3.0	47.9	0.0	2.0	68.8	1.0	1.0	1.4
CO3	77.1	2.0	91.7	3.0	100.0	3.0			100.0	3.0	47.9	0.0	2.2	68.8	1.0	1.0	1.5
CO4			91.7	3.0	100.0	3.0			100.0	3.0	47.9	0.0	2.3	68.8	1.0	1.0	1.5
CO5			91.7	3.0	100.0	3.0			100.0	3.0	47.9	0.0	2.3	68.8	1.0	1.0	1.5

AVERAGE	AVERAGE
1	1.472



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 1.48		H 1.48					
CO2	H 1.4		H 1.4	H 1.4			H 1.4	
CO3	H 1.48		H 1.48	H 1.48	H 1.48		H 1.48	
CO4	H 1.5		H 1.5	H 1.5			H 1.5	
CO5	H 1.5		H 1.5	H 1.5				H 1.5
AVERAGE OF COS FOR POS	1.472		1.472	1.47	1.48		1.46	1.5
AVERAGE OF POS	1.4704		1.4704	1.47	1.48		1.46	1.5
AVERAGE	1.475133333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **ROBOTIC PROCESS AUTOMATION (CSAI23506)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

#### **Programme Outcomes – (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: Ability to understand and adapt to the contemporary trends and best practices of industry and research standards.

PSO2: Ability to design and implement ethical sustainable solutions with a cutting -edge combination of Artificial intelligence ,Machine Learning , Natural Language processing etc.

PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
<b>CO1</b>	Understand the fundamental concepts of digital technology	III (UNDERSRAND)
<b>CO2</b>	Recognize the use of Digital technology in various Industries	IV(RECOGNIZE)
<b>CO3</b>	Understand the principles of UI Path	III (UNDERSRAND)
<b>CO4</b>	Understand the principles of Automation Anywhere	II (UNDERSRAND)
<b>CO5</b>	Design bots and understand their various types	I( DESIGN)

**CO's PO's 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

## MARKS LIST :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendance	External Exam
	12.5	12.5	5	3	3	4	60
111721038001	12.5	12.5	5	3	3	2.4	57
111721038002	12.5	12.5	5	3	3	0.8	54
111721038003	12.25	12.5	5	3	3	0.4	46
111721038004	11	11	5	3	3	1.2	44
111721038005	12.5	12.25	5	3	3	0	50
111721038006	12.5	12.5	5	3	3	2.4	54
111721038007	12.5	12	5	3	3	0.4	52
111721038008	12.5	12.25	5	3	3	0	51
111721038009	10.25	11.5	5	3	3	0	44
111721038010	12	9.75	5	3	3	0.8	52
111721038011	8.75	10	5	3	3	0.4	40
111721038012	12.5	12.5	5	3	3	0	50
111721038013	10	12	5	3	3	0.8	47
111721038014	12.25	12	5	3	3	0.4	50
111721038015	12.5	12.5	5	3	3	0	52
111721038016	0	12	5	3	3	0	42
111721038017	12.25	11.75	5	3	3	0.8	53
111721038018	12	12.25	5	3	3	0.8	50
111721038019	2.5	7.5	5	3	3	0	47

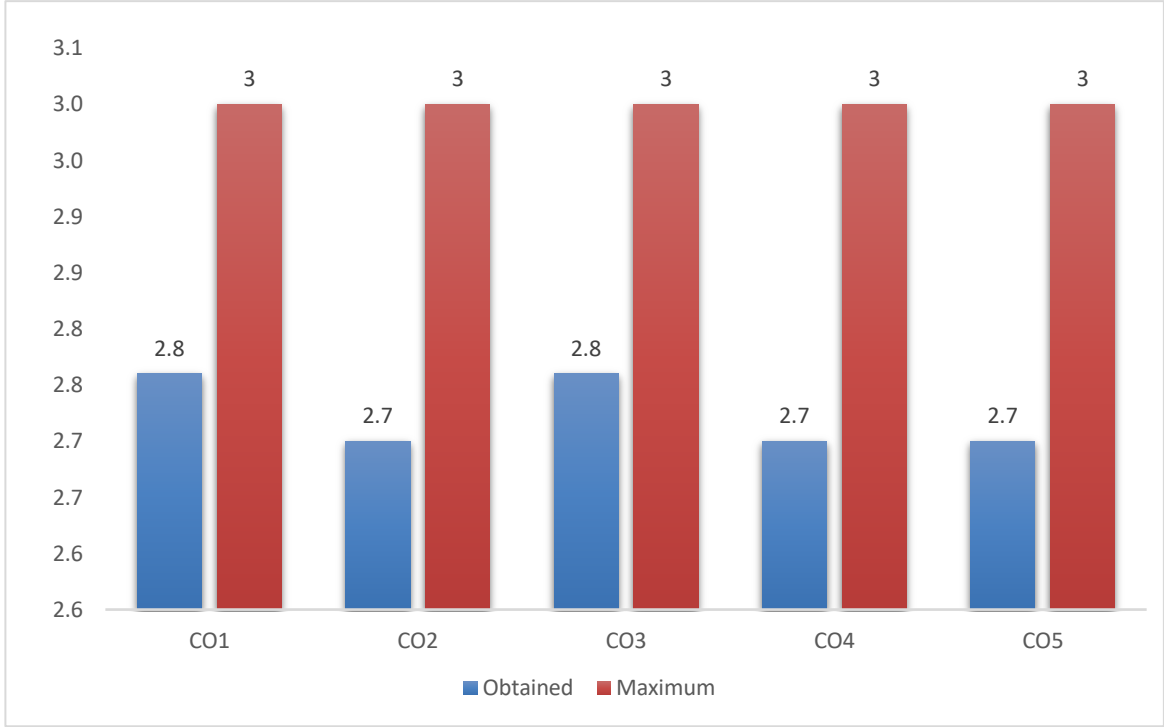
111721038020	12.25	11.75	5	3	3	1.6	52
111721038021	12.5	12.5	5	3	3	0.8	56
111721038022	4	9	5	3	3	0	43
111721038023	12	9.75	5	3	3	0	49
111721038024	9.5	8.5	5	3	3	0	51
111721038025	12.5	12.25	5	3	3	1.2	52
111721038026	12	11	5	3	3	0	48
111721038027	8.75	6	5	3	3	0.8	38
111721038029	12.5	12	5	3	3	0	50
111721038030	1.5	10.75	5	3	3	0	50
111721038031	10	10.5	5	3	3	0	45
111721038032	12	12	5	3	3	0	51
111721038033	11.75	11.5	5	3	3	0	46
111721038034	12.5	11.75	5	3	3	0	52
111721038035	9.5	12.25	5	3	3	0	50
111721038036	7.75	8.5	5	3	3	0	48
111721038037	12.5	12.5	5	3	3	4	54
111721038038	9.5	6.75	5	3	3	1.2	41
111721038039	11	9.5	5	3	3	0	48
111721038041	8.75	10	5	3	3	0	42
111721038042	0	9.5	5	3	3	0	41
111721038043	12.5	12.5	5	3	3	1.6	55
111721038044	2.5	12	5	3	3	1.6	47
111721038045	12.5	12.5	5	3	3	4	52
111721038046	12.5	12.5	5	3	3	3.2	50

111721038047	12.5	12.5	5	3	3	4	56
111721038048	10.75	7.5	5	3	3	0	48
111721038049	12.5	12.5	5	3	3	0	55
111721038050	11.5	12.25	5	3	3	0	47

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam			co wise total average
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level	co wise external average	
CO1	87.5	3.0			100.0	3.0	100.0	3.0	100.0	3.0	18.8	0.0	2.4	97.9	3.0	3.0	2.8
CO2	87.5	3.0			100.0	3.0			100.0	3.0	18.8	0.0	2.3	97.9	3.0	3.0	2.7
CO3	87.5	3.0	100.0	3.0	100.0	3.0			100.0	3.0	18.8	0.0	2.4	97.9	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	18.8	0.0	2.3	97.9	3.0	3.0	2.7
CO5			100.0	3.0	100.0	3.0			100.0	3.0	18.8	0.0	2.3	97.9	3.0	3.0	2.7

AVERAGE	AVERAGE
3	2.724



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
CO2	H 2.7		H 2.7	H 2.7			H 2.7	
CO3	H 2.76		H 2.76	H 2.76	H 2.76		H 2.76	
CO4	H 2.7		H 2.7	H 2.7			H 2.7	
CO5	H 2.7		H 2.7	H 2.7				H 2.7
AVERAGE OF COS FOR POS	2.724		2.724	2.715	2.76		2.72	2.7
AVERAGE OF POS	2.7168		2.7168	2.715	2.76		2.72	2.7
AVERAGE	2.721433333							

# **BSc. COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

## **BIG DATA ANALYTICS (CSAI23504)**

### **PROGRAMME OUTCOMES(BA/BSC/BCOM and BBA):**

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- **PO7. Communication:** Communicate effectively on complex science & technology activities with society at large and able to write effective reports and documentation.
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PSO3: Ability to design smart machines.

PSO4: Ability to represent the knowledge and transform the real life information into a different representation.

PSO5: Implement problem solving skills in the broad area of programming concepts and manage different projects in interdisciplinary field.

	<b>COURSE OUTCOMES</b>	<b>BLOOM'S TAXONOMY LEVEL</b>
CO1	<b>Explain</b> the motivation for big data systems and identify the main sources of Big Data in here al world.	II (Explain)
CO2	<b>Develop</b> technical skills in predicative and prescriptive modeling to support business decision-making.	IV (Develop)
CO3	<b>Implement</b> several Data Intensive tasks using the Map Reduce Paradigm.	III (implement)
CO4	<b>Understand</b> Hadoop ecosystem such as YARN and HIVE-QL for structured databases.	II (understand)
CO5	<b>Demonstrate</b> anability map-reduce programming using PIG and NoSQL databases for storing purpose and process for Big Data Analytics	I(demonstrate)

**CO's PO's 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

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111721038003	5	9.5	5	3	3	1.2	30
111721038004	5	6.5	5	3	3	2	29
111721038005	5	11.5	5	3	3	1.6	46
111721038006	8.25	12.5	5	3	3	3.2	48
111721038007	5.25	11.25	5	3	3	0	50
111721038008	9	12.25	5	3	3	0.8	54
111721038009	4.5	8.5	5	3	3	0	42
111721038010	4	6	4	3	3	0.4	40
111721038011	3.75	6	5	3	3	0.8	29
111721038012	7.25	11.5	5	3	3	0.8	43
111721038013	9.25	11.25	5	3	3	3.2	37
111721038014	6	7.75	5	3	3	2	31
111721038015	8.25	10.5	4	3	3	0	49
111721038016	5	5.75	5	3	3	0	33
111721038017	8.75	11.25	5	3	3	1.6	46
111721038018	9.5	10.75	5	3	3	1.2	39
111721038019	5.25	10.5	5	3	3	0	35

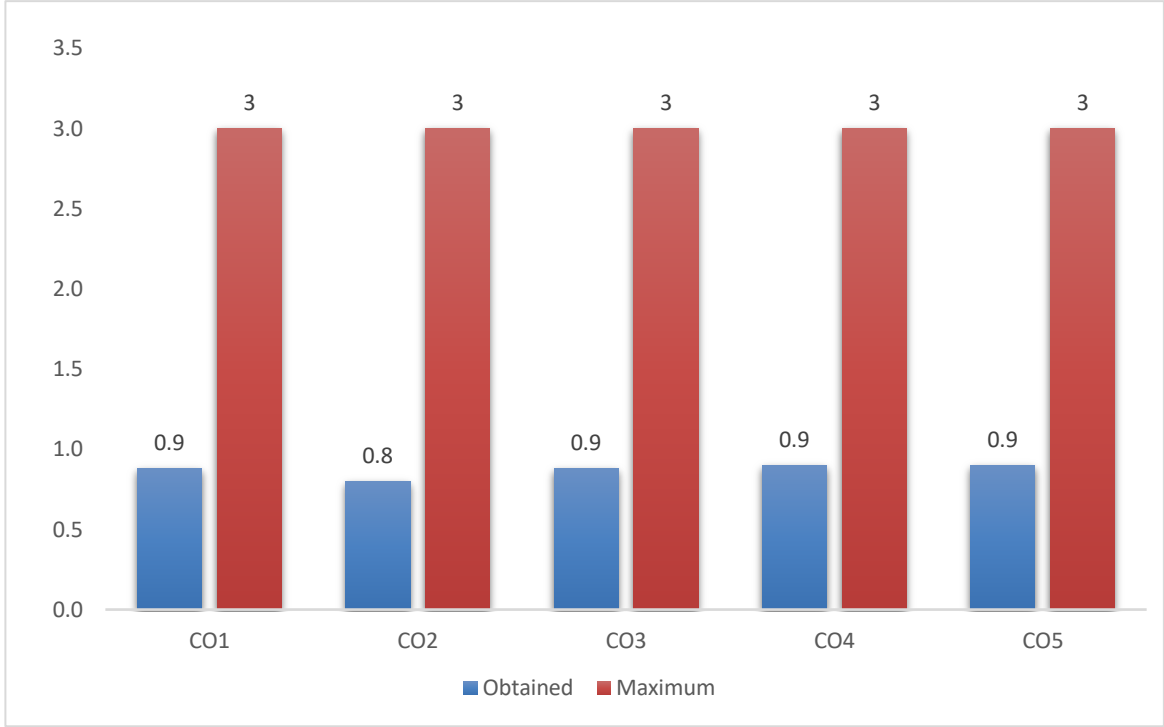
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111721038023	6	9.25	4	3	3	0	46
111721038024	5	8.25	5	3	3	0	44
111721038025	7.5	11.75	5	3	3	1.6	46
111721038026	0	6.5	4	3	3	0	37
111721038027	3.75	5	4	3	3	1.6	23
111721038029	5	10.5	5	3	3	0	43
111721038030	4	5.75	4	3	3	0.4	38
111721038031	7	8.75	5	3	3	1.2	43
111721038032	8	9.25	5	3	3	0	43
111721038033	5.75	9.25	5	3	3	1.6	45
111721038034	7.75	8.5	5	3	3	0.8	46
111721038035	7.5	11	5	3	3	0	40
111721038036	4	5.25	4	3	3	0	27
111721038037	8	12	5	3	3	3.6	46
111721038038	6.25	6.25	5	3	3	2.4	23
111721038039	8	8.25	5	3	3	1.2	38
111721038041	6.25	6.5	5	3	3	0.8	33
111721038042	4.5	6.25	4	3	3	0	26
111721038043	10.75	11.75	5	3	3	1.2	55
111721038044	3.75	4.5	4	3	3	0	18
111721038045	9.75	11.75	5	3	3	3.2	45
111721038046	9.25	11.25	5	3	3	2	42

111721038047	12.25	12.5	5	3	3	4	49
111721038048	6.25	6.25	4	3	3	0	25
111721038049	10.5	12	5	3	3	1.2	50
111721038050	7.25	10.25	5	3	3	1.2	33

## CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendance		co wise internal average	External Exam		co wise total average	
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level		pass%	Attainment level		
CO1	79.2	2.0			100.0	3.0	100.0	3.0	100.0	3.0	35.4	0.0	2.2	56.3	0.0	0.0	0.9
CO2	79.2	2.0			100.0	3.0			100.0	3.0	35.4	0.0	2.0	56.3	0.0	0.0	0.8
CO3	79.2	2.0	97.9	3.0	100.0	3.0			100.0	3.0	35.4	0.0	2.2	56.3	0.0	0.0	0.9
CO4			97.9	3.0	100.0	3.0			100.0	3.0	35.4	0.0	2.3	56.3	0.0	0.0	0.9
CO5			97.9	3.0	100.0	3.0			100.0	3.0	35.4	0.0	2.3	56.3	0.0	0.0	0.9

AVERAGE	AVERAGE
0	0.872



**PO Mapping :**

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 0.88		H 0.88					
CO2	H 0.8		H 0.8	H 0.8			H 0.8	
CO3	H 0.88		H 0.88	H 0.88	H 0.88		H 0.88	
CO4	H 0.9		H 0.9	H 0.9			H 0.9	
CO5	H 0.9		H 0.9	H 0.9				H 0.9
AVERAGE OF COS FOR POS	0.872		0.872	0.87	0.88		0.86	0.9
AVERAGE OF POS	0.8704		0.8704	0.87	0.88		0.86	0.9
AVERAGE	0.875133333							