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: CSAI121104

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

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

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendence	External Exam
	50	50	5	3	3	10	60
111722038001	38	43	5	3	3	10	51
111722038002	33	32	4	3	2	10	38
111722038003	28	44	4	3	3	9	52
111722038004	22	37	4	3	2	10	38
111722038005	36	26	5	3	3	10	37
111722038006	25	34	5	3	3	6	58
111722038007	28	34	4	3	2	5	34
111722038008	41	41	5	3	3	10	54
111722038009	32	32	5	3	3	9	58
111722038010	23	33	5	3	3	8	38
111722038011	33	41	4	3	3	9	45
111722038012	38	49	5	3	3	10	58
111722038013	20	20	4	3	2	4	19
111722038014	20	21	4	3	2	10	47
111722038015	20	20	4	3	2	2	29
111722038016	50	49	5	3	3	7	60
111722038017	23	27	5	3	3	4	43

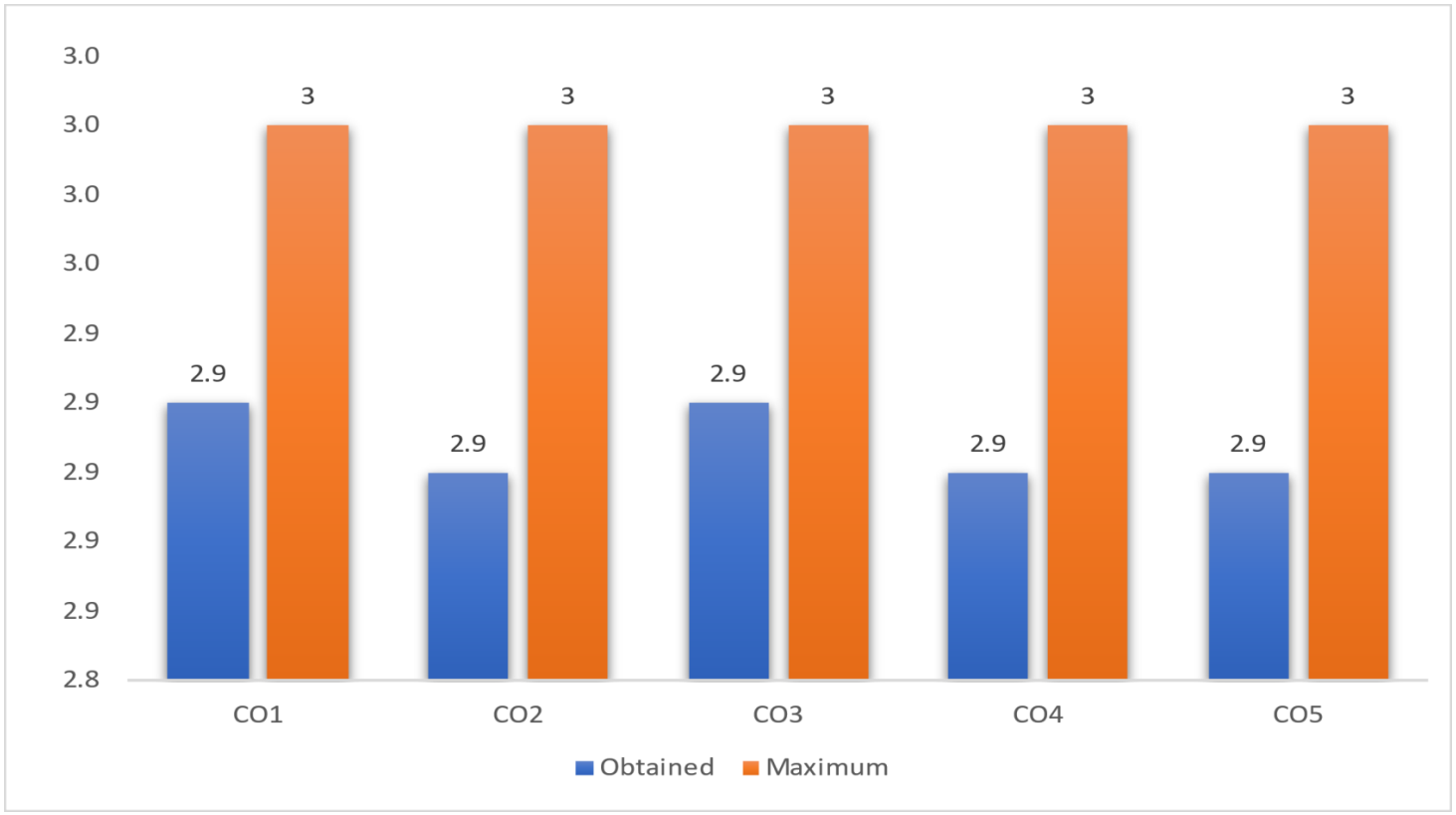
111722038018	20	33	4	3	2	5	19
111722038019	25	20	4	3	2	1	43
111722038020	29	25	4	3	2	9	44
111722038021	22	20	4	3	2	0	18
111722038022	48	50	4	3	3	8	52
111722038023	35	31	5	3	3	4	32
111722038024	36	20	5	3	3	2	33
111722038025	20	20	5	3	2	6	43
111722038026	30	27	4	3	2	9	45
111722038027	36	40	5	3	3	10	43
111722038028	22	20	4	3	2	7	28
111722038029	20	26	4	3	2	2	32
111722038030	32	36	5	3	3	8	41
111722038031	35	28	4	3	3	9	46
111722038032	28	26	4	3	2	9	51
111722038033	29	20	5	3	2	5	31
111722038034	26	32	4	3	2	9	28
111722038035	31	49	5	3	2	10	39
111722038036	20	20	4	3	2	6	29
111722038037	25	20	5	3	2	4	22
111722038038	32	29	4	3	3	2	39
111722038039	27	25	4	3	3	5	37

111722038040	26	39	5	3	2	1	26
111722038041	30	20	4	3	3	0	16
111722038042	26	20	4	3	2	8	45
111722038043	20	31	4	3	2	5	20
111722038044	25	42	5	3	2	10	41
111722038045	34	41	5	3	3	7	48
111722038046	25	37	4	3	2	6	32
111722038047	25	35	5	3	2	2	45
111722038048	22	25	4	3	2	8	25
111722038049	20	23	5	3	2	1	27
111722038050	20	28	4	3	2	8	10

CO Mapping:

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence			External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	80.0	2.0	2.8	86.0	3.0	3.0	2.9
CO2	100.0	3.0			100.0	3.0			100.0	3.0	80.0	2.0	2.8	86.0	3.0	3.0	2.9
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	80.0	2.0	2.8	86.0	3.0	3.0	2.9
CO4			100.0	3.0	100.0	3.0			100.0	3.0	80.0	2.0	2.8	86.0	3.0	3.0	2.9
CO5			100.0	3.0	100.0	3.0			100.0	3.0	80.0	2.0	2.8	86.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.908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CO1
CO2
CO3
CO4
CO5
Obtained
Maximum

PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92					
CO2	H 2.9		H 2.9	H 2.9			H 2.9	
CO3	H 2.92		H 2.92	H 2.92	H 2.92		H 2.92	
CO4	H 2.9		H 2.9	H 2.9			H 2.9	
CO5	H 2.9		H 2.9	H 2.9				H 2.9
AVERAGE OF COS FOR POS	2.908		2.908	2.905	2.92		2.906666667	2.9
AVERAGE OF POS	2.9056		2.9056	2.905	2.92		2.906667	2.9
AVERAGE	2.907144444							

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(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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- **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.

	COURSE OUTCOMES	**BLOOM'S TAXONOMY LEVEL**
CO1	Students will be able to **differentiate** Accepted norms and Counter values and be able to identify the various Dimensions of Human Development.	II (Understand)
CO2	Students will be able to **demonstrate** Love and Experience of God and identify the Basic Issues of Life and Happiness as a life goal.	VI (Create)
CO3	They will able to **understand** the importance of Concern for others and critique the various problems that deter the growth of the society.	VI (Create)
CO4	The students will be able to **recognize** the traits of a good personality and practice Self-exploration.	III (Apply)
CO5	Students will be able to **interpret** 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	Attendence	External Exam
	50	50	5	3	3	10	60
111722038001	40	50	5	3	3	8	46
111722038002	34	50	5	3	3	10	54
111722038003	38	45	5	2	3	8	51
111722038004	29	41	4	3	2	10	40
111722038005	41	41	4	3	2	10	46
111722038006	48	45	4	3	3	6	50
111722038007	35	41	4	3	2	2	45
111722038008	41	41	4	3	2	10	50
111722038009	42	45	4	3	3	10	53
111722038010	35	45	4	3	3	10	45
111722038011	46	50	5	2	3	10	60
111722038012	30	45	5	1	3	8	44
111722038013	12	27	3	3	2	4	35
111722038014	28	36	3	1	2	8	46
111722038015	17	27	3	3	2	0	30
111722038016	47	50	5	3	3	0	53
111722038017	26	41	4	2	2	8	44

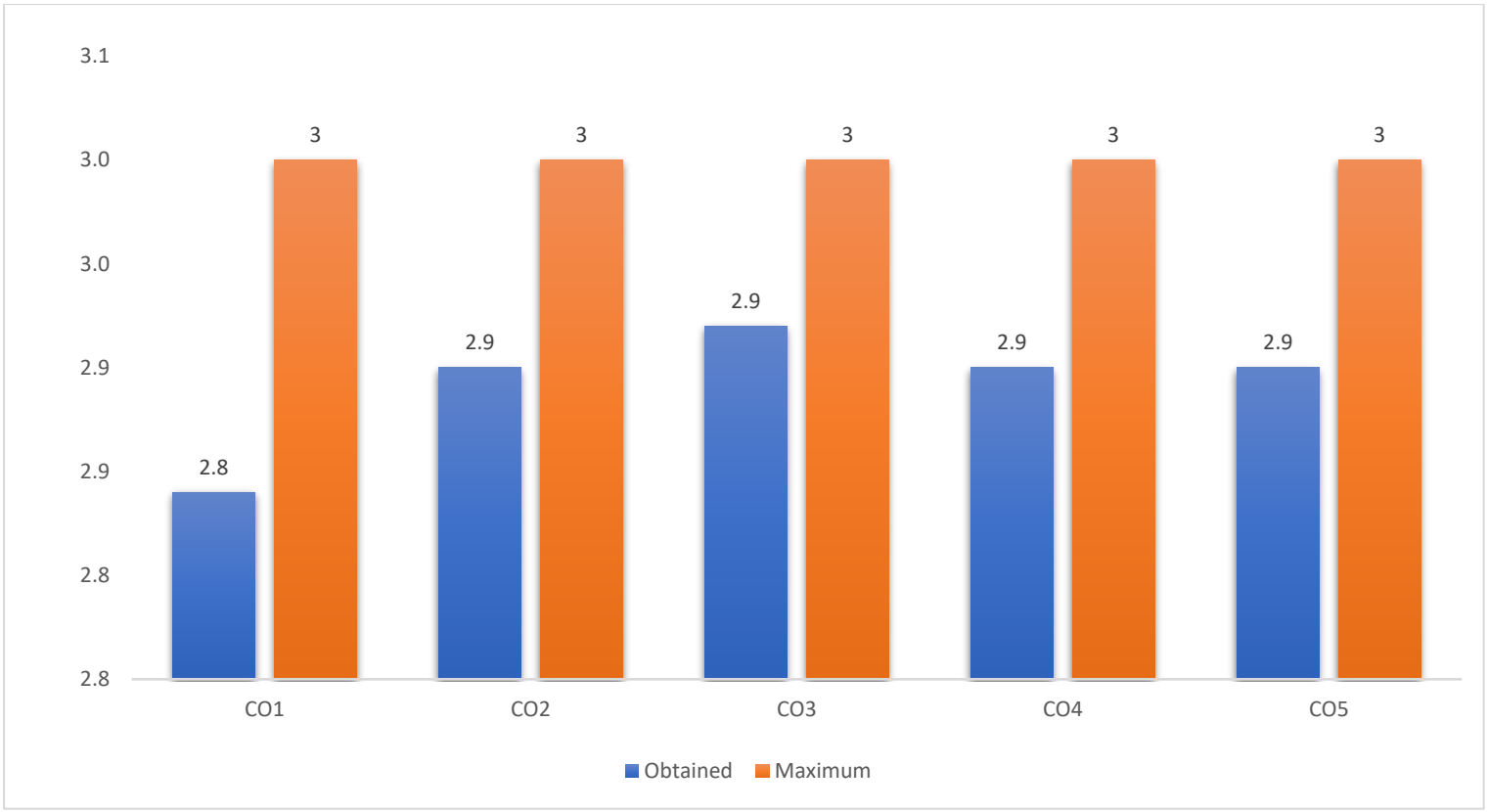
111722038018	26	36	4	1	2	6	45
111722038019	36	27	3	3	2	0	50
111722038020	37	45	4	1	3	10	51
111722038021	19	32	4	3	2	0	42
111722038022	35	45	4	1	3	8	45
111722038023	31	41	5	2	3	4	42
111722038024	42	32	3	2	2	10	46
111722038025	33	32	3	2	2	4	40
111722038026	33	41	4	2	3	10	50
111722038027	33	45	5	3	3	10	45
111722038028	18	41	4	3	2	4	26
111722038029	18	36	3	3	2	4	28
111722038030	39	41	4	3	2	8	37
111722038031	34	41	4	3	2	10	44
111722038032	37	45	4	3	3	10	45
111722038033	44	41	5	1	3	4	46
111722038034	30	45	5	2	3	10	30
111722038035	36	45	5	2	3	8	46
111722038036	29	45	5	2	3	10	25
111722038037	30	41	4	3	2	8	36
111722038038	40	41	5	1	3	2	28
111722038039	45	41	5	1	3	6	50

111722038040	37	45	4	3	3	0	38
111722038041	24	27	3	1	2	0	51
111722038042	35	41	4	2	3	8	53
111722038043	24	36	4	2	2	8	31
111722038044	35	45	4	3	3	10	47
111722038045	38	41	4	2	3	8	48
111722038046	16	41	4	3	2	10	46
111722038047	32	50	5	3	3	4	50
111722038048	25	50	5	3	3	8	33
111722038049	21	45	5	2	3	2	35
111722038050	12	41	4	3	2	8	23

CO Mapping:

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence			External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	86.0	3.0			100.0	3.0	82.0	2.0	100.0	3.0	82.0	2.0	2.6	98.0	3.0	3.0	2.8
CO2	86.0	3.0			100.0	3.0			100.0	3.0	82.0	2.0	2.8	98.0	3.0	3.0	2.9
CO3	86.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	98.0	3.0	3.0	2.9
CO4			100.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	98.0	3.0	3.0	2.9
CO5			100.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	98.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.892


3.1
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CO1
CO2
CO3
CO4
CO5
Obtained
Maximum

PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.84		H 2.84					
CO2	H 2.9		H 2.9	H 2.9			H 2.9	
CO3	H 2.92		H 2.92	H 2.92	H 2.92		H 2.92	
CO4	H 2.9		H 2.9	H 2.9			H 2.9	
CO5	H 2.9		H 2.9	H 2.9				H 2.9
AVERAGE OF COS FOR POS	2.892		2.892	2.905	2.92		2.906666667	2.9
AVERAGE OF POS	2.9024		2.9024	2.905	2.92		2.906667	2.9
AVERAGE	2.906077778							

GENERAL ENGLISH - I

COURSE TITLE: GENERAL ENGLISH - I
COURSE CODE: EN18101
CREDITS: 3

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**.**
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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.

	COURSE OUTCOMES	BLOOM'S TAXONOMY LEVEL
CO1	To **distinguish** 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)
CO2	To **construct** vocabulary and to gain understanding on the tense component, a pivotal constituent for language structuring and vocabulary building.	(Construct)
CO3	To **identify** with economical word constructions, paying specific attention in constructing sound writing skills.	(Identify)
CO4	To **interpret** functional grammar, the basic part involved in sentence constructing to improve linguistic skills.	(Interpret)
CO5	To **develop** 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 :

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendence	External Exam
	50	50	5	3	3	10	60
111722038001	49	40	5	3	3	10	41
111722038002	46	46	5	3	3	10	42
111722038003	49	50	5	3	3	8	32
111722038004	41	42	5	3	3	10	38
111722038005	41	44	5	3	3	10	40
111722038006	43	50	5	3	3	6	38
111722038007	39	34	5	3	3	9	36
111722038008	47	50	5	3	3	10	42
111722038009	42	46	5	3	3	9	40
111722038010	48	42	5	3	3	10	48
111722038011	48	48	5	3	3	4	47
111722038012	40	46	5	3	3	10	46
111722038013	29	44	5	3	3	6	37
111722038014	44	50	5	3	3	10	37
111722038015	36	46	5	3	3	9	33
111722038016	49	46	5	3	3	10	49
111722038017	42	42	5	3	3	4	37

111722038018	41	46	5	3	3	6	43
111722038019	36	50	5	3	3	2	38
111722038020	43	36	5	3	3	8	40
111722038021	30	28	5	3	3	4	42
111722038022	43	42	5	3	3	8	43
111722038023	36	42	5	3	3	6	43
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111722038026	43	50	5	3	3	10	40
111722038027	44	34	5	3	3	10	38
111722038028	30	48	5	3	3	8	40
111722038028	28	46	5	3	3	6	41
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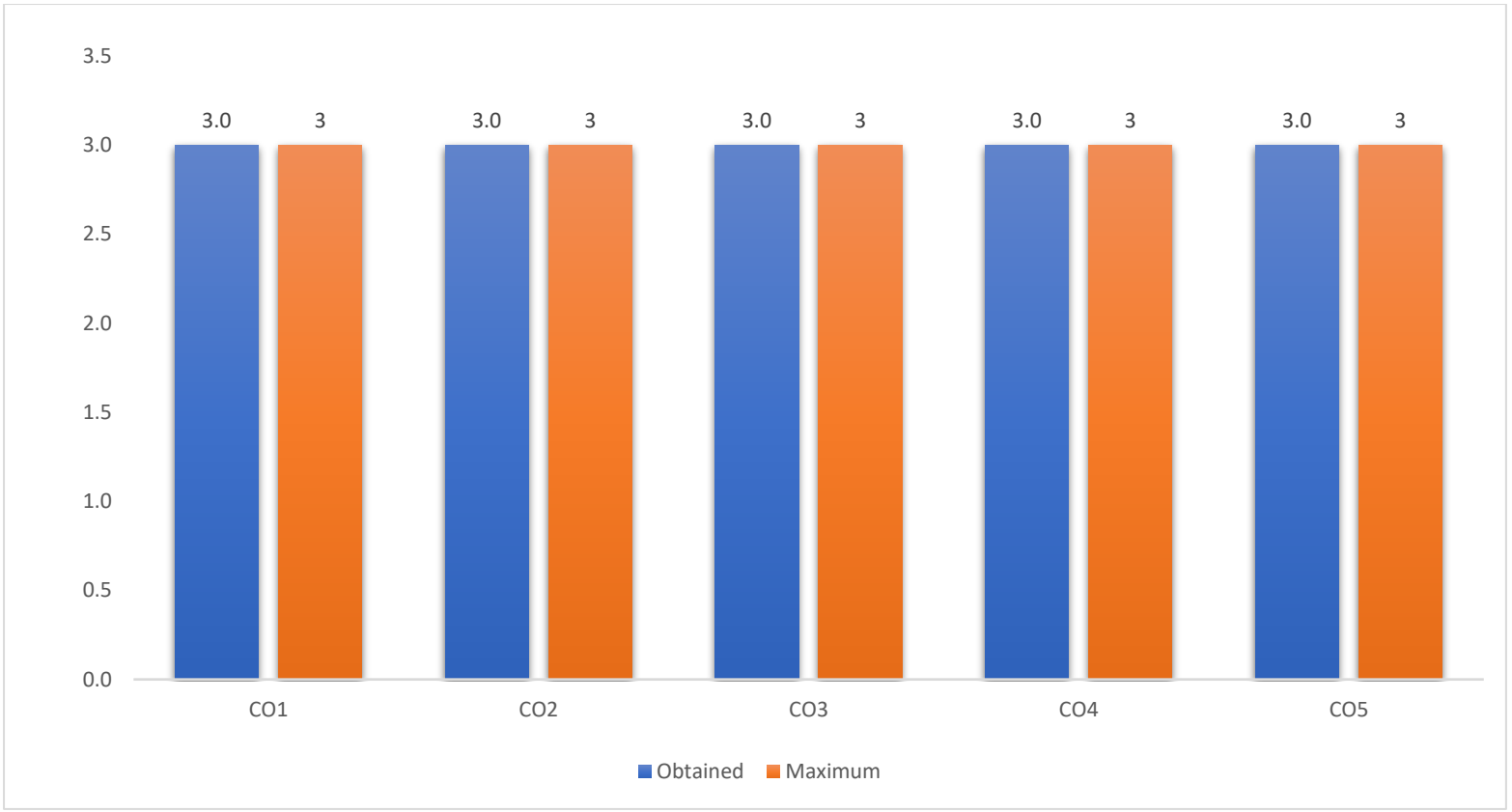
111722038035	33	46	5	3	3	3	39
111722038036	41	50	5	3	3	8	39
111722038037	36	44	5	3	3	8	43
111722038038	35	42	5	3	3	9	44

111722038039	43	48	5	3	3	8	38
111722038040	43	40	5	3	3	0	46
111722038041	45	40	5	3	3	10	39
111722038042	37	44	5	3	3	6	38
111722038043	42	38	5	3	3	10	39
111722038044	43	40	5	3	3	7	40
111722038045	35	42	5	3	3	9	39
111722038046	41	42	5	3	3	7	42
111722038047	46	40	5	3	3	9	48
111722038048	35	42	5	3	3	10	42
111722038049	26	40	5	3	3	10	28
111722038050	50	50	5	3	3	4	60

CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence			External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	94.1	3.0	3.0	100.0	3.0	3.0	3.0
CO2	100.0	3.0			100.0	3.0			100.0	3.0	94.1	3.0	3.0	100.0	3.0	3.0	3.0
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	94.1	3.0	3.0	100.0	3.0	3.0	3.0
CO4			100.0	3.0	100.0	3.0			100.0	3.0	94.1	3.0	3.0	100.0	3.0	3.0	3.0
CO5			100.0	3.0	100.0	3.0			100.0	3.0	94.1	3.0	3.0	100.0	3.0	3.0	3.0

AVERAGE	AVERAGE
3	3


3.5
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3.0
3
CO1
CO2
CO3
CO4
CO5
Obtained
Maximum

PO Mapping :

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

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.)

- **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.

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

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendence	External Exam
	50	50	5	3	3	10	60
111722038001	37	33	5	3	3	9	50
111722038002	34	35	5	3	3	10	50
111722038003	32	32	5	3	3	7	49
111722038004	30	35	5	3	3	8	40
111722038005	39	30	5	3	3	8	41
111722038006	24	22	3	2	2	4	45
111722038007	26	28	3	2	2	3	42
111722038008	34	32	5	3	3	10	56
111722038009	39	28	5	3	3	6	54
111722038010	14	27	5	3	3	7	40
111722038011	35	33	5	3	3	8	52
111722038012	36	27	5	3	3	10	54
111722038013	2	22	3	3	3	2	20
111722038014	18	22	5	3	3	7	45
111722038015	16	20	5	2	2	2	32
111722038016	49	38	5	3	3	8	56
111722038017	13	37	5	2	2	5	41

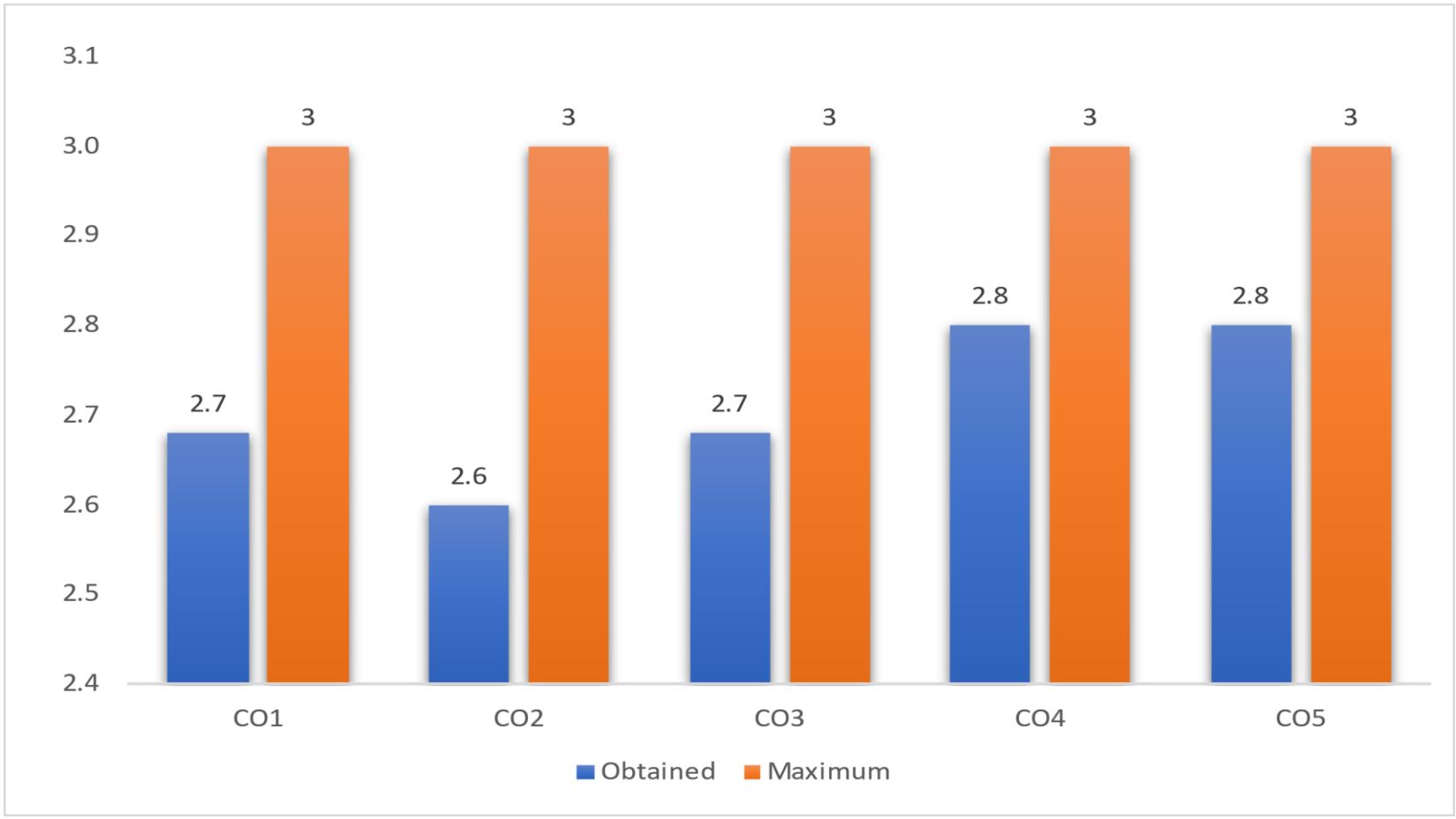
111722038018	22	18	5	3	3	4	35
111722038019	27	35	3	3	3	0	50
111722038020	30	33	5	3	3	6	46
111722038021	2	25	5	2	2	0	28
111722038022	47	33	5	3	3	7	51
111722038023	35	38	5	3	3	4	45
111722038024	36	25	5	3	3	1	49
111722038025	24	10	5	2	2	7	48
111722038026	22	27	5	3	3	6	47
111722038027	36	25	5	3	3	8	45
111722038028	11	22	5	3	3	6	24
111722038029	5	23	3	3	3	2	35
111722038030	24	27	5	3	3	6	40
111722038031	30	30	5	3	3	9	47
111722038032	29	25	5	3	3	9	45
111722038033	37	13	5	3	3	5	39
111722038034	20	30	5	3	3	5	31
111722038035	33	28	5	3	3	7	40
111722038036	28	28	5	2	2	3	44
111722038037	23	28	5	2	2	5	41
111722038038	34	37	3	2	2	0	40
111722038039	34	0	5	3	3	4	41

111722038040	21	27	5	3	2	0	24
111722038041	25	40	3	3	3	0	40
111722038042	16	23	5	2	2	8	37
111722038043	7	22	5	2	2	4	36
111722038044	22	28	5	3	3	8	46
111722038045	23	5	5	3	3	6	50
111722038046	15	27	5	3	3	9	41
111722038047	41	28	5	3	3	1	48
111722038048	23	20	5	3	3	7	17
111722038049	17	23	5	2	2	1	21
111722038050	17	12	5	3	3	8	12

CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence			External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	74.0	1.0			100.0	3.0	100.0	3.0	100.0	3.0	74.0	1.0	2.2	92.0	3.0	3.0	2.7
CO2	74.0	1.0			100.0	3.0			100.0	3.0	74.0	1.0	2.0	92.0	3.0	3.0	2.6
CO3	74.0	1.0	88.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.2	92.0	3.0	3.0	2.7
CO4			88.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.5	92.0	3.0	3.0	2.8
CO5			88.0	3.0	100.0	3.0			100.0	3.0	74.0	1.0	2.5	92.0	3.0	3.0	2.8

AVERAGE	AVERAGE
3	2.712


3.1
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2.7
2.6
2.7
2.8
2.8
CO1
CO2
CO3
CO4
CO5
Obtained
Maximum

PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.68		H 2.68					
CO2	H 2.6		H 2.6	H 2.6			H 2.6	
CO3	H 2.68		H 2.68	H 2.68	H 2.68		H 2.68	
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	2.712		2.712	2.72	2.68		2.693333333	2.8
AVERAGE OF POS	2.7184		2.7184	2.72	2.68		2.693333	2.8
AVERAGE	2.721688889							

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.
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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.

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

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendence	External Exam
	50	50	5	3	3	10	60
111722038001	50	44	5	3	3	10	47
111722038002	49	50	5	3	3	10	51
111722038003	48	50	5	2	3	9	34
111722038004	39	50	5	3	2	10	38
111722038005	50	50	5	3	2	10	38
111722038006	40	50	5	3	3	6	36
111722038007	38	50	5	3	2	2	34
111722038008	50	48	5	3	2	10	33
111722038009	49	48	5	3	3	6	43
111722038010	30	50	5	3	3	9	30
111722038011	45	46	5	2	3	9	26
111722038012	49	48	5	1	3	10	39
111722038013	8	50	5	3	2	0	20
111722038014	37	50	5	1	2	8	32
111722038015	24	42	5	3	2	4	35
111722038016	50	50	5	3	3	10	52
111722038017	40	42	5	2	2	6	14

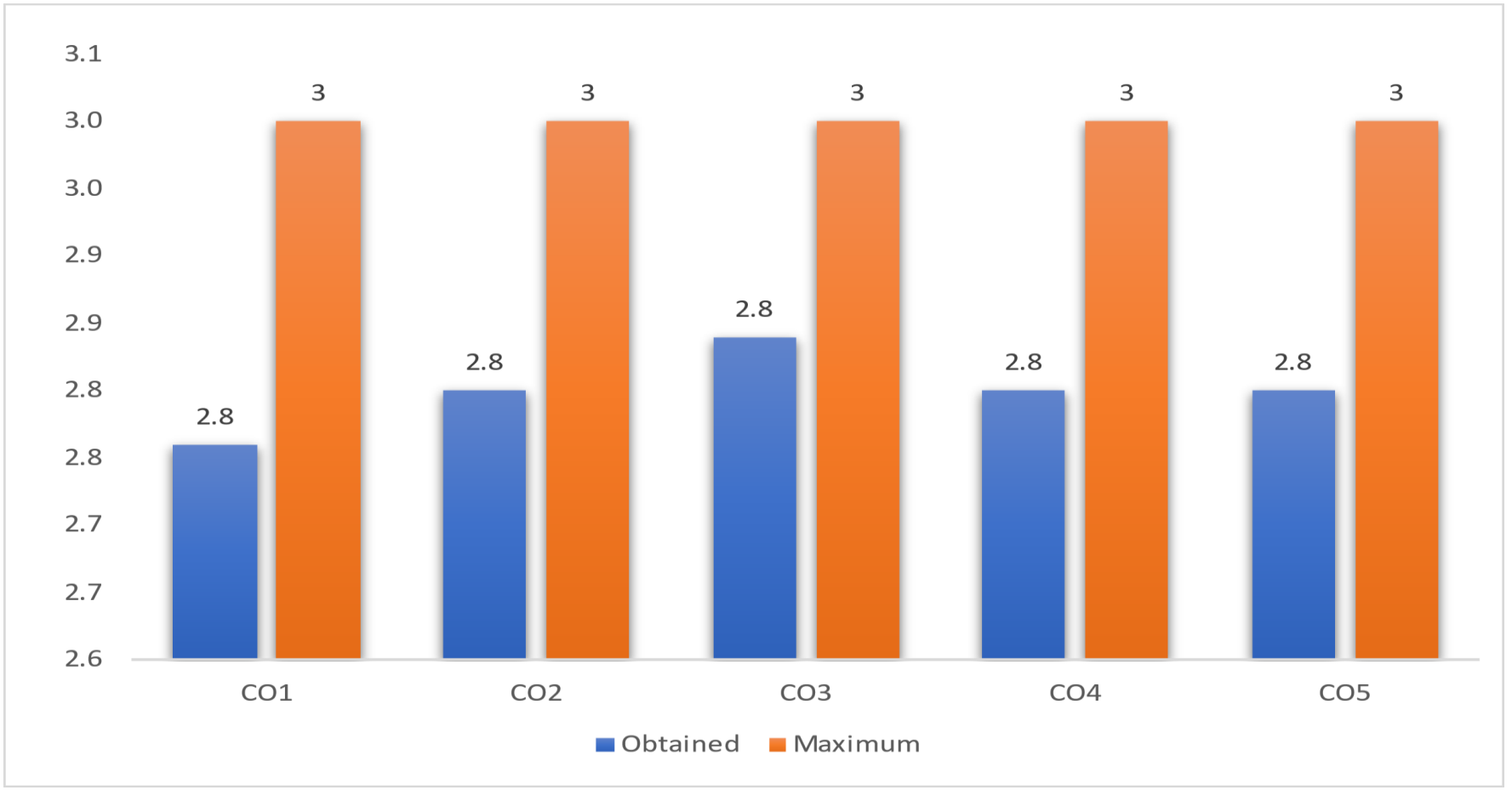
111722038018	36	50	5	1	2	5	23
111722038019	32	50	4	3	2	0	45
111722038020	46	44	5	1	3	8	35
111722038021	28	44	5	3	2	2	27
111722038022	50	48	5	1	3	8	44
111722038023	47	50	5	2	3	10	42
111722038024	49	50	5	2	2	1	32
111722038025	39	50	5	2	2	6	35
111722038026	36	46	5	2	3	7	23
111722038027	35	46	5	3	3	10	30
111722038028	27	44	5	3	2	2	18
111722038029	43	50	5	3	2	2	34
111722038030	50	46	5	3	2	8	52
111722038031	38	48	4	3	2	8	37
111722038032	41	46	5	3	3	10	27
111722038033	50	46	5	1	3	7	41
111722038034	30	50	5	2	3	9	34
111722038035	33	50	5	2	3	10	38
111722038036	25	42	5	2	3	3	28
111722038037	31	48	5	3	2	0	31
111722038038	33	50	5	1	3	0	25
111722038039	31	50	5	1	3	6	29

111722038040	40	44	5	3	3	0	16
111722038041	26	50	4	1	2	0	33
111722038042	29	42	5	2	3	6	35
111722038043	25	46	5	2	2	2	29
111722038044	39	50	5	3	3	10	50
111722038045	43	50	5	2	3	6	24
111722038046	38	40	5	3	2	10	30
111722038047	40	44	5	3	3	0	37
111722038048	27	50	5	3	3	6	33
111722038049	21	50	5	2	3	0	27
111722038050	20	50	5	3	2	9	34

CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence			External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	98.0	3.0			100.0	3.0	82.0	2.0	100.0	3.0	70.0	1.0	2.4	88.0	3.0	3.0	2.8
CO2	98.0	3.0			100.0	3.0			100.0	3.0	70.0	1.0	2.5	88.0	3.0	3.0	2.8
CO3	98.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	70.0	1.0	2.6	88.0	3.0	3.0	2.8
CO4			100.0	3.0	100.0	3.0			100.0	3.0	70.0	1.0	2.5	88.0	3.0	3.0	2.8
CO5			100.0	3.0	100.0	3.0			100.0	3.0	70.0	1.0	2.5	88.0	3.0	3.0	2.8

AVERAGE	AVERAGE
3	2.8


3.1
3.0
3.0
2.9
2.9
2.8
2.8
2.7
2.7
2.6
3
3
3
3
3
2.8
2.8
2.8
2.8
2.8
CO1
CO2
CO3
CO4
CO5
Obtained
Maximum

PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.76		H 2.76					
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	2.8		2.8	2.81	2.84		2.813333333	2.8
AVERAGE OF POS	2.808		2.808	2.81	2.84		2.813333	2.8
AVERAGE	2.813222222							

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**.**
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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.

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

	Internal assessment						External Assessment
uid	mid exam 1	mid exam 2	group discussion	assignment	viva	Attendence	External Exam
	50	50	5	3	3	10	60
111722038001	48	33	5	3	3	10	52
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111722038003	46	32	5	3	3	7	44
111722038004	44	31	5	3	2	9	53
111722038005	46	39	5	3	3	10	44
111722038006	36	28	5	3	3	9	53
111722038007	36	30	5	3	3	9	40
111722038008	48	32	5	3	3	10	57
111722038009	46	43	5	3	3	8	48
111722038010	46	25	5	3	3	8	43
111722038011	48	38	5	3	3	6	51
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111722038022	46	43	5	3	3	8	53
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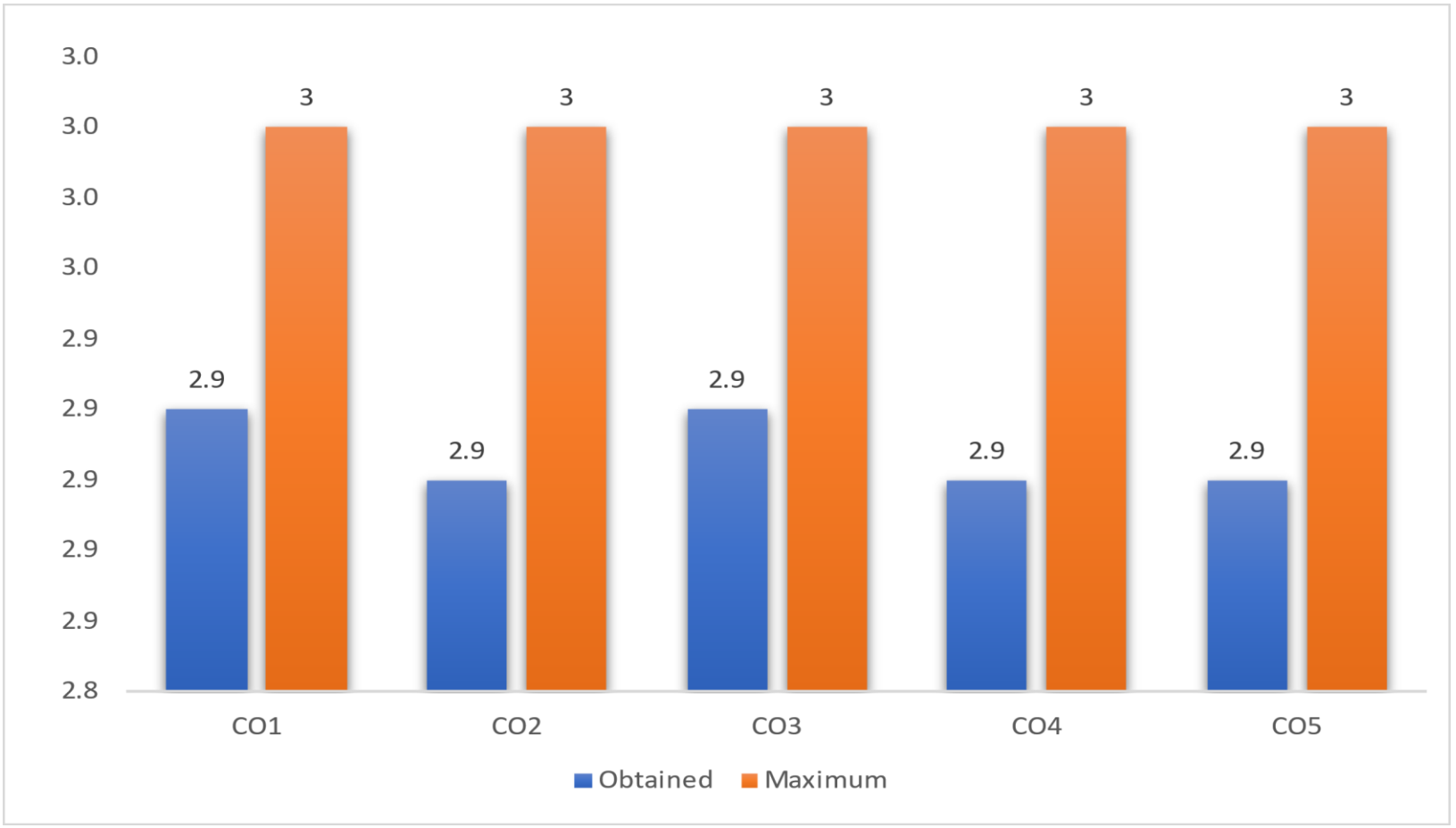
111722038036	40	27	5	3	3	0	37
111722038037	38	23	5	3	3	7	41
111722038038	45	34	5	3	2	0	39
111722038039	47	36	5	3	3	4	40

111722038040	40	20	5	3	2	0	32
111722038041	44	47	5	3	3	0	36
111722038042	38	31	5	3	3	6	45
111722038043	40	21	5	3	3	6	39
111722038044	40	29	5	3	3	10	46
111722038045	32	37	5	3	3	4	42
111722038046	42	22	5	3	3	6	39
111722038047	42	24	5	3	3	2	47
111722038048	23	26	5	3	3	8	36
111722038049	44	25	5	3	2	4	28
111722038050	36	20	5	3	2	10	19

CO Mapping :

co	mid exam 1		mid exam 2		group discussion		assignment		viva		Attendence			External Exam			
	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	pass%	Attainment level	co wise internal average	pass%	Attainment level	co wise external average	co wise total average
CO1	100.0	3.0			100.0	3.0	100.0	3.0	100.0	3.0	82.0	2.0	2.8	98.0	3.0	3.0	2.9
CO2	100.0	3.0			100.0	3.0			100.0	3.0	82.0	2.0	2.8	98.0	3.0	3.0	2.9
CO3	100.0	3.0	100.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	98.0	3.0	3.0	2.9
CO4			100.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	98.0	3.0	3.0	2.9
CO5			100.0	3.0	100.0	3.0			100.0	3.0	82.0	2.0	2.8	98.0	3.0	3.0	2.9

AVERAGE	AVERAGE
3	2.908


3.0
3.0
3.0
3.0
2.9
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2.9
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2.9
2.8
3
3
3
3
3
2.9
2.9
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2.9
2.9
CO1
CO2
CO3
CO4
CO5
Obtained
Maximum

PO Mapping :

OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H 2.92		H 2.92					
CO2	H 2.9		H 2.9	H 2.9			H 2.9	
CO3	H 2.92		H 2.92	H 2.92	H 2.92		H 2.92	
CO4	H 2.9		H 2.9	H 2.9			H 2.9	
CO5	H 2.9		H 2.9	H 2.9				H 2.9
AVERAGE OF COS FOR POS	2.908		2.908	2.905	2.92		2.906666667	2.9
AVERAGE OF POS	2.9056		2.9056	2.905	2.92		2.906667	2.9
AVERAGE	2.907144444							