

ANNEXURE 2.6.2

S. No.	Details	Page No.
1.	Report on Attainment of Programme Outcome and Course Outcome • MEC3213 – Heat and Mass Transfer	2

ATTAINMENT OF COURSE OUTCOME (CO) AND PROGRAM OUTCOME (PO)

Programme	B.Tech. Mechanical Engineering
Course Code	MEC 3213
Course Name	Heat and Mass Transfer
Batch	2019-2023

CO ATTAINMENT – SEMESTER END EXAMINATION

COURSE CODE/NAME: MEC 3213 – Heat and Mass Transfer

SEMESTER: VI

MONTH & YEAR: JULY 2022

Question Paper Pattern – Semester End Examination

PART A	PART B	PART C
12 x 2 = 24 Marks 12 questions carrying each 2 marks	5 x 12 = 60 Marks 5 questions carrying each 12 marks with Internal choice	1 x 16 = 16 Marks 1 question carrying 16 marks with Internal choice
		Total marks : 100

MAPPING OF QUESTION WITH CO – PART B

		Part B																			
Q No		13. a.i	13.a .ii	13. b.i	13.b .ii	14. a.i	14.a .ii	14. b.i	14.b .ii	15. a.i	15.a .ii	15. b.i	15.b .ii	16. a.i	16.a .ii	16. b.i	16.b .ii	17. a.i	17.a .ii	17. b.i	17.b .ii
Mar ks	Maximum Marks Assigned in Question papers	12		12		12		12		12		12		12		12		12		12	
CO 1	Mapping of questions with Cos (CO mapped against Q.No may	1		1																	
CO 2																					
CO 3						1		1													
CO 4										1		1									
CO 5														1		1					
CO 6																			1		1

MAPPING OF QUESTION WITH CO – PART C

		Part C				
Q No		18.a.i	18.a.ii	18.b.i	18.b.ii	Total Marks
Marks	Maximum Marks Assigned in Question papers	16		16		
CO 1	Mapping of questions with Cos (CO mapped against Q.No may be entered as 1 and the rest of cells left with 0 or blank)					16
CO 2		1		1		20
CO 3						16
CO 4						16
CO 5						16
CO 6						16

STEP 2: MARKS ENTRY – PART A

S.N	RRN	Name	Part A											
			1	2	3	4	5	6	7	8	9	10	11	12
1	190021601001	AABID AHMED M		2	2	2	2	2	2	2	2	2	2	
2	190021601002	AADIL KHAN A	2		2			2			2			2
3	190021601003	ABDUL AZEEZUR	2	2	1			1					1	2
4	190021601004	ABDUL BASHITH. A	2	1	2	2	2	2	2	2	2	2	2	2
5	190021601005	ABDUL RAHUMAN. J	2	2	2	1	1	2	2	2	2			2
6	190021601006	AHAMED FAYIS M K	2	2	1	1	1	2	2	2	1			2
7	190021601008	AJIMEER SHAN. M	2	2	2	2	2	2	2	2	2	2	2	2
8	190021601009	AKASH M	2	2	2	2	2	2	2	2	2	2	1	2
9	190021601010	AKIL AHAMED.A				1	1		1					
10	190021601011	ALTHAAF RAHMAN		2	2	1	1	2	2	2	2			
11	190021601012	AMMAR.E.A		2	2	1	1	2			2			
12	190021601013	ANSAD K	1	2		1	1		2		2			1
13	190021601014	ARAVINDKUMAR K		2		1	1		1				2	
14	190021601015	BHARGAV CHANDIRAN	1			1	1		2		2			1
15	190021601016	EBINEZER PAUL		2		1	1	1				2		
16	190021601017	GABRIAL JEBA DURAI. S		2	2		2		2	2		1	1	
17	190021601019	GOKUL KUMAR C		2	2	1	1	2		2			2	
18	190021601020	JAVITH AKTHAR J	2	2		1	1	1						2
19	190021601021	KAMALESHWARAN M		2	2	1	1		2	2	2	1	2	
20	190021601022	KAUSHIK KANNAN R		2	2	1	1					2	2	
21	190021601023	KETHAN SRIDHAR		2		1	1	2		2	2			
22	190021601024	KINLUSH. G			2	1	1	2		2	2			
23	190021601025	KISHORE I		2	2	1	1		2	2				
24	190021601026	MASTHAN HAJA	2	2		1	1		2		2	2	2	2
25	190021601027	MITHIL.S	2		1			1	2		2	1	1	2
26	190021601028	MOHAMED FAIDH.M.F		2	2	1	1	2	2		2			
27	190021601029	MOHAMED IMRAN.J	2	1	2			2	1	2	2			2
28	190021601030	MOHAMED MEERAN	2	2	2	2	2	2	2	2	2	2	1	2
29	190021601031	MOHAMED SHAHID	2	2	2	1	1	2			2			2
30	190021601032	MOHAMED THAJUL	2		2	1	1	2		2		2	2	2

10	19002160 1011	ALTHAAF RAHMAN			7			7			6			8		6		
11	19002160 1012	AMMAR.E.A	4			5			4					6		4		
12	19002160 1013	ANSAD K	8											7				10
13	19002160 1014	ARAVINDKU MAR K	3					7			8			7				
14	19002160 1015	BHARGAV CHANDIRAN			4		2		3					4				10
15	19002160 1016	EBINEZER PAUL	4						4				5			4		
16	19002160 1017	GABRIAL JEBA DURAI.	3			4					3			9		5		
17	19002160 1019	GOKUL KUMAR C	10					10			9			7		9		
18	19002160 1020	JAVITH AKTHAR J			5		3									4		
19	19002160 1021	KAMALESH WARAN M									6			9		9		
20	19002160 1022	KAUSHIK KANNAN R	6					5			8			6		10		
21	19002160 1023	KETHAN SRIDHAR			4									6		5		
22	19002160 1024	KINLUSH. G	5					7			9			9		9		
23	19002160 1025	KISHORE I	8					6			7			8		10		
24	19002160 1026	MASTHAN HAJA	9					8	7					5		8		
25	19002160 1027	MITHIL.S	2					3			2			5		3		
26	19002160 1028	MOHAMED FAIDH.M.F	9					6			9			10				10
27	19002160 1029	MOHAMED IMRAN.J	3					6	6					6		9		
28	19002160 1030	MOHAMED MEERAN	11					11			12			12		11		
29	19002160 1031	MOHAMED SHAHID			4			6			6			5		7		
30	19002160 1032	MOHAMED THAJUL	7					7			6			9				9
31	19002160 1033	MOHAMMA D SALMAN. S	5					5			8			9		9		
32	19002160 1034	MOHAMME D			3			8										
33	19002160 1035	MOHAMME D IBRAHIM			3			4			6			6		5		
34	19002160 1036	MOHAMME D ILYAAZ	10					9			11			10				9

35	19002160 1037	MOHAMME D ROSHAN N	6						6				11				6			10	
36	19002160 1038	MOHAMME D THANISH A				3							2				5		4		
37	19002160 1039	MOHAMME D UMAR S.A			6				8				4				7		7		
38	19002160 1040	MUHAMMA D BASHEER	9										8				9		9		
39	19002160 1041	MUHAMMA D FAARUQ	11				11						11				11		12		
40	19002160 1042	NARESH. D	8						7				7				10		11		
41	19002160 1043	NIHAAL AHAMED. D	11						11				10				9		10		
42	19002160 1044	PONMUDI MANONMA	5						6				6				6		7		
43	19002160 1045	RIFATH AHAMED.S	7						9				8				9		8		
44	19002160 1046	SYED ASHFAQ	12						12				12				12		11		

MARKS ENTRY – PART C

S.No.	RRN	Name	Part C				Total Marks
			18.a.i	18.a.ii	18.b.i	18.b.ii	
1	190021601001	AABID AHMED M	14				90
2	190021601002	AADIL KHAN A	7				40
3	190021601003	ABDUL AZEEZUR RAYYAN. A			4		30
4	190021601004	ABDUL BASHITH. A			14		96
5	190021601005	ABDUL RAHUMAN. J	13				76
6	190021601006	AHAMED FAYIS M K			13		66
7	190021601008	AJIMEER SHAN. M	15				96
8	190021601009	AKASH M	14				90
9	190021601010	AKIL AHAMED.A	1				8
10	190021601011	ALTHAAF RAHMAN ANEES	12				60
11	190021601012	AMMAR.E.A			7		40
12	190021601013	ANSAD K	6				40
13	190021601014	ARAVINDKUMAR K	8				40

14	190021601015	BHARGAV CHANDIRAN T	10				40
15	190021601016	EBINEZER PAUL JEYASINGH.R			4		28
16	190021601017	GABRIAL JEBA DURAI. S			5		41
17	190021601019	GOKUL KUMAR C	9				66
18	190021601020	JAVITH AKTHAR J			3		22
19	190021601021	KAMALESHWARAN M	15				54
20	190021601022	KAUSHIK KANNAN R	11				56
21	190021601023	KETHAN SRIDHAR			5		30
22	190021601024	KINLUSH. G	7				56
23	190021601025	KISHORE I	9				58
24	190021601026	MASTHAN HAJA MAIDEEN H	9				60
25	190021601027	MITHIL.S			5		30
26	190021601028	MOHAMED FAIDH.M.F	12				68
27	190021601029	MOHAMED IMRAN.J	8				50
28	190021601030	MOHAMED MEERAN FAHIM S	14				92
29	190021601031	MOHAMED SHAHID IQBAL .M	8				48
30	190021601032	MOHAMED THAJUL FAZILEEN.M			8		60
31	190021601033	MOHAMMAD SALMAN. S	10				64
32	190021601034	MOHAMMED HABEEBULLAH A	2				22
33	190021601035	MOHAMMED IBRAHIM M	5				41
34	190021601036	MOHAMMED ILYAAZ RAHIM S	11				80
35	190021601037	MOHAMMED ROSHAN N	5				54
36	190021601038	MOHAMMED THANISH A			4		40
37	190021601039	MOHAMMED UMAR S.A	6				54
38	190021601040	MUHAMMAD BASHEER			7		60
39	190021601041	MUHAMMAD FAARUQ	14				92
40	190021601042	NARESH. D	13				72
41	190021601043	NIHAAL AHAMED. D			12		82
42	190021601044	PONMUDI MANONMANI	7				52
43	190021601045	RIFATH AHAMED.S	5				64
44	190021601046	SYED ASHFAQ AHAMED	14				96

STEP 3: CALCULATION OF CO ATTAINMENT

The percentage of marks scored for each CO is calculated as given below

$$\% \text{ of marks scored} = \frac{\text{Marks scored by the student for the questions mapped with the respective CO}}{\text{Maximum marks of the questions mapped with respective CO}} \times 100$$

S.No.	RRN	Name	Marks scored for each CO						% of Marks scored for each CO					
			CO1	CO2	CO3	CO4	CO5	CO6	%CO1	%CO2	%CO3	%CO4	%CO5	%CO6
1	190021601001	AABID AHMED M	12	18	14	16	15	15	75	90	87.5	100	93.75	93.75
2	190021601002	AADIL KHAN A	8	9	7	6	2	8	50	45	43.75	37.5	12.5	50
3	190021601003	ABDUL AZEEZUR RAYYAN. A	9	5	4	4	3	5	56.25	25	25	25	18.75	31.25
4	190021601004	ABDUL BASHITH. A	15	18	15	16	16	16	93.75	90	93.75	100	100	100
5	190021601005	ABDUL RAHUMAN. J	12	16	11	13	12	12	75	80	68.75	81.25	75	75
6	190021601006	AHAMED FAYIS M K	4	15	11	12	12	12	25	75	68.75	75	75	75
7	190021601008	AJIMEER SHAN. M	15	19	15	16	15	16	93.75	95	93.75	100	93.75	100
8	190021601009	AKASH M	14	18	15	16	15	12	87.5	90	93.75	100	93.75	75
9	190021601010	AKIL AHAMED.A	2	2	3	1	0	0	12.5	10	18.75	6.25	0	0
10	190021601011	ALTHAAF RAHMAN ANEES	9	15	10	10	10	6	56.25	75	62.5	62.5	62.5	37.5
11	190021601012	AMMAR.E.A	6	10	8	4	8	4	37.5	50	50	25	50	25
12	190021601013	ANSAD K	11	7	1	2	9	10	68.75	35	6.25	12.5	56.25	62.5
13	190021601014	ARAVINDKUMAR K	5	9	8	9	7	2	31.25	45	50	56.25	43.75	12.5
14	190021601015	BHARGAV CHANDIRAN T	5	11	1	5	6	10	31.25	55	6.25	31.25	37.5	62.5
15	190021601016	EBINEZER PAUL JEYASINGH.R	6	5	2	4	7	4	37.5	25	12.5	25	43.75	25
16	190021601017	GABRIAL JEBA DURAI. S	5	7	6	7	10	6	31.25	35	37.5	43.75	62.5	37.5
17	190021601019	GOKUL KUMAR C	12	12	13	11	7	11	75	60	81.25	68.75	43.75	68.75
18	190021601020	JAVITH AKTHAR J	9	4	5	0	0	4	56.25	20	31.25	0	0	25
19	190021601021	KAMALESHWARAN M	2	18	1	10	12	11	12.5	90	6.25	62.5	75	68.75
20	190021601022	KAUSHIK KANNAN R	8	14	6	8	8	12	50	70	37.5	50	50	75
21	190021601023	KETHAN SRIDHAR	6	6	3	2	8	5	37.5	30	18.75	12.5	50	31.25
22	190021601024	KINLUSH. G	5	10	10	11	11	9	31.25	50	62.5	68.75	68.75	56.25
23	190021601025	KISHORE I	10	12	7	11	8	10	62.5	60	43.75	68.75	50	62.5
24	190021601026	MASTHAN HAJA MAIDEEN H	13	10	9	9	9	10	81.25	50	56.25	56.25	56.25	62.5
25	190021601027	MITHIL.S	4	6	4	4	8	4	25	30	25	25	50	25

26	190021601028	MOHAMED FAIDH.M.F	11	15	9	11	12	10	68.75	75	56.25	68.75	75	62.5
27	190021601029	MOHAMED IMRAN.J	6	10	8	9	8	9	37.5	50	50	56.25	50	56.25
28	190021601030	MOHAMED MEERAN FAHIM S	15	18	15	16	16	12	93.75	90	93.75	100	100	75
29	190021601031	MOHAMED SHAHID IQBAL .M	8	11	9	6	7	7	50	55	56.25	37.5	43.75	43.75
30	190021601032	MOHAMED THAJUL FAZILEEN.M	9	11	10	8	11	11	56.25	55	62.5	50	68.75	68.75
31	190021601033	MOHAMMAD SALMAN. S	9	13	8	12	12	10	56.25	65	50	75	75	62.5
32	190021601034	MOHAMMED HABEEBULLAH A	5	3	11	2	0	1	31.25	15	68.75	12.5	0	6.25
33	190021601035	MOHAMMED IBRAHIM M	5	8	7	8	8	5	31.25	40	43.75	50	50	31.25
34	190021601036	MOHAMMED ILYAAZ RAHIM S	14	14	12	15	14	11	87.5	70	75	93.75	87.5	68.75
35	190021601037	MOHAMMED ROSHAN N	8	8	7	15	6	10	50	40	43.75	93.75	37.5	62.5
36	190021601038	MOHAMMED THANISH A	4	7	6	6	9	8	25	35	37.5	37.5	56.25	50
37	190021601039	MOHAMMED UMAR S.A	8	9	9	8	10	10	50	45	56.25	50	62.5	62.5
38	190021601040	MUHAMMAD BASHEER	11	10	3	10	13	13	68.75	50	18.75	62.5	81.25	81.25
39	190021601041	MUHAMMAD FAARUQ	15	18	15	15	15	14	93.75	90	93.75	93.75	93.75	87.5
40	190021601042	NARESH. D	12	16	10	11	12	11	75	80	62.5	68.75	75	68.75
41	190021601043	NIHAAL AHAMED. D	15	15	14	12	13	13	93.75	75	87.5	75	81.25	81.25
42	190021601044	PONMUDI MANONMANI	9	10	9	10	7	7	56.25	50	56.25	62.5	43.75	43.75
43	190021601045	RIFATH AHAMED.S	11	8	12	12	12	9	68.75	40	75	75	75	56.25
44	190021601046	SYED ASHFAQ AHAMED	16	18	16	15	16	15	100	90	100	93.75	100	93.75

STEP 4: Calculation of CO attainment in % and Grade point

The CO attainment in percentage and 3 point scale are calculated as given below,

$$CO \text{ attainment (percentage)} = \frac{\text{No. of students scored threshold marks}}{\text{Total number of students}} \times 100$$

$$CO \text{ attainment (3 point scale)} = CO \text{ attainment in percentage} \times 0.03$$

COURSE CODE/NAME: MEC 3213 – Heat and Mass Transfer

SEMESTER: VI

MONTH & YEAR: JULY 2022

SEMESTER END EXAMINATION					
Total No. of students (44)					
CO	Threshold Marks (%)	No. of students Scored threshold marks	CO attainment (%)	CO attainment (3 point scale)	Target Level (3 point scale)
CO1	50%	29	66	1.98	1.5
CO2	50%	28	64	1.91	1.5
CO3	50%	27	61	1.84	1.5
CO4	50%	30	68	2.05	1.5
CO5	50%	32	73	2.18	1.5
CO6	50%	30	68	2.05	1.5

CO ATTAINMENT FOR INTERNAL EXAMINATIONS (CAT 1)

COURSE CODE/NAME: MEC 3213 – Heat and Mass Transfer

SEMESTER: VI

MONTH & YEAR : JULY 2022

Question Paper Pattern – CAT

PART A	PART B	PART C
5 x 2 = 10 Marks 12 questions carrying each 2 marks	2 x 12 = 24 Marks 2 questions carrying each 12 marks with internal choice	1 x 16 = 16 Marks 1 question carrying 16 marks with internal choice
		Total marks : 50

MAPPING OF QUESTION AND INTERNAL COMPONENTS WITH CO

Course outcome	Q.NO - Part A	Q.NO - Part B	Q.NO - Part C	Assignment 1	Assignment 2
CO1	1,4	6 a, 6 b	--	--	--
CO2	2, 3,5	7 a, 7 b (i) , 7 b (ii)	--	**	--
CO3		--	8 a, 8 b	--	--

Q No			Part A					Part B								Part C				Internal Components			Total marks		
			1	2	3	4	5	6.a.i	6.a.ii	6.b.i	6.b.ii	7.a.i	7.a.ii	7.b.i	7.b.ii	8.a.i	8.a.ii	8.b.i	8.b.ii	Assig 1					
Mark s	Maximum Marks Assigned for Question papers/Internal components		2	2	2	2	2	12		12		12		6	6	16		16		20					
CO 1	Mapping of Questions and Internal components (Assignment, project, Quiz etc. with Cos		1			1		1		1						1							32		
CO 2				1	1		1				1		1	1					1		1			54	
CO 3																									0
CO 4																									0
CO 5																									0
CO 6																									0

ENTRY OF MARKS FOR TEST AND INTERNAL COMPONENTS

S.No	RRN	Name	Part A					Part B								Part C				Internal components			Total Marks	
			1	2	3	4	5	6.a.i	6.a.ii	6.b.i	6.b.ii	7.a.i	7.a.ii	7.b.i	7.b.ii	8.a.i	8.a.ii	8.b.i	8.b.ii	Assig 1				
1	190021601001	AABID AHMED M	2	2	2	1	2	12					9			12					18			60
2	190021601002	AADIL KHAN A	2	2				6					3								18			31
3	190021601003	ABDUL AZEEZUR RAYYAN A		1											3						18			22
4	190021601004	ABDUL BASHITH. A	2	2	2	2	1	10					6	6	12						18			61
5	190021601005	ABDUL RAHUMAN. I	2	2	1	2	2	5				7			8						18			47
6	190021601006	AHAMED FAYIS M K		2		2						2									18			24
7	190021601008	AJIMEER SHAN. M	2	2		2	1	10						6	4	14					18			59

8	190021601009	AKASH M	2		2	2	2	12				12				11			18			61
9	190021601010	AKIL AHAMED.A				1						3							0			4
10	190021601011	ALTHAAF RAHMAN ANFES	2		2		2	12				9					11		18			56
11	190021601012	AMMAR.E.A					2	4				4				8			18			36
12	190021601013	ANSAD K	1					2						4					18			25
13	190021601014	ARAVINDKUMAR K	1					1				5							18			25
14	190021601015	BHARGAV CHANDIRAN T	2			1	2	4				3				7			10			29
15	190021601016	EBINEZER PAUL JEYASINGH R	1									4							18			23
16	190021601017	GABRIAL JEBA DURAI S	1					2				2							18			23
17	190021601019	GOKUL KUMAR C	2				2	12				10					12		18			56
18	190021601020	JAVITH AKTHAR J			1	2	1	3								2			18			27
19	190021601021	KAMALESHWARA N M				2	2	4						5	3	4			18			38
20	190021601022	KAUSHIK KANNAN R	2	2				5				10				9			18			46
21	190021601023	KETHAN SRIDHAR			2	2		6				5				6			18			39
22	190021601024	KINLUSH. G			2	2	2	4				5					8		18			41
23	190021601025	KISHORE I	2	2	2	2	2	6				6				8			18			48
24	190021601026	MASTHAN HAJA MAIDFEN H			2		2	4				5				9			18			40
25	190021601027	MITHILS	2	2		2	2	6				8				5			10			37
26	190021601028	MOHAMED FAIDH.M.F	2			2		6						6		10			18			44
27	190021601029	MOHAMED IMRAN.J		2				3				5				2			10			22
28	190021601030	MOHAMED MEERAN FAHIM S	2	2	2	2	2	10						6	3			12	18			59
29	190021601031	MOHAMED SHAHID IQBAL M	2			2		4				5				4			18			35
30	190021601032	MOHAMED THAJUL	2		2		1	9				8				7			18			47
31	190021601033	MOHAMMAD SALMAN S	2	2		2		9				7						15	18			55
32	190021601034	MOHAMMED HABEEBULLAH A	1		1	2		5				5							10			24
33	190021601035	MOHAMMED IBRAHIM M				2	1	4				3				3			18			31

34	190021601036	MOHAMMED ILYAAZ RAHIM S	2	2	2	2	2	12				8					12		18			60
35	190021601037	MOHAMMED ROSHAN N	2		2	2		4				6				6			18			40
36	190021601038	MOHAMMED THANISH A	2		2		2	5				7			7				18			43
37	190021601039	MOHAMMED UMAR S.A	2	2	2	2	2	10				1			11				18			50
38	190021601040	MUHAMMAD BASHEER	2	2	1	2	1	7				8			8				18			49
39	190021601041	MUHAMMAD FAARUQ	2	2	2	2	2	10				8			14				18			60
40	190021601042	NARESH. D			2		2	5				8			12				18			47
41	190021601043	NIHAAL AHAMED. D	2				2	6				4			10				18			42
42	190021601044	PONMUDI MANONMANI	2		2		2	6				4							18			34
43	190021601045	RIFATH AHAMED.S		2	2		2	9				6			10				18			49
44	190021601046	SYED ASHFAQ AHAMED	2	2	2	2	1	12				12			12				18			63

CALCULATION OF CO ATTAINMENT

S.No.	RRN	Name	Marks scored for each CO						% of Marks scored for each CO					
			CO1	CO2	CO3	CO4	CO5	CO6	%CO1	%CO2	%CO3	%CO4	%CO5	%CO6
1	190021601001	AABID AHMED M	27	33	0	0	0	0	84.38	61.12	0	0	0	0
2	190021601002	AADIL KHAN A	8	23	0	0	0	0	25	42.6	0	0	0	0
3	190021601003	ABDUL AZEEZUR RAYYAN. A	3	19	0	0	0	0	9.38	35.19	0	0	0	0
4	190021601004	ABDUL BASHITH. A	26	35	0	0	0	0	81.25	64.82	0	0	0	0
5	190021601005	ABDUL RAHUMAN. J	17	30	0	0	0	0	53.13	55.56	0	0	0	0
6	190021601006	AHAMED FAYIS M K	2	22	0	0	0	0	6.25	40.75	0	0	0	0
7	190021601008	AJIMEER SHAN. M	28	31	0	0	0	0	87.5	57.41	0	0	0	0
8	190021601009	AKASH M	27	34	0	0	0	0	84.38	62.97	0	0	0	0
9	190021601010	AKIL AHAMED.A	1	3	0	0	0	0	3.13	5.56	0	0	0	0
10	190021601011	ALTHAAF RAHMAN ANEES	14	42	0	0	0	0	43.75	77.78	0	0	0	0
11	190021601012	AMMAR.E.A	12	24	0	0	0	0	37.5	44.45	0	0	0	0
12	190021601013	ANSAD K	3	22	0	0	0	0	9.38	40.75	0	0	0	0

13	190021601014	ARAVINDKUMAR K	2	23	0	0	0	0	0	6.25	42.6	0	0	0	0
14	190021601015	BHARGAV CHANDIRAN T	14	15	0	0	0	0	0	43.75	27.78	0	0	0	0
15	190021601016	EBINEZER PAUL JEYASINGH.R	1	22	0	0	0	0	0	3.13	40.75	0	0	0	0
16	190021601017	GABRIAL JEBA DURAI. S	3	20	0	0	0	0	0	9.38	37.04	0	0	0	0
17	190021601019	GOKUL KUMAR C	14	42	0	0	0	0	0	43.75	77.78	0	0	0	0
18	190021601020	JAVITH AKTHAR J	7	20	0	0	0	0	0	21.88	37.04	0	0	0	0
19	190021601021	KAMALESHWARAN M	10	28	0	0	0	0	0	31.25	51.86	0	0	0	0
20	190021601022	KAUSHIK KANNAN R	16	30	0	0	0	0	0	50	55.56	0	0	0	0
21	190021601023	KETHAN SRIDHAR	14	25	0	0	0	0	0	43.75	46.3	0	0	0	0
22	190021601024	KINLUSH. G	6	35	0	0	0	0	0	18.75	64.82	0	0	0	0
23	190021601025	KISHORE I	18	30	0	0	0	0	0	56.25	55.56	0	0	0	0
24	190021601026	MASTHAN HAJA MAIDEEN H	13	27	0	0	0	0	0	40.63	50	0	0	0	0
25	190021601027	MITHIL.S	15	22	0	0	0	0	0	46.88	40.75	0	0	0	0
26	190021601028	MOHAMED FAIDH.M.F	20	24	0	0	0	0	0	62.5	44.45	0	0	0	0
27	190021601029	MOHAMED IMRAN.J	5	17	0	0	0	0	0	15.63	31.49	0	0	0	0
28	190021601030	MOHAMED MEERAN FAHIM S	14	45	0	0	0	0	0	43.75	83.34	0	0	0	0
29	190021601031	MOHAMED SHAHID IQBAL .M	12	23	0	0	0	0	0	37.5	42.6	0	0	0	0
30	190021601032	MOHAMED THAJUL FAZILEEN.M	18	29	0	0	0	0	0	56.25	53.71	0	0	0	0
31	190021601033	MOHAMMAD SALMAN. S	13	42	0	0	0	0	0	40.63	77.78	0	0	0	0
32	190021601034	MOHAMMED HABEEBULLAH A	8	16	0	0	0	0	0	25	29.63	0	0	0	0
33	190021601035	MOHAMMED IBRAHIM M	9	22	0	0	0	0	0	28.13	40.75	0	0	0	0
34	190021601036	MOHAMMED ILYAAZ RAHIM S	16	44	0	0	0	0	0	50	81.49	0	0	0	0
35	190021601037	MOHAMMED ROSHAN N	14	26	0	0	0	0	0	43.75	48.15	0	0	0	0
36	190021601038	MOHAMMED THANISH A	14	29	0	0	0	0	0	43.75	53.71	0	0	0	0
37	190021601039	MOHAMMED UMAR S.A	25	25	0	0	0	0	0	78.13	46.3	0	0	0	0
38	190021601040	MUHAMMAD BASHEER	19	30	0	0	0	0	0	59.38	55.56	0	0	0	0
39	190021601041	MUHAMMAD FAARUQ	28	32	0	0	0	0	0	87.5	59.26	0	0	0	0
40	190021601042	NARESH. D	17	30	0	0	0	0	0	53.13	55.56	0	0	0	0
41	190021601043	NIHAAL AHAMED. D	18	24	0	0	0	0	0	56.25	44.45	0	0	0	0
42	190021601044	PONMUDI MANONMANI	8	26	0	0	0	0	0	25	48.15	0	0	0	0
43	190021601045	RIFATH AHAMED.S	19	30	0	0	0	0	0	59.38	55.56	0	0	0	0
44	190021601046	SYED ASHFAQ AHAMED	28	35	0	0	0	0	0	87.5	64.82	0	0	0	0

STEP 2: ENTRY OF MARKS FOR CAT AND INTERNAL COMPONENTS

S.No	RRN	Name	Part A					Part B								Part C				Internal components			Total Marks	
			1	2	3	4	5	6.a.i	6.a.i	6.b.i	6.b.i	7.a.i	7.a.i	7.b.i	7.b.i	8.a.i	8.a.i	8.b.i	8.b.ii	Assig 1 (a)	Assig 1 (b)			
1	190021601001	AABID AHMED M	2	2	1	2	1	12					10				13				9	9		61
2	190021601002	AADIL KHAN A	1					7								11		13		9	9		50	
3	190021601003	ABDUL AZEEZUR RAYYAN. A	2				2	3								4		4		9	9		33	
4	190021601004	ABDUL BASHITH. A	2	2	2	2	2	11								12		10		9	9		61	
5	190021601005	ABDUL RAHUMAN. J	2	2	2	2	2	6								10		10		10	8		54	
6	190021601006	AHAMED FAYIS M K				2	2	6								4				10	8		32	
7	190021601008	AJIMEER SHAN. M	1		2	1	2	8					12					14		9	9		58	
8	190021601009	AKASH M	2	2	2	2	1	12						10				14		9	9		63	
9	190021601010	AKIL AHAMED.A	2		2			4					2							9	9		28	
10	190021601011	ALTHAAF RAHMAN ANFEES	1	1	2	2	2	12						10		10				10	8		58	
11	190021601012	AMMAR.E.A			1	2	2	6					5			5				9	9		39	
12	190021601013	ANSAD K	2		2		1	4					6			8				9	9		41	
13	190021601014	ARAVINDKUMAR K	2	1	2								5							0	0		10	
14	190021601015	BHARGAV CHANDIRAN T	2	2	2	2	2	6						8		8				0	0		32	
15	190021601016	EBINEZER PAUL JFYASINGH.R			2	2		4					5			5				10	8		36	
16	190021601017	GABRIAL JEBA DURAI. S				2	2	5					6			4				9	9		37	
17	190021601019	GOKUL KUMAR C	2	2	2	2	2	10					10					12		9	9		60	
18	190021601020	JAVITH AKTHAR J	2			2		5					2			4				8	10		33	
19	190021601021	KAMALESHWARAN M	2			2		7						6		5				9	9		40	
20	190021601022	KAUSHIK KANNAN R	2	2	2	2	2	5						4		7				9	9		44	
21	190021601023	KETHAN SRIDHAR	2		1			2												0	0		5	
22	190021601024	KINLUSH. G	2	2			2	12					6			8				9	9		50	

23	190021601025	KISHORE I	2	2	2		2	8				12				10		10	8		56
24	190021601026	MASTHAN HAJA MAIDFFN H	2	2		2		10				8				10		9	9		52
25	190021601027	MITHIL.S	2	2		2		4						3				8	10		31
26	190021601028	MOHAMED FAIDH.M.F	2	2	2	2	2	8						10			10	9	9		56
27	190021601029	MOHAMED IMRAN.J	2	2	2		2	6				4						0	0		18
28	190021601030	MOHAMED MEERAN FAHIM.S	2	2	2	2	2	12				12					14	9	9		66
29	190021601031	MOHAMED SHAHID IOBAL.M	2		2		2	10								8		9	9		42
30	190021601032	MOHAMED THAJUL FAZILFEEN.M	2	2		2		7					12		4			9	9		47
31	190021601033	MOHAMMAD SALMAN. S	2	2	2	2	2	9				5			7			9	9		49
32	190021601034	MOHAMMED HABEEBULLAH A					1	3				2						0	0		6
33	190021601035	MOHAMMED IBRAHIM M	2	2	2	2	2	4				12					4	0	0		30
34	190021601036	MOHAMMED ILYAAZ RAHIM.S	2	2	2		2	12				8					12	9	9		58
35	190021601037	MOHAMMED ROSHAN N	2		2		2	6				4			6			9	9		40
36	190021601038	MOHAMMED THANISH A	2	2	2	2	2	4				6			6			8	10		44
37	190021601039	MOHAMMED UMAR S.A		2	2		1	10				7					8	9	9		48
38	190021601040	MUHAMMAD BASHEER	1	1	2	2		10						6		12		9	9		52
39	190021601041	MUHAMMAD FAARUQ	2	2	2	2	2	10				7					14	9	9		59
40	190021601042	NARESH. D	2		2		1	12				8					10	8	10		53
41	190021601043	NIHAAL AHAMED. D	2		2	2	2	10				12					12	9	9		60
42	190021601044	PONMUDI MANONMANI PACHAIMUTHU	2	2	2	2		10				6					12	9	9		54
43	190021601045	RIFATH AHAMED.S	2		2	2	2	12				6					8	8	10		52
44	190021601046	SYED ASHFAQ AHAMED	2	2	2	2	2	12				12					15	9	9		67

CALCULATION OF CO ATTAINMENT

S.No	RRN	Name	Marks scored for each CO						% of Marks scored for each CO					
			CO1	CO2	CO3	CO4	CO5	CO6	%CO1	%CO2	%CO3	%CO4	%CO5	%CO6
1	190021601001	AABID AHMED M	0	0	39	22	0	0	0	0	88.64	84.62	0	0
2	190021601002	AADIL KHAN A	0	0	28	9	13	0	0	0	63.64	34.62	81.25	0
3	190021601003	ABDUL AZEEZUR RAYYAN. A	0	0	18	11	4	0	0	0	40.91	42.31	25	0
4	190021601004	ABDUL BASHITH. A	0	0	38	13	10	0	0	0	86.37	50	62.5	0
5	190021601005	ABDUL RAHUMAN. J	0	0	32	12	10	0	0	0	72.73	46.16	62.5	0
6	190021601006	AHAMED FAYIS M K	0	0	20	12	0	0	0	0	45.46	46.16	0	0
7	190021601008	AJIMEER SHAN. M	0	0	20	24	14	0	0	0	45.46	92.31	87.5	0
8	190021601009	AKASH M	0	0	27	22	14	0	0	0	61.37	84.62	87.5	0
9	190021601010	AKIL AHAMED.A	0	0	17	11	0	0	0	0	38.64	42.31	0	0
10	190021601011	ALTHAAF RAHMAN ANEES	0	0	36	22	0	0	0	0	81.82	84.62	0	0
11	190021601012	AMMAR.E.A	0	0	21	18	0	0	0	0	47.73	69.24	0	0
12	190021601013	ANSAD K	0	0	25	16	0	0	0	0	56.82	61.54	0	0
13	190021601014	ARAVINDKUMAR K	0	0	5	5	0	0	0	0	11.37	19.24	0	0
14	190021601015	BHARGAV CHANDIRAN T	0	0	20	12	0	0	0	0	45.46	46.16	0	0
15	190021601016	EBINEZER PAUL JEYASINGH.R	0	0	21	15	0	0	0	0	47.73	57.7	0	0
16	190021601017	GABRIAL JEBA DURAI. S	0	0	18	19	0	0	0	0	40.91	73.08	0	0
17	190021601019	GOKUL KUMAR C	0	0	25	23	12	0	0	0	56.82	88.47	75	0
18	190021601020	JAVITH AKTHAR J	0	0	19	14	0	0	0	0	43.19	53.85	0	0
19	190021601021	KAMALESHWARAN M	0	0	23	17	0	0	0	0	52.28	65.39	0	0
20	190021601022	KAUSHIK KANNAN R	0	0	27	17	0	0	0	0	61.37	65.39	0	0
21	190021601023	KETHAN SRIDHAR	0	0	5	0	0	0	0	0	11.37	0	0	0
22	190021601024	KINLUSH. G	0	0	33	17	0	0	0	0	75	65.39	0	0
23	190021601025	KISHORE I	0	0	24	22	10	0	0	0	54.55	84.62	62.5	0
24	190021601026	MASTHAN HAJA MAIDEEN H	0	0	23	19	10	0	0	0	52.28	73.08	62.5	0
25	190021601027	MITHIL.S	0	0	19	12	0	0	0	0	43.19	46.16	0	0
26	190021601028	MOHAMED FAIDH.M.F	0	0	23	23	10	0	0	0	52.28	88.47	62.5	0
27	190021601029	MOHAMED IMRAN.J	0	0	12	6	0	0	0	0	27.28	23.08	0	0
28	190021601030	MOHAMED MEERAN FAHIM S	0	0	27	25	14	0	0	0	61.37	96.16	87.5	0

29	190021601031	MOHAMED SHAHID IQBAL .M	0	0	23	11	8	0	0	0	52.28	42.31	50	0
30	190021601032	MOHAMED THAJUL FAZILEEN.M	0	0	24	23	0	0	0	0	54.55	88.47	0	0
31	190021601033	MOHAMMAD SALMAN. S	0	0	31	18	0	0	0	0	70.46	69.24	0	0
32	190021601034	MOHAMMED HABEEBULLAH A	0	0	3	3	0	0	0	0	6.82	11.54	0	0
33	190021601035	MOHAMMED IBRAHIM M	0	0	10	16	4	0	0	0	22.73	61.54	25	0
34	190021601036	MOHAMMED ILYAAZ RAHIM S	0	0	27	19	12	0	0	0	61.37	73.08	75	0
35	190021601037	MOHAMMED ROSHAN N	0	0	25	15	0	0	0	0	56.82	57.7	0	0
36	190021601038	MOHAMMED THANISH A	0	0	24	20	0	0	0	0	54.55	76.93	0	0
37	190021601039	MOHAMMED UMAR S.A	0	0	23	17	8	0	0	0	52.28	65.39	50	0
38	190021601040	MUHAMMAD BASHEER	0	0	35	17	0	0	0	0	79.55	65.39	0	0
39	190021601041	MUHAMMAD FAARUQ	0	0	25	20	14	0	0	0	56.82	76.93	87.5	0
40	190021601042	NARESH. D	0	0	24	19	10	0	0	0	54.55	73.08	62.5	0
41	190021601043	NIHAAL AHAMED. D	0	0	23	25	12	0	0	0	52.28	96.16	75	0
42	190021601044	PONMUDI MANONMANI PACHAIMUTHU	0	0	25	17	12	0	0	0	56.82	65.39	75	0
43	190021601045	RIFATH AHAMED.S	0	0	24	20	8	0	0	0	54.55	76.93	50	0
44	190021601046	SYED ASHFAQ AHAMED	0	0	27	25	15	0	0	0	61.37	96.16	93.75	0

CO ATTAINMENT FOR INTERNAL EXAMINATIONS

Course code and Name : MEC 3213 –Heat and Mass Transfer

Total No. of students (44)					
CO	Threshold Marks (%)	No. of students Scored threshold marks	CO attainment level (%)	CO attainment (3 point scale)	Target level (3 point scale)
CO1	50%	17	39	1.16	1.5
CO2	50%	22	50	1.50	1.5
CO3	50%	29	66	1.98	1.5
CO4	50%	32	73	2.18	1.5
CO5	50%	19	43	1.30	1.5
CO6	50%	--	--	-	1.5

AVERAGE CO ATTAINMENT IN 3 POINT SCALE

The average attainment is calculated as given below

Overall attainment of CO = CO attainment (IE) * 0.5 + CO attainment (SE) * 0.5

CO	CO attainment (IE)	CO attainment (SE)	Overall CO attainment
CO1	1.16	1.98	1.57
CO2	1.50	1.91	1.71
CO3	1.98	1.84	1.91
CO4	2.18	2.05	2.12
CO5	1.30	2.18	1.74
CO6	--	2.05	2.05

PO Attainment - Direct Method

Course code/Name : MEC 3213 – Heat and Mass Transfer

Semester : VI

MONTH & YEAR : JULY 2022

Course Articulation Matrix

CO	Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	Avg. CO Attainment
CO1	Apply different modes of heat transfer and their application in engineering	3	3	-	-	-	-	-	-	-	-	-	-	3	3	1.57
CO2	Solve heat conduction problems in steady and transient states	3	3	-	-	-	-	-	-	-	-	-	-	3	3	1.71

CO	Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	Avg. CO Attainment
CO 3	Apply principle of convection and their relation to fluid dynamics	3	3	-	-	-	-	-	-	1	-	-	-	3	3	1.91
CO 4	Evaluate thermal radiation with the influence of orientation of surfaces	3	3	-	-	-	-	-	-	-	-	-	-	3	3	2.12
CO 5	Analyze various types of heat exchangers and boiling heat transfers	3	3	2	-	-	-	-	-	-	-	-	-	3	3	1.74
CO 6	Explain the basic concepts of mass transfer	3	3	-	-	-	-	-	-	-	-	-	-	2	2	2.05
	Average	3	3	2	-	-	-	-	-	1	-	-	-	2.83	2.83	

Attainment of PO - MEC 3213 – Heat and Mass Transfer

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Grade on 3 Point Scale	1.85	1.85	1.74	-	-	-	-	-	1.91	-	-	-	1.84	1.84

Average Attainment of PO and PSO – Direct Method

PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Attainment of PO (3 point scale)	2.26	2.24	2.22	2.49	2.28	2.29	2.36	2.36	2.02	2.42	2.37	2.08	2.25	2.23

Attainment of POs and PSOs - Indirect Attainment

a) Exit Survey

To measure the attainment of POs and PSOs by indirect method, exit survey given by the students are taken. The survey is taken on a 5 point scale reflecting the graduate attributes, which measures the attainment of POs and PSOs. In the table below, the consolidated report of the exit survey is given in which, the cell values in the grade point column indicates number of responses (NR) for each of the POs.

Assessment of abilities, skills and attributes acquired at BSACIST	Grade Point				
	1	2	3	4	5
PO – 1 Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.	0	3	20	22	20
PO – 2 Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	1	3	20	21	20
PO – 3 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.	0	5	21	21	18
PO – 4 Use research – based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.	0	3	20	22	20
PO – 5 Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.	0	3	20	24	18
PO – 6 Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.	3	3	20	19	20

Assessment of abilities, skills and attributes acquired at BSACIST	Grade Point				
	1	2	3	4	5
PO – 7 Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	1	5	20	20	19
PO – 8 Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	0	5	20	21	19
PO – 9 Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	1	2	20	22	20
PO – 10 Communicate effectively on complex engineering activities with the Engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	1	3	20	21	20
PO – 11 Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	0	4	18	23	20
PO – 12 Recognize the need for, and have the preparation and ability to engage in independent and life -long learning in the broadest context of technological change.	1	3	19	22	20
PSO – 13 Apply the principles of Engineering to Model, Analyze, and Design and realize physical components, processes and systems	0	3	20	22	20
PSO – 14 Work professionally in the Mechanical Systems	0	3	20	22	20

The survey of those 14 point graduate attributes is mapped suitably to measure the attainment of POs and PSOs as given here.

The weighted average value in 5 point scale for each of the POs =
$$\frac{\sum_{i=1}^5 GP_i NR_i}{\sum_{i=1}^5 NR_i}$$

Graduate attributes acquired	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
6. Self-motivated and taking on appropriate level of responsibility				***										
7. Open to new ideas and learning new techniques					***									
8. Using technology and workplace equipment	***													
9. Ability to contribute to the goal of the organization												***		
10. Technical knowledge/skill	***					***							***	
11. Ability to manage/leadership qualities														
12. Innovativeness, creativity					***		***							
13. Relationship with seniors/peers/subordinates							***		***		***			***
14. Involvement in social activities								***						
15. Ability to take up extra responsibility									***		***	***		
16. Obligation to work beyond schedule if required											***	***		***

Assessment of abilities, skills and attributes acquired at BSACIST	Average Score
1. General communication skills	4.33
2. Developing practical solutions to work place problems	4.00
3. Working as part of a team	4.67
4. Creative in response to workplace challenges	4.33
5. Their planning and organization skills	4.00
6. Self-motivated and taking on appropriate level of responsibility	4.33
7. Open to new ideas and learning new techniques	4.67
8. Using technology and workplace equipment	4.00
9. Ability to contribute to the goal of the organization	4.00
10. Technical knowledge/skill	3.67
11. Ability to manage/leadership qualities	3.67
12. Innovativeness, creativity	4.33
13. Relationship with seniors/peers/subordinates	4.33
14. Involvement in social activities	4.33
15. Ability to take up extra responsibility	4.33
16. Obligation to work beyond schedule if required	3.67

The above 16-point performance is mapped suitably with the POs and POs and the values of attainments are given in the Table below:

EMP Feedback	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Attainment in 5 point scale	3.83	4.33	4.00	4.33	4.33	4.33	4.33	4.33	4.50	4.33	4.33	4.11	4.17	3.67
Attainment in 3 point scale	2.30	2.60	2.40	2.60	2.60	2.60	2.60	2.60	2.70	2.60	2.60	2.47	2.50	2.20

Summary of attainment of POs and PSOs by Indirect Method

The measure of attainment of POs and PSOs, both in terms of exit survey and employer feedback are consolidated and given in the table below. To summarize the attainment of POs and PSOs by both the methods, mean is calculated by taking weightage as follows: Exit survey – 50% and Employer survey – 50%

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
Exit Survey (3 point scale)	2.32	2.34	2.32	2.28	2.33	2.34	2.34	2.34	2.26	2.34	2.28	2.34	2.32	2.32
Employer Feedback (3 point scale)	2.3	2.6	2.4	2.6	2.6	2.6	2.6	2.6	2.7	2.6	2.6	2.47	2.5	2.2
Indirect Attainment (3 point scale)	2.31	2.47	2.36	2.44	2.465	2.47	2.47	2.47	2.48	2.47	2.44	2.405	2.41	2.26

Summary of attainment of POs and PSOs

The measure of attainment of POs and PSOs, both in terms of direct and indirect methods are consolidated in the table below. To summarize the attainment of POs and PSOs by both the methods, mean is calculated by taking weightage as follows: Direct attainment – 60% and Indirect Attainment – 40%.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
Direct Attainment	2.26	2.24	2.22	2.49	2.28	2.29	2.36	2.36	2.02	2.42	2.37	2.08	2.25	2.23
Indirect Attainment	2.31	2.47	2.36	2.44	2.46	2.47	2.47	2.47	2.48	2.47	2.44	2.405	2.41	2.26
Overall Attainment (3 point scale)	2.28	2.33	2.27	2.47	2.36	2.36	2.40	2.40	2.20	2.44	2.40	2.21	2.31	2.24