

 In Pursuit of Excellence	Lab Manual	SESSION-2019-2020
		SEM-5 th

Faculty Details

Name of the Faculty: Arvind Kumar Singh

Designation: Assistant Professor

Department: Department of Mechanical Engineering

Course Details

Name of the Programme: B.Tech.

Batch: 2017-2021

Branch: Mechanical Engineering

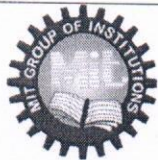
Semester: 5th

Name of Subject: Heat and Mass Transfer Lab

Subject Code: RME-552

Category of Course: Core Practical Subject


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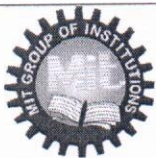
Course Scheme & Exam Scheme

SESSION-2019-2020

SEM-5 th

STUDY AND EVALUATION SCHEME									
B-Tech. Mechanical Engineering									
YEAR: 3 rd / SEMESTER-V									
S. No.	Subject Code	Subject Name	Department	L-T-P	Theory / Lab Marks	SESSIONAL		Total	Credit
						Test	Assignment / Attendance		
1	RAS501	Managerial Economics	Applied Science	3-0-0	70	20	10	100	3
2	RAS502/RUC501	Sociology /Cyber Security	Applied Science	3-0-0	70	20	10	100	3
3	RME501	Machine Design-I	Core Deptt.	3-0-0	70	20	10	100	3
4	RME502	Heat & Mass Transfer	Core Deptt.	3-1-0	70	20	10	100	4
5	RME503	Manufacturing Science & Technology-II	Core Deptt.	3-0-0	70	20	10	100	3
6	RME051-054	Deptt. Elective Course-1	Core Deptt.	3-1-0	70	20	10	100	4
7	RME551	Design and Simulation Lab I	Core Deptt.	0-0-2	50		50	100	1
8	RME552	Heat & Mass Transfer Lab	Core Deptt.	0-0-2	50		50	100	1
9	RME553	Manufacturing Technology-II Lab	Core Deptt.	0-0-2	50		50	100	1
10	RME559	Seminar - I		0-0-2	50		50	100	1
TOTAL								1000	24

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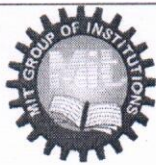
 In Pursuit of Excellence	Course Outcome of Practical	SESSION-2019-2020
		SEM- 5 th

COURSE OUTCOMES

Upon successful completion of this course, the student will be able to:

RME 552.1	Students will be able to apply the concept of conduction to determine the conductivity of different materials
RME 552.2	Students will be able to apply the concept of Extended geometry to determine the heat transfer rate and Temperature distribution along the length of fin
RME 552.3	Students will be able to apply the concept of convection to determine the heat transfer coefficient of fluid
RME 552.4	Students can conduct the experiment to analyze the emissivity of a gray surface
RME 552.5	Students will be able to conduct the experiment to analyze heat transfer from counter and parallel flow heat exchanger


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List of Experiment as per University

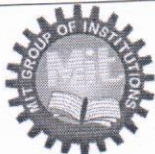
SESSION-2019-2020

SEM-5th

1. Conduction – Experiment on Composite plane wall
2. Conduction – Experiment on Composite cylinder wall
3. Conduction - Experiment on critical insulation thickness
4. Conduction – Experiment on Thermal Contact Resistance
5. Convection - Pool Boiling experiment
6. Convection - Experiment on heat transfer from tube-(natural convection).
7. Convection - Heat Pipe experiment.
8. Convection - Heat transfer through fin-(natural convection) .
9. Convection - Heat transfer through tube/fin-(forced convection).
10. Convection - Determination of thermal conductivity of fluid
11. Experiment on Stefan's Law, on radiation determination of emissivity, etc.
12. Experiment on solar collector, etc.
13. Heat exchanger - Parallel flow experiment
- Heat exchanger - Counter flow experiment

☞ **Out of above experiment, minimum 8 are suggested by university.**


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 In Pursuit of Excellence	List of Experiment Conducted	SESSION-2019-2020
		SEM- 5th

Experiments Conducted by Students:

1. Convection – To determine the surface heat transfer coefficient for heated vertical Cylinder in Natural Convection
2. To Measure the emissivity of the test Plate surface.
3. Heat exchanger – To Determine the effectiveness, heat transfer rate and overall heat transfer coefficient in parallel flow heat exchanger.
4. Convection – Determine the heat transfer coefficient for heated tube in forced convection.
5. Convection – To determine the heat transfer coefficient at the fin surface, temperature distribution and efficiency of fin in force convection.
6. Heat exchanger – To Determine the effectiveness, heat transfer rate and overall heat transfer coefficient in counter flow heat exchanger.
7. Conduction – To determine heat flow rate through the lagged pipe and thermal conductivity of lagging material.
8. Conduction – To determine the total resistance of composite wall.
9. To compare the heat transfer rate by plotting graph using heat pipe.
10. Convection – To study the pool boiling phenomenon up to critical heat flux point.

Practical beyond prescribed list:

11. Conduction – Experiment on Spherical wall: To determine the thermal conductivity of an insulating power.


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Schedule of Practical List Performed

SESSION-2019-2020

SEM- 5th

S. No.	Name of Experiment	Mapping with Unit	CO Mapping	PO Mapping	PSO Mapping	Batch A Completion	Batch B Completion	Batch C Completion	Sign
1	To determine the total resistance of composite wall.	1	CO1	PO1, PO4	PSO1	06/08/2019	16/08/2019	08/08/2019	
2	To determine heat flow rate through the lagged pipe and thermal conductivity of lagging material.	1	CO1	PO1, PO4	PSO1	13/08/2019	09/08/2019	22/08/2019	
3	To study the pool boiling phenomenon up to critical heat flux point.	5	CO5	PO2	PSO1	20/08/2019	20/09/2019	29/08/2019	
4	To determine the surface heat transfer coefficient for heated vertical Cylinder in Natural Convection	3	CO3	PO1, PO4	PSO1	27/08/2019	30/08/2019	05/09/2019	
5	To compare the heat transfer rate by plotting graph using heat pipe.	5	CO5	PO2, PO4	PSO1	03/09/2019	15/11/2019	19/09/2019	
7	To determine the heat transfer coefficient at the fin surface, temperature distribution and efficiency of fin in force convection.	2	CO2	PO1, PO3	PSO1	17/09/2019	20/09/2019	26/09/2019	
	Determine the heat transfer coefficient for heated tube in forced convection.	3	CO3	PO1, PO4	PSO1	01/10/2019	04/10/2019	03/10/2019	
8	To Measure the emissivity of the test Plate surface	4	CO4	PO1, PO2	PSO1	01/10/2019	08/11/2019	10/10/2019	
9	To Determine the effectiveness, heat transfer rate and overall heat transfer coefficient in counter flow heat exchanger.	5	CO5	PO1, PO2, PO3	PSO1	15/10/2019	01/11/2019	17/10/2019	

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10	To Determine the effectiveness, heat transfer rate and overall heat transfer coefficient in parallel flow heat exchanger.	5	CO5	PO1, PO2, PO3	PSO1	05/11/2019	18/10/2019	07/11/2019	
11	Experiment on Spherical wall: To determine the thermal conductivity of an insulating power.	1	CO1	PO1, PO2	PSO1	19/11/2019	6/09/2019	14/11/2019	


Name & Sign. of Faculty

ARVIND KR. SINGH


Sign. of Reviewer


Sign. of HOD


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Rubrics used for Practical Courses for Continuous Internal Evaluation

Continuous Internal Evaluation of Practical Courses	Rubrics
Lab Continuous Evaluation	R1: Conduction
	R2: File Record
	R3: Regularity
Lab Internal Examination	R4: Execution
	R5: Write-up
	R6: Viva-Voce


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Course Name
Course Code
Batch
Semester
Session
L:T:P

Heat and Mass Transfer Lab
RME 552
2017 2021
5
2019 2020
0.0.2

CO Attainment using Continuous Internal Examination (CIE)

			Lab Continuous Evaluation			Lab Internal Examination R1: Conduction							Internal Marks	
			R1: Conduction	R2: File Record	R3: Regularity	R4: Execution	R5: Write- Up	R6: Viva Voce						
								CO1	CO2	CO3	CO4	CO5		
S.No.	Univ. Roll No.	Name	Max Marks	10	10	10	10	5	5	5	5	5	5	50
1	1708240001	AATIF KHAN		7	5	7	10	5	4	4	5	5	5	38
2	1708240002	ABDUL KABIR		6	6	5	10	5	5	5	5	0	0	32
3	1708240003	Abhinav Gupta		10	9	10	10	5	5	4	5	5	5	49
4	1708240004	ABHINAV KUMAR		4	5	7	10	5	5	5	4	4	5	35
5	1708240005	Abhishek Chandra		9	7	7	8	4	4	5	4	3	4	39
6	1708240006	ADITYA SHARMA		9	9	9	10	5	5	4	5	5	5	47
7	1708240007	AISHVARYA KRISHN		7	7	7	7	4	3	5	5	5	5	38
8	1708240008	AKSHAT DABAS		10	10	10	9	5	4	5	4	4	5	48
9	1708240010	AMAN AGRAWAL		10	10	10	9	5	4	5	4	4	5	48
10	1708240011	AMBESH KUMAR PAL		8	7	9	9	5	5	5	5	5	5	44
11	1708240012	ANAS BEIG		6	5	5	8	5	3	3	3	3	3	30
12	1708240013	ANKIT KUMAR GANGWA		9	9	9	9	5	5	5	5	4	4	46
13	1708240014	ANUJ		10	10	9	10	5	5	5	4	4	5	48
14	1708240015	ANURAG JOSHI		10	10	9	10	5	5	5	5	4	5	49
15	1708240016	ANURAG VASHISHTH		8	8	8	10	5	5	5	5	4	5	44
16	1708240017	ARYAN KUMAR		3	5	4	7	5	5	4	5	5	5	30
17	1708240018	ASHEESH KUMAR		4	5	4	7	4	4	4	5	5	5	30
18	1708240019	ASHUTOSH BHARDWAJ		6	5	4	7	4	4	4	5	5	5	32
19	1708240020	ASHUTOSH KUMAR		9	9	9	9	5	4	5	4	5	5	46
20	1708240021	AYUSH KUMAR		5	5	5	7	5	3	3	3	3	5	30

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21	1708240022	Ayush Kumar	5	8	5	10	5	5	5	5	5	4	38
22	1708240023	HIMANSHU YADAV	5	5	5	6	4	4	4	4	4	4	30
23	1708240025	KSHITIZ SHIVAM	7	7	7	8	5	4	5	4	4	4	38
24	1708240026	LALIT KUMAR	5	5	5	10	5	0	0	5	5	5	30
25	1708240027	LUCKY KUNAR	8	10	9	9	5	5	5	0	5	5	44
26	1708240028	MANJEET SINGH	4	5	5	8	4	5	3	4	4	4	30
27	1708240030	MOHAMMAD AQIB	10	10	10	10	5	5	4	5	5	4	49
28	1708240031	MOHAMMAD SALMAN	10	10	10	10	5	5	5	4	5	4	49
29	1708240032	MOHAMMAD ZAKI	10	10	10	10	5	4	5	5	5	4	49
30	1708240033	MOHD AMAAN KHAN	10	10	10	10	5	5	4	5	5	4	49
31	1708240035	MOHD. SAMAD KHAN	8	8	8	8	5	3	4	4	4	4	40
32	1708240036	NITIN TOMAR	6	9	7	7	5	4	3	3	4	3	37
33	1708240037	Nitish Pandey	4	4	5	8	5	4	4	4	5	4	30
34	1708240038	OSKAR POURYA	9	10	9	10	5	5	5	5	4	4	47
35	1708240039	PRASHANT CHAUDHARY	10	10	9	10	5	5	5	5	5	5	49
36	1708240040	PRATEEK KUMAR	8	8	6	7	5	4	3	3	5	3	37
37	1708240041	RAJVEER SAINI	8	8	8	10	5	0	5	5	5	0	39
38	1708240042	RASHI	9	9	8	10	5	5	5	5	4	4	45
39	1708240043	RISHABH GOEL	10	10	9	10	5	5	5	5	5	4	49
40	1708240044	RITIK CHANDRA	8	9	8	10	5	4	4	5	4	4	43
41	1708240045	ROHAN SHARMA	8	7	8	7	5	4	4	3	3	3	38
42	1708240046	SAMBHAV SHARMA	5	4	4	7	5	4	4	4	4	5	30
43	1708240047	SANDEEP SHARMA	7	7	8	7	5	5	5	4	4	4	39
44	1708240048	SARTHAK DIXIT	6	5	5	10	5	5	5	5	5	5	36
45	1708240049	SHASHI PRAKASH	8	7	7	7	5	5	5	4	4	5	40
46	1708240050	SHIVAM KUMAR	8	7	7	7	5	4	5	4	4	4	39
47	1708240051	SIDDHANT SHARMA	9	10	9	10	5	5	5	5	5	5	48
48	1708240052	SIDDHARTHA RAJA	10	9	9	10	5	5	5	5	5	5	48
49	1708240053	SIRAJ AHMAD	5	5	5	6	5	4	4	3	4	4	30
50	1708240054	SOURABH KUMAR	7	6	7	5	5	4	4	4	4	4	35
51	1708240055	SUBHASH CHANDRA PA	10	10	9	10	5	5	5	5	4	5	49
52	1708240057	SUNEEL KUMAR	7	7	7	7	5	5	5	5	5	4	39
53	1708240058	TUSHAR GUPTA	7	4	6	8	5	5	5	5	5	5	36
54	1708240059	VIVEK GUPTA	7	9	7	10	5	5	5	5	5	5	43

55	1708240060	VIVEK KUMAR	7	7	7	7	5	5	4	5	4	5	39
56	1708240061	YOGENDRA PAL SINGH	8	7	7	8	5	5	5	5	4	4	40
57	1708240062	ZAEEM UL SAJJAD	5	4	5	6	5	4	4	4	4	4	30
58	1808240901	GAURAV RATHOR	8	9	7	8	5	5	5	5	5	5	43
59	1808240902	SHUBHAM SHUKLA	7	7	7	8	5	5	5	5	5	5	40
60	1608240066	Rajat saini	6	5	6	7	4	3	3	3	3	3	30
61	1608240067	Rajnsh Chauhan	4	5	5	6	5	5	4	4	4	4	30

Course Co	CO	CO Attained (% of students getting $\geq 80\%$ marks)	CO Attained (On Scale of 3)
RME 552	CO1	57.38	1.72
	CO2	65.57	1.97
	CO3	57.38	1.72
	CO4	55.74	1.67
	CO5	54.1	1.62


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Course Name Heat and Mass Transfer
 Course Code RME 552
 Batch 2017 2021
 Semester 5
 Session 2019 2020
 L:T:P 0.0.2

CO Attainment using

S.No.	Univ. Roll No.	Name	Max Marks	CO1					CO2				
				Total Marks Obtained	Total Marks Attempted	>=60%	Level (3,2,1)	Y/N	Total Marks Obtained	Total Marks Attempted	>=60%	Level (3,2,1)	Y/N
1	1708240001	AATIF KHAN		10.8	14	77.14	2	N	10.8	14	77.14	2	N
2	1708240002	ABDUL KABIR		11.4	14	81.43	3	Y	11.4	14	81.43	3	Y
3	1708240003	Abhinav Gupta		13.8	14	98.57	3	Y	12.8	14	91.43	3	Y
4	1708240004	ABHINAV KUMAR		11.2	14	80	3	Y	11.2	14	80	3	Y
5	1708240005	Abhishek Chandra		11	14	78.57	2	N	12	14	85.71	3	Y
6	1708240006	ADITYA SHARMA		13.4	14	95.71	3	Y	12.4	14	88.57	3	Y
7	1708240007	AISHVARYA KRISHN		9.4	14	67.14	2	N	11.4	14	81.43	3	Y
8	1708240008	AKSHAT DABAS		12.8	14	91.43	3	Y	13.8	14	98.57	3	Y
9	1708240010	AMAN AGRAWAL		12.8	14	91.43	3	Y	13.8	14	98.57	3	Y
10	1708240011	AMBESH KUMAR PAL		12.6	14	90	3	Y	12.6	14	90	3	Y
11	1708240012	ANAS BEIG		8.8	14	62.86	2	N	8.8	14	62.86	2	N
12	1708240013	ANKIT KUMAR GANGWA		13.2	14	94.29	3	Y	13.2	14	94.29	3	Y
13	1708240014	ANUJ		13.8	14	98.57	3	Y	13.8	14	98.57	3	Y
14	1708240015	ANURAG JOSHI		13.8	14	98.57	3	Y	13.8	14	98.57	3	Y
15	1708240016	ANURAG VASHISHTH		12.8	14	91.43	3	Y	12.8	14	91.43	3	Y
16	1708240017	ARYAN KUMAR		9.8	14	70	2	N	8.8	14	62.86	2	N
17	1708240018	ASHEESH KUMAR		8.8	14	62.86	2	N	8.8	14	62.86	2	N
18	1708240019	ASHUTOSH BHARDWAJ		9.2	14	65.71	2	N	9.2	14	65.71	2	N
19	1708240020	ASHUTOSH KUMAR		12.2	14	87.14	3	Y	13.2	14	94.29	3	Y
20	1708240021	AYUSH KUMAR		8.4	14	60	2	N	8.4	14	60	2	N

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21	1708240022	Ayush Kumar	11.6	14	82.86	3	Y	11.6	14	82.86	3	Y
22	1708240023	HIMANSHU YADAV	9	14	64.29	2	N	9	14	64.29	2	N
23	1708240025	KSHITIZ SHIVAM	10.8	14	77.14	2	N	11.8	14	84.29	3	Y
24	1708240026	LALIT KUMAR	6	14	42.86	1	N	6	14	42.86	1	N
25	1708240027	LUCKY KUNAR	13.2	14	94.29	3	Y	13.2	14	94.29	3	Y
26	1708240028	MANJEET SINGH	10.2	14	72.86	2	N	8.2	14	58.57	1	N
27	1708240030	MOHAMMAD AQIB	14	14	100	3	Y	13	14	92.86	3	Y
28	1708240031	MOHAMMAD SALMAN	14	14	100	3	Y	14	14	100	3	Y
29	1708240032	MOHAMMAD ZAKI	13	14	92.86	3	Y	14	14	100	3	Y
30	1708240033	MOHD AMAAN KHAN	14	14	100	3	Y	13	14	92.86	3	Y
31	1708240035	MOHD. SAMAD KHAN	10.4	14	74.29	2	N	11.4	14	81.43	3	Y
32	1708240036	NITIN TOMAR	10.8	14	77.14	2	N	9.8	14	70	2	N
33	1708240037	Nitish Pandey	9.2	14	65.71	2	N	9.2	14	65.71	2	N
34	1708240038	OSKAR POURYA	13.6	14	97.14	3	Y	13.6	14	97.14	3	Y
35	1708240039	PRASHANT CHAUDHARY	13.8	14	98.57	3	Y	13.8	14	98.57	3	Y
36	1708240040	PRATEEK KUMAR	10.8	14	77.14	2	N	9.8	14	70	2	N
37	1708240041	RAJVEER SAINI	7.8	14	55.71	1	N	12.8	14	91.43	3	Y
38	1708240042	RASHI	13.2	14	94.29	3	Y	13.2	14	94.29	3	Y
39	1708240043	RISHABH GOEL	13.8	14	98.57	3	Y	13.8	14	98.57	3	Y
40	1708240044	RITIK CHANDRA	12	14	85.71	3	Y	12	14	85.71	3	Y
41	1708240045	ROHAN SHARMA	11	14	78.57	2	N	11	14	78.57	2	N
42	1708240046	SAMBHAV SHARMA	9	14	64.29	2	N	9	14	64.29	2	N
43	1708240047	SANDEEP SHARMA	11.8	14	84.29	3	Y	11.8	14	84.29	3	Y
44	1708240048	SARTHAK DIXIT	11.2	14	80	3	Y	11.2	14	80	3	Y
45	1708240049	SHASHI PRAKASH	11.8	14	84.29	3	Y	11.8	14	84.29	3	Y
46	1708240050	SHIVAM KUMAR	10.8	14	77.14	2	N	11.8	14	84.29	3	Y
47	1708240051	SIDDHANT SHARMA	13.6	14	97.14	3	Y	13.6	14	97.14	3	Y
48	1708240052	SIDDHARTHA RAJA	13.6	14	97.14	3	Y	13.6	14	97.14	3	Y
49	1708240053	SIRAJ AHMAD	9.2	14	65.71	2	N	9.2	14	65.71	2	N
50	1708240054	SOURABH KUMAR	10	14	71.43	2	N	10	14	71.43	2	N
51	1708240055	SUBHASH CHANDRA PA	13.8	14	98.57	3	Y	13.8	14	98.57	3	Y
52	1708240057	SUNEEL KUMAR	11.6	14	82.86	3	Y	11.6	14	82.86	3	Y
53	1708240058	TUSHAR GUPTA	11	14	78.57	2	N	11	14	78.57	2	N
54	1708240059	VIVEK GUPTA	12.6	14	90	3	Y	12.6	14	90	3	Y

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55	1708240060	VIVEK KUMAR	11.6	14	82.86	3	Y	10.6	14	75.71	2	N
56	1708240061	YOGENDRA PAL SINGH	12	14	85.71	3	Y	12	14	85.71	3	Y
57	1708240062	ZAEEM UL SAJJAD	9	14	64.29	2	N	9	14	64.29	2	N
58	1808240901	GAURAV RATHOR	12.4	14	88.57	3	Y	12.4	14	88.57	3	Y
59	1808240902	SHUBHAM SHUKLA	11.8	14	84.29	3	Y	11.8	14	84.29	3	Y
60	1608240066	Rajat saini	8.6	14	61.43	2	N	8.6	14	61.43	2	N
61	1608240067	Rajnsh Chauhan	10	14	71.43	2	N	9	14	64.29	2	N
			No. of students scoring		3	35				No. of students scoring	3	40
					2	24					2	19
					1	2					1	2
			Average		2.54					Average	2.62	

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Professor & Head
Deptt. of Mechanical Engg.
Moradabad Institute of Technology
Moradabad - 244001

Course Name: Heat and mass Transfer

Course Code: RME- 552

Semester

5

Session

2019 2020

L:T:P

0.0.2

CO Attainment using

S.No.	Univ. Roll No.	Name	Max Marks	CO3					CO4				
				Total Marks Obtained	Total Marks Attempted	>=60%	Level (3,2,1)	Y/N	Total Marks Obtained	Total Marks Attempted	>=60%	Level (3,2,1)	Y/N
1	1708240001	AATIF KHAN		11.8	14	84.29	3	Y	11.8	14	84.29	3	Y
2	1708240002	ABDUL KABIR		11.4	14	81.43	3	Y	6.4	14	45.71	1	N
3	1708240003	Abhinav Gupta		13.8	14	98.57	3	Y	13.8	14	98.57	3	Y
4	1708240004	ABHINAV KUMAR		10.2	14	72.86	2	N	10.2	14	72.86	2	N
5	1708240005	Abhishek Chandra		11	14	78.57	2	N	10	14	71.43	2	N
6	1708240006	ADITYA SHARMA		13.4	14	95.71	3	Y	13.4	14	95.71	3	Y
7	1708240007	AISHVARYA KRISHN		11.4	14	81.43	3	Y	11.4	14	81.43	3	Y
8	1708240008	AKSHAT DABAS		12.8	14	91.43	3	Y	12.8	14	91.43	3	Y
9	1708240010	AMAN AGRAWAL		12.8	14	91.43	3	Y	12.8	14	91.43	3	Y
10	1708240011	AMBESH KUMAR PAL		12.6	14	90	3	Y	12.6	14	90	3	Y
11	1708240012	ANAS BEIG		8.8	14	62.86	2	N	8.8	14	62.86	2	N
12	1708240013	ANKIT KUMAR GANGWA		13.2	14	94.29	3	Y	12.2	14	87.14	3	Y
13	1708240014	ANUJ		12.8	14	91.43	3	Y	12.8	14	91.43	3	Y
14	1708240015	ANURAG JOSHI		13.8	14	98.57	3	Y	12.8	14	91.43	3	Y
15	1708240016	ANURAG VASHISHTH		12.8	14	91.43	3	Y	11.8	14	84.29	3	Y
16	1708240017	ARYAN KUMAR		9.8	14	70	2	N	9.8	14	70	2	N
17	1708240018	ASHEESH KUMAR		9.8	14	70	2	N	9.8	14	70	2	N
18	1708240019	ASHUTOSH BHARDWAJ		10.2	14	72.86	2	N	10.2	14	72.86	2	N
19	1708240020	ASHUTOSH KUMAR		12.2	14	87.14	3	Y	13.2	14	94.29	3	Y
20	1708240021	AYUSH KUMAR		8.4	14	60	2	N	8.4	14	60	2	N
21	1708240022	Ayush Kumar		11.6	14	82.86	3	Y	11.6	14	82.86	3	Y
22	1708240023	HIMANSHU YADAV		9	14	64.29	2	N	9	14	64.29	2	N
23	1708240025	KSHITIZ SHIVAM		10.8	14	77.14	2	N	10.8	14	77.14	2	N

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24	1708240026	LALIT KUMAR	11	14	78.57	2	N	11	14	78.57	2	N
25	1708240027	LUCKY KUNAR	8.2	14	58.57	1	N	13.2	14	94.29	3	Y
26	1708240028	MANJEET SINGH	9.2	14	65.71	2	N	9.2	14	65.71	2	N
27	1708240030	MOHAMMAD AQIB	14	14	100	3	Y	14	14	100	3	Y
28	1708240031	MOHAMMAD SALMAN	13	14	92.86	3	Y	14	14	100	3	Y
29	1708240032	MOHAMMAD ZAKI	14	14	100	3	Y	14	14	100	3	Y
30	1708240033	MOHD AMAAN KHAN	14	14	100	3	Y	14	14	100	3	Y
31	1708240035	MOHD. SAMAD KHAN	11.4	14	81.43	3	Y	11.4	14	81.43	3	Y
32	1708240036	NITIN TOMAR	9.8	14	70	2	N	10.8	14	77.14	2	N
33	1708240037	Nitish Pandey	9.2	14	65.71	2	N	10.2	14	72.86	2	N
34	1708240038	OSKAR POURYA	13.6	14	97.14	3	Y	12.6	14	90	3	Y
35	1708240039	PRASHANT CHAUDHARY	13.8	14	98.57	3	Y	13.8	14	98.57	3	Y
36	1708240040	PRATEEK KUMAR	9.8	14	70	2	N	11.8	14	84.29	3	Y
37	1708240041	RAJVEER SAINI	12.8	14	91.43	3	Y	12.8	14	91.43	3	Y
38	1708240042	RASHI	13.2	14	94.29	3	Y	12.2	14	87.14	3	Y
39	1708240043	RISHABH GOEL	13.8	14	98.57	3	Y	13.8	14	98.57	3	Y
40	1708240044	RITIK CHANDRA	13	14	92.86	3	Y	12	14	85.71	3	Y
41	1708240045	ROHAN SHARMA	10	14	71.43	2	N	10	14	71.43	2	N
42	1708240046	SAMBHAV SHARMA	9	14	64.29	2	N	9	14	64.29	2	N
43	1708240047	SANDEEP SHARMA	10.8	14	77.14	2	N	10.8	14	77.14	2	N
44	1708240048	SARTHAK DIXIT	11.2	14	80	3	Y	11.2	14	80	3	Y
45	1708240049	SHASHI PRAKASH	10.8	14	77.14	2	N	10.8	14	77.14	2	N
46	1708240050	SHIVAM KUMAR	10.8	14	77.14	2	N	10.8	14	77.14	2	N
47	1708240051	SIDDHANT SHARMA	13.6	14	97.14	3	Y	13.6	14	97.14	3	Y
48	1708240052	SIDDHARTHA RAJA	13.6	14	97.14	3	Y	13.6	14	97.14	3	Y
49	1708240053	SIRAJ AHMAD	8.2	14	58.57	1	N	9.2	14	65.71	2	N
50	1708240054	SOURABH KUMAR	10	14	71.43	2	N	10	14	71.43	2	N
51	1708240055	SUBHASH CHANDRA PA	13.8	14	98.57	3	Y	12.8	14	91.43	3	Y
52	1708240057	SUNEEL KUMAR	11.6	14	82.86	3	Y	11.6	14	82.86	3	Y
53	1708240058	TUSHAR GUPTA	11	14	78.57	2	N	11	14	78.57	2	N
54	1708240059	VIVEK GUPTA	12.6	14	90	3	Y	12.6	14	90	3	Y
55	1708240060	VIVEK KUMAR	11.6	14	82.86	3	Y	10.6	14	75.71	2	N
56	1708240061	YOGENDRA PAL SINGH	12	14	85.71	3	Y	11	14	78.57	2	N
57	1708240062	ZAEEM UL SAJJAD	9	14	64.29	2	N	9	14	64.29	2	N

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Moradabad Institute of Technology

58	1808240901	GAURAV RATHOR	12.4	14	88.57	3	Y	12.4	14	88.57	3	Y
59	1808240902	SHUBHAM SHUKLA	11.8	14	84.29	3	Y	11.8	14	84.29	3	Y
60	1608240066	Rajat saini	8.6	14	61.43	2	N	8.6	14	61.43	2	N
61	1608240067	Rajnsh Chauhan	9	14	64.29	2	N	9	14	64.29	2	N
			No. of students scoring		3	35			No. of students scoring		3	34
					2	24					2	26
					1	2					1	1
			Average		2.54				Average		2.54	

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 Moradabad - 244001

Course Name Heat and Mass Transfer
 Course Code RME 552
 Batch 2017 2021
 Semester 5
 Session 2019 2020
 L:T:P 0.0.2

CO Attainment using

S.No.	Univ. Roll No.	Name	Max Marks	CO5			
				Total Marks Obtained	Total Marks Attempted	>=60%	Level (3,2,1)
1	1708240001	AATIF KHAN		11.8	14	84.29	3
2	1708240002	ABDUL KABIR		6.4	14	45.71	1
3	1708240003	Abhinav Gupta		13.8	14	98.57	3
4	1708240004	ABHINAV KUMAR		11.2	14	80	3
5	1708240005	Abhishek Chandra		11	14	78.57	2
6	1708240006	ADITYA SHARMA		13.4	14	95.71	3
7	1708240007	AISHVARYA KRISHN		11.4	14	81.43	3
8	1708240008	AKSHAT DABAS		13.8	14	98.57	3
9	1708240010	AMAN AGRAWAL		13.8	14	98.57	3
10	1708240011	AMBESH KUMAR PAL		12.6	14	90	3
11	1708240012	ANAS BEIG		8.8	14	62.86	2
12	1708240013	ANKIT KUMAR GANGWA		12.2	14	87.14	3
13	1708240014	ANUJ		13.8	14	98.57	3
14	1708240015	ANURAG JOSHI		13.8	14	98.57	3
15	1708240016	ANURAG VASHISHTH		12.8	14	91.43	3
16	1708240017	ARYAN KUMAR		9.8	14	70	2
17	1708240018	ASHEESH KUMAR		9.8	14	70	2
18	1708240019	ASHUTOSH BHARDWAJ		10.2	14	72.86	2
19	1708240020	ASHUTOSH KUMAR		13.2	14	94.29	3
20	1708240021	AYUSH KUMAR		10.4	14	74.29	2

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21	1708240022	Ayush Kumar	10.6	14	75.71	2	N
22	1708240023	HIMANSHU YADAV	9	14	64.29	2	N
23	1708240025	KSHITIZ SHIVAM	10.8	14	77.14	2	N
24	1708240026	LALIT KUMAR	11	14	78.57	2	N
25	1708240027	LUCKY KUNAR	13.2	14	94.29	3	Y
26	1708240028	MANJEET SINGH	9.2	14	65.71	2	N
27	1708240030	MOHAMMAD AQIB	13	14	92.86	3	Y
28	1708240031	MOHAMMAD SALMAN	13	14	92.86	3	Y
29	1708240032	MOHAMMAD ZAKI	13	14	92.86	3	Y
30	1708240033	MOHD AMAAN KHAN	13	14	92.86	3	Y
31	1708240035	MOHD. SAMAD KHAN	11.4	14	81.43	3	Y
32	1708240036	NITIN TOMAR	9.8	14	70	2	N
33	1708240037	Nitish Pandey	9.2	14	65.71	2	N
34	1708240038	OSKAR POURYA	12.6	14	90	3	Y
35	1708240039	PRASHANT CHAUDHARY	13.8	14	98.57	3	Y
36	1708240040	PRATEEK KUMAR	9.8	14	70	2	N
37	1708240041	RAJVEER SAINI	7.8	14	55.71	1	N
38	1708240042	RASHI	12.2	14	87.14	3	Y
39	1708240043	RISHABH GOEL	12.8	14	91.43	3	Y
40	1708240044	RITIK CHANDRA	12	14	85.71	3	Y
41	1708240045	ROHAN SHARMA	10	14	71.43	2	N
42	1708240046	SAMBHAV SHARMA	10	14	71.43	2	N
43	1708240047	SANDEEP SHARMA	10.8	14	77.14	2	N
44	1708240048	SARTHAK DIXIT	11.2	14	80	3	Y
45	1708240049	SHASHI PRAKASH	11.8	14	84.29	3	Y
46	1708240050	SHIVAM KUMAR	10.8	14	77.14	2	N
47	1708240051	SIDDHANT SHARMA	13.6	14	97.14	3	Y
48	1708240052	SIDDHARTHA RAJA	13.6	14	97.14	3	Y
49	1708240053	SIRAJ AHMAD	9.2	14	65.71	2	N
50	1708240054	SOURABH KUMAR	10	14	71.43	2	N
51	1708240055	SUBHASH CHANDRA PA	13.8	14	98.57	3	Y
52	1708240057	SUNEEL KUMAR	10.6	14	75.71	2	N
53	1708240058	TUSHAR GUPTA	11	14	78.57	2	N
54	1708240059	VIVEK GUPTA	12.6	14	90	3	Y

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55	1708240060	VIVEK KUMAR	11.6	14	82.86	3	Y
56	1708240061	YOGENDRA PAL SINGH	11	14	78.57	2	N
57	1708240062	ZAEEM UL SAJJAD	9	14	64.29	2	N
58	1808240901	GAURAV RATHOR	12.4	14	88.57	3	Y
59	1808240902	SHUBHAM SHUKLA	11.8	14	84.29	3	Y
60	1608240066	Rajat saini	8.6	14	61.43	2	N
61	1608240067	Rajnsh Chauhan	9	14	64.29	2	N
No. of students scoring					3	33	
					2	26	
					1	2	
Average					2.51		


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Course Name
Course Code
Batch
Semester
Session
L:T:P

Heat and Mass Transfer Lab
RME 552
2017 2021
5
2019 2020
0.0.2

CO Attainment using Semester End Examination (SEE)

S.No.	Univ. Roll No.	Name	Max Marks	SEE		
				50	>=60%	Level (3,2,1) Y/N
1	1708240001	AATIF KHAN		45	90	3 Y
2	1708240002	ABDUL KABIR		45	90	3 Y
3	1708240003	Abhinav Gupta		48	96	3 Y
4	1708240004	ABHINAV KUMAR		40	80	3 Y
5	1708240005	Abhishek Chandra		47	94	3 Y
6	1708240006	ADITYA SHARMA		42	84	3 Y
7	1708240007	AISHVARYA KRISHN		37	74	2 N
8	1708240008	AKSHAT DABAS		45	90	3 Y
9	1708240010	AMAN AGRAWAL		40	80	3 Y
10	1708240011	AMBESH KUMAR PAL		42	84	3 Y
11	1708240012	ANAS BEIG		30	60	2 N
12	1708240013	ANKIT KUMAR GANGWAR		45	90	3 Y
13	1708240014	ANUJ		43	86	3 Y
14	1708240015	ANURAG JOSHI		47	94	3 Y
15	1708240016	ANURAG VASHISHTH		46	92	3 Y
16	1708240017	ARYAN KUMAR		37	74	2 N
17	1708240018	ASHEESH KUMAR		37	74	2 N
18	1708240019	ASHUTOSH BHARDWAJ		37	74	2 N
19	1708240020	ASHUTOSH KUMAR		39	78	2 N
20	1708240021	AYUSH KUMAR		40	80	3 Y
21	1708240022	Ayush Kumar		42	84	3 Y
22	1708240023	HIMANSHU YADAV		39	78	2 N
23	1708240025	KSHITIZ SHIVAM		47	94	3 Y
24	1708240026	LALIT KUMAR		43	86	3 Y
25	1708240027	LUCKY KUNAR		41	82	3 Y
26	1708240028	MANJEET SINGH		39	78	2 N
27	1708240030	MOHAMMAD AQIB		46	92	3 Y
28	1708240031	MOHAMMAD SALMAN		48	96	3 Y
29	1708240032	MOHAMMAD ZAKI		48	96	3 Y
30	1708240033	MOHD AMAAN KHAN		45	90	3 Y
31	1708240035	MOHD. SAMAD KHAN		41	82	3 Y
32	1708240036	NITIN TOMAR		43	86	3 Y

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33	1708240037	Nitish Pandey	42	84	3 Y
34	1708240038	OSKAR POURYA	47	94	3 Y
35	1708240039	PRASHANT CHAUDHARY	47	94	3 Y
36	1708240040	PRATEEK KUMAR	45	90	3 Y
37	1708240041	RAJVEER SAINI	41	82	3 Y
38	1708240042	RASHI	47	94	3 Y
39	1708240043	RISHABH GOEL	48	96	3 Y
40	1708240044	RITIK CHANDRA	40	80	3 Y
41	1708240045	ROHAN SHARMA	37	74	2 N
42	1708240046	SAMBHAV SHARMA	37	74	2 N
43	1708240047	SANDEEP SHARMA	40	80	3 Y
44	1708240048	SARTHAK DIXIT	41	82	3 Y
45	1708240049	SHASHI PRAKASH	40	80	3 Y
46	1708240050	SHIVAM KUMAR	40	80	3 Y
47	1708240051	SIDDHANT SHARMA	45	90	3 Y
48	1708240052	SIDDHARTHA RAJA	35	70	2 N
49	1708240053	SIRAJ AHMAD	30	60	2 N
50	1708240054	SOURABH KUMAR	37	74	2 N
51	1708240055	SUBHASH CHANDRA PANDEY	41	82	3 Y
52	1708240057	SUNEEL KUMAR	35	70	2 N
53	1708240058	TUSHAR GUPTA	35	70	2 N
54	1708240059	VIVEK GUPTA	40	80	3 Y
55	1708240060	VIVEK KUMAR	42	84	3 Y
56	1708240061	YOGENDRA PAL SINGH	37	74	2 N
57	1708240062	ZAEEM UL SAJJAD	38	76	2 N
58	1808240901	GAURAV RATHOR	38	76	2 N
59	1808240902	SHUBHAM SHUKLA	41	82	3 Y
60	1608240066	Rajat saini	39	78	2 N
61	1608240067	Rajnsh Chauhan	35	70	2 N

No. of students scoring	3	41
	2	20
	1	0
Average		2.67

Course Code	CO	CO Attained getting $\geq 80\%$ marks)	(% of students CO Attained (On Scale of 3)
RME 552	CO1	67.21	2.02
	CO2	67.21	2.02
	CO3	67.21	2.02
	CO4	67.21	2.02
	CO5	67.21	2.02


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Course Name
Course Code
Batch
Semester
Session
L:T:P

Heat and Mass Transfer Lab
RME 552
2017 2021
5

2019 2020
0.0.2

CO Attainment and Analysis

CO Attainment using Continuous Internal Examination (CIE)

Course Code	CO	CO Attained (% of students getting $\geq 80\%$)	CO Attained (On Scale of
RME 552	CO1	57.38	1.72
	CO2	65.57	1.97
	CO3	57.38	1.72
	CO4	55.74	1.67
	CO5	54.1	1.62

CO Attainment using Semester End Examination (SEE)

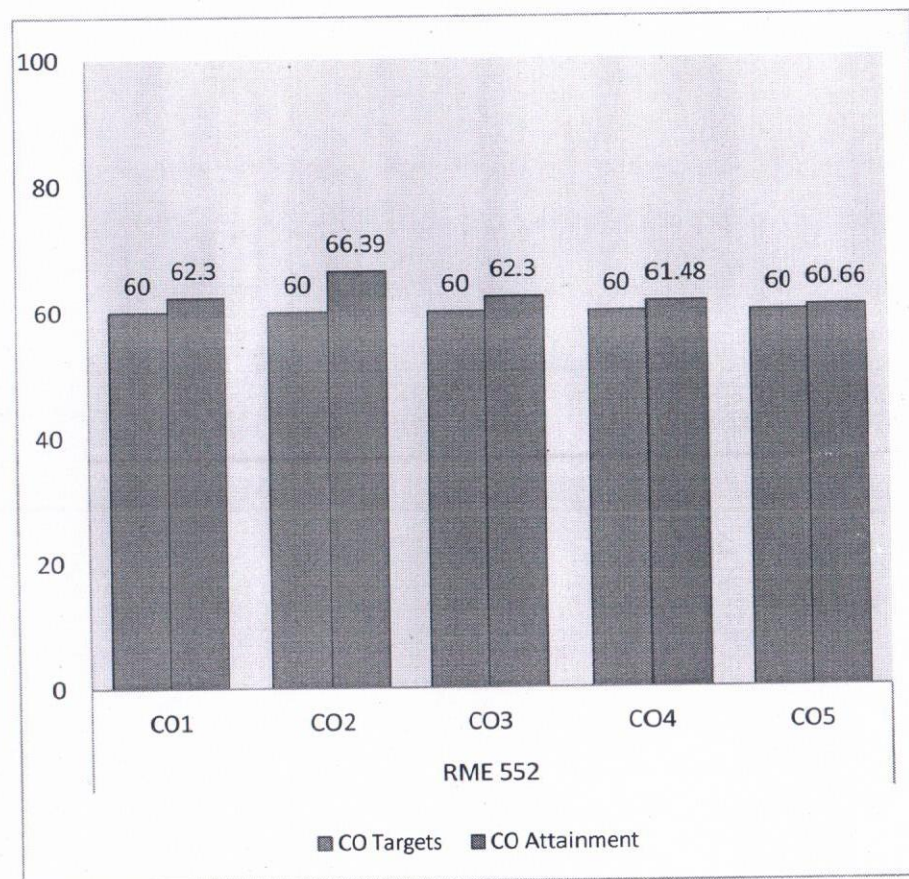
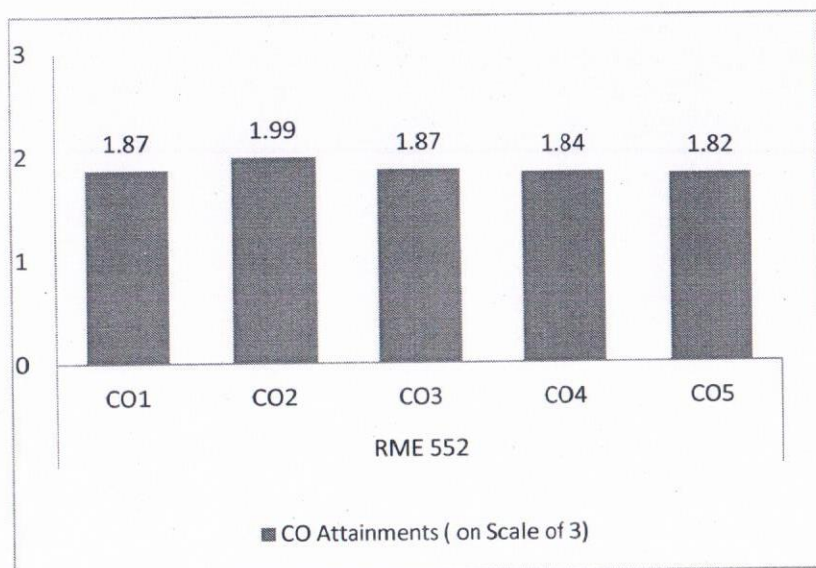
Course Code	CO	CO Attained (% of students getting $\geq 80\%$)	CO Attained (On Scale of 3)
RME 552	CO1	67.21	2.02
	CO2	67.21	2.02
	CO3	67.21	2.02
	CO4	67.21	2.02
	CO5	67.21	2.02

CO Attainment (CO)

Course Code	CO	CO Attained Using CIE (CO_CIE)	CO Attained using SEE (CO_SEE)	CO Attainment ($CO = 0.50 \cdot CO_CIE + 0.5 \cdot CO_SEE$)	CO Attainment (On Scale of 3)
RME 552	CO1	57.38	67.21	62.3	1.87
	CO2	65.57	67.21	66.39	1.99
	CO3	57.38	67.21	62.3	1.87
	CO4	55.74	67.21	61.48	1.84
	CO5	54.1	67.21	60.66	1.82


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Moradabad - 244001

Course Code	CO	CO Targets	CO	Y/N
RME 552	CO1	60	62.3	Y
	CO2	60	66.39	Y
	CO3	60	62.3	Y
	CO4	60	61.48	Y
	CO5	60	60.66	Y



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Moradabad - 244001

Course Name	Heat and Mass Transfer Lab
Course Code	RME 552
Batch	2017 2021
Semester	5
Session	2019 2020
L:T:P	0.0.2

CO Attainment Gap

Course Code	CO	CO Targets	CO Attainment	CO Attainment Gap (Target - Attainment)
RME 552	CO1	60	62.3	-2.30
	CO2	60	66.39	-6.39
	CO3	60	62.3	-2.30
	CO4	60	61.48	-1.48
	CO5	60	60.66	-0.66

Closure of Quality Loop

Course Code	CO	CO Targets	CO Attainment Gap	Action proposed to bridge the gap where targets are not	Modification of targets where Achieved
RME 552	CO1	60	-2.30		Target increased to 62%
	CO2	60	-6.39		Target increased to 62%
	CO3	60	-2.30		Target increased to 62%
	CO4	60	-1.48		Target increased to 62%
	CO5	60	-0.66		Target increased to 62%


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