

DEPARTMENT OF MECHANICAL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Course Title	Heat Transfer, Refrigeration and Air Conditioning Laboratory		
Course Code	MELR14	No. of Credits	1
Course Code of Pre-requisite subject(s)	MEPC22	Programme	B. Tech Mechanical III Year
Session	JULY 2018	Section (if, applicable)	A
Name of Faculty	Dr. Hakeem Niyas. U.S	Department	Mechanical
Email	hakeem@nitt.edu	Phone No.	9976677804
Name of Course Coordinator(s) (if, applicable)	-----		
E-mail	-----	Telephone No.	-----
Course Type	Essential Programme Laboratory Requirement		
COURSE OVERVIEW			
To introduce various instruments and testing methods associated with heat transfer, refrigeration and air-conditioning to the students.			
COURSE OBJECTIVES			
<ol style="list-style-type: none"> 1. To expose the students to the basic knowledge of thermal equipments and help them to develop experimental skills. 2. To study the concepts and applications of heat transfer, refrigeration and air-conditioning. 			
COURSE OUTCOMES (CO)			
Course Outcomes At the end of the course, the students will be able to			Aligned Programme Outcomes (PO)
1. demonstrate conduction, convection and radiation heat transfer through experiments.			1,6,8
2. Interpret heat transfer enhancement mechanisms.			1,4,6,8,11
3. Estimate the performance of double – pipe heat exchangers in both parallel and counter flow arrangements.			1,6,8
4. Calculate the cooling load of air conditioning systems and cooling towers.			1,6,8

COURSE PLAN – PART II

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week	Topic	Mode of Delivery
1	1	Introduction to Lab Experiments	Chalk and Talk
2	2	Test on concentric tube heat exchanger	Experiment
3	3	Test on unsteady heat transfer unit	Experiment
3	4	Test on emissivity apparatus	Experiment
5	5	Test on pin fin apparatus	Experiment
6	6	Test on heat conduction through composite wall	Experiment
7	7	Performance test on vapour compression refrigeration system	Experiment
8	8	Performance test on bench-top cooling tower	Experiment
9	9	Performance test on air-conditioning tutor	Experiment
10	10	Compensation Experiment	Experiment
11	11	Compensation Experiment	Experiment

COURSE ASSESSMENT METHODS

S. No	Mode of Assessment	Week	Weightage
1	Observation and Record	---	30 %
2	Coding Project	9 th Week	20 %
3	Viva	14 th Week	20 %
4	Examination (objective)	14 th Week	30 %

COURSE EXIT

- Feedback from the students during class committee meetings.
- Anonymous feedback through questionnaire.

COURSE POLICY (preferred mode of correspondence with students, policy on attendance, compensation assessment, academic honesty and plagiarism etc.)

MODE OF CORRESPONDENCE (email/ phone)

All the students are advised to come to the laboratory regularly. All the correspondence (schedule of lab/ schedule of assessment/ laboratory material/any other information regarding this course) will be intimated in the laboratory only.

ATTENDANCE

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

COMPENSATION ASSESSMENT

- Compensation lab will be conducted before the end of the course.

ACADEMIC HONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark will be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

ADDITIONAL INFORMATION

- The faculty is available for consultation at times as per the intimation given by the faculty.
- Queries can also be emailed to the course teacher (hakeem@nitt.edu).

FOR APPROVAL

Course Faculty USNiyas CC-Chairperson [Signature] HOD [Signature]

Dr. Hakeem Niyas. U.S.
(9086)