NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF INSTRUMENTATION AND CONTROL ENGG.

COURSE PLAN – PART I			
Name of the programme and specialization	B. Tech - Instrumentation and Control Engineering		
Course Title	Instrumentation Laboratory		
Course Code	ICLR16	**No. of Credits**	2
Course Code of Pre-requisite subject(s)	-		
Session	Jan. 2022	**Section**	VIth Sem A
Name of Faculty	Dr. SHIRAZ SOHAIL	**Department**	ICE
Email	**ssohail@nitt.edu**	**Phone No.**	+91 9775550302
Name of Course Coordinator(s) (if, applicable)	------		
Course Type	Lab course		

Syllabus (approved in BoS)

1. Design of temperature transmitter using RTD.
2. Design of cold junction compensation circuit for Thermocouple.
3. Design of IC temperature transmitters.
4. Design of Linearization circuit for thermistor.
5. Study of zero elevation and suppression in differential pressure transmitter
6. Performance evaluation of pressure gauges using Dead weight tester.
7. Measurement of level using differential pressure transmitter.
8. Design of alarms and annunciators for process variable measurements.
9. Design of pressure/force transmitter
10. Measurement of flow and calibration of flow meters.

COURSE OBJECTIVES

1. To familiarize the students with different signal condition circuits for temperature and pressure measuring transducer.
2. To familiarize the students to the calibration practices used in industries.
3. To impart knowledge in the transmitter design

COURSE OUTCOMES (CO)

Course Outcomes On completion of this lab, the students will be able to,	**Aligned Programme Outcomes (PO)**
1. Suggest a suitable temperature sensor for an application.	1,2,3,11
2. Design the required conversion and manipulation circuits for temperature and pressure measurement systems.	1,2,6,10
3. Evaluate various temperature and pressure measuring sensors	2,3,7

COURSE PLAN – PART II

COURSE OVERVIEW

This lab course exposes students to the field of instrumentation. This lab course will provide the practical experience on design of transmitters, compensation, linearization circuits and

measurement of flow, pressure and level.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week	Topic	Mode of Delivery
1	1st Week	Design of temperature transmitter using RTD	Through MS Teams
2	2nd Week	Design of cold junction compensation circuit for Thermocouple.	
3	3rd Week	Design of IC temperature transmitters	
4	4th Week	Design of Linearization circuit for thermistor.	
5	5th Week	Study of zero elevation and suppression in differential pressure transmitter	
6	6th Week	Performance evaluation of pressure gauges using Dead weight tester.	
7	7th Week	Measurement of level using differential pressure transmitter	
8	8th Week	Design of alarms and annunciators for process variable measurements.	
9	9th Week	Design of pressure/force transmitter	
10	10th Week	Measurement of flow and calibration of flow meters.	

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week	Duration	% Weightage
1	Continuous Assessment (Simulation/Record submission)	During every class	weekly	50
2	Mini project	April 2022		20
3	Online Viva-voce	Last week of Sem.		30

COURSE EXIT SURVEY

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

COURSE POLICY

➢ Course materials such as PPT would be shared regularly on MS Team.

➢ Relative grading will be used to award the marks.

➢ One compensation assessment/ retest will be conducted after Assessment V for the students who absent the any of the internal assessments. Provided the absence for previous assessment is for valid reason. The portion for the compensation assessment will be Assessment I and Assessment II portions both together.

➢ The passing minimum for this course 35% or Class average/2 whichever is greater.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- At The minimum attendance for passing this course is 75%
- However, 10 % of relaxation can be considered for OD and on genuine medical grounds
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.
- Students who have less than 65% have to Redo the course.

ACADEMIC HONESTY & PLAGIARISM

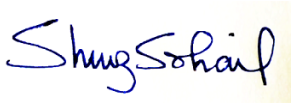
- Copying from others during an assessment will be treated as punishable dishonesty. For assignment and project presentation, the content which has plagiarism above 50 % would be given zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, 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 (if required) to the course teacher shall only be emailed to the email id specified by the teacher (ssohail@nitt.edu)

FOR APPROVAL



19.02.2022

Course Faculty	**CC-Chairperson**	**HOD**
Dr. Shiraz Sohail	Dr.S.Narayanan	Dr.K.Dhanalakshmi