



DEPARTMENT OF ELECTRICAL & ELECTRONICS  
ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	B. Tech in Electrical and Electronics Engineering		
Course Title	Measurements and Instrumentation		
Course Code	EEPC23	No. of Credits	3
Course Code of Prerequisite subject(s)	EEPC21		
Session	January 2022	Section (if, applicable)	A
Name of Faculty	Dr. Pinkymol K.P.	Department	EEE
Official Email	pinkymol@nitt.edu	Telephone No.	9526710598
Name of Course Coordinator(s) (if, applicable)			
Official E-mail		Telephone No.	
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
Syllabus (approved in BoS)			
<p>Measurements – Errors &amp; classification, Measurement of voltage &amp; current, - permanent magnet moving coil and moving iron meters, Measurements standards.</p> <p>Measurement of power and energy - dynamometer and induction instruments, kVAh and kVARh meters, Instrument transformers – Current and Potential transformers.</p> <p>Measurement of power and energy - dynamometer and induction instruments, kVAh and kVARh meters, Instrument transformers – Current and Potential transformers.</p> <p>Signal sources, Oscilloscopes - CRO, Digital storage and Analog Storage Oscilloscope, Analog &amp; Digital Recorders, digital multi-meters, Digital voltmeters.</p> <p>Signal sources, Oscilloscopes - CRO, Digital storage and Analog Storage Oscilloscope, Analog &amp; Digital Recorders, digital multi-meters, Digital voltmeters.</p>			
COURSE OBJECTIVES			
<p>To understand the basic operation of different measuring instruments and thereby able to choose appropriate instruments for measuring different parameters.</p>			



MAPPING OF COs with POs	
Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
1. Describe the working principle of different measuring instruments.	1,2,3
2. Choose appropriate measuring instruments for measuring various parameters in their laboratory courses	1, 8
3. Correlate the significance of different measuring instruments, recorders and oscilloscopes.	1,2,3,7,8
4. Develop a micro-processor based measuring unit for any practical application.	1,7,8

COURSE PLAN – PART II			
COURSE OVERVIEW			
To understand the basic operation of different measuring instruments and thereby able to choose appropriate instruments for measuring different parameters.			
COURSE TEACHING AND LEARNING ACTIVITIES			( Add more rows)
S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	Week 1 (1 Lecture) 19-21 January	Introduction to Measurements – Errors & classification	online
2	Week 2 (2 Lectures) 24-28 January	Measurement of voltage & current	online
3	Week 3 (3 Lectures) 31 January -4 February	permanent magnet moving coil and moving iron meters , Measurements standards.	online
4	Week 4 (3 Lectures) 7-11 February	Measurement of power and energy - dynamometer and induction instruments,	online
5	Week 5 (3 Lectures) 14-18 February	kVAh and kVARh meters <b>Assessment I</b>	online
6	Week 6 (3 Lectures)) 21-25 February	Instrument transformers – Current and Potential transformers.	online



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7	Week 7 (3 Lectures) 28 February- 4 March	Instrument transformers – Current and Potential transformers.	online
8	Week 8 (3 Lectures) 7-11 March	Measurement of resistance, inductance and capacitance using dc and ac bridges	online
9	Week 9 (3 Lectures) 14-18 March	Transducers –Position transducers, force transducers, piezo-electric transducers, <b>Assessment II</b>	online
10	Week 10 (2 Lectures) 21-25 March	Hall effect transducers. Temperature measurement.	online
11	Week 11 (3 Lectures) 28 March- 1 April	Signal sources, Oscilloscopes - CRO, Digital storage and Analog Storage Oscilloscope	online
12	Week 12 (3 Lectures) 4-8 April	Analog & Digital Recorders, digital multi-meters, Digital voltmeters.	online
13	Week 13 (3 Lectures) 11-15 April	Signal Generators, Function generator, Signal conditioners – Instrumentation amplifiers	online
14	Week 14 (3 Lectures) 18-22 April	voltage–current converters, voltage-frequency converters, analog multiplexers and de-multiplexers. <b>Assessment III</b>	online
15	Week 15 (2 Lectures) 25-29 April	<b>Compensation Assessment</b>	online
17	5-18 May 2022	End Semester Exam ( <b>Assessment V</b> )	online

### **COURSE ASSESSMENT METHODS (shall range from 4 to 6)**

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment I (Objective Test)	14-18 February	30 minutes	10%
2	Assessment II	14-18 March	1 Hour	20%



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3	Assessment III	18-22 April	30 minutes	10%
4	Assessment IV (viva, seminars/miniproject)	4-8 April	-	30%
CPA	Compensation Assessment (entire syllabus)	25-29 April	1 hour	Weightage of A1 or A2 or A3
5	Assessment V- End Sem Examination	5-18 May 2022	2 hours	30%

**COURSE EXIT SURVEY** (mention the ways in which the feedback about the course shall be assessed)

1. Students feedback through class committee meetings
2. Feedback from students on the course outcomes shall be obtained at the end of the course

**COURSE POLICY** (including compensation assessment to be specified)

**80% attendance is required to write Compensation Test.**

**Attending all the assessments (1, 2, 3) are mandatory for every student. If any student fails to attend the assessment due to genuine reason like medical emergency, the student may be permitted to appear for only one compensation assessment (CPA) on submission of appropriate documents as proof. The compensation assessment (CPA) will cover full syllabus. CPA is not considered as an improvement test. Minimum attendance to appear for compensation is 80%.**

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

- 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.





**Guidelines**

- a) The number of assessments for any theory course shall range from 4 to 6.
- b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.
- c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.
- d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in	P.G.
35% or (Class average/2) whichever is greater.	35% or (Class average/2) whichever is greater.

- e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.