



(13EE432A) ELECTRICAL DISTRIBUTION SYSTEMS

(Elective - II)

COURSE OBJECTIVES:

Students will be able to

1. Memorize modelling of loads and their characteristics
2. Understand design of substations
3. Compare voltage drops for uniformly distributed loads and concentrated loads
4. Illustrate compensation methods for voltage drops and pf improvements
5. Analyze the Coordination of Protective Devices.

COURSE OUTCOMES:

At the end of the course, students will develop an ability to

1. Differentiate the types of loads and their characteristics
2. Design a radial and loop type distribution feeders.
3. Calculate the voltage drop and power loss in a distribution system.
4. Identify and design protection system.
5. Recognize the necessity of distribution system protection and devices available for discriminating faults
6. Discuss the need of pf correction and voltage drop compensation
7. Identify the best methods for pf improvement and voltage control
8. Design a suitable capacitance for voltage control in a Distribution System

LESSON PLAN

Name of the Faculty	: Dr.KBVS	Academic Year: 2017 - 2018
Course Number	: 13EE432A(R13 regulation)	Course Name : EDS
Program	: B.Tech.	Branch : EEE
Year/Semester	: IV / II	Section : A

S. No.	Topic	Scheduled Date
	UNIT – I GENERAL CONCEPTS	
1	Introduction to Distribution Systems	04/12/2017

2	Load Modeling and characteristics	05/12/2017
4	Coincidence Factor, Contribution Factor, Loss Factor, utilization factor plant factor	06/12/2017
6	Relation between the Load factor and loss factor	11/12/2017
8	Classification of Loads,	12/12/2017
9	Residential, Commercial, Agricultural, Industrial loads	12/12/2017
10	Characteristics of loads	13/12/2017
UNIT-II DISTRIBUTION FEEDERS		
11	Design considerations of Distribution Feeder	18/12/2017
12	Radial and loop types of primary feeders	19/12/2017 20/12/2017
13	Voltage Levels, Feeder loading	27/12/2017 2/01/2018
16	Basic design practice of secondary Distribution System	03/01/2018
UNIT-III SUB-STATIONS AND SYSTEM ANALYSIS		
17	Location of substation, selecting parameters	08/01/2018 09/01/2018
18	Rating of substation and types	16/01/2018 17/01/2018
19	Service area within primary feeders	22/01/2018

		23/01/2018
	I- Internal Examination	24/01/2018 to 27/01/2018
20	Benefits derived through optimal location of substation	29/01/2018 30/01/2018
21	Voltage drop and power loss calculation	31/01/2018
23	Derivation for Voltage drop and power loss in lines	05/02/2018 06/02/2018
24	Manual methods of solution for radial networks	07/02/2018
25	3-Phase balanced primary lines.	12/02/2018
UNIT-IV PROTECTION AND CO-ORDINATION		
28	Objectives of distribution system protection	14/02/2018
29	Types of faults and procedure for fault calculation	19/02/2018 20/02/2018
31	Protective Devices	21/02/2018
32	Principle of operation of fuses, circuit Reclosures,	26/02/2018 27/02/2018
33	Line Sectionalizes, and circuit breakers	28/02/2018 05/03/2018
34	Co-ordination of Protective devices	06/03/2018 07/03/2018
35	General Co-ordination procedure	12/03/2018
UNIT- V COMPENSATION FOR PF IMPROVEMENT AND VOLTAGE CONTROL		
40	Capacitive compensation for power factor control	13/03/2018
42	Different types of power capacitors	13/03/2018

43	shunt and series capacitor	14/03/2018
44	Effect of shunt capacitors (Fixed switched)	14/03/2018
45	Power factor correction	14/03/2018
46	Capacitor allocation, Economic Justification	19/03/2018
47	Procedure to determine the best capacitor location	19/03/2018
52	Introduction to voltage control	19/03/2018
54	Equipment for voltage control	20/03/2018
55	Effect of series capacitors	20/03/2018
58	Effect of shunt capacitors	20/03/2018
59	Effect of AVB/AVR	21/03/2018
60	Line drop compensation	21/03/2018
61	Discussion on the Topics	21/03/2018
	II- Internal Examination	22/03/2018 to 24/03/2018

Time Table:

Monday	:	3 rd & 4 th hours	Thursday	:	
Tuesday	:	4 th hour	Friday	:	
Wednesday	:	1 st & 2 nd hour	Saturday	:	



(13EE431) H.V.D.C. TRANSMISSION & FACTS

COURSE OBJECTIVES:

Students will be able to

1. Explain the importance of HVDC transmission
2. Analyze HVDC converters
3. Identify the faults and protections required in HVDC system
4. Design Filters to reduce harmonics in HVDC transmission
5. Summarize FACTS devices and their application

COURSE OUTCOMES:

At the end of the course, students will develop an ability to

1. List the advantages of HVDC transmission system and explain the HVDC substations existing.
2. Analyze the Six and twelve pulse converters in the HVDC system
3. Examine the effects of Source Inductance, delay angle on output voltage of converters
4. Summarize effects of harmonics on HVDC transmission system
5. Design of filters to reduce the harmonic effects
6. Categorize FACTS devices and identify their importance
7. Design Shunt Controllers
8. Design Series Controllers

LESSON PLAN

Name of the Faculty : Ms. P.Soumya

Academic Year: 2017 - 2018

Course Number :13 EE431(R13 regulation)

Course Name : HVDC & FACTS

Program : B.Tech.

Branch : EEE

Year/Semester : IV/ II

Section :A

S. No.	Topic	Scheduled Date
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UNIT - I		
1	Economics & terminal equipment of hvdc transmission system	04-12-2017
2	Types of hvdc links – apparatus required for HVDC Systems	04-12-2017
3	Application of DC Transmission System – Planning & Modern trends in D.C. Transmission	05-12-2017
4	Choice of Converter configuration – analysis of Graetz bridge configurattion	06-12-2017
5	characteristics of 6 Pulse & 12 Pulse converters	11-12-2017, 12-12-2017
6	Cases of two 3 phase converters in star –star mode – their performance	13-12-2017, 15-12-2017
UNIT - II		
7	Principal of DC Link Control	18-12-2017
8	Converters Control Characteristics – Firing angle control	19-12-2017
9	Current and extinction angle control	20-12-2017
10	Effect of source inductance on the system; Starting and stopping of DC link; Power Control.	27-12-2017
11	Converter faults – protection against over current and over voltage in converter station	02-01-2018
13	surge arresters – smoothing reactors	02-01-2018
14	DC breakers	03-01-2018
15	Audible noise-space charge field-corona effects on DC lines-Radio interference.	08-01-2018, 09-01-2018,
UNIT - III		
16	Generation of Harmonics –Characteristics harmonics	10-01-2018

17	calculation of AC Harmonics, Non- Characteristics harmonics	16-01-2018
18	adverse effects of harmonics – Calculation of voltage & Current harmonics	17-01-2018
19	Effect of Pulse number on harmonics	22-01-2018
20	Types of AC filters, Design of Single tuned filters	23-01-2018
21	Design of High pass filters	24-01-2018
22	Problems on design of filters	05-02-2018
23	problems on design of filters to reduce harmonics	
	I- Internal Examination	24/01/2018 to 27/01/2018
	UNIT - IV	
24	Introduction to Facts	
25	Real and reactive power flows in system	06-02-2018
26	Stability of power system	07-02-2018
27	Transmission interconnections power flow in an AC system	12-02-2018
28	loading capability limits	12-02-2018
29	Dynamic stability considerations	13-02-2018
30	importance of controllable parameters basic types of FACTS controllers	14-02-2018
31	FACTS controllers- series type	19-02-2018
32	FACTS controllers-shunt type	19-02-2018
33	benefits from FACTS controllers	20-02-2018
	UNIT - V	
34	Objectives of shunt compensation	20-02-2018

35	mid point voltage regulation	21-02-2018
36	voltage instability prevention, improvement of transient stability	26-02-2018
37	variable impedance type static var generators	26-02-2018
38	switching converter type VAR generators	27-02-2018
39	hybrid VAR generators	27-02-2018
40	SVC and STATCOM: Regulation and slope transfer function dynamic performance	28-02-2018 05-03-2018
41	Concept of series capacitive compensation	06-03-2018
42	improvement of transient stability, power oscillation damping Functional requirements	07-03-2018
43	GTO thyristor controlled series capacitor	12-03-2018
44	thyristor switched series capacitor (TSSC)	13-03-2018
45	Thyristor controlled series capacitor (TCSC).	14-03-2018
46	Revision	19-03-2017 to 21-03-2017
II - Internal Examination		22/03/2018 to 24/03/2018

Time Table:

Monday	:	2 nd & 6 th hours	Thursday	:	
Tuesday	:	3 rd & 5 th hours	Friday	:	
Wednesday	:	4 th hour	Saturday	:	



(13EE433B) INSTRUMENTATION

COURSE OBJECTIVES:

The students will be able to:

1. Provide knowledge of Instrumentation systems and their applications.
2. Emphasize the basic concepts, working principles and limitation of various instruments.
3. Select the transducer for particular applications.
4. Design a complete industrial system for sensing the physical variable to display.
5. Learn about signal analyzers.

COURSE OUTCOMES:

At the end of the course, students should be able to:

1. Describe the fundamental concepts and principles of instrumentation.
2. Assess an instrument based on its static and dynamic characteristic.
3. Measure the electrical parameters like voltage, current and frequency using the visual display devices like CRO and Sampling oscilloscope.
4. Explain the working principle and operation of digital volt meters.
5. Examine the waveform using wave analysers, harmonic analysers and spectrum analysers.
6. Distinguish between analog and digital volt meters.
7. Identify the required transducer for measuring voltage, current, strain, displacement, velocity, angular velocity, acceleration, force, torque, temperature, pressure, vacuum and liquid level.
8. Develop a transducer for measuring a given quantity using the concepts of instrumentation.

LESSON PLAN

Name of the Faculty : Mr. K.Ramsha

Academic Year : 2017-18

Course Number : 13EE433B(R13 regulation) Course Name : INSTRUMENTATION

Program : B.Tech

Branch : EEE

Year/ Semester : IV/II

Section : A

S.No.	Topic	Schedule date
1.	Introduction to instrumentation	04/12/2017

UNIT- I		
Characteristics of signals		
2.	Introduction to Measuring Systems	05/12/2017
3.	Performance Characteristics	06/12/2017
4.	Static characteristics	11/12/2017
5.	Dynamic Characteristics	11/12/2017
6.	Errors in Measurement – Gross Errors, Systematic Errors,	12/12/2017
7.	Statistical Analysis of Random Errors	12/12/2017
8.	Signal and their representation	13/12/2017
9.	Standard Test, periodic, aperiodic signals	18/12/2017
10.	Modulated signal	18/12/2017
11.	Sampled data	19/12/2017
12.	Pulse modulation and pulse code modulation	19/12/2017
UNIT-II		
Oscilloscope		
13.	Introduction to Cathode ray oscilloscope	20/12/2017
14.	Cathode ray tube	27/12/2017
15.	Time base generator	02/01/2018
16.	Horizontal amplifiers	02/01/2018
17.	Vertical amplifiers	03/01/2018
18.	CRO probes	08/01/2018
19.	Applications of CRO, Measurement of phase and frequency	08/01/2018
20.	Lissajous patterns	09/01/2018
21.	Sampling oscilloscope	09/01/2018

22.	Analog and digital type	10/01/2018
UNIT-III		
Digital Voltmeters		
23.	Introduction to Digital voltmeters	16/01/2018
24.	Successive approximation DVM	16/01/2018
25.	Ramp type DVM ,dual-Slope,	17/01/2018
26.	Revision	22/01/2018
27.	Revision	23/01/2018
I- Mid Examination		24/01/2018 To 27/01/2018
28.	Integration, continuous balance type	29/01/2018
29.	Micro processor based ramp type DVM	29/01/2018
30.	Digital frequency meter	30/01/2018
31.	Digital phase angle meter	30/01/2018
UNIT-IV		
Signal Analyzers		
32.	Introduction to Wave Analyzers	31/01/2018
33.	Frequency selective analyzers	05/02/2018
34.	Heterodyne, Application of Wave analyzers	05/02/2018
35.	Harmonic Analyzers, Total Harmonic distortion	06/02/2018
36.	Spectrum analyzers	06/02/2018
37.	Basic spectrum analyzers	07/02/2018
38.	Spectral displays	12/02/2018
39.	Vector impedance meter	12/02/2018

40.	Q meter	14/02/2018
41.	Peak reading voltmeter	19/02/2018
42.	RMS voltmeters	19/02/2018
	UNIT-V	
	Transducers & Measurement of Non-Electrical Quantities	
43.	Definition of transducers, Classification of transducers	20/02/2018
44.	Advantages of Electrical transducers, Characteristics and choice of transducers	20/02/2018
45.	Principle operation of resistor	21/02/2018
46.	Inductor, LVDT	26/02/2018
47.	capacitor transducers	26/02/2018
48.	LVDT Applications	27/02/2018
49.	Strain gauge and its principle of operation, Gauge factor	27/02/2018
50.	Thermistors, Thermocouples	28/02/2018
51.	Synchros, Piezo-electric transducers	05/03/2018
52.	Photovoltaic, photo conductive cells	05/03/2018
53.	Photo diodes, Measurement of strain	06/03/2018
54.	Gauge Sensitivity, Displacement	07/03/2018
55.	Velocity, Angular Velocity, Acceleration	12/03/2018
56.	Force ,Torque, Measurement of Temperature	13/03/2018
57.	Pressure, Vacuum, Flow, Liquid level	14/03/2018
58.	Revision	19/03/2018
59.	Revision	20/03/2018
60.	Revision	21/03/2018

	II- Mid Examination	22/03/2018 To 24/03/2018
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Time Table:

Monday	:	1 st hr& 5 th hr	Thursday	:	---
Tuesday	:	1 st & 2 nd hour	Friday	:	---
Wednesday	:	3 rd hour	Saturday	:	---



(13EE432A) ELECTRICAL DISTRIBUTION SYSTEMS

(Elective - II)

COURSE OBJECTIVES:

Students will be able to

1. Memorize modelling of loads and their characteristics
2. Understand design of substations
3. Compare voltage drops for uniformly distributed loads and concentrated loads
4. Illustrate compensation methods for voltage drops and pf improvements
5. Analyze the Coordination of Protective Devices.

COURSE OUTCOMES:

At the end of the course, students will develop an ability to

1. Differentiate the types of loads and their characteristics
2. Design a radial and loop type distribution feeders.
3. Calculate the voltage drop and power loss in a distribution system.
4. Identify and design protection system.
5. Recognize the necessity of distribution system protection and devices available for discriminating faults
6. Discuss the need of pf correction and voltage drop compensation
7. Identify the best methods for pf improvement and voltage control
8. Design a suitable capacitance for voltage control in a Distribution System

LESSON PLAN

Name of the Faculty	: Mr.AVV Sudhakar	Academic Year: 2017 - 2018
Course Number	: 13EE432A(R13 regulation)	Course Name : EDS
Program	: B.Tech.	Branch : EEE
Year/Semester	: IV / II	Section : B

S. No.	Topic	Scheduled Date
	UNIT – I GENERAL CONCEPTS	
1	Introduction to Distribution Systems	04/12/2017
2	Load Modeling and characteristics	05/12/2017

4	Coincidence Factor, Contribution Factor, Loss Factor, utilization factor plant factor	06/12/2017
6	Relation between the Load factor and loss factor	11/12/2017
8	Classification of Loads,	12/12/2017
9	Residential, Commercial, Agricultural, Industrial loads	12/12/2017
10	Characteristics of loads	13/12/2017
UNIT-II DISTRIBUTION FEEDERS		
11	Design considerations of Distribution Feeder	18/12/2017
12	Radial and loop types of primary feeders	19/12/2017 20/12/2017
13	Voltage Levels, Feeder loading	27/12/2017 2/01/2018
16	Basic design practice of secondary Distribution System	03/01/2018
UNIT-III SUB-STATIONS AND SYSTEM ANALYSIS		
17	Location of substation, selecting parameters	08/01/2018 09/01/2018
18	Rating of substation and types	16/01/2018 17/01/2018
19	Service area within primary feeders	22/01/2018 23/01/2018

	I- Internal Examination	24/01/2018 to 27/01/2018
20	Benefits derived through optimal location of substation	29/01/2018 30/01/2018
21	Voltage drop and power loss calculation	31/01/2018
23	Derivation for Voltage drop and power loss in lines	05/02/2018 06/02/2018
24	Manual methods of solution for radial networks	07/02/2018
25	3-Phase balanced primary lines.	12/02/2018
UNIT-IV PROTECTION AND CO-ORDINATION		
28	Objectives of distribution system protection	14/02/2018
29	Types of faults and procedure for fault calculation	19/02/2018 20/02/2018
31	Protective Devices	21/02/2018
32	Principle of operation of fuses, circuit Reclosures,	26/02/2018 27/02/2018
33	Line Sectionalizes, and circuit breakers	28/02/2018 05/03/2018
34	Co-ordination of Protective devices	06/03/2018 07/03/2018
35	General Co-ordination procedure	12/03/2018
UNIT- V COMPENSATION FOR PF IMPROVEMENT AND VOLTAGE CONTROL		
40	Capacitive compensation for power factor control	13/03/2018
42	Different types of power capacitors	13/03/2018
43	shunt and series capacitor	14/03/2018

44	Effect of shunt capacitors (Fixed switched)	14/03/2018
45	Power factor correction	14/03/2018
46	Capacitor allocation, Economic Justification	19/03/2018
47	Procedure to determine the best capacitor location	19/03/2018
52	Introduction to voltage control	19/03/2018
54	Equipment for voltage control	20/03/2018
55	Effect of series capacitors	20/03/2018
58	Effect of shunt capacitors	20/03/2018
59	Effect of AVB/AVR	21/03/2018
60	Line drop compensation	21/03/2018
61	Discussion on the Topics	21/03/2018
II- Internal Examination		22/03/2018 to 24/03/2018

Time Table:

Monday	:	1 st & 2 nd hours	Thursday	:	
Tuesday	:	3 rd & 4 th hour	Friday	:	
Wednesday	:	3 rd hour	Saturday	:	



(13EE431) H.V.D.C. TRANSMISSION & FACTS

COURSE OBJECTIVES:

Students will be able to

- 1.Explain the importance of HVDC transmission
- 2.Analyze HVDC converters
- 3.Identify the faults and protections required in HVDC system
- 4.Design Filters to reduce harmonics in HVDC transmission
- 5.Summarize FACTS devices and their application

COURSE OUTCOMES:

At the end of the course, students will develop an ability to

- 1.List the advantages of HVDC transmission system and explain the HVDC substations existing.
- 2.Analyze the Six and twelve pulse converters in the HVDC system
- 3.Examine the effects of Source Inductance, delay angle on output voltage of converters
- 4.Summarize effects of harmonics on HVDC transmission system
- 5.Design of filters to reduce the harmonic effects
- 6.Categorize FACTS devices and identify their importance
- 7.Design Shunt Controllers
- 8.Design Series Controllers

LESSON PLAN

Name of the Faculty : Mr. Ritesh Kumar
Course Number :13 EE431(R13 regulation)
Program : B.Tech.
Year/Semester : IV/ II

Academic Year: 2017 - 2018
Course Name : HVDC & FACTS
Branch : EEE
Section :B

S. No.	Topic	Scheduled Date
	UNIT – I	
1	Economics & terminal equipment of hvdc transmission system	04-12-2017
2	Types of hvdc links – apparatus required for HVDC Systems	04-12-2017
3	Application of DC Transmission System – Planning & Modern trends	05-12-2017

	in D.C. Transmission	
4	Choice of Converter configuration – analysis of Graetz bridge configuration	06-12-2017
5	characteristics of 6 Pulse & 12 Pulse converters	11-12-2017, 12-12-2017
6	Cases of two 3 phase converters in star –star mode – their performance	13-12-2017, 15-12-2017
UNIT - II		
7	Principal of DC Link Control	18-12-2017
8	Converters Control Characteristics – Firing angle control	19-12-2017
9	Current and extinction angle control	20-12-2017
10	Effect of source inductance on the system; Starting and stopping of DC link; Power Control.	27-12-2017
11	Converter faults – protection against over current and over voltage in converter station	02-01-2018
13	surge arresters – smoothing reactors	02-01-2018
14	DC breakers	03-01-2018
15	Audible noise-space charge field-corona effects on DC lines-Radio interference.	08-01-2018, 09-01-2018,
UNIT - III		
16	Generation of Harmonics –Characteristics harmonics	10-01-2018
17	calculation of AC Harmonics, Non- Characteristics harmonics	16-01-2018
18	adverse effects of harmonics – Calculation of voltage & Current harmonics	17-01-2018
19	Effect of Pulse number on harmonics	22-01-2018

20	Types of AC filters, Design of Single tuned filters	23-01-2018
21	Design of High pass filters	24-01-2018
22	Problems on design of filters	05-02-2018
23	problems on design of filters to reduce harmonics	
I- Internal Examination		
UNIT - IV		
24	Introduction to Facts	06-02-2018
25	Real and reactive power flows in system	06-02-2018
26	Stability of power system	07-02-2018
27	Transmission interconnections power flow in an AC system	12-02-2018
28	loading capability limits	12-02-2018
29	Dynamic stability considerations	13-02-2018
30	importance of controllable parameters basic types of FACTS controllers	14-02-2018
31	FACTS controllers- series type	19-02-2018
32	FACTS controllers-shunt type	19-02-2018
33	benefits from FACTS controllers	20-02-2018
UNIT - V		
34	Objectives of shunt compensation	20-02-2018
35	mid point voltage regulation	21-02-2018
36	voltage instability prevention, improvement of transient stability	26-02-2018
37	variable impedance type static var generators	26-02-2018
38	switching converter type VAR generators	27-02-2018
39	hybrid VAR generators	27-02-2018

40	SVC and STATCOM: Regulation and slope transfer function dynamic performance	28-02-2018 05-03-2018
41	Concept of series capacitive compensation	06-03-2018
42	improvement of transient stability, power oscillation damping Functional requirements	07-03-2018
43	GTO thyristor controlled series capacitor	12-03-2018
44	thyristor switched series capacitor (TSSC	13-03-2018
45	thyristor controlled series capacitor (TCSC).	14-03-2018
46	Revision	19-03-2018 to 21-03-2018
II - Internal Examination		22/03/2018 to 24/03/2018

Time Table:

Monday	:	5 th & 6 th hours	Thursday	:	
Tuesday	:	1 nd & 2 nd hours	Friday	:	
Wednesday	:	4 th hour	Saturday	:	

(13EE433B) INSTRUMENTATION**COURSE OBJECTIVES:**

The students will be able to:

1. Provide knowledge of Instrumentation systems and their applications.
2. Emphasize the basic concepts, working principles and limitation of various instruments.
3. Select the transducer for particular applications.
4. Design a complete industrial system for sensing the physical variable to display.
5. Learn about signal analyzers.

COURSE OUTCOMES:

At the end of the course, students should be able to:

1. Describe the fundamental concepts and principles of instrumentation.
2. Assess an instrument based on its static and dynamic characteristic.
3. Measure the electrical parameters like voltage, current and frequency using the visual display devices like CRO and Sampling oscilloscope.
4. Explain the working principle and operation of digital volt meters.
5. Examine the waveform using wave analysers, harmonic analysers and spectrum analysers.
6. Distinguish between analog and digital volt meters.
7. Identify the required transducer for measuring voltage, current, strain, displacement, velocity, angular velocity, acceleration, force, torque, temperature, pressure, vacuum and liquid level.
8. Develop a transducer for measuring a given quantity using the concepts of instrumentation.

LESSON PLAN

Name of the Faculty : Mr. A.Rajamalliah

Academic Year : 2017-18

Course Number : 13EE433B(R13 regulation) Course Name : INSTRUMENTATION

Program : B.Tech

Branch : EEE

Year/ Semester : IV/II

Section : B

S.No.	Topic	Schedule date
1.	Introduction to instrumentation	04/12/2017
	UNIT- I	

	Characteristics of signals	
2.	Introduction to Measuring Systems	05/12/2017
3.	Performance Characteristics	06/12/2017
4.	Static characteristics	11/12/2017
5.	Dynamic Characteristics	11/12/2017
6.	Errors in Measurement – Gross Errors, Systematic Errors,	12/12/2017
7.	Statistical Analysis of Random Errors	12/12/2017
8.	Signal and their representation	13/12/2017
9.	Standard Test, periodic, aperiodic signals	18/12/2017
10.	Modulated signal	18/12/2017
11.	Sampled data	19/12/2017
12.	Pulse modulation and pulse code modulation	19/12/2017
	UNIT-II	
	Oscilloscope	
13.	Introduction to Cathode ray oscilloscope	20/12/2017
14.	Cathode ray tube	27/12/2017
15.	Time base generator	02/01/2018
16.	Horizontal amplifiers	02/01/2018
17.	Vertical amplifiers	03/01/2018
18.	CRO probes	08/01/2018
19.	Applications of CRO, Measurement of phase and frequency	08/01/2018
20.	Lissajous patterns	09/01/2018
21.	Sampling oscilloscope	09/01/2018

22.	Analog and digital type	10/01/2018
UNIT-III		
Digital Voltmeters		
23.	Introduction to Digital voltmeters	16/01/2018
24.	Successive approximation DVM	16/01/2018
25.	Ramp type DVM ,dual-Slope,	17/01/2018
26.	Revision	22/01/2018
27.	Revision	23/01/2018
I- Mid Examination		24/01/2018 To 27/01/2018
28.	Integration, continuous balance type	29/01/2018
29.	Micro processor based ramp type DVM	29/01/2018
30.	Digital frequency meter	30/01/2018
31.	Digital phase angle meter	30/01/2018
UNIT-IV		
Signal Analyzers		
32.	Introduction to Wave Analyzers	31/01/2018
33.	Frequency selective analyzers	05/02/2018
34.	Heterodyne, Application of Wave analyzers	05/02/2018
35.	Harmonic Analyzers, Total Harmonic distortion	06/02/2018
36.	Spectrum analyzers	06/02/2018
37.	Basic spectrum analyzers	07/02/2018
38.	Spectral displays	12/02/2018
39.	Vector impedance meter	12/02/2018

40.	Q meter	14/02/2018
41.	Peak reading voltmeter	19/02/2018
42.	RMS voltmeters	19/02/2018
	UNIT-V	
	Transducers & Measurement of Non-Electrical Quantities	
43.	Definition of transducers, Classification of transducers	20/02/2018
44.	Advantages of Electrical transducers, Characteristics and choice of transducers	20/02/2018
45.	Principle operation of resistor	21/02/2018
46.	Inductor, LVDT	26/02/2018
47.	capacitor transducers	26/02/2018
48.	LVDT Applications	27/02/2018
49.	Strain gauge and its principle of operation, Gauge factor	27/02/2018
50.	Thermistors, Thermocouples	28/02/2018
51.	Synchros, Piezo-electric transducers	05/03/2018
52.	Photovoltaic, photo conductive cells	05/03/2018
53.	Photo diodes, Measurement of strain	06/03/2018
54.	Gauge Sensitivity, Displacement	07/03/2018
55.	Velocity, Angular Velocity, Acceleration	12/03/2018
56.	Force ,Torque, Measurement of Temperature	13/03/2018
57.	Pressure, Vacuum, Flow, Liquid level	14/03/2018
58.	Revision	19/03/2018
59.	Revision	20/03/2018
60.	Revision	21/03/2018

	II- Mid Examination	22/03/2018 To 24/03/2018
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Time Table:

Monday	:	2 hours (III and IV)	Thursday	:	---
Tuesday	:	1 hour (V)	Friday	:	---
Wednesday	:	2 hours (I& II)	Saturday	:	---