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(HS105) ENGINEERING ETHICS

COURSE OBJECTIVES:

Students will be able to

1. Instill the moral values that ought to guide their profession.
2. Resolve the moral issues in the profession.
3. Infer moral judgment concerning the profession.
4. Correlate the concepts in addressing the ethical dilemmas.
5. Judge a global issue by presenting an optimum solution.

COURSE OUTCOMES:

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

1. Distinguish between ethical and non ethical situations.
2. Practice moral judgment in conditions of dilemma.
3. Relate the code of ethics to social experimentation.
4. Develop concepts based on moral issues and enquiry.
5. Resolve moral responsibilities in complications.
6. Defend one's views in supporting the moral concerns.
7. Apply risk and safety measures in various engineering fields.
8. Develop cognitive skills in solving social problems.

LESSON PLAN

Name of the Faculty: Dr.K.B.V.S.R.Subrahmanyam **Academic Year:** 2017 - 2018
Course Number : HS105 **Course Name:** Engineering Ethics (RA15 Regulation)
Program : B.Tech **Branch** : EEE
Year / Semester : II/II **Section** : A

S. No.	Topic	Schedule Date(s)
1.	**UNIT-I** Scope for Ethics in Engineering, human values, Morals and Ethics along with Examples.	05/12/2018
2.	Integrity work ethic, Service Learning, Civic Virtue, Respect for others with examples.	12/12/2017
3.	Living peacefully, caring, sharing, honesty courage and valuing time	16/12/2017
4.	Empathy, Self Confidence and Character	19/12/2017
5.	Spirituality, Engineering as social Experimentation, Engineers as responsible experimenters	23/12/2017

6.	The code of ethics for engineers, Various NSPE guidelines, Fundamental principles	30/12/2017
7.	**UNIT-II** Engineering Ethics - variety of moral issues	02/1/2018
8.	Deontology, Consequentialism, Utilitarian, Virtue Theory	06/1/2018
9.	Kohlberg's Theory - Gilligan's Theory- Consensus and Controversy	09/1/2018
10.	Models of Professional Roles - uses of ethical theories.	13/1/2018
11.	Valuing Time – Co-operation – Commitment-Case study about above theories.	16/01/2018
12.	**UNIT-III** Safety and Risk –Road, Rail	20/01/2018
13.	Electric, fire – Assessment of Safety and Risk	23/01/2018
14.	**I- Mid Examination**	24 -27th Jan,2018
15.	The Government Regulator's Approach to Risk	30/01/2018
16.	Case Studies on recent issues related to safety.	03/02/2018
17.	**UNIT-IV** Collegiality and Loyalty	06/02/2018
18.	Respect for authority ,collective bargaining	10/02/2018
19.	Confidentiality, Conflicts of interest, occupational crime	17/02/2018
20.	Rights of Engineer's - Professional Rights	20/02/2018
21.	Employee Rights – Whistle blowing,	24/02/2018
22.	Intellectual Property Rights (IPR) – Plagiarism.	27/02/2018
23.	**UNIT-V** Multinational Corporations – Business Ethics	06/03/2018
24.	- Environmental Ethics – Computer Ethics	10/03/2018
25.	Weapons Development, Role of Engineer as Manager	13/03/2018
26.	Expert Witnesses and Advisors - Case Studies .	17/03/2018
27.	Seminars	17/03/2018
28.	Revisions of all units	20/03/2018
29	**II- Mid Examination**	22March-24th March,2018

Time Table:

Monday	:	-	Thursday	:	-
Tuesday	:	10.20AM-11.10AM	Friday	:	-
Wednesday	:	-	Saturday	:	9.30AM-10.20AM

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(ES113) MECHATRONICS

COURSE OBJECTIVES:

Students will be able to

1. Define mechatronics and discuss basic building elements and network.
2. Analyze various sensors, mechanisms and their applications to engineering.
3. Discuss microcontroller fundamentals and arduino controller.
4. Explain interfacing of devices with controllers.
5. Summarize signal conditioning circuits and electrical actuating systems.

COURSE OUTCOMES:

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

1. Analyze electrical and mechanical systems and their interconnection.
2. Produce the signal conditioning circuits.
3. Discuss importance of mechanical, and electronics in the design of mechatronics system.
4. Build a mechatronic system for a set of specifications.
5. Proficient in the programming of microcontrollers.
6. Design circuits for interfacing various components used for power control.
7. Construct electrical actuating systems.
8. Differentiate ac and dc motor.

LESSON PLAN

Name of the Faculty : G. Mahesh Kumar **Academic Year: 2017 - 2018**
Course Number : ES113 **Course Name : MECHATRONICS**
Program : B.Tech **Branch : EEE**
Year/Semester : II / II **Section : A**

S.No.	Topic	Scheduled Date DD/MM/YYYY
1	Introduction and Key elements of mechatronics	04/12/2017
2	Arduino Board Description ➢ Arduino Uno ➢ Arduino Mega 2560 Bread board(Connections)	07/12/2017
3	Basic programming. ➢ Arduino Functions Analog, Digital, Serial I/O. Delay	11/12/2017 14/12/2017
4	Sensor characteristics and classifications, Selection of sensor	18/12/2017
5	Displacement sensors ➢ Potentiometer	21/12/2017

	➢ LVDT(Theory & animation)	
6	Force sensor ➢ Strain Gauge	28/12/2017
7	Temperature Sensors ➢ LM35 ➢ Thermistor	04/01/2018 08/01/2018
8	Light Sensors ➢ Light Dependent Resistor ➢ Photodiode ➢ Phototransistor ➢ IR	11/01/2018 18/01/2018
9	Proximity Sensor ➢ Passive Infrared (PIR) ➢ Ultrasonic	22/01/2018
10	Actuators ➢ Relay ➢ Diode ➢ Transistor ➢ MOSFET ➢ Solenoid	29/01/2018 01/02/2018
11	Design a power supply unit (5V, 12V)	05/02/2018
12	Assignment-I	08/02/2018
13	Thyristor (SCR) TRIAC(Theory & animation)	12/02/2018
14	Motors ➢ DC motor ➢ Speed control of DC motor ➢ Stepper motor	15/02/2018 19/02/2018 22/02/2018
15	Mechanical Actuators (Theory & animation) ➢ Gears ➢ Belt Drive ➢ Bearings	26/02/2018
16	Operational Amplifiers ➢ Inverting amplifier ➢ Non inverting amplifier ➢ Summing amplifier ➢ Instrumentation amplifier ➢ Comparator	05/03/2018
17	Digital to Analog converters (Theory & animation) ➢ Weighted resistor DAC ➢ R-2R Ladder	08/03/2018
18	Analog to digital converters (Theory & animation) ➢ Flash ADC	12/03/2018

	➢ Successive Approximation Register Type ADC	
19	Revision	15/03/2018
20	Revision	19/03/2018

Time Table:

Monday	**:**	**2,3,4 hrs**	**Thursday**	**:**	**5,6,7 hrs**
Tuesday	**:**		**Friday**	**:**	
Wednesday	**:**		**Saturday**	**:**	

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(EC107) LINEAR IC APPLICATIONS

COURSE OBJECTIVES:

Students will be able to

1. Discuss ideal and practical characteristics of OP-AMP.
2. Analyze linear and non linear applications of OP-AMP.
3. Design OP-AMP circuits such as filters, oscillators.
4. Describe functional diagram of IC 555 Timer, IC 723 Regulator, IC 565 PLL and IC 566 VCO and applications.
5. Explain operation of various ADC and DAC circuits and their specifications.

COURSE OUTCOMES:

At the end of the course, the student will develop ability to

1. Discuss practical characteristics OP-AMP.
2. Design arithmetic circuits using IC 741 OP-AMP such as adder, subtractor, multiplier.
3. Design wave shaping circuits such as integrator, differentiator using IC 741 OP-AMP. using IC 741 Op-Amp
4. Design filters, multivibrators, oscillators using 741 OP-AMP
5. Explain the functional diagram of 555 timer and its applications.
6. Design applications of PLL, VCO.
7. Design low and high voltage regulator using IC 723
8. Differentiate various ADC and DAC circuits.

LESSON PLAN

Name of the Faculty : Jaspreet Kukreja **Academic Year :** 2017 - 2018
Course Number : EC107 **Course Name : LINEAR IC APPLICATIONS**
Program : B.Tech **Branch :** EEE
Year / Semester : II/II **Section :** A

Sl. No.	Topics in syllabus Modules and Sub modules	Lecture No.	Proposed Date
UNIT – I (No. of Lectures – 9)			
1	Introduction Integrated Circuits: Classification, Chip Size and Circuit Complexity.	L1	4/12/2017
2	Ideal and Practical Op-Amp, symbol , terminals , packages and specifications.	L2	5/12/2017
3	Block diagram of op amp	L3	6/12/2017
4	CMRR, Open Loop configurations, Closed loop configurations	L4	7/12/2017
5	Op-Amp characteristics DC Characteristics	L5	11/12/2017
6	Op-Amp characteristics AC Characteristics	L6 L7	12/12/2017 13/12/2017
7	741 Op-Amp and its Features, Op-Amp Parameters	L8	14/12/2017

	input and output offset voltages and currents, slew rate, PSRR		
8	Op-Amp Parameters input and output offset voltages and currents, slew rate, PSRR	L9	18/12/2017
UNIT –II (No. of Lectures – 17)			
9	Inverting and Non Inverting amplifiers	L10	19/12/2017
10	Difference amplifier, voltage follower, sign changer, scale changer, summing, averaging amplifiers, adder-sub tractor	L11 L12	20/12/2017 21/12/2017
11	Integrator	L13	27/12/2017
12	Differentiator	L14	28/12/2017
13	Instrumentation amplifier, V to I and I to V Converters	L15 L16 L17	2/01/2018 3/01/2018 4/01/2018
14	Non Linear Applications of Op-Amp: Comparators	L18	8/01/2018
15	Schmitt Trigger, Sample & Hold Circuits	L19 L20	9/01/2018 10/01/2018
16	Multivibrators	L21 L22	11/01/2018 16/1/2018
17	Log and Anti Log amplifiers.	L23	17/01/2018
18	Precision rectifiers Clippers and Clampers.	L24 L25	18/01/2018 22/01/2018
UNIT –III(No. of Lectures – 12)			
19	Introduction ,types of filters	L26	23/01/2018
20	First Order and Second Order Low Pass Filters	L27	29/01/2018
21	First Order and Second Order High Pass Filters	L28	30/01/2018
22	Band Pass Filters :types, Active Band Reject filters, All Pass Filters	L29 L30	31/02/2018 1/02/2018
23	Waveform generators- Principle of operation and types of Oscillators	L31	5/02/2018

24	RC, Wien Bridge oscillators	L32	6/02/2018
25	Triangular and Square wave Generators	L33	7/02/2018
UNIT-IV(No. of Lectures – 12)			
26	Basics of Voltage Regulators	L34	8/02/2018
27	Series OP-Amp regulator - 723 general purpose regulator	L35	12/02/2018
28	Introduction to 555 timer, functional diagram	L36	14/02/2018
29	Monostable and Astable operations and applications	L37 L38	15/02/2018 19/02/2018
30	Schmitt trigger	L39	20/02/2018
31	PLL: Introduction, Block schematic	L40	21/02/2018
32	principles and description of Individual blocks of 565, VCO	L41 L42	22/02/2018 26/02/2018
UNIT –V(No. of Lectures – 12)			
33	D-A and A-D converters: Introduction, Basic DAC Techniques	L43 L44	27/02/2018 28/02/2018
s34	Weighted Resistor Type	L45	5/03/2018
35	R-2R Ladder type, inverted R-2R Type	L46 L47	6/03/2018 7/03/2018
36	D/A converter related problems	L48	8/03/2018
37	. Different types of ADCs-Parallel Comparator Type	L49	12/03/2018
38	Counter type, Successive Approximation Register	L50	13/03/2018
39	Dual Slope type ADC , DAC and ADC specifications	L51	14/03/2018
40	DAC and ADC specifications	L52	15/03/2018

Time Table:

Monday	:	1st hour	Thursday	:	2nd hour
Tuesday	:	5th hour	Friday	:	-
Wednesday	:	4th hour	Saturday	:	-

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(EE103) ELECTRICAL CIRCUITS - II

COURSE OBJECTIVES:

Students will be able to

1. Differentiate single phase and three phase systems.
2. Draw transient response for DC and AC excitation.
3. Calculate different network parameters.
4. Analyze system stability using pole zero plot.
5. Design filters based on desired parameters.

COURSE OUTCOMES:

At the end of the course, students will be able to

1. Differentiate balanced and unbalanced three phase systems.
2. Calculate active and reactive power for three phase systems.
3. Differentiate study state and transient response.
4. Draw current and voltage response curve for DC and AC exacted systems
5. Identify series, parallel and cascade network properties.
6. Summarize symmetry and reciprocity conditions for two port network
7. Develop Transfer function for circuit using pole zero plot.
8. Apply Fourier series for different signals.

LESSON PLAN

Name of the Faculty : G. Satheesh **Academic Year: 2017-18**
Course Number : EE103 **Course Name : EC-II**
Program : B.Tech. **Branch : EEE**
Year/ Semester : II / II **Section : A**

S. No.	Topic	Scheduled Date
	UNIT - I	
1	Introduction to Three phase circuits: Phase sequence	05/12/2017
2	Star and delta connection	06/12/2017
3	Relation between line and phase voltages and currents in balanced Star configuration	07/12/2017
4	Relation between line and phase voltages and currents in balanced Delta configuration	09/12/2017

5	Analysis of balanced and Unbalanced 3 phase circuits	09/12/2017
6	Measurement of three phase active power	12/12/2017
7	Problems on three phase active power, powerfactor and phasor diagrams	13/12/2017
8	Measurement of three phase reactive power	14/12/2017
9	Problems on three phase unbalanced load	15/12/2017
10	Problems on three phase unbalanced load and one wattmeter method with phasor diagrams	16/12/2017
	UNIT - II	
11	Introduction to Transient analysis	19/12/2017
12	Transient response of R-L, R-C with DC excitation (series circuit)	20/12/2017
13	Transient response of R-L, R-C with DC excitation (parallel circuit)	21/12/2017
14	Transient response of RLC with DC excitation	22/12/2017
15	Solution method using differential equation approach	30/12/2017
16	Solution method using Laplace transform approach	30/12/2017
17	Problems on D C transient analysis	02/01/2018
18	Transient response of R-L, R-C with AC excitation (series circuit)	03/01/2018
19	Transient response of R-L, R-C with AC excitation (parallel circuit)	04/01/2018
20	Transient response of R-L-C with AC excitation (series & parallel circuit)	06/01/2018
21	Solution method using differential equation approach for AC excitation	06/01/2018

22	Solution method using Laplace transform approach for AC excitation	09/01/2018
23	Problems on AC transient analysis	10/01/2018
24	Problems	11/01/2018
25	Problems on AC & DC transient analysis	12/01/2018
26	Problems	16/01/2018
	UNIT - III	
27	The concept of complex frequency, Physical Interpretation of Complex Frequency	17/01/2018
28	Concept of Transform Impedance and Transform Circuits	18/01/2018
29	Concept of Series and Parallel Combination of elements, terminal pairs or ports	20/01/2018
30	problems on series and parallel combination of elements	20/01/2018
31	Concept of Network functions for one Port and Two port	23/01/2018
	I MID Examination	
32	Concept of poles and zeros of network functions	30/01/2018
33	Significance of poles and zeros and problems	31/01/2018
34	problems on pole and Zeros of a network function	01/02/2018
35	properties of driving functions	03/02/2018
36	properties of transfer functions	03/02/2018
37	Necessary conditions for driving point and transfer functions	06/02/2018
38	problems on driving point and transfer functions	07/02/2018
39	Time domain response from Pole Zero plot	08/02/2018
40	problems on time domain pole zero plot of network functions	09/02/2018
41	Problems	10/02/2018

	UNIT- IV	
42	Introduction to Two Port network parameters	14/02/2018
43	Z -parameter and problems	15/02/2018
44	Y- parameter and problems	17/02/2018
45	ABCD parameter and problems	17/02/2018
46	h parameter and problems	20/02/2018
47	relation between the two port parameters and problems	21/02/2018
48	Problems	22/02/2018
49-50	relation between the two port parameters and problems	23, 24/02/2018
51	cascaded networks and problems	27/02/2018
52	2-port network parameters using transformed variables	28/02/2018
53	inverse transmission parameter	28/02/2018
54	Inverse hybrid parameter	03/03/2018
55	T and Π models of 2- port network	03/03/2018
56-57	problems on T and Π models of 2- port network	06, 07/03/2018
	UNIT - V	
58	Introduction to Filters	08/03/2018

59	Design of Low pass and High pass filters	13/03/2018
60	Design of Band pass and Band elimination filters	14/03/2018
61	problems on design of filters	15/03/2018
62	Introduction to Fourier Analysis	17/03/2018
63	Symmetry, exponential form of Fourier analysis	17/03/2018
64	Line spectra and Phase angle spectra	20/03/2018
65	Fourier integrals and Fourier transforms: problems	21/03/2018
	II MID Examination	

Time Table:

Monday	:	-	Thursday	:	IV hr
Tuesday	:	III hr	Friday	:	
Wednesday	:	I hr	Saturday	:	III & V hrs

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POWER SYSTEMS-I (EE104)

COURSE OBJECTIVES:

Students will be able to

1. Outline the history of various power plants
2. Distinguish between ac and dc distribution system
3. Compare between GIS and AIS concepts
4. Demonstrate the methods of improving power factor
5. Explain different load curves and tariff methods

COURSE OUTCOMES:

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

1) Explain the various types of power generation systems and identify the components of Thermal, Nuclear and Gas power stations.
2) Know and compare the features of Thermal, Nuclear and Gas power stations, the Layout of substation and its components.
3) Classify and identify components of distribution system and Power factor improvement using capacitors.
4) Apply different methods of tariffs for specific loads.
5) Determine design parameters required for Distribution systems
6) Explain different methods of power factor and voltage control techniques.
7) Evaluate the causes of low power factor.
8) Classify different types of substations.

LESSON PLAN

Name of the Faculty	**: D. Rajababu**	**Academic Year**	**: 2017-18**
Course Number	**: EE104**	**Course Name**	**: PS-I**
Program	**: B.Tech**	**Branch**	**: EEE**
Year/ Semester	**: II/II**	**Section**	**: A**

L. NO	Topic of Lecture	Schedule date
UNIT-I Thermal,Nuclear and Gas Power Stations		
1	Overview, objectives and outcomes of power system-I	5/12/2017
2	Line diagram of Thermal Power Station (TPS)	6/12/2017
3	Detailed explanation about TPS various sections	7,8/12/2017

4	Lay-out of hydropower stations (HPS) and classification of hydropower stations	12/12/2017
5	**Types of turbines in hydropower stations and brief description of various components of hydropower stations.**	13,14/12/2017
6	**Nuclear Power Stations and its operating principle**	15/12/2017
7	Brief description of various components Nuclear Power stations.	16/12/2017
8	Types of Nuclear reactors and brief description of PWR, BWR and FBR.	19,20/12/2017
9	Principle of Operation and Components Gas Power Stations	21,22/12/2017
UNIT-II AC and DC Distribution Systems		
17	General Aspects Of Distribution Systems	23/12/2017
18	Classification of Distribution Systems	27/12/2017
19	Requirements and Design features of Distribution Systems	28/12/2017
20	Explanation of voltage drop in distribution systems	29/12/2017
21	Voltage Drop Calculations in radial D.C Distributor fed one end	30/12/2017
22	Voltage Drop Calculations in radial D.C Distributor fed both ends	02,03/01/2018
23	Voltage Drop Calculations in ring main D.C Distributor	04,05/01/2018
24	Voltage Drop Calculations (Numerical Problems) in A.C. Distributors with respected to sending end	06,09/01/2018
25	Voltage Drop Calculations (Numerical Problems) in A.C. Distributors with respected to receiving end	10/01/2018
26	Comparison between AC and DC, Under ground and Overhead distribution systems.	11/01/2018
27	Numerical problems	12/01/2018
UNIT-III Substations and Gas Insulated Substations		
33	Air insulated & Gas insulated substations:-Classification of substations - Indoor & Outdoor substations	16/01/2018
34	Substations layout showing the location of all the substation equipment	17/01/2018
35	Bus bar arrangements in the Sub-Stations: Simple arrangements like single bus bar	18/01/2018
36	Bus bar arrangements in the Sub-Stations: Sectionalized single bus bar	19/01/2018
37	Bus bar arrangements in the Sub-Stations: Main and Transfer bus bar system with relevant diagrams	20,23/01/2018
I-Mid Term Examinations		
38	**Gas insulated substations (GIS)** – Advantages of Gas insulated substations, different types of gas insulated substations	30,31/01/2018
39	Single line diagram of gas insulated substations, bus bar, construction aspects of GIS	01,02/02/2018
40	Installation and maintenance of GIS	03/02/2018
41	Comparison of Air insulated substations and Gas insulated substations	06/02/2018
UNIT-IV Power Factor and Voltage Control		

42	**Power factor:** Causes of low p.f -Methods of improving p.f	07,08/02/2018
43	Phase advancing and generation of reactive KVAR using static Capacitors	09/02/2018
44	Most economical p.f. for constant KW load and constant KVA type loads	14,15/02/2018
45	Numerical Problems	16,17,20 /02/2018
46	Dependency of Voltage on Reactive Power flow	21,22/02/2018
47	**Methods of Voltage Control**: Shunt Capacitors, Series Capacitors,	23,24/02/2018
48	Synchronous Capacitors, Tap changing and Booster Transformers	27,28/02/2018
UNIT-V Economic Aspects of Power Generation &Tariff Methods		
49	**Power factor:** Causes of low power factor -Methods of improving power factor	02,03/03/2018
50	Phase advancing and generation of reactive KVAR using static Capacitors	06,07/03/2018
51	Most economical p.f. for constant KW load and constant KVA type loads	08/03/2018
52	Numerical Problems	09,14,15 /03/2018
53	Dependency of Voltage on Reactive Power flow	16/03/2018
54	**Methods of Voltage Control**: Shunt Capacitors, Series Capacitors,	17/03/2018
56	Synchronous Capacitors, Tap changing and Booster Transformers	20,21/03/2018
II -Mid Examination		

Timings:

Monday	:	10:20 – 11:10AM	Thursday	:	12:10 – 01:00PM
Tuesday	:	02:30-03:15PM	Friday	:	09:30 – 10:20AM
Wednesday	:		Saturday	:	01:40-02:30PM

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(EE105) DC MACHINES AND TRANSFORMERS

COURSE OBJECTIVES:

Students will be able to

1. Draw the magnetization characteristic of a DC shunt generator.
2. Discuss different speed control methods of DC motors.
3. Predict the efficiency of dc machines.
4. Classify the transformers based on its construction.
5. Evaluate the efficiency and regulation of transformers.

COURSE OUTCOMES:

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

1. Identify the different features of DC machines.
2. Analyze the different types of DC generators and DC motors.
3. Calculate the efficiency of different types of DC machines
4. Compare the characteristics of different types of DC machines
5. Evaluate OC and SC tests on transformers
6. Estimate the regulation of transformers
7. Draw the phasor diagrams of transformer at different load conditions
8. Explain the operation of parallel operation of transformers

LESSON PLAN

Name of the Faculty : K. Balakrishna
Academic Year : 2017-18
Course Number : EE105
Course Name : DCMT
Program : B.Tech
Branch : EEE-A
Year/ Semester : II / II

S. No.	Topic	Scheduled Date
	UNIT –I DC GENERATORS	
1	DC Generators – Principle of operation – Action of commutator	05-12-2017 & 06-12-2017
2	Constructional features	07-12-2017
3	Armature windings	08-12-2017
4	Lap and wave windings	12-12-2017
5	Use of laminated armature – E.M.F Equation	13-12-2017
6	Problems on E.M.F. equation	13-12-2017

7	Armature reaction – Cross magnetizing and demagnetizing AT/pole	14-12-2017
8	Problems on Armature reaction	15-12-2017
9	Compensating winding – commutation – reactance voltage	16-12-2017
10	Methods of improving commutation.	19-12-2017
11	Methods of Excitation – separately excited and self excited generators (**Flipped Class Room, Think Pair Share**)	20-12-2017
12	Build-up of E.M.F -critical field resistance and critical speed	21-12-2017
13	Problems on Build-up of E.M.F -critical field resistance and critical speed	21-12-2017
14	Load characteristics of shunt, series and compound generators	22-12-2017
15	Parallel operation of DC series generators	23-12-2017
16	Problems on parallel operation of DC series generators	27-12-2017
	UNIT –II **DC MOTORS**	
17	DC Motors – Principle of operation	28-12-2017
18	Back E.M.F. - Torque equation	29-12-2017
19	Problems on above topics	30-12-2017
20	Characteristics and application of shunt, series and compound motors **(Think Pair Share)**	02-01-2018 & 03-01-2018
21	Speed control of DC Motors: Armature voltage and field flux control methods **(brainstorm)**	04-01-2018 & 05-01-2018
22	Ward- Leonard system	06-01-2018
23	Problems on above topics	09-01-2018 & 10-01-2018
24	Principle of 3 -point and 4- point starters	11-01-2018 & 12-01-2018
	UNIT –III **TESTING OF DC MACHINES**	
25	Losses – Constant and Variable losses	16-01-2018
26	Calculation of efficiency– condition for maximum efficiency	17-01-2018 & 18-01-2018
27	Methods of Testing- direct testing- brake test	19-01-2018
28	Indirect testing-regenerative testing and Problems	20-01-2018
29	Indirect testing -Swinburne's test	23-01-2018

	I Mid Examinations	24-01-2018 To 27-01-2018
30	Swinburne's test and Problems	30-01-2018
31	Indirect testing - Hopkinson's test and Problems	31-01-2018 & 01-02-2018
UNIT – IV SINGLE PHASE TRANSFORMERS		
32	Single phase transformers-types	02-02-2018
33	Constructional details minimization of hysteresis and eddy current losses	03-02-2018
34	EMF equation	06-02-2018
35	Problems on above topic	06-02-2018
36	operation on no load and on load - phasor diagrams **(Stump your partner)**	07-02-2018
37	Equivalent circuit	08-02-2018
38	Problems on above topic	08-02-2018
39	Losses and efficiency	09-02-2018
40	Problems on above topic	09-02-2018
41	Regulation. All day efficiency	14-02-2018
42	Problems on above topic	15-02-2018
43	Separation of losses	16-02-2018
UNIT – V TESTING OF SINGLE PHASE TRANSFORMER, AUTOTRANSFORMER AND POLYPHASE TRANSFORMERS		
44	OC and SC tests	17-02-2018
45	Sumpner's test	20-02-2018
46	Predetermination of efficiency and regulation	21-02-2018
47	Problems on above topic	21-02-2018
48	Separation of losses test	22-02-2018
49	Parallel operation with equal voltage ratios	23-02-2018
50	Parallel operation with unequal voltage ratios **(Group Writing Assignments)**	23-02-2018
51	Problems on above topic	24-02-2018

52	Auto transformers	27-02-2018
53	Equivalent circuit	27-02-2018
54	Comparison with two winding transformers	28-02-2018
55	Polyphase transformers	02-03-2018
56	Polyphase connections - Y/Y, Y/Δ, Δ/Y, Δ/Δ and open Δ	03-03-2018
57	Third harmonics in phase voltages	06-03-2018
58	Three winding transformers-tertiary windings	07-03-2018
59	Determination of Zp, Zs and Zt transients in switching	08-03-2018
60	Off load and on load tap changing	09-03-2018
61	Scott connection	13-03-2018
62	Problems on above topic	13-03-2018
63	First Unit revision and previous questions discussion	14-03-2018
64	Second Unit revision and previous questions discussion	15-03-2018
65	Third Unit revision and previous questions discussion	16-03-2018
66	Fourth Unit revision and previous questions discussion	17-03-2018
67	Fifth Unit revision and previous questions discussion	20-03-2018
68	Revision of DCMT	21-03-2018
	II- Mid Examination	22-03-2018 To 24-03-2017

Time Table:

Monday	:	--	Thursday	:	3rd hour
Tuesday	:	1st hour	Friday	:	3rd hour
Wednesday	:	2nd hour	Saturday	:	7th hour

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(EE106) ELECTRICAL CIRCUITS AND SIMULATION LABORATORY

COURSE OBJECTIVES:

Students will be able to

1. Learn some of the frequently used instruments and equipment like digital multimeter and Regulated Power Supply.
2. Demonstrate various theorems using simulation and Hardware setup.
3. Familiarize the student in introducing and exploring software.
4. Measure inductance and coefficient of coupling of a mutually coupled coil.
5. Calculate network parameters using various theorems.

COURSE OUTCOMES:

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

1. Conduct basic laboratory experiments involving electrical circuits using laboratory test equipment such as multi meters, power supplies, signal generators and oscilloscopes.
2. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.
3. Explain the concepts of Thevenin equivalent circuits and superposition theorem and apply them to laboratory measurements.
4. Predict and measure the transient and sinusoidal steady state responses of simple RC and RL circuits.
5. Relate physical observations and measurements involving electrical circuits to theoretical principles.
6. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.
7. Design winding of coupled coils for low leakage inductance.
8. Design electrical systems using programming techniques and tools.

LESSON PLAN

Name of the Faculty : D. Raja Babu/ M. Praveen kumar / G. Satheesh **Academic Year:** 2017-18

Course Number **:** EE106 **Course Name :** ECS LAB

Program **:** B.Tech **Branch:** EEE

Year/ Semester **:** II/II **Section:** A

S.No.	Topic	Schedule Dates (Batch/I)	Schedule Dates (Batch/II)
	Introduction (Write up)	04/12/17	08/12/17
1	Verification of Thevenin's and Norton's Theorem.	11/12/17	15/12/17
2	Verification of Maximum Power Transfer Theorem.	18/12/17	22/12/17
3	Verification of Superposition Theorem and Reciprocity Theorem.	08/01/18	29/12/17
4	DC Transient response	22/01/18	05/01/18
5	Series and Parallel Resonance	29/01/18	12/01/18
6	Determination of self, mutual inductances and co-effective of coupling	05/02/18	19/01/18
7	Determination of Transmission and hybrid parameters	12/02/18	02/02/18
8	Determination of Z and Y Parameters	19/02/18	09/02/18
9	Simulation of Three- Phase circuits	26/02/18	16/02/18
10	Simulation of DC circuits	05/03/18	23/02/18
11	Internal Exam	12/03/18	09/03/18

Timings:

Monday	:	1.40pm-4.00pm	Thursday	:	
Tuesday	:		Friday	:	1.40pm-4.00pm
Wednesday	:		Saturday	:	

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(ES113) MECHATRONICS

COURSE OBJECTIVES:

Students will be able to

6. Define mechatronics and discuss basic building elements and network.
7. Analyze various sensors, mechanisms and their applications to engineering.
8. Discuss microcontroller fundamentals and arduino controller.
9. Explain interfacing of devices with controllers.
10. Summarize signal conditioning circuits and electrical actuating systems.

COURSE OUTCOMES:

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

9. Analyze electrical and mechanical systems and their interconnection.
10. Produce the signal conditioning circuits.
11. Discuss importance of mechanical, and electronics in the design of mechatronics system.
12. Build a mechatronic system for a set of specifications.
13. Proficient in the programming of microcontrollers.
14. Design circuits for interfacing various components used for power control.
15. Construct electrical actuating systems.
16. Differentiate ac and dc motor.

LESSON PLAN

Name of the Faculty : Dr. J. Ravichander **Academic Year: 2017 - 2018**
Course Number : ES113 **Course Name : MECHATRONICS**
Program : B.Tech **Branch : EEE**
Year/Semester : II / II **Section : B**

S.No.	Topic	Scheduled Date DD/MM/YYYY
1	Introduction and Key elements of mechatronics	06/12/2017
2	Arduino Board Description ➢ Arduino Uno ➢ Arduino Mega 2560 Bread board(Connections)	09/12/2017
3	Basic programming. ➢ Arduino Functions Analog, Digital, Serial I/O. Delay	13/12/2017 16/12/2017
4	Sensor characteristics and classifications, Selection of sensor	20/12/2017
5	Displacement sensors ➢ Potentiometer ➢ LVDT(Theory & animation)	23/12/2017

6	Force sensor ➢ Strain Gauge	27/12/2017
7	Temperature Sensors ➢ LM35 ➢ Thermistor	30/12/2017 08/01/2018
8	Light Sensors ➢ Light Dependent Resistor ➢ Photodiode ➢ Phototransistor ➢ IR	11/01/2018 03/01/2018
9	Proximity Sensor ➢ Passive Infrared (PIR) ➢ Ultrasonic	06/01/2018
10	Actuators ➢ Relay ➢ Diode ➢ Transistor ➢ MOSFET ➢ Solenoid	10/01/2018 17/01/2018
11	Design a power supply unit (5V, 12V)	20/01/2017
12	Assignment-I	31/01/2017
13	Thyristor (SCR) TRIAC(Theory & animation)	03/02/2018
14	Motors ➢ DC motor ➢ Speed control of DC motor ➢ Stepper motor	07/02/2018 14/02/2018 17/02/2018
15	Mechanical Actuators (Theory & animation) ➢ Gears ➢ Belt Drive ➢ Bearings	21/02/2018
16	Operational Amplifiers ➢ Inverting amplifier ➢ Non inverting amplifier ➢ Summing amplifier ➢ Instrumentation amplifier ➢ Comparator	24/02/2018 28/02/2018
17	Digital to Analog converters (Theory & animation) ➢ Weighted resistor DAC ➢ R-2R Ladder	03/03/2018
18	Analog to digital converters (Theory & animation) ➢ Flash ADC ➢ Successive Approximation Register Type ADC	07/03/2018

19	Revision	14/03/2018
20	Revision	17/03/2018

Time Table:

Monday	**:**		**Thursday**	**:**	
Tuesday	**:**		**Friday**	**:**	
Wednesday	**:**	**II-IV hours**	**Saturday**	**:**	**I-III hours**

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(EC107)LINEAR IC APPLICATIONS

COURSE OBJECTIVES:

Students will be able to

1. Discuss ideal and practical characteristics of OP-AMP.
2. Analyze linear and non linear applications of OP-AMP.
3. Design OP-AMP circuits such as filters, oscillators.
4. Describe functional diagram of IC 555 Timer, IC 723 Regulator, IC 565 PLL and IC 566 VCO and applications.
5. Explain operation of various ADC and DAC circuits and their specifications.

COURSE OUTCOMES:

At the end of the course, the student will develop ability to

1. Discuss practical characteristics OP-AMP.
2. Design arithmetic circuits using IC 741 OP-AMP such as adder, subtractor, multiplier.
3. Design wave shaping circuits such as integrator, differentiator using IC 741 OP-AMP. using IC 741 Op-Amp
4. Design filters, multivibrators, oscillators using 741 OP-AMP
5. Explain the functional diagram of 555 timer and its applications.
6. Design applications of PLL, VCO.
7. Design low and high voltage regulator using IC 723
8. Differentiate various ADC and DAC circuits.

LESSON PLAN

Name of the Faculty : Ishita Deb **Academic Year :** 2017 - 2018
Course Number : EC107 **Course Name : LINEAR IC APPLICATIONS**
Program : B.Tech **Branch :** EEE
Year / Semester : II/II **Section :** B

Sl. No.	Topics in syllabus Modules and Sub modules	Lecture No.	Proposed Date
UNIT – I (No. of Lectures – 12)			
1	Introduction Integrated Circuits: Classification, Chip Size and Circuit Complexity.	L1	4/12/2017
2	Ideal and Practical Op-Amp, symbol , terminals , packages and specifications.	L2	4/12/2017
3	Block diagram of op amp	L3	5/12/2017
4	CMRR, Open Loop configurations, Closed loop configurations	L4	7/12/2017

5	Op-Amp characteristics DC Characteristics	L5	11/12/2017
6	Op-Amp characteristics AC Characteristics	L6 L7	11/12/2017 12/12/2017
7	741 Op-Amp and its Features, Op-Amp Parameters input and output offset voltages and currents, slew rate, PSRR	L8	14/12/2017
8	Op-Amp Parameters input and output offset voltages and currents, slew rate, PSRR	L9	18/12/2017
UNIT –II (No. of Lectures – 13)			
9	Inverting and Non Inverting amplifiers	L10	18/12/2017
10	Difference amplifier, voltage follower, sign changer, scale changer, summing, averaging amplifiers, adder-sub tractor	L11 L12	19/12/2017 21/12/2017
11	Integrator	L13	28/12/2017
12	Differentiator	L14	2/01/2018
13	Instrumentation amplifier, V to I and I to V Converters	L15 L16 L17	4/1/2018 8/1/2018 8/01/2018
14	Non Linear Applications of Op-Amp: Comparators	L18	9/01/2018
15	Schmitt Trigger, Sample & Hold Circuits	L19 L20	11/01/2018 16/01/2018
16	Multivibrators	L21 L22 L23	18/01/2018 22/1/2018
17	Log and Anti Log amplifiers.	L24	22/01/2018
18	Precision rectifiers Clippers and Clampers.	L25	23/01/2018
UNIT –III(No. of Lectures – 12)			
19	Introduction ,types of filters	L26	29/01/2018
20	First Order and Second Order Low Pass Filters	L27	30/01/2018

		L28	1/02/2018
21	First Order and Second Order High Pass Filters	L29 L30,L31	1/02/2018 5/02/2018
22	Band Pass Filters :types, Active Band Reject filters, All Pass Filters	L32 L 33 L34	5/02/2018 6/02/2018 8/02/2018
23	waveform generators**-** Principle of operation and types of Oscillators	L35	12/02/2018
24	RC, Wien Bridgeoscillators	L36 L37,L38	12/02/2018 15/02/2018
25	Triangular and Square wave Generators	L39	19/02/2018
UNIT-IV(No. of Lectures – 09)			
26	Basics of Voltage Regulators	L40	19/02/2018
27	Series OP-Amp regulator - 723 general purpose regulator, Introduction to 555 timer	L41 L42 L43	20/02/2018 22/02/2018 26/02/2018
28	Introduction to 555 timer, functional diagram	L44	26/02/2018
29	Monostable and Astable operations and applications	L45 L46	27/02/2018
30	Schmitt trigger	L47 L48	5/03/2018
31	PLL: Introduction, Block schematic	L49	5/03/2018
32	principles and description of Individual blocks of 565, VCO	L50 L51	6/03/2018
UNIT –V(No. of Lectures – 15)			
33	D-A and A-D converters: Introduction, Basic DAC Techniques	L52	8/03/2018
34	Weighted Resistor Type, R-2R Ladder type	L53	12/03/2018
35	inverted R-2R Type ,D/A converter related problems,	L54 L55	12/03/2018
36	Different types of ADCs-Parallel Comparator Type Counter type, Successive Approximation Register,	L56	13/03/2018

37	. Successive Approximation Register, Dual Slope type ADC , DAC and ADC specifications	L57	15/03/2018

Time Table:

Monday	:	5^{th} hour and 7^{th} hour	Thursday	:	5^{th} hour
Tuesday	:	1^{st} hour	Friday	:	-
Wednesday	:	-	Saturday	:	-

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(EE103) ELECTRICAL CIRCUITS - II

COURSE OBJECTIVES:

Students will be able to

1. Differentiate single phase and three phase systems.
2. Draw transient response for DC and AC excitation.
3. Calculate different network parameters.
4. Analyze system stability using pole zero plot.
5. Design filters based on desired parameters.

COURSE OUTCOMES:

At the end of the course, students will be able to

1. Differentiate balanced and unbalanced three phase systems.
2. Calculate active and reactive power for three phase systems.
3. Differentiate study state and transient response.
4. Draw current and voltage response curve for DC and AC exacted systems
5. Identify series, parallel and cascade network properties.
6. Summarize symmetry and reciprocity conditions for two port network
7. Develop Transfer function for circuit using pole zero plot.
8. Apply Fourier series for different signals.

LESSON PLAN

Name of the Faculty : B.Sathya vani **Academic Year: 2017-18**
Course Number : EE103 **Course Name : EC-II**
Program : B.Tech. **Branch : EEE**
Year/ Semester : II / II **Section : B**

S. No.	Topic	Scheduled Date
	UNIT - I	
1	Introduction to Three phase circuits: Phase sequence	05/12/2017
2	Star and delta connection	06/12/2017
3	Relation between line and phase voltages and currents in balanced Star configuration	07/12/2017
4	Relation between line and phase voltages and currents in balanced	09/12/2017

	Delta configuration	
5	Analysis of balanced and Unbalanced 3 phase circuits	09/12/2017
6	Measurement of three phase active power	12/12/2017
7	Problems on three phase active power, powerfactor and phasor diagrams	13/12/2017
8	Measurement of three phase reactive power	14/12/2017
9	Problems on three phase unbalanced load	15/12/2017
10	Problems on three phase unbalanced load and one watt meter method with phasor diagrams	16/12/2017
	UNIT - II	
11	Introduction to Transient analysis	19/12/2017
12	Transient response of R-L, R-C with DC excitation (series circuit)	20/12/2017
13	Transient response of R-L, R-C with DC excitation (parallel circuit)	21/12/2017
14	Transient response of RLC with DC excitation	22/12/2017
15	Solution method using differential equation approach	30/12/2017
16	Solution method using Laplace transform approach	30/12/2017
17	Problems on D C transient analysis	02/01/2018
18	Transient response of R-L, R-C with AC excitation (series circuit)	03/01/2018
19	Transient response of R-L, R-C with AC excitation (parallel circuit)	04/01/2018
20	Transient response of R-L-C with AC excitation (series & parallel circuit)	06/01/2018

21	Solution method using differential equation approach for AC excitation	06/01/2018
22	Solution method using Laplace transform approach for AC excitation	09/01/2018
23	Problems on AC transient analysis	10/01/2018
24	Problems	11/01/2018
25	Problems on AC & DC transient analysis	12/01/2018
26	Problems	16/01/2018
	UNIT - III	
27	The concept of complex frequency, Physical Interpretation of Complex Frequency	17/01/2018
28	Concept of Transform Impedance and Transform Circuits	18/01/2018
29	Concept of Series and Parallel Combination of elements, terminal pairs or ports	20/01/2018
30	problems on series and parallel combination of elements	20/01/2018
31	Concept of Network functions for one Port and Two port	23/01/2018
	I MID Examination	
32	Concept of poles and zeros of network functions	30/01/2018
33	Significance of poles and zeros and problems	31/01/2018
34	problems on pole and Zeros of a network function	01/02/2018
35	properties of driving functions	03/02/2018
36	properties of transfer functions	03/02/2018
37	Necessary conditions for driving point and transfer functions	06/02/2018

38	problems on driving point and transfer functions	07/02/2018
39	Time domain response from Pole Zero plot	08/02/2018
40	problems on time domain pole zero plot of network functions	09/02/2018
41	Problems	10/02/2018
	UNIT- IV	
42	Introduction to Two Port network parameters	14/02/2018
43	Z -parameter and problems	15/02/2018
44	Y- parameter and problems	17/02/2018
45	ABCD parameter and problems	17/02/2018
46	h parameter and problems	20/02/2018
47	relation between the two port parameters and problems	21/02/2018
48	Problems	22/02/2018
49-50	relation between the two port parameters and problems	23, 24/02/2018
51	cascaded networks and problems	27/02/2018
52	2-port network parameters using transformed variables	28/02/2018
53	inverse transmission parameter	28/02/2018
54	Inverse hybrid parameter	03/03/2018
55	T and Π models of 2- port network	03/03/2018

56-57	problems on T and Π models of 2- port network	06, 07/03/2018
	UNIT - V	
58	Introduction to Filters	08/03/2018
59	Design of Low pass and High pass filters	13/03/2018
60	Design of Band pass and Band elimination filters	14/03/2018
61	problems on design of filters	15/03/2018
62	Introduction to Fourier Analysis	17/03/2018
63	Symmetry, exponential form of Fourier analysis	17/03/2018
64	Line spectra and Phase angle spectra	20/03/2018
65	Fourier integrals and Fourier transforms: problems	21/03/2018
	II MID Examination	

Time Table:

Monday	:	-	Thursday	:	IV hr
Tuesday	:	III hr	Friday	:	
Wednesday	:	I hr	Saturday	:	III & V hrs

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

(EE104) POWER SYSTEMS-I

COURSE OBJECTIVES:

Students will be able to

6. Outline the history of various power plants
7. Distinguish between ac and dc distribution system
8. Compare between GIS and AIS concepts
9. Demonstrate the methods of improving power factor
10. Explain different load curves and tariff methods

COURSE OUTCOMES:

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

1. List the various types of power generation systems and identify the components of thermal, nuclear and gas power stations.
2. Distinguish and know the features of thermal, nuclear and gas power stations, the layout of substation and its components.
3. Classify and identify components of distribution system and power factor improvement using capacitors.
4. Apply different methods of tariffs for specific loads.
5. Determine design parameters required for distribution systems
6. Explain different methods of power factor and voltage control techniques.
7. Discuss the various causes of low power factor.
8. Classify different types of substations.

LESSON PLAN

Name of the Faculty : Dr. B. Vedik **Academic Year : 2018-18**
Course Number : EE104 **Course Name : PS-I**
Program : B. Tech **Branch : EEE**
Year/ Semester : II/II **Section : B**

S. NO	Topic of Lecture	Schedule date
	UNIT-I Thermal, Nuclear and Gas Power Stations	
1	Overview, objectives and outcomes of power system-I	04/12/2017
2	Line diagram of Thermal Power Station	05/12/2017
3	Detailed explanation about TPS various sections	06/12/2017
4	Detailed explanation about TPS various sections	07/12/2017
5	Lay-out of hydropower stations (HPS)	08/12/2017
6	Classification of hydropower stations	11/12/2017

7	Types of turbines in hydropower stations	12/12/2017
8	Brief description of various components of hydropower stations	13/12/2017
9	Nuclear Power Stations and its operating principle	14,15,18/12/2017
10	Brief description of various components Nuclear Power stations	19/12/2017
11	Types of Nuclear reactors and brief description of PWR, BWR and FBR.	20/12/2017
12	Principle of Operation and Components Gas Power Stations	21/12/2017
13	Revision	22/12/2017
14	Discussing previous question papers	27/12/2017
15	Unit Test	28/12/2017
16	Activity	29/12/2017
	UNIT-II AC and DC Distribution Systems	
17	General Aspects Of Distribution Systems	02/01/2018
18	Classification of Distribution Systems	03/1/2018
19	Requirements and Design features of Distribution Systems	04/1/2018
20	Explanation of voltage drop in distribution systems	05/1/2018
21	Voltage Drop Calculations in radial D.C Distributor fed one end	08/1/2018
22	Voltage Drop Calculations in radial D.C Distributor fed both ends	09/1/2018
23	Voltage Drop Calculations in ring main D.C Distributor	10/1/2018
24	Voltage Drop Calculations (Numerical Problems) in A.C. Distributors with respected to sending end	11/1/2018
25	Voltage Drop Calculations (Numerical Problems) in A.C. Distributors with respected to receiving end	12/1/2018
26	Comparison between AC and DC, Underground and Overhead distribution systems.	16/1/2018
27	Numerical problems	17/1/2018
28	Discussing previous question papers	18/1/2018
29	Unit Test	19/1/2018
30	Activity	22/1/2018
31	Activity	23/1/2018
	I - Mid Examination	
	UNIT-III Substations and Gas Insulated Substations	
32	Introduction to Substations	29/1/2018
33	classification of substations, indoor and outdoor	30/01/2018
34	Layout showing substation equipment	31/01/2018
35	Single bus bar arrangement	01/2/2018
36	Sectionalized single bus bar arrangement ,main, transfer bus bar system	02/2/2018
37	Gas insulated substation	05/2/2018
38	Types of gas insulated substation	06/2/2018
39	Single line diagram of gas insulated substation	07, 08/2/2018

40	Construction and maintenance of GIS	09, 12/2/2018
41	Comparison of air insulated and gas insulated substation	14,15/2/2018
	UNIT-IV Power Factor and Voltage Control	
42	Power factor: Causes of low p.f -Methods of improving p.f	16/2/2018
43	Phase advancing and generation of reactive KVAR using static Capacitors	19/2/2018
44	Most economical p.f. for constant KW load and constant KVA type loads	20/2/2018
45	Numerical Problems	21, 22/2/2018
46	Dependency of Voltage on Reactive Power flow	23/2/2018
47	Methods of Voltage Control: Shunt Capacitors, Series Capacitors	26/2/2018
48	Synchronous Capacitors, Tap changing and Booster Transformers	27/2/2018
49	Quiz	28/2/2018
50	Previous Questions	02/3/2018
51	Activity	03/3/2018
	UNIT-V Economic Aspects of Power Generation &Tariff Methods	
52	Load curve, load duration curves, integrated load duration curves	05/3/2018
53	Load, demand factors- Numerical Problems	06/3/2018
54	Diversity, capacity, utilization, plant use factors - Numerical Problems	07/3/2018
55	Costs of Generation and their division into Fixed, Semi-fixed and Running Costs	08/3/2018
56	Desirable Characteristics of a Tariff Method.-Tariff Methods: Flat Rate, Block-Rate	09/3/2018
57	Desirable Characteristics of a Tariff Method.-Tariff Methods: two-part, three –part	12/3/2018
58	Desirable Characteristics of a Tariff Method.-Tariff Methods: power factor tariff methods.	12/3/2018
59	Numerical Problems	13/3/2018
60	Previous Questions	14/3/2018
61	Quiz	15/3/2018
62	Activity	16/3/2018
63	Review of Unit 4	19/3/2018
64	Review of Unit 3	20/3/2018
65	Review of Unit 2	21/3/2018
66	Review of Unit 1	21/3/2018
	II - Mid Examination	

Timings:

Monday	:	11:20 – 12:10	Thursday	:	10:20 – 11:10
Tuesday	:	10:20-11:10	Friday	:	09:30 –10:20
Wednesday	:	1:40-2:30	Saturday	:	

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(EE105) DC MACHINES AND TRANSFORMERS

COURSE OBJECTIVES:

Students will be able to

1. Draw the magnetization characteristic of a DC shunt generator.
2. Discuss different speed control methods of DC motors.
3. Predict the efficiency of dc machines.
4. Classify the transformers based on its construction.
5. Evaluate the efficiency and regulation of transformers.

COURSE OUTCOMES:

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

1. Identify the different features of DC machines.
2. Analyze the different types of DC generators and DC motors.
3. Calculate the efficiency of different types of DC machines
4. Compare the characteristics of different types of DC machines
5. Evaluate OC and SC tests on transformers
6. Estimate the regulation of transformers
7. Draw the phasor diagrams of transformer at different load conditions
8. Explain the operation of parallel operation of transformers

LESSON PLAN

Name of the Faculty : V.Sreepriya
Academic Year : 2017-18
Course Number : EE105
Course Name : DCMT
Program : B.Tech
Branch : EEE-B
Year/ Semester : II / II

S. No.	Topic	Scheduled Date(s)
	UNIT –I **DC GENERATORS**	
1	DC Generators – Principle of operation – Action of commutator – constructional features	04,05,07-12-2017
2	Armature windings	08-12-2017
3	Lap and wave windings	11-12-2017
4	Use of laminated armature – E.M.F Equation	12-12-2017
5	Problems on E.M.F. equation	14-12-2017
6	Armature reaction – Cross magnetizing and demagnetizing AT/pole	15-12-2017
7	Problems on Armature reaction	16-12-2017

8	Compensating winding – commutation – reactance voltage	18-12-2017
9	Methods of improving commutation.	19-12-2017
10	Methods of Excitation – separately excited and self excited generators	21-12-2017
11	Build-up of E.M.F -critical field resistance and critical speed	21-12-2017
12	Problems on Build-up of E.M.F -critical field resistance and critical speed	22-12-2017
13	Load characteristics of shunt, series and compound generators	23-12-2017
14	Parallel operation of DC series generators	28-12-2017
15	Problems on parallel operation of DC series generators	28-12-2017
UNIT –II DC MOTORS		
16	DC Motors – Principle of operation	29-12-2017
17	Back E.M.F. - Torque equation	30-12-2017
18	Problems on above topics	02,04-01-2017
19	Characteristics and application of shunt, series and compound motors	05,06-01-2018
20	Speed control of DC Motors: Armature voltage and field flux control methods	08,09-01-2018
21	Ward- Leonard system	11-01-2018
22	Problems on above topics	12,16-01-2018
23	Principle of 3 -point and 4- point starters	18-01-2018
UNIT –III TESTING OF DC MACHINES		
24	Losses – Constant and Variable losses	19-01-2018
25	Calculation of efficiency– condition for maximum efficiency	20-01-2018
26	Methods of Testing- direct testing- brake test	22-01-2018
	II- Mid Examination	24 to 27-01-2018
27	Indirect testing-regenerative testing and Problems	23,29-01-2018
28	Indirect testing -Swinburne's test and Problems	30-01-2018 01-02-2018
29	Indirect testing - Hopkinson's test and Problems	02,03-02-2018
UNIT – IV SINGLE PHASE TRANSFORMERS		
30	Single phase transformers-types	05-02-2018

31	Constructional details minimization of hysteresis and eddy current losses	06-02-2018
32	EMF equation	08-02-2018
33	Problems on above topic	08-02-2018
34	Operation on no load and on load - phasor diagrams	09-02-2018
35	Equivalent circuit	12-02-2018
36	Problems on above topic	12-02-2018
37	Losses and efficiency	15-02-2018
38	Problems on above topic	16-02-2018
39	Regulation. All day efficiency	17-02-2018
40	Problems on above topic	19-02-2018
41	Separation of losses	19-02-2018
UNIT – V TESTING OF SINGLE PHASE TRANSFORMER, AUTOTRANSFORMER AND POLYPHASE TRANSFORMERS		
42	OC and SC tests	20-02-2018
43	Sumpner's test	22-02-2018
44	Predetermination of efficiency and regulation	22-02-2018
45	Problems on above topic	23-02-2018
46	Separation of losses test	24-02-2018
47	Parallel operation with equal voltage ratios	24-02-2018
48	Parallel operation with unequal voltage ratios	26-02-2018
49	Problems on above topic	26-02-2018
50	Auto transformers	27-02-2018
51	Equivalent circuit	02-03-2018
52	Comparison with two winding transformers	03-03-2018
53	Polyphase transformers	05-03-2018
54	Polyphase connections - Y/Y, Y/Δ, Δ/Y, Δ/Δ and open Δ	06-03-2018
55	Third harmonics in phase voltages	08-03-2018
56	Three winding transformers-tertiary windings	09-03-2018
57	Determination of Zp, Zs and Zt transients in switching	12-03-2018

58	Off load and on load tap changing	13-03-2018
59	Scott connection	13-03-2018
60	Problems on above topic	15-03-2018
61	Revision	16,17-03-2018
62	Previous Question Papers Discussion	19,20-03-2018
	II- Mid Examination	22March-24th March,2018

Time Table:

Monday	:	1:40-2:30PM	Thursday	:	9:30-10:20AM
Tuesday	:	12:10-1:00PM	Friday	:	1:40-2:30PM
Wednesday	:		Saturday	:	9:30-10:20AM

SR ENGINEERING COLLEGE
Innovation | Creativity | Entrepreneurship
(An Autonomous Institution)

(EE106) ELECTRICAL CIRCUITS AND SIMULATION LABORATORY

COURSE OBJECTIVES:

Students will be able to

1. Learn some of the frequently used instruments and equipment like digital multimeter and Regulated Power Supply.
6. Demonstrate various theorems using simulation and Hardware setup.
7. Familiarize the student in introducing and exploring software.
8. Measure inductance and coefficient of coupling of a mutually coupled coil.
9. Calculate network parameters using various theorems.

COURSE OUTCOMES:

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

9. Conduct basic laboratory experiments involving electrical circuits using laboratory test equipment such as multi meters, power supplies, signal generators and oscilloscopes.
10. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.
11. Explain the concepts of Thevenin equivalent circuits and superposition theorem and apply them to laboratory measurements.
12. Predict and measure the transient and sinusoidal steady state responses of simple RC and RL circuits.
13. Relate physical observations and measurements involving electrical circuits to theoretical principles.
14. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.
15. Design winding of coupled coils for low leakage inductance.
16. Design electrical systems using programming techniques and tools.

LESSON PLAN

Name of the Faculty: AVV.sudhakar/Dr.B.vedik/V.sreepriya/M.sai kumar

Academic Year: 2017-18

Course Number : EE106 **Course Name :** ECS LAB

Program : B.Tech **Branch:** EEE

Year/ Semester : II/II **Section:** B

S.No.	Topic	Schedule Dates (Batch-I)	Schedule Dates (Batch-II)
	Introduction (Write up)	05/12/2017	16/12/2017
1	Verification of Thevenin's and Norton's Theorem.	12/12/2017	23/12/2017
2	Verification of Maximum Power Transfer Theorem.	19/12/2017	30/12/2017
3	Verification of Superposition Theorem and Reciprocity Theorem.	02/01/2018	06/01/2018
4	Verification of Compensation Theorem and Milliman's Theorem	09/01/2018	16/01/2018
5	Series and Parallel Resonance	23/01/2018	20/01/2018
6	Determination of self, mutual inductances and co-effective of coupling	30/01/2018	03/02/2018
7	Determination of Transmission and hybrid parameters	06/02/2018	17/02/2018
8	Determination of Z and Y Parameters	20/02/2018	24/02/2018
9	Simulation of Three- Phase circuits	27/02/2018	3/03/2018
10	Simulation of DC circuits	06/03/2018	13/03/2018
11	Internal Exam	20/03/2018	17/03/2018

Timings:

Monday	:		Thursday	:	
Tuesday	:	1.40pm-4.00pm	Friday	:	
Wednesday	:		Saturday	:	1.40pm-4.00pm