

Lect no	Topic to be Covered	Chapter	Reference book
1.	Introduction-Complex Number and Real and Imaginary part of it.	Ch:1	R.D Sharma For Applied Mathematics Page 1-52
2.	Conjugate Of Complex Number & Modulus		
3.	Amplitude Of A complex Number		
4.	Geometrical Representation Of Complex Number		
5.	Properties Of Complex Number		
6.	Determination Of Three Cube Root Of Unity And Their Properties		
7.	De`Moivres Theorm		
8.	Solving Problem On Complex Number		
9.	Define Rank Of a Matrices	Ch:2	R.D Sharma For Applied Mathematics Page 53- 99
10.	Row Transformation Method To Calculate The Rank Of Matrices		
11.	Rouche`s Theorem For Consistency		
12.	Solve The Equation On Unknown Testing Consistency		
13.	Solve Problem On Consistency	Ch: 3	R.D Sharma For Applied Mathematics Page 99 - 149
14.	Types Of Differential Equation		
15.	Find The General Solution Of Differential Equation		
16.	Derive Rule For Finding CF And PI		
17.	Define Partial Differential Equation (PDI)		
18.	Form Partial Differential Equation By Eliminating Arbitrary Constant		
19.	Solve Partial Differential Equation		
20.	Solving Problem On Partial Differential Equation	Ch: 4	R.D Sharma For Applied Mathematics Page 149 - 161
21.	Define Gamma Function		
22.	Define Lapse Transform Of A Function		
23.	Define L.T On A Standard Function		
24.	Define Linear Shitting Of L.T		
25.	L.T Of Derivatives Integrals		
26.	Derive The Inverse L.T and Explain Method Of partial Fraction		
27.	Solve The Problem On L.T		
28.	Mixed Problem On Lapse Transformation	Ch:5	Applied Mathematics For Polytechnic Page 161 - 202
29.	Define Periodic Function		
30.	State Dirichlet`s Condition OF Fourier Expansion		
31.	Express Periodic Function		
32.	Problem On Periodic Function and Its condition		
33.	States Euler`s Formulae		
34.	Define Even And Odd Function		
35.	Finding Fourier Series		
36.	Problem Based On Euler`s Formulae		
37.	Obtain F.S Of Continuous Function		
38.	Having F.PO On Discontinuity		
39.	Solve Problem On Continuity		
40.	Problem Based On Discontinuity	Ch:6	Algebraic Mathematics For Polytechnics Page 202 - 247
40.	Mixed Question On Fourier Series		
41.	Limitation and Analytic Method Of Algebraic Function		
42.	Analytic Method Of Algebraic Function	Ch:7	Applied Mathematics For Polytechnics 247 - 261
43.	Derive Iterative Formula To Finding The solution		
44.	Define Finite Differences		
45.	Table Formation On Finite Differences		
46.	Advancing Difference Formula		
47.	Effect Of Error In Tabular Value		
48.	Properties Of Operator		
49.	Differences Of Polynomial		
50.	Factorial Notation, Problem Based on Operation		

Lec No	Topics Plan to be Covered	Chapter	Reference
L-01	Intro To Magnectic Circuit	CH-1	Electrical technology by BL Thereja Page-317-338
L-02	Magnetizing Force, Intensity, Mmf, Flux And Their Relations		
L-03	Permeability, Reluctance And Permeance		
L-04	Analogy Between Electric And Magnetic Circuits And hysteresis Loop		
L-05	B-H Curve		
L-06	Series & parallel magnetic circuit.		
L-07	Hysteresis loop		
L-05	Self And Mutual Inductance	CH-2	CNT by A Chakrabarty Page-749-800
L-06	Coupled Circuitand Mutual Impedance		
L-07	Conductively coupled circuit and mutual impedance		
L-08	Dot Convention		
L-09	Coefficient Of Coupling		
L-10	Series And Parallel Inductors		
L-11	Solve numerical problems	CH-3	CNT by A Chakrabarty Page 1-63
L-12	Active,PassiveElement		
L-13	Unilateral,Bilateral Element		
L-14	Mesh Analysis,		
L-15	Super Mesh Analysis		
L-16	Nodal Analysis		
L-17	Super Nodal Analysis		
L-18	Solve numerical problems		
L-19	Source Transmission Techniques		
L-20	Star To Delta And Delta To Star Conversion		
L-21	Super Position Theorem	CH-4	CNT by A Chakrabarty Page- 324-495
L-22	Solve numerical problems		
L-23	Thevenin Theorem		
L-24	Norton Theorem		
L-25	Solve numerical problems		
L-26	M.P.T Theorem		
L-27	Solve numerical problems		
L-28	RI,Rc,Rlc Circuit		
L-29	Solve numerical problems	CH-5	CNT by A Chakrabarty Page-227-275
L-30	Power Factor And Power Triangle		
L-31	QFactor,Parallel Resonance		
L-32	Solve numerical problems		
L-33	Deduce expression for active, reactive power		
L-34	Apparent power		
L-35	Derive the resonant frequency of series parallel resonance		
L-36	Define Bandwidth, Selectivity & Q-factor in series circuit		
L-37	Solve numerical problems		
L-38	Poly Phase System And Phase Sequence	CH-6	CNT by A Chakrabarty Page-276-323
L-39	Relation between phase and line quantities in star & delta connection		
L-40	Power equation in 3-phase balanced circuit		
L-41	Solve numerical problems		
L-42	Measurement Of 3 Phase Power By Two Wattmeter Method		
L-43	Solve numerical problems		
L-44	Steady State Response	CH-7	CNT by A Chakrabarty Page-537-614
L-45	Transient State Response		
L-46	Response To R-L, R-C & RLC Circuit Under DC Condition		
L-47	Z Parameter	CH-8	CNT by A Chakrabarty Page-801-936
L-48	Y Parameter		
L-49	Abcd Parameter		
L-50	Hybrid Parameter		
L-51	Inter Relationships Of Different Parameter		
L-52	T and π representation		
L-53	Numerical Problems	CH-9	CNT by A Chakrabarty Page-1371-1456
L-54	Define Filter		
L-55	Classification Of Pass Band, Stop Band And Cut-Off Frequency.		
L-56	Classification Of Filters.		
L-57	Constant – K Low Pass Filter.		
L-58	Constant – K High Pass Filter.		
L-59	Constant – K Band Pass Filter.		
L-60	Constant – K Band Elimination Filter.		

MIT SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Element of Mechanical Engineering (TH3)

Semester: 3rd Sem. (Electrical)

Name of the Faculty: Miss Shuvashree Paital

Lect No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books/Chapter/Page No.
	THERMODYNAICS		
L-01	State Unit of Heat and work, 1st law of thermodynamics	CH-1	Thermal Engineering By R.K. Rajput Page No.-(34-36) Basic & Applied Thermodynamics P.K. NAG Page No.-(63-80)
L-02	Simple problems on above Topics.		
L-03	State Laws of perfect gases		
L-04	Determine relationship of specific heat of gases at constant volume		
L-05	Simple problems on above Topics.		
L-06	Revision of above Topics		
	PROPERTIES OF STEAM		
L-07	Use steam table for solution of simple problem	CH-2	Thermodynamics by P.K. NAG
L-08	Explain total heat of wet, dry and super heated steam		
L-09	Simple problems on above Topics.		
L-10	Simple problems on above Topics.		
	BOILERS		
L-11	Introduction & State types of Boilers	CH-3	Thermal Engineering by R.K. Rajput Page No.-(532-588)
L-12	Describe Cochran boiler with diagram		
L-13	Describe Babcock Wilcox boiler with diagram		
L-14	Describe Mountings of Boiler		
L-15	Explain the Mountings of Boiler terms		
L-16	Describe accessories of Boiler		
L-17	Explain the accessories of Boiler terms		
L-18	Revision of above Topics		
	STEAM ENGINES		
L-19	Explain the principle of Simple steam engine & Draw Indicator	CH-4	Thermodynamics by
L-20	Calculate Mean effective pressure, IHP and BHP and mechanical		
L-21	Simple problems on above Topics.		
	STEAM TURBINES		
L-22	General layout of Turbine	CH-5	Fluid Mechanics & Hydraulic Mechanics 9 th Edition by Dr. R. K. Bansal Page No.- (853-944)
L-23	Definitions of heads & Efficiencies of a Turbine		
L-24	Classification of Hydraulic Turbines		
L-25	Explain Impulse Turbine		
L-26	Explain reaction Turbine		
L-27	Differentiate between impulse and reaction Turbine		
L-28	Simple problems on above Topics.		
L-29	Simple problems on above Topics.		
L-30	Revision of above Topics		
	CONDENSER		
L-31	Introduction & Explain the function of condenser	CH-6	Refrigeration & Air Conditioning by R.S. KHURMI & J.K. GUPTA
L-32	State their types		
L-33	Explain their different types		
L-34	Revision of above Topics		
	I.C. ENGINE		
L-35	Constructional features of IC engine	CH-7	Internal Combustion Engine by V Ganesan 4 th Edition
L-36	Explain working of two stroke petrol and Diesel engines		
L-37	Explain working of four stroke petrol and Diesel engines		
L-38	Differentiate between them		
	HYDROSTATICS		
L-40	Describe properties of fluid	CH-8	Fluid Mechanics & Hydraulic Mechanics 9 th Edition by Dr. R. K. Bansal
L-41	Determine pressure at a point		
L-42	Describe pressure measuring Instruments		
L-43	Simple problems on above Topics.		
L-44	Revision of above Topics		
	HYDROKINETICS		
L-45	Deduce equation of continuity of flow	CH-9	Fluid Mechanics & Hydraulic Mechanics 9 th Edition by Dr. R. K. Bansal Page No.-(165-173).
L-46	Explain energy of flowing liquid		
L-47	State and explain Bernoulli's theorem		
L-48	Simple problems on above Topics.		
L-49	Revision of above Topics		
	HYDRAULIC DEVICES AND PNEUMATIC		
L-50	Describe Intensifier	CH-10	Fluid Mechanics & Hydraulic Mechanics 9 th Edition by Dr. R. K. Bansal Page No.-(1041-1070)
L-51	Describe Hydraulic lift		
L-52	Simple problems on above Topics		
L-53	Describe Accumulator		
L-54	Describe Hydraulic ram		
L-55	Simple problems on above Topics.		
L-56	Revision of above Topics		

Lect. No.	Topics Plan to be Covered	Chapter	Reference
L-01	Intro. To conductivity materials	CH-1	Electrical Engg Material by Raina and Bhattacharya./Ch-1/Page No 4-42
L-02	Resistivity, factors affecting resistivity		
L-03	Classification of conducting materials		
L-04	Low Resistivity Materials and their Applications		
L-05	High Resistivity Materials and their Applications		
L-06	Stranded conductors		
L-07	Bundled conductors		
L-08	Low resistivity copper alloys		
L-09	Superconductivity		
L-10	Superconducting materials		
L-11	Application of superconductor materials		
L-12	Tungsten, Mercury, Carbon, Platinum		
L-13	Copper, Silver, Gold, Aluminum, Steel		
L-14	Semiconductors	CH-2	Electrical Engg Material by Raina and Bhattacharya./Ch-2/Page No 43-59
L-15	Electron Energy and Energy Band Theory		
L-16	Excitation of Atoms		
L-17	Insulators, Semiconductors and Conductors		
L-18	Semiconductor Materials		
L-19	Applications of Semiconductor materials		
L-20	Intrinsic Semiconductors		
L-21	Extrinsic Semiconductors		
L-22	N-Type Materials		
L-23	P-Type Materials		
L-24	Minority and Majority Carriers		
L-25	Applications of Semiconductor materials	CH-3	Electrical Engg Material by Raina and Bhattacharya./Ch-3/Page No 60-120
L-26	Photovoltaic cells		
L-27	General properties of Insulating Materials		
L-28	Electrical properties		
L-29	Visual properties		
L-30	Mechanical properties		
L-31	Thermal properties		
L-32	Chemical properties		
L-33	Insulating Materials – Classification, properties, applications		
L-34	Classification of insulating materials		
L-35	Insulating Gases	CH-4	Electrical Engg Material by Raina and Bhattacharya./Ch-4/Page No 121-131
L-36	Dielectric Materials Introduction		
L-37	Dielectric Constant of Permittivity		
L-38	Polarisation		
L-39	Dielectric Loss		
L-40	Electric Conductivity of Dielectrics and their Break Down		
L-41	Properties of Dielectrics		
L-42	Applications of Dielectrics		
L-43	Types of Dielectric Material	CH-5	Electrical Engg Material by Raina and Bhattacharya./Ch-5/Page No 132-150
L-44	Electrical Characterstics of Dielectric		
L-45	Magnetic Materials Introduction		
L-46	Classification of Magnetic Materials		
L-47	Diamagnetism		
L-48	Para magnetism		
L-49	Ferromagnetism		
L-50	Magnetization Curve		
L-51	Hysteresis, Eddy Currents, Curie Point	CH-6	Electrical Engg Material by Raina and Bhattacharya./Ch-5/Page No 151-157
L-52	Magneto-striction		
L-53	Soft and Hard magnetic Materials		
L-54	Materials for Special Purposes		
L-55	Structural Materials		
L-56	Protective Materials		
L-57	Thermocouple materials		
L-58	Soldering Materials		
L-59	Fuse and Fuse materials		
L-60	Dehydrating material		

Lect no	Topic to be Covered	Chapter as Syllabus	Reference book
	The multidisciplinary structure of Environment		
L-01	Definition and scope	Ch:1	Concepts in Environmental Studies, D.D. Mishra, S.Chand Page 5 - 35
L-02	Importance of environment		
L-03	Needs for public awarness		
	Natural Resources		
L-04	Renewable and non-renewable resources	Ch-2	Concepts in Environmental Studies, D.D. Mishra, S.Chand Page 37 - 53
L-05	Forest resources, Water resources, Mineral resources		
L-06	use of alternate energy sources, case studies		
L-07	Land resources-land as a resources.land degradatation.		
L-08	man induces land slides, soil erosion, and desertification		
L-09	Role of individual in conservation of natural resources		
L-10	Equitable use of resources and sustainable life style.		
	Systems		
L-11	Concept of an eco system.	Ch-3	Concepts in Environmental Studies, D.D. Mishra, S.Chand Page 56 - 75
L-12	Structure of an eco system.		
L-13	function of an eco system.		
L-14	Producers, consumers, decomposers.		
L-15	Energy flow in the eco systems.		
L-16	Energy flow in the eco systems.		
L-17	Ecological succession.		
L-18	Food chains, food webs.		
L-19	Ecological Pyramids.		
	Biodiversity and it's Conservation		
L-20	Introduction-Definition: genetics, species and ecosystem diversity.	Ch-4	Concepts in Environmental Studies, D.D. Mishra, S.Chand Page 80 - 105
L-21	Biogeographically classification of India.		
L-27	Value of biodiversity.		
L-28	consumptive use, productive use.		
L-29	Social,ethical,aesthetic,optim value.		
L-30	Biodiversity at global, national and local level.		
L-31	Threats to biodiversity: Habitats loss.		
L-32	poaching of wild life, man wildlife conflicts.		
	Environmental Pollution		
L-33	Definition Causes of Air pollution.		
L-34	effects and control measures of Air pollution.		
L-36	Definition Causes of water pollution.		
L-37	effects and control measures of water pollution.		
L-38	Definition Causes of soil pollution.		
L-39	Effects and control measures of soil pollution.		
L-40	Definition Causes of marine pollution.	Ch-5	Concepts in Environmental Studies, D.D. Mishra, S.Chand Page 109 - 135
L-41	effects and control measures of marine pollution.		
L-42	Definition Causes of thermal pollution.		
	Social issues and the Environment		
L-43	Form unsustainable to sustainable development.	Ch-6	Concepts in Environmental Studies, D.D. Mishra, S.Chand Page 139 - 165
L-44	Urban problems related to energy.		
L-45	Water conservation.		
L-46	rain water harvesting, water shed management.		
L-47	Environmental ethics: issue and possible solutions.		
L-48	Climate change, global warming.		
L-49	acid rain, ozone layer depletion.		
L-50	Nuclear hazards.		
L-51	Air prevention and control pollution act.		
L-52	Waterprevention and control pollution act.		
L-53	Public awareness.		
	Human population and the environment		
L-54	Population growth and variation among nations.	Ch-7	Concepts in Environmental Studies, D.D. Mishra, S.Chand Page 169 - 201
L-55	Population explosion.		
L-56	family welfare program.		
L-57	Environment and human health.		
L-58	Human rights.		
L-59	Value education		
L-60	Role of information technology		

MITS School of Engineering, Bhubaneswar

Lab Lesson Plan

Name of the Subject: - MECHANICAL ENGINEERING LAB (PR1)

Name of the Faculty: - Mr.Subrat Kumar Ghosh

Semester:-3rd

SL.NO	Name of the experiment	Name of the Equipment	VENUE
01	Determination of Young's modulus by Searle's Apparatus	Searle's apparatus	ME Lab
02	Study of Universal Testing Machine and determination of tensile stress and Young's module of M.S specification	Universal testing machine	ME Lab
03	Determination of M.A.,V.R. and efficiency of Screw Jack	Screw Jack with its handle	ME Lab
04	Study of pressure measuring devices such as (a) Piezo-meter (b) Simple manometer	Piezometer & Manometer	ME Lab
05	Study of venturi-meter	Bernoulli's Apparatus with venturi-meter	ME Lab
06	Verification of Bernoulli's Theorem	Bernoulli's Apparatus	ME Lab
07	Model study of Centrifugal pumps, Francis, Turbine, Kaplan turbine and Pelton wheel.	Centrifugal pump & Pelton Turbine	ME Lab
08	Study of Cochran Boiler	Cochran Boiler	ME Lab
09	Study and demonstration of Diesel Engine	2 stroke diesel engine	ME Lab
10	Study and demonstration of Petrol Engine	4-stroke Petrol Engine	ME Lab

MIT School of Engineering, Bhubaneswar

Lab Lesson Plan

Name of the Subject:-:Circuit Simulation Lab(PR2)

Name of the Faculty:-Mr. Amit kumar Sahoo

Semester:-3rd

SL.NO	Name of the experiment	Name of the Equipment	VENUE
01	Measurement of equivalent resistance in series and parallel circuit	CNT Trainer/MATLAB	Electronics Lab
02	Measurement of power and power factor using series R-L-C Load.	CNT Trainer/MATLAB	Electronics Lab
03	Verification of KCL and KVL.	CNT Trainer/MATLAB	Electronics Lab
04	Verification of Super position theorem	CNT Trainer/MATLAB	Electronics Lab
05	Verification of Thevenin's Theorem	CNT Trainer/MATLAB	Electronics Lab
06	Verification of Norton's Theorem	CNT Trainer/MATLAB	Electronics Lab
07	Verification of Maximum power transfer Theorem	CNT Trainer/MATLAB	Electronics Lab
08	Determine resonant frequency of series R-L-C circuit.	CNT Trainer/MATLAB	Electronics Lab
09	Study of Low pass filter & determination of cut-off frequency	CNT Trainer/MATLAB	Electronics Lab
10	Study of High pass filter & determination of cut-off frequency	CNT Trainer/MATLAB	Electronics Lab

MIT School of Engineering, Bhubaneswar

Workshop Lesson Plan

Name of the Subject: - MECHANICAL WORKSHOP (PR3)

Name of the Faculty: - Mr. Somanatha jena

Semester:-3rd

SL.NO	Name of the experiment	Name of the Equipment	Venue
01	Carpenter:	EssentialPowerTools: CircularSawDrill (3/8" to 1/2"chuck), Reciprocating Saw, Extension Cords NonessentialTools: AirCompressor, Nail Guns(framing anddecking), Air Hoses, Compound Miter Saw, Table SawNail Gun (exterior finish nailer)	Workshop
02	Name of carpentry tools and uses	Hammer, Tape Measure, Chalk Line, Carpenter's Pencil, Utility Knife, Tin Snips, Nail Puller, Speed, Square, Framing Square, Levels, Wood Chisel (1 inch)	Workshop
03	Different operations of Sawing, Planning, Chiseling	-DO-	Workshop
04	Measuring & Marking	Carpenter's pencil, punch, hammer	Workshop
05	Different types of timbers used by carpenters, substitutions of timbers.	Timber & lumber	Workshop
06	Jobs : a. Slot. Notch b. Mortise and tenon joint c. Single dovetail joint	Hammer, Tape Measure, Chalk Line, Carpenter's , Utility Knife, Tin Snips, Nail Puller, Speed, Square, Framing	Workshop
07	Turning	Lathe machine, power saws,	Workshop
08	Study of S. C. Lathes and their accessories, practice in lathe work	Hammer, ring spanner, chuck key, tool key, cutting tools, knurling tool, Vernier caliper	Workshop
09	various operations such as plane turning, step turning, taper turning, knuckling and external V. Threading. (One job only.)	spindle gouge roughing gouge oval skew chisel round nose scraperparting tool hollowing tool bowl gouge	Workshop

MIT SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Energy Conversion I (TH1)

Semester: 4th Sem (Electrical)

Name of the Faculty: Mr.Sandeep Chamtiray

Lecturer No.	Topics Planed to be Covered	Chapter As Per Syllabus	Reference Books/Chapter/Page No.
LT-1	Explain principle of operation	CHAPTER 1	V.K.MEHETA CHAPTER2 (26-144)
LT-2	Explain Constructional feature		
LT-3	Armature winding, back pitch, Front pitch, Resultant pitch and commutator pitch		
LT-4	Simple Lap and wave winding (problems on winding diagram)		
LT-5	Explain Different types of D.C. machines Shunt, Series and Compound machine		
LT-6	Explain Armature reaction in D.C. machine & commutation		
LT-7	Explain Methods of improving commutation (Resistance and emf commutation)		
LT-8	Explain role of inter poles and compensating winding. (solve problems)		
LT-9	Characteristics of D.C. Generators and uses of different types of D.C. Generators.		
LT-10	Concept of critical resistance causes of failure of development of emf.		
LT-11	Explain losses and efficiency of D.C. machines, condition for maximum efficiency		
LT-12	Explain parallel operation of D.C. Generators. (solve problems)		
LT-13	Explain D.C. Motor principle.State Significance of back emf in D.C. Motor.Derive voltage equation	CHAPTER 2	V.K.MEHETA CHAPTER3 (145-236)
LT-14	Derive torque (Equation of Armature Torque and shaft Torque) (solve problems)		
LT-15	Explain performance characteristics of shunt, series and compound motors and their application.		
LT-16	Explain methods of starting shunt, series and compound motors, (solve problems)		
LT-17	Explain speed control of D.C shunt motors by Flux control method,Armature voltage (rheostatic) Control method.Solve problems		
LT-18	Explain speed control of series motors by Flux control method and series parallel method.		
LT-19	Explain determination of efficiency of D.C. Machine by break test method		
LT-20	Explain determination of efficiency of D.C. Machine by Swibburne's Test method.		
LT-21	Explain Losses & efficiency and condition for maximum power and solve numerical problems.		
LT-22	Explain working principles		
LT-23	Explain Transformer Construction	CHAPTER3	V.K.MEHETA CHAPTER8 (262-370)
LT-24	Explain types of cooling methods		
LT-25	State the procedures for Care and maintenance		
LT-26	Derive EMF equation, Voltage transformation ratio		
LT-27	Explain Transformer on no load and on load phasor diagrams.		
LT-28	Explain Equivalent Resistance. Reactance and Impedance.		
LT-29	Explain phasor diagram of transformer with winding Resistance and Magnetic leakage.		
LT-30	Explain Equivalent circuit and solve numerical problems.		
LT-31	Calculate Approximate & exact voltage drop of a Transformer.		
LT-32	Calculate Regulation of various loads and power factor.		
LT-33	Explain Different types of losses in a Transformer. (solve problems)		
LT-34	Explain Open circuit test.		
LT-35	Explain Short circuit test.		
LT-36	Explain Efficiency, efficiency at different loads and power factors		
LT-37	Explain All Day Efficiency (solve problems)		
LT-38	Explain determination of load corresponding to Maximum efficiency.	CHAPTER4	V.K.MEHTA CHAP-8 (370-397)
LT-39	Explain parallel operation of single phase transformer.		
LT-40	Explain constructional features.Explain Working principle of single phase Auto Transformer.		
LT-41	State Comparison of Auto transformer with an two winding transformer (saving of Copper)		
LT-42	State Uses of Auto transformer. Explain Tap changer with transformer	CHAPTER 5	A.HUSSEN CHAP-9 (654-670)
LT-43	Explain Current Transformer and Potential Transformer		
LT-44	Define Ratio error, Phase angle error, Burden.		
LT-45	Uses of C.T. and P.T.		

MIT SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Analog Electronics and Op Amp(TH2) **Semester:** 4th Sem (Electrical)

Name of the Faculty: Mr. Amit Kumar Sahoo

Lect. No.	Topics Planned to be Covered	Chapter As Per Syllabus	Reference Books/Chapter/Page No.
LT-1	Introduction	Ch-1	Electronics Device and Circuit by Sanjeev Gupta Ch-2/ 2.5 Ch-4/4.3 Ch-4/4.5-4.13 Ch-4/4.30-4.35
LT-2	What is Semiconductor & list type		
LT-3	P-N Junction Diode Working of Diode		
LT-4	V-I characteristic of PN junction Diode		
LT-5	DC load line, Important terms such as Ideal Diode, Knee voltage, Junction break down, Zener breakdown, Avalanche breakdown		
LT-6	P-N Diode clipping Circuit		
LT-7	P-N Diode clamping Circuit		
LT-8	Thermistors, Sensors & barretters		
LT-9	Zener Diode, Tunnel Diode		
LT-10	PIN Diode, Question Discussion	Ch-3	Ch-8/8.1-8.44
LT-11	What is Rectifier & how it differs from diode		
LT-12	Classification of rectifiers		
LT-14	Analysis of full wave centre tapped rectifiers		
LT-15	Analysis of Bridge rectifiers		
LT-16	Comparison of Different types of rectifiers		
LT-17	What is filter & its use & its types, Shunt capacitor filter		
LT-18	Choke input filter, π filter		
LT-19	Comparison of Different types of filters Question Discussion		
LT-20	Principle of Bipolar junction transistor		
LT-21	Different modes of operation of transistor		
LT-22	Current components in a transistor		
LT-23	Transistor as an amplifier		
LT-24	Transistor circuit configuration & its characteristics, CB Configuration, CE Configuration		
LT-25	CC Configuration	Ch-5	Ch-8/8.1-8.44
LT-26	Transistor biasing, Stabilisation, Stability factor		
LT-27	Differenof method Transistors Biasing , Base resistor method		
LT-28	Collector to base bias, Self bias or voltage divider method		
LT-29	Practical circuit of transistor amplifier	Ch-6	Ch-11/11.1-11.37 Ch-12/12.1-12.15 Ch-13/13.1-13.21 Ch-14/14.1-14.28
LT-30	DC load line and DC equivalent circuit, AC load line and AC equivalent circuit		
LT-31	Calculaion of gain, Phase reversal, H-parameters of transistors		
LT-32	Simplified H-parameters of transistors, Generalised approximate mode		
LT-33	Analysis of CB, CE, CC amplifier using generalised approximate model		
LT-34	Multistage transistor amplifier, R.C. coupled amplifier		
LT-35	Transformer coupled amplifier		
LT-36	Feed back in amplifier, theory of feed back, Negative feed back circuit, Advantage		
LT-37	Power amplifier and its classification, Difference between voltage amplifier and power amplifier		
LT-38	Oscillators. Types of osciliactors, Essentials of transistor osciliator		
LT-39	Principle of operation of tuned collector		
LT-40	Principle of operation of Hartley, colpitt	Ch-7	Ch-7/7.1-7.21
LT-41	Principle of operation of phase shift, wein-bridge oscillator (no mathematical derivations)		
LT-42	Classification of FET, Advantages of FET over BJT		
LT-43	Principle of operation of BJT		
LT-44	FET parameters, DC drain resistance, AC drain resistance, Transconductance, Biasing of FET		
LT-45	Question Discussion	Ch-8	Ch-17/17.1-17.49
LT-46	General circuit simple of OP-AMP and IC-CA-741 OP AMP		
LT-47	Operational amplifier stages, Equivalent circuit of operational amplifier		
LT-48	Open loop OP-AMP configuration		
LT-49	OPAMP with fed back		
LT-50	Inverting OP-AMP, Non Inverting OP-AMP		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Electrical Measurement and Instrument (TH3)

Semester: 4th Sem (Electrical)

Name of the Faculty: Mr. Shiv Prasad Sahu

Lecturer No.	Topics to be Covered	Chapter as per syllabus	Reference books/Chapter/Page No.
L-01	Define Accuracy, precision, Errors, Resolutions Sensitivity and tolerance	CH-1	Electrical Measurement by R.K.Rajput/Ch-1/Page No 11-104
L-02	Classification of measuring instruments.		
L-03	Explain Deflecting, controlling and damping arrangements in indicating instruments.		
L-04	Calibration of instruments.		
L-05	Moving iron type instruments.		
L-06	Permanent Magnet Moving coil type instruments.	CH-2	Electrical Measurement by R.K.Rajput/Ch-1/Page No 108-113
L-07	Dynamometer type instruments		
L-08	Rectifier type instruments		
L-09	Induction type instruments		
L-10	Extension of range of instruments by use of shunts and Multipliers.		
L-11	Solve Numericals		
L-12	Describe Construction, principle of working Dynamometer type wattmeter	CH-3	Electrical Measurement by R.K.Rajput/Ch-1/Page No 121-140
L-13	Errors in Dynamometer type wattmeter		
L-14	L P F Electro – Dynamometer type wattmeters		
L-15	Induction type wattmeters		
L-16	Measurement of Power in Single Phase and Three Phase Circuit		
L-17	Energymeters and measurement of energy	CH-4	Electrical Measurement by R.K.Rajput/Ch-1/Page No 121-140
L-18	Single Phase and polyphase Induction type Energy meters		
L-19	Testing of Meters		
L-20	Tachometers, types and working principles	CH-5	Electrical Measurement by R.K.Rajput/Ch-12/Page No 557-699
L-21	Mechanical and Electrical resonance Type frequency meters.		
L-22	Dynamometer type single phase and three phase power factor meters.		
L-23	Synchrosopes – objectives and working		
L-24	Phase Sequence Indicators and its working.	CH-6	Electrical Measurement by R.K.Rajput/Ch-2.6/Page No 216-285
LT-25	Classification of resistance		
LT-26	Measurement of low resistance by voltage drop and potentiometer method		
LT-27	Measurement of medium resistance by wheat Stone bridge method		
LT-28	Measurement of high resistance by loss of charge method		
LT-29	principle of operations (meggers) insulation resistance & Earth resistance megger		
LT-30	Construction and principles of Multimeters		
LT-31	Maxewell’s Bridge method		
LT-32	Schering Bridge method		
LT-33	Define Transducer, sensing element and classification	CH-7	Electrical Measurement by R.K.Rajput/Ch-7/Page No 393-492
LT-34	Resistive transducer		
LT-35	Linear and angular motion potentiometer		
LT-36	Thermistor and Resistance thermometers		
LT-37	Wire Resistance Strain Gauges		
LT-38	Inductive Transducer		
LT-39	Principle of linear variable differential Transformer		
LT-40	Uses of LVDT.		
LT-41	Capacitive Transducer		
LT-42	General principle of capacitive transducer		
LT-43	Variable area capacitive transducer		
LT-44	Change in distance between plate capacitive transducer		
LT-45	Piezo electric Transducer and Hall Effect Transducer with their applications	CH-8	Electrical Measurement by R.K.Rajput/Ch-2.5/Page No 173-210
LT-46	Introduction to Cathod Ray Oscilloscope		
LT-47	Principle of operation of Cathode Ray Tube		
LT-48	Principle of operation of Oscilloscope (with help of block diagram).		
LT-49	Measurement of DC Voltage & current.		
LT-50	Measurement of AC Voltage, current, phase & frequency		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Generation, Transmission and Distribution (TH4)

Sem: 4th Sem Electrical

Name of the Faculty: Mr. Amit Kumar Sahoo

Lecturer No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books/Chapter/Page No.
L-01	Elementary idea on generation of electricity	Ch-1	V.K.Mehta /1/ 1-8 & V.K.Mehta / Chapter 2/(9-40)
L-02	Generation of electricity from Steam		
L-03	Layout of Thermal Power Plant and disscussion about the main parts		
L-04	Generation of electricity from Water		
L-05	Layout of Hydal Power Plant		
L-06	Nuclear Power Plant		
L-07	Layout of Nuclear Power Plant/Question Discussion		
L-08	Layout of transmission and distribution scheme	Ch-2	V.K.Mehta / Chapter 7/(127-158)
L-09	Explanation on voltage Regulation & efficiency of transmission		
L-10	Kelvin's law for economical size of conductor		
L-11	Corona and corona loss on transmission lines	Ch-3	V.K.Mehta / Chapter 8/(159-201)
L-12	Types of supports, size and spacing of conductor		
L-13	Types of Conductor , Insulator Material and Cross Arms		
L-14	Derivation of sag in overhead line with support at same level		
L-15	Derivation of sag in overhead line with support at different level		
L-16	Effect of wind, ice and temperature on Sag		
L-17	Problems on Sag considering the effect of Wind ICE and Temperature		
L-18	Classification of transmission line and important terms (voltage regulation and transmission efficiency)	Ch-4	V.K.Mehta / Chapter 10/(228-263)
L-19	Performance of Single Phase Short Transmission Line		
L-20	Problems on Short Transmission Line, effect of power factor on regulation and efficiency		
L-21	Performance of Medium Transmission Lines and Different type of Methods for solving problems A > End		
L-22	Explanation and Problems on End condenser Method		
L-23	Explanation and Problems on Nominal T-Method		
L-24	Explanation and Problems on Nominal Pie (π) Method		
L-25	Different Between AC and DC transmission	Ch-5	V.K.Mehta / Chapter 12/(285-3305)
L-26	Explanation on EHV AC transmission		
L-27	Reasons for adoption of EHV transmission		
L-28	Problems involved in EHV transmission		
L-29	Explanation on HV DC transmission		
L-30	Advantages and Limitations of HVDC transmission		
L-31	Introduction of Distribution System	Ch-6	V.K.Mehta / Chapter 13/(310-355) V.K.Mehta / Chapter 14/(356-373)
L-32	Connection Schemes of Distribution System – (Radial, Ring Main and Inter connected system)		
L-33	DC distribution system - (a) Distributor fed at one End (b) Distributor fed at both the ends (c) Ring distributors		
L-34	Continutaion of Last Class and Problems on DC distribution system		
L-35	AC distribution system and method of solving AC distribution problem		
L-36	Three phase four wire star connected system arrangement	Ch-7	V.K.Mehta / Chapter 11/(264-299)
L-37	Explanation of cable insulation and classification of cables		
L-38	Types of L. T. & H.T. cables with construction features		
L-39	Methods of cable laying		
L-40	For Localisation of cable faults – Murray test	Ch-8	V.K.Mehta / Chapter 3/(41-62)
L-41	Varley loop test for short circuit fault/Earth fault		
L-42	Reasons of low power factor and methods of improvement power factor		
L-43	Defination and explanation of Load curves	Ch-9	V.K.Mehta / Chapter 5/(87-100)
L-44	Defination and explanation of Demand factor and Maximum demand		
L-45	Defination and explanation of Load factor and Diversity factor		
L-46	Defination of tariff and Explanation of flat rate two part tariff and block rate tariff	Ch-10	V.K.Mehta / Chapter 25/(569-585)
L-47	Problems on tariff		
L-48	Explanation and layout of LT. HT and EHT substation		
L-49	Explanation Earthing of Substation		
L-50	Draw layout of transmission and distribution lines.		

MITS School of Engineering, Bhubaneswar
Department of Electrical Engg
Lab Lesson Plan

Name of the Subject:-:Electrical Machine Lab (PR1)

Name of the Faculty:- Mr.Sandeep Champatiray

Semester:-4th

VENUE: Electrical Machine Lab

SL.NO	Name of the experiment	Equipment Requ	Working Status	Remark
01	Dimensional and material study of various parts of a DC machine	DC machine	Avaliable	
02	Study of different part, identification of terminals & measure of insulation resistance by Megger	DC machine and Megger Meter	Avaliable	
03	Study of 3point starter of DC motor	DC motor	Avaliable	
04	Study of 4point starter of DC motor	DC motor	Avaliable	
04	Identification of terminals, determination of voltage transformation ratio of a single phase transformer.	1- Φ transformer	Partially Available	
05	Perform OC Test and SC test of a single phase transformer.	1- Φ transformer	Not Installed	
06	Plot OCC of a DC shunt generator at constant speed and determine critical resistance from the graph.	DC Generator	Not Installed	
07	Plot External Characteristics of a DC shunt generator at constant speed.	DC Generator	Not Installed	
08	Control the speed of a DC shunt motor by field flux control method & armature voltage control method	DC Motor	Not Installed	
09	Determine the armature current vs. speed characteristic of a DC motor	DC Motor	Not Installed	

MITS School of Engineering, Bhubaneswar
Department of Electrical Engg
Lab Lesson Plan

Name of the Subject:-MATLAB & Simulation Lab (PR2)

Name of the Faculty:-Mr. Shiv Prasad Sahu

Semester:-4th

VENUE: Computer Lab

SL.NO	Name of the experiment	Equipment Required	Working Status	Remark
01	Functions and operation using variables and arrays	MATLAB Software	Available	
02	Matrix formation and its manipulation	MATLAB Software	Available	
03	Vector manipulation	MATLAB Software	Available	
04	Two dimensional Plots and sub plots	MATLAB Software	Available	
05	Use of sin and sqrt functions with vector arguments	MATLAB Software	Available	
06	To create, add and multiply vectors	MATLAB Software	Available	
07	Verification of Network theorems	SIMULINK Software	Available	
08	Simulation of a half wave uncontrolled rectifier	SIMULINK Software	Available	
09	Math operation block and Display block	SIMULINK Software	Available	
10	Sim-Power system block to use Power electronics devices	SIMULINK Software	Available	

MIT S SCHOOL OF ENGINEERING, BHUBANESWAR

Dept. of Electrical Engg.

Lesson Plan

NAME OF THE FACULTY: Mr. Amit Kumar Sahoo (PR3)

SUBJECT: AEC LAB

SEMESTER: 4th

SL.NO	Name of the experiment	Equipment Required	Working Status
E-1	Determine the input output characteristics of CE & CB transistor configurations.	ANALOG & DIGITAL TRAINER	Working
E-2	Determine drain & transfer characteristics of JFET	ANALOG & DIGITAL TRAINER	
E-3	Construct bridge rectifier using different filter circuit and to determine ripple factor	ANALOG & DIGITAL TRAINER	
E-4	Construct bridge rectifier using different filter and to determine ripple factor	ANALOG & DIGITAL TRAINER	
E-5	Construct & test the regulator using zener diode	ANALOG & DIGITAL TRAINER	
E-6	Construct different types biasing circuit and analysed the wave form. Fixed bias, emitter bias, voltage divider bias	ANALOG & DIGITAL TRAINER	
E-7	Study the single stage CE amplifier & find gain	ANALOG & DIGITAL TRAINER	
E-8	Study multi stage R-C coupled amplifier & to determine frequency response & gain	ANALOG & DIGITAL TRAINER	
E-9	Construct & test differentiator & integrator using R-C circuit	ANALOG & DIGITAL TRAINER	

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Dept. of Electrical Engg.

Lesson Plan

Name of the subject: Electrical Drawing (PR4)

Semester: 4th sem

Name of the lecturer: Mr. Shiv Prasad Sahu

LEC T.N O.	TOPICS / PLANS TO BE COVERED	CHAPTE R	REF. BOOK, CHAPTER, PAGE NO.
1	3 point D. C. motor starter	Ch1	C.r.dragan/dc machine/187
2	4 point D.C. motor starter		C.r.dragan/dc machine /188
3	Drum controller		C.r.dragan/dc machine/185
4	DOL starter, Star delta starter.		C.r.dragan/ac machine/212,213,215
5	Auto Transformer Starter, Rotor resistance starter.		C.r.dragan /ac machine/216,217
6	Control 2 lamp from 5 position		C.r.dragan /wiring,
7	Pole with pole shoes (D.C.)		Ch 2
8	Commutator (D.C), Armature (D.C)	C.r.dragan/dc machine /156, 157	
9	D. C. armature winding, (a) Simple lap winding, (b) Simple wave winding	C.r.dragan /dc machine /153	
10	Alternator Stator without winding.	Ch3	C.r.dragan /ac machine/234,235
11	Alternator Rotor for salient pole type.		C.r.dragan/ ac machine /236, 237, 238
12	Alternator Rotor for smooth cylindrical type.	Ch4	C.r.dragan /ac machine /240, 241
13	Stepped core type.		C.r.dragan /transformer/196, 197
14	Plane shell type		C.r.dragan /ac machine /198, 199,200,201
15	Earthing installation	Ch 5	C.r.dragan/ wiring fault protection & earthing/328,329,330
16	Double pole structure for LT and HT distribution lines.		C.r.dragan /wiring fault protection & earthing /62,63
17	Single line diagram of 33/11kv distribution substation.	Ch 6	C.r.dragan /wiring fault protection & earthing/198,200
18	Single line diagram of a 11/0.4 kv distribution substation		C.r.dragan /wiring fault protection & earthing /201
19	Stator	Ch7	C.r.dragan /ac machine/238
20	Squirrel cage rotor.		C.r.dragan /ac machine/240
21	Phase wound type rotor.		C.r.dragan /ac machine/248
22	Draw Electrical symbols	Ch 8	C.r.dragan/dc machine/190

MIT SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Entrepreneurship and Management & Smart Technology (TH1)

Name of the Faculty: Mr. Debasis Sahoo

SEM: 5th Sem (All Branch)

Lect	Topics Plan to be Covered.	Chapter	Reference.
L-01	Entrepreneurship: Concept /Meaning of Entrepreneurship	CH-1	Industrial Engg. & Management by O.P Khanna/Ch-32
L-02	Need of Entrepreneurship		
L-03	Characteristics, Qualities and Types of entrepreneur, Functions		
L-04	Barriers in entrepreneurship & Entrepreneurs vrs. Manager		
L-05	Forms of Business Ownership: Sole proprietorship, partnership forms and others		
L-06	Types of Industries, Concept of Start-ups		
L-07	Entrepreneurial support agencies at National, State, District Level (Sources):		
L-08	DIC, NSIC,OSIC, SIDBI, NABARD, Commercial Banks, KVIC etc		
L-09	Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks		
L-10	Market Survey and Opportunity Identification: Business Planning		
L-11	SSI, Ancillary Units, Tiny Units, Service sector Units		
L-12	Time schedule Plan, Agencies to be contacted for Project Implementation		
L-13	Assessment of Demand and supply and Potential areas of Growth		
L-14	Identifying Business Opportunity		
L-15	Final Product selection		
L-16	Project Report Preparation: Preliminary project report	CH-3	Production and Operation Management by Panneerselvam/Ch-11
L-17	Detailed project report, Techno economic Feasibility		
L-18	Project Viability		
L-19	Management Principles: Definitions of management	CH-4	Ind. Engg. & Mang O.P Khanna/Ch-32
L-20	Principles of management		
L-21	Functions of management (planning, organizing, staffing, directing and controlling etc.)		
L-22	Level of Management in an Organization		
L-23	Functional Areas of Management: Production management, Functions, Activities		
L-24	Productivity, Quality control Production Planning and control	CH-5	Industrial Engg. & Management by O.P Khanna/Ch-8&24
L-25	Inventory Management, Need for Inventory management Models/Techniques of Inventory		
L-26	Financial Management, Functions of Financial management, Management of Working		
L-27	Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping,		
L-28	Journal entry, Petty Cash book, P&L Accounts, Balance Sheets		
L-29	Marketing Management, Concept of Marketing and Marketing Management		
L-30	Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion)		
L-31	Human Resource Management: Functions of Personnel Management		
L-32	Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of		
L-33	Methods of Training & Development, Payment of Wages		
L-34	Leadership and Motivation: Leadership, Definition and Need/Importance	CH-6	Ind. Engg. & Mang by O.P Khanna/Ch-17
L-35	Qualities and functions of a leader, Manager Vs Leader, Style of Leadership		
L-36	Motivation: Definition and characteristics, Importance of motivation		
L-37	Factors affecting motivation, Theories of motivation, Methods of Improving Motivation		
L-38	Importance of Communication in Business, Types and Barriers of Communication		
L-39	Work Culture, TQM & Safety: Human relationship and Performance in Organization	CH-7	Total Quality Management by V. Jayakumar /Ch-7
L-40	Relations with Peers, Superiors and Subordinates,		
L-41	TQM concepts: Quality Policy, Quality Management, Quality system		
L-42	Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE)		
L-43	Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights		
L-44	Features of Factories Act 1948 with Amendment (only salient points)	CH-8	Ind. Engg. & Mang O.P Khanna/Ch-22
L-45	Features of Payment of Wages Act 1936 (only salient points)		
L-46	Smart Technology: Concept of IOT, How IOT works, Components of IOT	CH-9	Prod & Operation Mgt by Panneerselvam/Ch-8
L-47	Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart		
L-48	Smart Home, Smart Healthcare, Smart Ind, Smart Agri, Smart Energy Magt etc.		

Lecture	Topics Plan To Be Covered	Chapter	Reference
L-01	Types Of Alternator And Its Features	CH-1	Electrical Technology, Volume-II By B.L And A.K Thereja Page-1401-1488
L-02	Working Principle Of Alternator		
L-03	Terminology in Armature winding		
L-04	Pitch Factor ,Distribution Factor		
L-04	Harmonics And Winding Factor		
L-06	Emf Equation Of Alternator		
L-07	Solve numerical problems		
L-08	Armature Reaction		
L-09	Vector diagram of loaded Alternator		
L-10	Solve numerical problems		
L-11	Open Circuit Test And Short Circuit Test		
L-12	Solve numerical problems		
L-13	Parallel Operation Of Alternator Using Bright Lamp Method		
L-14	Explain distribution of load by parallel connected Alternators		
L-15	Constructional Features Of Synchronous Motor		
L-16	Principle Of Operation,Load Angle		
L-17	Derive Torque		
L-18	PoweranglecharectaristicsOf Cylindrical Rotor Motor		
L-19	Effect Of Excitation Of Armature Current And Power Factor		
L-20	Hunting In Synchronous Motor		
L-21	Damperbars In Synchronous Motor And Generator		
L-22	Application Of Synchronous Motor		
L-23	Method Of Starting Of Synchronous Motor	CH-3	Electrical Technology, Volume-II By B.L And A.K Thereja Page-1489-1534
L-24	Production Of Rotating Magnetic Field		
L-25	Constructional Features Of Squirrel Cage And Slip Ring Induction Motor		
L-26	Working Principle Of 3 Phase Induction Motor		
L-27	Define Slip Speed		
L-28	Torque During Starting And Running Condition		
L-29	Solve numerical problems		
L-30	Torque-slip characteristics		
L-31	relation between full load torque and starting torque		
L-32	Solve numerical problems		
L-33	Relations between Rotor Copper loss, Rotor output and Gross Torque		
L-34	Explain speed control		
L-35	Plugging		
L-36	Types of motor enclosures		
L-37	principle of Induction Generator and state its applications	CH-4	Electrical Technology, Volume-II By B.L And A.K Thereja Page-1367-1400
L-38	Ferrari's principle		
L-39	Double Revolving Field Theory		
L-40	Torque Speed Charectaristics		
L-41	Split Phase Motor		
L-42	Capacitor Start Motor		
L-43	Capacitor start, capacitor run motor		
L-44	Permanent Capacitor Type Motor		
L-45	Shaded Pole Motor		
L-46	Method To Change The Direction Of Above Motors		
L-47	Numericals		
L-48	Construction,working principleOf Series Motor	CH-5	Electrical Technology, Vol-II By B.L And A.k Thereia.page-1367-1400
L-49	Working Principle Of Universal Motor		
L-50	WorkiG Principle Of Repulsion Start Induction Motor	CH-6	Electrical Technology, Vol-II By B.L And A.kThereja.page-1535-1568
L-51	Principle Of Steeper Motor		
L-52	Classification Of Steeper Motor		
L-53	Principle Of Permanent Magnet Steeper Motor		
L-54	Principle Of Hybrid Motor		
L-55	Application Of Steeper Motor		
L-56	Explain Group Of Winding And Advantages	CH-7	Energy Conversion Device By GPKHUNTIA AND P PARIDA.page-195-208
L-57	Explain Parallel Operation Of 3 Phase Transformer		
L-58	Explain Parallel Operation Of 3 Phase Transformer		
L-59	Explain Tap Changer		
L-60	Maintainance Schedule Of Power Transformer		

MIT S SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Digital Electronics and Microprocessor (TH3)

Semester:5th Sem (Electrical)

Name of the Faculty: Sandeep Kumar Champatiray

Lecturer	Topics Plan to be Covered	Chapter aper	Reference books/Chapter/Page No.
L-01	Binary, Octal, Hexadecimal number systems and compare with	CH-1	Fundamental of Digital Electronics By Ananda Kumar Page No-28-231
L-02	Binary addition, subtraction, Multiplication and Division.		
L-03	1's complement and 2's complement numbers for a binary number		
L-04	Subtraction of binary numbers in 2's complement method		
L-05	Use of weighted and Un-weighted codes & write Binary equivalent		
L-06	Importance of parity Bit.		
L-07	Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth		
L-08	Realize AND, OR, NOT operations using NAND, NOR gates		
L-09	Different postulates and De-Morgan's theorems in Boolean algebra		
L-10	Use Of Boolean Algebra For Simplification Of Logic Expression		
L-11	Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS		
L-12	Give the concept of combinational logic circuits	CH-2	Fundamental of Digital Electronics By Ananda Kumar Page No-326-459
L-13	Half adder circuit and verify its functionality using truth table		
L-14	Realize a Half-adder using NAND gates only and NOR gates only		
L-15	Full adder circuit and explain its operation with truth table		
L-16	Realize full-adder using two Half-adders and an OR – gate and write		
L-17	Full subtractor circuit and explain its operation with truth table		
L-18	Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer		
L-19	Working of Binary-Decimal Encoder & 3 X 8 Decoder		
L-20	Working of Two bit magnitude comparator		
L-21	Give the idea of Sequential logic circuits	CH-3	Fundamental of Digital Electronics By Ananda Kumar Page No-546-630
L-22	State the necessity of clock and give the concept of level clocking		
L-23	Clocked SR flip flop with preset and clear inputs.		
L-24	Construct level clocked JK flip flop using S-R flip-flop		
L-25	Concept of race around condition and study of master slave JK flip flop		
L-26	Give the truth tables of edge triggered D and T flip flops and draw		
L-27	Applications of flip flops.		
L-28	Define modulus of a counter		
L-29	4-bit asynchronous counter and its timing diagram		
L-30	Asynchronous decade counter		
L-31	4-bit synchronous counter		
L-32	Distinguish between synchronous and asynchronous counters		
L-33	State the need for a Register and list the four types of registers.		
L-34	Working of SISO, SIPO, PISO, PIPO Register with truth table using flip		
L-35	Introduction to Microprocessors, Microcomputers		
L-36	Architecture of Intel 8085A Microprocessor		
L-37	Pin diagram and description		
L-38	Stack, Stack pointer & stack top		
L-39	Interrupts		
L-40	Opcode & Operand		
L-41	Differentiate between one byte, two byte & three byte instruction		
L-42	Instruction set of 8085 example		
L-43	Addressing mode		
L-33	Fetch Cycle, Machine Cycle, Instruction Cycle, T-State		
L-44	Timing Diagram for memory read, memory write, I/O read, I/O write		
L-45	Timing Diagram for 8085 instruction		
L-46	Counter and time delay.		
L-47	Assembly language programming of 8085		
L-48	program to add two 8 bit numbers		
L-49	Subtract two 16-bit numbers		
L-50	Interfacing and supporting Chips	CH-5	Microprocessor Architecture By R.S Gaonkar
L-51	Introduction to Intel 8255		
L-52	Basic Interfacing Concepts		
L-53	Memory mapping		
L-54	I/O mapping		
L-55	Functional block diagram of PPI of Intel 8255		
L-56	description of each block of Programmable peripheral interface		
L-57	Application using 8255		
L-58	Seven segment LED display		
L-59	Square wave generator		
L-60	Traffic light Controller		

LectNo.	Topics Plan to be Covered	Chapters	Reference
L-01	Definition and Basic principle of Electro Deposition.	1	Utilization of Electrical Energy by G. C. Garg/Ch-6/593-639
L-02	Important terms regarding electrolysis.		
L-03	Faradays Laws of Electrolysis.		
L-04	Definitions of current efficiency, Energy efficiency.		
L-05	Principle of Electro Deposition.		
L-06	Factors affecting the amount of Electro Deposition.		
L-07	Factors governing the setter electro deposition.		
L-08	State simple example of extraction of medals.		
L-09	Application of Electrolysis		
L-10	State advantage of electrical heating.		
L-11	Explain mode of heat transfer and Stephen's Law.		
L-12	Discuss Resistance heating.		
L-13	Explain principle of Resistance furnace.		
L-14	Explain principle of Direct arc furnace and Indirect arc furnace.		
L-15	Principle of Induction heating.		
L-16	Principle of core type Induction furnace.		
L-17	Principle of coreless induction furnace and skin effect.		
L-18	Principle of dielectric heating and its application		
L-19	Principle of Microwave heating and its application.	3	Utilization of Electrical Energy by G. C. Garg/Ch-4/397-454
L-20	Explain principle of arc welding.		
L-21	Explain D. C. & A. C. phenomena		
L-22	Explain study of D.C. & A. C. are welding plants		
L-23	Explain types of are welding.		
L-24	Explain principles of resistance welding.		
L-25	Explain Descriptive study of resistance welding plant.		
L-26	Nature of Radiation and its spectrum	4	Utilization of Electrical Energy by G. C. Garg/Ch-5/455-592
L-27	Terms used in Illuminations		
L-28	Explain the inverse square law and		
L-29	Explainthe cosine law		
L-30	Explain polar curves		
L-31	Describe light distribution and control and related definitions		
L-32	Design simple lighting schemes and depreciation factor		
L-33	Explain Filament lamps, effect of variation of voltage on working		
L-34	Explain Discharge lamps		
L-35	Excitation in gas discharge lamps		
L-36	constructional factures and operation of Fluorescent lamp		
L-37	Sodium vapor lamps		
L-38	High pressure mercury vapor lamps		
L-39	Neon sign lamps		
L-40	High lumen output & low consumption fluorescent lamps	5	Utilization of Electrical Energy by G. C. Garg/Ch-1/1-56
L-41	Stage group and individual drive.		
L-42	Explain choice of electric drives.		
L-43	Explain starting and running characteristics of DC and AC motor.		
L-44	State Application of DC motor		
L-45	State Application of DC motor 3 phase induction motor		
L-46	State Application of 3 phase synchronous motors		
L-47	Single phase induction, series and repulsion motor industry		
L-48	Series motor		
L-49	Universal motor		
L-50	Repulsion motor	6	Utilization of Electrical Energy by G. C. Garg/Ch-8/685-728
L-51	Explain system of traction		
L-52	System of Track electrification		
L-53	Running Characteristics of DC and AC traction motor.		
L-54	Tapped field control.		
L-55	Rheostatic control		
L-56	Metadyne control		
L-57	Regenerative Braking		
L-58	Braking with 1-phase series motor		
L-59	Magnetic Braking		
L-60	Multi-unit control.		

Lecturer	Topics Plan to be Covered	Chapter	Reference books/Chapter/Page		
L-01	Principle of operation of SCR (Thyristors)	CH-1	Power Electronics by P.S.Vimbra/Ch-4/Page 62-149		
L-02	Static V-I Characteristics of Thyristor.				
L-03	Two transistor analogy of Thyristor.				
L-04	Gate characteristics of Thyristor.				
L-05	Switching characteristic of Thyristor during turn on and turn off.				
L-06	Turn on methods of Thyristor., Voltage and Current ratings of Thyristor.				
L-07	Turn off methods of SCR, Protection of Thyristor				
L-08	Protection of Thyristor				
L-09	Gate triggering circuits				
L-10	Uni-junction Transistor, UJT oscillator circuit				
L-11	Use of Pulse Transformer and Optical Isolator in firing circuit				
L-12	DIAC, TRIAC, Power MOSFET, GTO & IGBT				
L-13	Firing Circuits				
L-14	R firing circuits				
L-15	R-C firing circuit				
L-16	UJT pulse trigger circuit				
L-17	Synchronous triggering				
L-18	Snubber Circuits			CH-2	Power Electronics by P.S.Vimbra /Ch-6/Page No 175 to 201 and 248 to 257
L-19	Phase Angle control and quadrant of operation				
L-20	Single quadrant semi converter, two quadrant full converter				
L-21	Freewheeling diode.				
L-22	Single phase half wave converter with R and R-L load				
L-23	Midpoint converter				
L-24	Bridge converter				
L-25	Single phase full wave converter with R and R-L load				
L-26	Single phase half controlled bridge convertor for R and R-L load				
L-27	Three- phase full wave phase control Rectifier with resistive load				
L-28	Principle of step down and step up chopper operation				
L-29	Control strategy of chopper.				
L-30	Chopper configuration and quadrant of operation	CH-3	Power Electronics by P.S.Vimbra /Ch-8/Page No 309-369 & 414 to 427		
L-31	Type A, B, C, D and E chopper				
L-32	Working of single phase AC regulator				
L-33	Inverter classification.				
L-34	Voltage source series inverter.				
L-35	Voltage source Parallel inverter (single phase).				
L-36	Single phase Current source Inverter with ideal Switches				
L-37	Single phase Capacitor commutated CSI with R Load				
L-38	Principle of Cyclo-converter operation				
L-39	Application of Cyclo-converter				
L-40	Single phase to single phase circuit step up Cyclo converter			CH-4	Power Electronics by P.S.Vimbra /Ch-12/Page No 460 to 528 & Ch-11 Page 428 to 459
L-41	Single phase to single phase circuit step down Cyclo converter				
L-42	List applications of power electronic circuits.				
L-43	List the factors affecting the speed of DC Motors				
L-44	Speed control for DC Shunt motor using converter				
L-45	Speed control for DC Shunt motor using chopper				
L-46	List the factors affecting speed of the AC Motors				
L-47	Speed control of Induction Motor by using AC voltage regulator				
L-48	Speed control of induction motor by using converters and inverters				
L-49	Working of UPS with block diagram				
L-50	Battery charger circuit	CH-5	Programme logic controller by Dr.M.Mitra&Dr.S.Sengupta / Chapter 1 to 5		
L-51	Basic Switched mode power supply				
L-52	Introduction of Programmable Logic Controller				
L-53	Applications of PLC				
L-54	Different parts of PLC				
L-55	Ladder diagram for AND gate, OR gate, NOT gate				
L-56	Ladder diagram for Universal gates				
L-57	Description of contacts and coils				
L-58	PLC Instruction set				
L-59	Special control systems- Basics DCS & SCADA systems				
L-60	Computer Control–Data Acquisition, Direct Digital Control System				

MITS School of Engineering, Bhubaneswar

Department of Electrical Engg

Lab Lesson Plan

Name of the Subject:-:Energy conversion-II practice Lab (PR1)

Name of the Faculty:-Mr. Sandeep kumar Champatiray

Semester:-5th

Expt. No	Name of the experiment	Name of the Equipmen	Venue
1.	Study of DOL starter & star delta starter.	DOL , star-delta starter	Electrical Machine Lab
2.	Auto transformer starter & rotor resistance starter connection & running a 3-phase induction motor & measurement of starting current.	Auto Transformer, 3-Phase Induction Motor	Electrical Machine Lab
3.	Reverse the direction of rotation of single phase & three phase IM.	Single & Three Phase IM.	Electrical Machine Lab
4.	Heat run test of 3-phase transformer	3-Phase Transformer	Electrical Machine Lab
5.	OC & SC test of alternator.	Alternator	Electrical Machine Lab
6.	Determination of regulation of alternator by synchronous impedance method.	Alternator	Electrical Machine Lab
7.	Determination of regulation of alternator by direct loading.	Alternator	Electrical Machine Lab
8.	Parallel operation of alternator.	Two Alternator	Electrical Machine Lab
9.	Connection of 3-phase energy meter to 3-phase load	3-Phase Energy Meter, Phase Load	Electrical Machine Lab
10.	Connection & running of 1-phase motor-a)capacitor start motor (b)shaded pole motor	Capacitor Start Motor , Shaded Pole Motor	Electrical Machine Lab
11.	Dismantling of a single phase capacitor motor & study its winding connection.	Single Phase Capacitor Motor	Electrical Machine Lab
12	Study of an O.C.B.	Relay	Electrical Machine Lab

MITS School of Engineering, Bhubaneswar

Department of Electrical Engg

Lab Lesson Plan

Name of the Subject:-:Power Electronics Lab (PR2)

Nme of the Faculty:-Mr. Shiv Prasad Sahu

Semester:-5th

Expt No	Name of the experiment	Name of the Equipmen	Vanue
01	Study of switching characteristics of a power transistor.	PED Trainer	Electronics Lab
02	Study of V-I characteristics of SCR.	PED Trainer	Electronics Lab
03	Study of V-I characteristics of TRIAC	PED Trainer	Electronics Lab
04	Study of V-I characteristics of DIAC.	PED Trainer	Electronics Lab
05	Study of drive circuit for SCR & TRIAC using DIAC.	PED Trainer	Electronics Lab
06	Study of drive circuit for SCR & TRIAC using UJT.	PED Trainer	Electronics Lab
07	To study phase controlled bridge rectifier	PED Trainer	Electrical Lab
08	To study series Inverter	PED Trainer	Electrical Lab
09	Study of voltage source Inverter	PED Trainer	Electrical Lab
10	To perform the speed control of DC motor using chopper	PED Trainer	Electrical Lab
11	Introduction/Familiarization PLC Trainer	PLC Trainer	Electrical Lab
12	Execute the different Ladder Diagrams	PLC Trainer	Electrical Lab
13	Execute the Ladder Diagrams with model applications	PLC Trainer	Electrical Lab
14	Execute Ladder diagrams with model applications	PLC Trainer	Electrical Lab

MITS School of Engineering, Bhubaneswar

Department of Electrical Engg

Lab Lesson Plan

Name of the Subject:-:Digital Electronics and MP (PR3)

Name of the Faculty:-Mr.Amit kumar Sahoo

Semester:-5th

Expt. No	Name of the experiment	Name of the Equip	Venue
1.	Verify truth tables of AND, OR, NOT, NOR, NAND, XOR, XNOR gates	DEC Trainer	Digital Electronics lab
2.	Implement various gates by using universal properties of NAND & NOR gates and verify truth table.	DEC Trainer	Digital Electronics lab
3.	Implement half adder and Full adder using logic gates.	DEC Trainer	Digital Electronics lab
4.	Implement half subtractor and Full subtractor using logic gates.	DEC Trainer	Digital Electronics lab
5.	Implement a 4-bit Binary to Gray code converter.	DEC Trainer	Digital Electronics lab
6.	Implement a Single bit digital comparator	DEC Trainer	Digital Electronics lab
7.	Study Multiplexer and demultiplexer	DEC Trainer	Digital Electronics lab
8.	Study of flip-flops.	DEC Trainer	Digital Electronics lab
9.	Realize a 4-bit asynchronous UP/Down counter with a control for up/down counting	DEC Trainer	Digital Electronics lab
10.	Implement Mode-10 asynchronous counters	DEC Trainer	Digital Electronics lab
11.	General Programming using 8085A	Microprocessor Trainer	Digital Electronics lab
12.	Addition of 8-bit number	Microprocessor Trainer	Digital Electronics lab
13.	Subtraction of 8-bit number resulting 8/16 bit number	Microprocessor Trainer	Digital Electronics lab
14.	Compare between two numbers	Microprocessor Trainer	Digital Electronics lab
15.	Find the largest in an Array	Microprocessor Trainer	Digital Electronics lab

MIT SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: ELECTRICAL INSTALLATION AND ESTIMATING (TH1)

Semester: 6th Sem (Electrical)

Name of the Faculty: Mr. Shiv Prasad Sahu

Lecture r No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books/Chapter/Page No.
L-01	Introduction to EIE	CH-1	Electrical Estimation and Costing by Sujit Singh/Ch-1/Page No1- 44
L-02	Definitions, Ampere, Apparatus, Accessible, Bare, cablew, circuit, circuit breaker, conductor voltage (low, medium, high, EH		
L-03	General safety precautions, rule 29, 30, 31, 32, 33, 34, 35, 36, 40, 41, 43, 44, 4		
L-04	General conditions relating to supply and use of energy : rule 47, 48, 49, 50		
L-05	OH lines : Rule 74, 75, 76, 77, 78, 79		
L-06	OH lines. 80, 86, 87, 88, 89, 90, 91		
L-07	Electrical installations, domestics, industrial, Wiring System, Internal distribution of Electrical Energy. Methods of wiring,	CH-2	Electrical Estimation and Costing by Sujit Singh/Ch-1/Page No48- 58
L-08	systems of wiring, wire and cable, conductor materials used in cables, insulating materials mechanical protection.		
L-09	Types of cables used in internal wiring, multi-stranded cables, voltage grinding		
L-10	Main switch and distribution boards, conduits, conduit accessories and fitting		
L-11	Aspects of good lighting services. Types of lighting schemes		
L-12	Determination of Number of sub-circuits		
L-13	Type of internal wiring, cleat wiring, CTS wiring	CH-3	
L-14	Prepare one estimate of materials required for CTS wiring for small domestic installatio		
L-15	Prepare one estimate of materials required for conduit wiring for small domestic installation		
L-16	Prepare one estimate of materials required for concealed wiring		
L-17	Prepare one estimate of materials required for erection of conduct	CH-4	Electrical Estimation and Costing by Sujit Singh/Ch-3/Page No200- 210
L-18	Components of overhead lines, line supports, factors Governing Height		
L-19	Prepare an estimate of materials required for LT distribution line		
L-20	Prepare an estimate of materials required for HT distribution line		
L-21	Components of service lines, service line (cables and conductors)		
L-22	Prepare and estimate for providing single phase supply of load of 5 KW		
L-23	Prepare and estimate for providing single phase supply load of 3KW		
L-24	Prepare one estimate of materials required for service connection to a factory building		
L-25	Prepare one estimate of materials required for service connection	CH-5	Electrical Measurement by R.K.Rajput/Ch-4/Page No 404-427
L-26	Pole mounted substation		
L-27	Plinth Mounted substation		
L-28	Main components of overhead lines, line supports		
L-29	Factors Governing Height of pole, conductor materials		
L-30	determination of size of conductor for overhead transmission line		
L-31	Cross arms, pole brackets and clamps, guys and stays, conductors configurations		
L-32	Spacing and clearances, span lengths, overhead line insulators		
L-33	Types of insulators, lighting arresters, danger plates		
L-34	anti-climbing devices, bird guards, beads of jumpers		
L-35	Jumpers, tee-offs, guarding of overhead lines		
L-36	Standard spans involving calculation of the size of conductor	CH-6	Electrical Estimation and Costing by Sujit Singh/Ch-6/Page No511- 519
L-37	Current carrying capacity and voltage regulation consideration using ACSR		
L-38	Current carrying capacity and voltage regulation of the size of conductor		
L-39	Current carrying capacity and voltage regulation consideration using ACSR		
L-40	Determination of number of points (light, fan, socket, outlets		
L-41	Material required for GI pipe earthing		
L-42	Earthing conductor, earthing, IS specifications		
L-43	voltage grinding of cables, general specifications of cables		
L-44	Dead, cut-out, conduit, system, danger, Installation, earthing system, span, volt		
L-45	General conditions relating to supply and use of		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Switch gear and protective device (SGPD) (TH2)

Semester: 6th Sem (Electrical)

Name of the Faculty: Mr. Sandeep Ku Champatiray

Lecture r No.	Topics Planed to be Covered	Chapter As Per Syllabus	Reference Books/Chapter/Page No.
LT-1	Introduction to switchgear.Essential Features of switchgear.Switchgear Equipment	ch-1	V. K. Mehta/chapter-16/(387-395)
LT-2	Bus-Bar Arrangement.Switchgear Accommodation		
LT-3	Short circuit.short circuit components.Faults in a power system		
LT-4	Limitation of fault current.Symmetrical faults on 3-phase system.	ch-2	V.K.Mehta/chapter-17/(396-421)
LT-5	Percentage reactance.Percentage Reactance and Base KVA.		
LT-6	Short – circuit KVA.Problems on %reactance & base KVA		
LT-7	Location of reactors.Reactor control of short circuit currents		
LT-8	Steps for symmetrical Fault calculatios		
LT-9	Desirable characteristics of fuse element.Fuse Element materials	ch-3	V. K. Mehta/chapter-20/(487-496)
LT-10	Current carrying capacity of fuse element.Difference Between a Fuse and Circuit Breaker.		
LT-11	Types of Fuses. Important terms used for fuses		
LT-12	Low and High voltage fuses		
LT-13	Definition and principle of Circuit Breaker.	ch-4	V. K. Mehta/chapter-19/(460-486)
LT-14	Arc phenomenon and principle of Arc Extinction.		
LT-15	Methods of Arc Extinction. Arc voltage, Re-striking voltage and Recovery voltage.		
LT-16	Classification of circuit Breakers.Oil circuit Breaker and its classification		
LT-17	Plain brake oil circuit breaker.		
LT-18	Arc control oil circuit breaker.		
LT-19	Low oil circuit breaker.		
LT-20	Maintenance of oil circuit breaker.		
LT-21	Air-Blast circuit breaker and its classification.		
LT-22	Sulphur Hexa fluoride (SF6) circuit breaker.		
LT-23	Vacuum circuit breakers.		
LT-24	Switchgear component.		
LT-25	Problems of circuit interruption.		
LT-26	Resistance switching.Circuit Breaker Rating		
LT-27	Definition of Protective Relay.Fundamental requirement of protective relay. Basic Relay operation a) Electromagnetic Attraction type b) Induction type	ch-5	V. K. Mehta/chapter-21/(497-520)
LT-28	Definition of following important terms. a) Pick-up current.		
LT-29	Classification of functional relays Induction type over current relay (Non-directional)		
LT-30	Induction type directional power relay. Induction type directional over current relay		
LT-31	Differential relaya) Current differential relab) Voltage balance differential relay		
LT-32	Types of protection Protection of alternator. Differential protection of alternators	ch-6	V. K Mehta/chapter-22/(521-540)
LT-33	Balanced earth fault protection.Protection systems for transformer		
LT-34	Buchholz relay		
LT-35	Protection of Bus bar Protection of Transmission line		
LT-36	Different pilot wire protection (Merz-price voltage Balance system)		
LT-37	Explainayion on protection of feeder by over current and earth fault relay.		
LT-38	Voltage surge and causes of over voltage.Internal cause of over voltage.	ch-7	V. K. Mehta/chapter-24/(552-568)
LT-39	Mechanism of lightning discharge		
LT-40	Types of lightning strokes.Harmful effect of lightning		
LT-41	Lightning arresters.Type of lightning Arrestors.Rod-gap lightning arrester		
LT-42	Horn-gap arrester.Valve type arrestor		
LT-43	Surge Absorber		
LT-44	Difference between surge absorber and surge diverter		
LT-45	Introduction to static relay Advantage of static relay.	ch-8	V. K. Mehta/chapter-25/(569-575)
LT-46	Instantaneous over current relay. Principle of IDMT relay.		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Control System (TH3)

Name of the Faculty: Mr. Amit Kumar Sahoo

Semester: 6th Sem (Electrical)

Lecture No.	Topics Planned to be Covered	Chapter As Per Syllabus	Reference Books/Chapter/Page No.
LT-1	Classification of Control system	Chapter 1	A. Ananda Kumar/Chapter-1/Page No (01-20)
LT-2	Open loop system & Closed loop system and its comparison		
LT-3	Effects of Feed back		
LT-4	Standard test Signals(Step, Ramp, Parabolic, Impulse Functions)		
LT-5	Servomechanism		
LT-6	Transfer Function & Impulse response,	Chapter 2	A. Ananda Kumar/Chapter-1/Page No (21-100)
LT-7	Properties, Advantages & Disadvantages of Transfer Function		
LT-8	Poles & Zeroes of transfer Function		
LT-9	Simple problems of transfer function of network.		
LT-10	Mathematical modeling of Electrical Systems(R, L, C, Analogous systems)	Chapter 3	A. Ananda Kumar/Chapter-1/Page No (21-100)
LT-11	Components of Control System		
LT-12	Gyroscope, Synchros, Tachometer, DC servomotors		
LT-13	Definition: Basic Elements of Block Diagram	Chapter 4	A. Ananda Kumar/Chapter-1/Page No (101-176)
LT-14	Canonical Form of Closed loop Systems		
LT-15	Rules for Block diagram reduction		
LT-16	Procedure for of Reduction of Block Diagram		
LT-17	Simple Problem for equivalent transfer function		
LT-18	Basic Definition in Signal Flow Graph & properties		
LT-19	Construction of Signal Flow graph from Block diagram		
LT-20	Mason's Gain formula		
LT-21	Simple problems in Signal flow graph for network		
LT-22	Time response of control system	Chapter 5	A. Ananda Kumar/Chapter-1/Page No (177-282)
LT-23	Standard Test signal		
LT-24	Time Response of first order system		
LT-25	Time response of second order system to the unit step input		
LT-26	Types of control system		
LT-27	Effect of adding poles and zero to transfer function		
LT-28	Response with P, PI, PD and PID controller		
LT-29	Root locus concept	Chapter 6	A. Ananda Kumar/Chapter-1/Page No (283-348)
LT-30	Construction of root loci		
LT-31	Rules for construction of the root locus		
LT-32	Effect of adding poles and zeros to G(s) and H(s).		
LT-33	Correlation between time response and frequency response	Chapter 7	A. Ananda Kumar/Chapter-1/Page No (438-525)
LT-34	Polar plots		
LT-35	Bode plot		
LT-36	All pass and minimum phase system		
LT-37	Computation of Gain margin and phase margin		
LT-38	Log magnitude versus phase plot		
LT-39	Closed loop frequency response		
LT-40	Principle of argument	Chapter 8	A. Ananda Kumar/Chapter-1/Page No (526-588)
LT-41	Nyquist stability criterion		
LT-42	Nyquist stability criterion applied to inverse polar plot		
LT-43	Effect of addition of poles and zeros to G(S) H(S) on the shape of Niquist plot		
LT-44	Assessment of relative stability		
LT-45	Constant M and N circle		
LT-46	Nicholas chart		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Renewal Energy System (TH4)

Name of the Faculty: Mr. Shiv Prasad Sahu

Semester: 6th Sem (Electrical)

Lecturer No.	Topics Planned to be Covered	Chapter As Per Syllabus	Reference Books/Chapter/Page No.
LT-1	Environmental consequences of fossil fuel use	Chapter 1	B.H.Khan/Chapter-1/Page No (01-24)
LT-2	Importance of renewable sources of energy		
LT-3	Sustainable Design and development		
LT-4	Types of RE sources		
LT-5	Limitations of RE sources		
LT-6	Present Indian and international energy scenario of conventional and RE sources		
LT-7	Solar photovoltaic system-Operating principle	Chapter 2	B.H.Khan/Chapter-4/Page No (58-151)
LT-8	Photovoltaic cell concepts		
LT-9	Classification of energy Sources		
LT-10	Extra-terrestrial and terrestrial Radiation		
LT-11	Azimuth angle, Zenith angle, Hour angle, Irradiance, Solar constant		
LT-12	Solar collectors, Types and performance characteristics,		
LT-13	Applications		
LT-14	Photovoltaic - battery charger		
LT-15	domestic lighting		
LT-16	street lighting		
LT-17	water pumping		
LT-18	solar cooker		
LT-19	Solar Pond		
LT-20	Introduction to Wind energy.		
LT-21	Wind energy conversion.		
LT-22	Types of wind turbines		
LT-23	Aerodynamics of wind rotors		
LT-24	Wind turbine control systems; conversion to electrical power		
LT-25	Induction and synchronous generators		
LT-26	Grid connected and self excited induction generator operation		
LT-27	Constant voltage and constant frequency generation with power electronic control		
LT-28	Single and double output systems		
LT-29	Characteristics of wind power plant		
LT-30	Energy from Biomass	Chapter 4	B.H.Khan/Chapter-8/Page No (197-230)
LT-31	Biomass as Renewable Energy Source		
LT-32	Types of Biomass Fuels - Solid, Liquid and Gas.		
LT-33	Combustion and fermentation		
LT-34	Anaerobic digestion		
LT-35	Types of biogas digester		
LT-36	Wood gassifier		
LT-37	Pyrolysis		
LT-38	Applications: Bio gas, Bio diesel	Chapter 5	B.H.Khan/Chapter-9 & 10/Page No (232-250)
LT-39	Tidal Energy: Energy from the tides		
LT-40	Ocean Thermal Energy Conversion		
LT-41	Geothermal Energy – Classification		
LT-42	Hybrid Energy Systems		
LT-43	Need for Hybrid Systems		
LT-44	Diesel-PV		
LT-45	Wind-PV		
LT-46	Microhydel-PV		

MITS SCHOOL OF ENGINEERING, JANLA, BBSR

NAME OF LAB: ELECTRICAL WORKSHOP PRACTICE (PR1)

SEM: 6th(ELECTRICAL)

NAME OF FACULTY: Mr. Amit Kumar Sahoo

SL.NO	Name of the experiment	Name of the Equipment /	Status of lab Manual	Remark
01	To control one Lamp by one switch on p.v.c channel wiring	P.V.C Accessories, Wiring Accessories	Not Available	
02	To prepare a list of Fault Finding & Repairing Fan Motor	Winding Wires, insulating Materials	Not Available	
03	To Prepare Britannia Straight Joint in Aluminium Conductor	10mm conductor	Not Available	
04	To Prepare A Britannia Tee Joint in Solid Copper Conductor	8mm Copper Conductor	Not Available	
05	To Prepare a Married Joint in copper Conductor	4mm copper conductor	Not Available	
06	Assmble & installing Mercury Vapour Lamp	M.V.Lamp,Choke Igniator	Available	
07	Find out Faults of D.C Motor, Repair & test it to Run	D.C.Shunt Motor	Not Available	
08	Cutting copper & Aluminum cable & crimping lug to their cross section	Crimping Tools	Not Available	
09	Preparation of Pipe Earthing installation for Residential Building	Earthing Pit	Not Available	