

Name of the Faculty : **Jai Parkash**
Discipline : **Instrumentation & Control**
Semester : **4th Semester**
Subject : **ADVANCED CONTROL SYSTEM**
Lesson Plan Duration : 15 weeks (from January, 2018 to April, 2018)

Work Load (Lecture/ Practical) per weeks (in hours): Lectures-03, Practical-06

week	Theory		Practical	
	Lecture Day	Topic (including assignment/ test)	Practical Day	Topic
1 st	1 st	Introduction of Control System	G1	Introduction of Control System, Components/sub-components of a Control System Practical kits
	2 nd	Single loop Control System		
	3 rd	Multiloop Control System	G2	Introduction of Control System, Components/sub-components of a Control System Practical kits
2 nd	4 th	Block Diagram of a Control System	G1	To perform of non-Linearity in a relay
	5 th	Types of Control System		
	6 th	Feedback Control System with examples	G2	To perform of non-Linearity in a relay
3 rd	7 th	Feedforward Control System with examples	G1	To perform of non-Linearity in a relay
	8 th	Feedforward Control of various Processing Units such as Heat Exchanger, Drum Boiler		
	9 th	Cascade Control System with examples	G2	To perform of non-Linearity in a relay
4 th	10 th	CSTRC: Temperature control of jacketed CSTR	G1	To perform of dead- zone non-linearity
	11 th	Three Element drum level Control System		
	12 th	Ratio Control System with examples	G2	To perform of dead- zone non-linearity
5 th	13 th	Split Range Control System	G1	To perform of dead- zone non-linearity

	14 th	Split Range control of a Chemical Reactor, Pressure in a Stream Header		
	15 th	Assignment and Class Test of Unit 1	G2	To perform of dead- zone non-linearity
6 th	16 th	Introduction of Non-Linear Control System	G1	To perform cascade control system
	17 th	Behaviour of Non-Linear Control System		
	18 th	Different types of non-linearities	G2	To perform cascade control system
7 th	19 th	Saturation	G1	To perform cascade control system
	20 th	Backlash		
	21 th	Hysteresis	G2	To perform cascade control system
8 th	22 th	Dead Zone	G1	To perform ratio control system
	23 th	Relay		
	24 th	Friction	G2	To perform ratio control system
9 th	25 th	Characteristics of Non-Linear Control System,	G1	To perform ratio control system
	26 th	Limit Cycles		
	27 th	Limit Cycles behaviour of non-linear system	G2	To perform ratio control system
10 th	28 th	Jump Resonance	G1	To perform feedforward control system
	29 th	jump phenomenon		
	30 th	Linear Control System	G2	To perform feedforward control system
11 th	31 th	Difference between linear and non-linear control system	G1	To perform feedforward control system
	32 th	Application , Advantages and Disadvantage of Non – Linear System		
	33 th	Assignment and Class Test of Unit 2	G2	To perform feedforward control system
12 th	34 th	Introduction to Artificial Intelligence and Robotics	G1	To perform split-range control system
	35 th	Artificial Intelligence		
	36 th	Application of Artificial Intelligence	G2	To perform split-range control system
13 th	37 th	Fuzzy Logic	G1	To perform split-range control system
	38 th	Neuro Fuzzy Logic in Control System		
	39 th	Artificial Neural Networks	G2	To perform split-range control system

14 th	40 th	Robotics: Introduction of Robotics	G1	Practical Applications used in the field of Instrumentation and Control
	41 th	Types and Principles of Robotics		
	42 th	Degree of Freedom	G2	Practical Applications used in the field of Instrumentation and Control
15 th	43 th	Robot Arm Configuration	G1	Practical Applications used in the field of Instrumentation and Control
	44 th	Application , Advantages and Disadvantage		
	45 th	Assignment and Class Test	G2	Practical Applications used in the field of Instrumentation and Control

Lesson Plan

Name of the faculty : VISITING FACULTY-01

Discipline : Instrumentation and Control

Semester : 6th

Subject : AMT

Lesson Plan Duration : 15 weeks(from 9th Jan,2018 to 30th April,2018)

Work Load(Lecture/Practical)Per week (in hours): Lectures-04,Practical-03

Week	Theory		Practical	
	Lecture day	Topic(including assignment/test)	Practical day	Topic
1 st	1 st	Introduction of measurement system	1 st	Description about instruments
	2 nd	Block diagram of Functional elements of a measuring system		
	3 rd	Brief explanation of Functional elements of a measuring system		
	4 th	Block diagram of instrumentation system		
2 nd	5 th	Brief explanation of functional elements of instrumentation system	2 nd	To make the set up for experiments and testing of equipments
	6 th	Block diagram of Input -output configuration of instrumentation system		
	7 th	Input configuration of instrumentation system such as desired ,interfering and modifying input like Strain guage, electric resistance, manometer etc.		
	8 th	Output configuration of instrumentation system		
3 rd	9 th	Input – output configuration of instrumentation system	3 rd	To make the set up for experiments and testing of equipments
	10 th	Brief introduction about flow ,Reynolds number, type of flow		
	11 th	Construction of orifice working principle of orifice flow measuring instrument		
4 th	12 th	Working principle of orifice flow measuring instrument	4 th	To measure flow using orifice (flow measuring instrument)
	13 th	Application of orifice flow measuring instrument		
	14 th	Construction of magrettee ultrasonic flow measuring instrument,		
	15 th	Working principle of magrettee ultrasonic flow measuring instrument		
5 th	16 th	Application of magrettee ultrasonic flow measuring instrument	5 th	To measure flow using rotameter
	17 th	Construction of flows with Rota meter		
	18 th	Working principle of Rotameter flow measuring instrument		
	19 th	Application of Rotameter flow measuring instrument		
6 th	20 th	Brief idea about frequency ,high frequency	6 th	To measure flow using megrettee ultrasonic instrument
	21 th	Different types of measurement techniques of frequency measurement		
	22 th	Brief explanation about Resonance in circuit		
	23 th	Resonance methods for high frequency measurement		
7 th	24 th	Measurement of inductance	7 th	To measure effective
	25 th	Measurement of capacitance		

	26 th	Measurement of effective resistance by resistance variation method		resistance by resistance variation method
	27 th	Measurement of effective resistance by reactance variation method		
	28 th	T networks – parallel T networks		
8 th	29 th	T networks – bridge T networks	8 th	File checking and discussion
	30 th	Radio frequency measurement – sensitivity measurement of radio receiver		
	31 th	Radio frequency measurement –selectivity measurement of radio receiver		
	32 th	Brief idea about light, optics principles like reflection, refraction, concept of photon etc used for Opto Electronic Measurement		
9 th	33 th	Photo sensitive devices – light emitting diodes	9 th	To study and perform experiments of light emitting diodes
	34 th	Photo sensitive devices – Photo diodes		
	35 th	Photo conductors		
	36 th	Photo voltaic cell		
10 th	37 th	Photo thyristors	10 th	To measure temperature using RTD's
	38 th	Photo transistors		
	39 th	Light modulating techniques – light suppression		
	40 th	Light modulating techniques light attenuation		
11 th	41 th	Light modulating techniques photo-metric	11 th	To measure temperature using thermister
	42 th	Light modulating techniques radiometric fittings		
	43 th	Brief idea of temperature ,temperature scale, temperature sensing instruments		
	44 th	Construction and working principle of thermocouple		
12 th	45 th	Construction and working principle of RTD's	12 th	To measure temperature using thermocouple
	46 th	Construction and working principle of Thermister		
	47 th	Construction and working principle of Radiation pyrometry		
	48 th	Construction and working principle of IR detectors		
13 th	49 th	Application of temperature sensors thermocouple, RTD's and Thermister	13 th	Measurement of temperature using optical pyrometer
	50 th	Application of temperature sensors radiation Pyrometry and IR detector		
	51 th	Comparitive study of temperature sensors		
	52 th	Brief idea about level and level measurement		
14 th	53 th	Construction, and working principle of float level measuring instruments	14 th	To measure level using any method
	54 th	Construction, working principle of level guages		
	55 th	Construction, working principle of optical level devices		
	56 th	Construction, working principle of thermal level sensors		
15 th	57 th	Application of float and level gauges	15 th	File Checking and disscussion
	58 th	Application of optical level devices		
	59 th	Application of themal level sensors		
	60 th	Application of float, level gauges, optical level devices and thermal level sensors(comparitive study)		

LESSON PLAN

Name of Faculty : VISITING FACULTY-2

Discipline : Instrumentation & Control Engg.

Semester : 2nd

Subject : Basic electronics

Work Load : 03 lecture, practical 03

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Week	Lecture Day	Theory	Week	Practicals
		Topic		Topic
1	1	REVIEW OF BASIC ATOMIC STRUCTURE & ENERGY LEVELS	1	INTRODUCTION OF ANALOG / BASIC ELECTRONIC COMPONENT
	2	CONCEPT OF INSULATORS, CONDUCTOR & SEMI CONDUCTORS		
	3	ATOMIC STRUCTURES OF GERMANIUM (Ge) & SILICON (Si), COVALENT BONS, CONCEPT OF INTRINSIC & EXTRINSIC SEMI CONDUCTORS		
2	4	PROCESS OF DOPING , ENERGY LEVEL DIAGRAM OF CONDUCTOR, INSULATORS & SEMI CONDUCTORS	2	OPERATION & USE OF MULTIMETER, CRO, SIGNAL GENERATOR
	5	MINORITY & MAJORITY CHARGE CARRIERS, P & N TYPE SEMI CONDUCTORS AND THEIR CONDUCTIVITY		
	6	EFFECT OF TEMPERATURE ON CONDUCTIVITY OF INTRINSIC SEMI CONDUCTORS		
3	7	PN JUNCTION DIODE, MECHANISM OF CURRENT FLOW IN PN JUNCTION	3	OPERATION & USE OF LCR METER REGULATED POWER SUPPLY
	8	FORWARD & REVERSE BIASED PN JUNCTION DIODE, POTTENTIAL		
	9	DRIFT & DIFFUSION CURRENTS DEPLETION LAYER		
4	10	CONCEPT OF JUNCTION CAPACITANCE IN FORWARD & REVERSE BASED	4	PLOTING OF V-I CHARACTERSTICS OF PN JUNCTION DIODE
	11	V-I CHARACTERSTICS, STATICS & DYNAMIC RESISTANCE & THEIR VALUE CALCULATION FROM THE CHARACTERSTICS		
	12	APPLICATION OF DIODE AS HALF WAVE, FULL WAVE & BRIDGE RECTIFIERS		
5	13	PEAK INVERSE VOLTAGE, RECTIFICATION EFFICIENCIES & RIPPLE FACTOR CALCULATIONS	5	PLOTING OF VI CHARACTERSTICS OF ZENER DIODE
	14	SHUNT CAPACITOR FILTER, SERIES INDUCTOR FILTER		
	15	LC & π FILTER		
6	16	TYPES OF DIODES, CHARACTERSTICS & APPLICATION OF ZENER DIODES	6	TO OBSERVE OUTPUT OF CLIPPING & CLAMPING CIRCUIT
	17	ZENER DIODE & AVALANCHE BREAKDOWN		

	18	CLIPPING & CLAMPING CIRCUIT		
7	19	CONCEPT OF BIPOLAR JUNCTION TRANSISTOR AND ITS STRUCTURE	7	MEASUREMENT OF VOLTAGE GAIN, INPUT & OUTPUT IMPEDANCE IN A SINGLE STAGE CE AMPLIFIER CIRCUIT
	20	PNP & NPN TRANSISTORS & THEIR SYMBOLS & MECHANISM OF CURRENT FLOW		
	21	CURRENT RELATION IN A TRANSISTOR, CONCEPT OF LEAKAGE CURRENT		
8	22	CB, CE, CC CONFIGURATION OF A TRANSISTOR	8	DESIGN HALF-WAVE RECTIFIER CIRCUIT USING ONE DIODE ON BREAD BOARD
	23	INPUT & OUTPUT CHARACTERISTICS IN CB & CE CONFIGURATION		
	24	INPUT & OUTPUT CHARACTERISTICS IN CB & CE CONFIGURATION		
9	25	CURRENT AMPLIFICATION FACTOR	9	DESIGN FULL-WAVE RECTIFIER USING TWO DIODES ON BREAD BOARD
	26	COMPARISON OF CB, CE, CC CONFIGURATION		
	27	TRANSISTOR AS AN AMPLIFIER IN CE CONFIGURATION, CONFIGURATION, CONCEPT OF DC LOAD LINE		
10	28	CALCULATION OF CURRENT GAIN & VOLTAGE GAIN USING DC LOAD LINE	10	PLOTING OF WAVE SHAPE OF FULL WAVE RECTIFIER WITH SHUNT CAPACITOR FILTER
	29	CONCEPT OF TRANSISTOR BIASING		
	30	SELECTION OF OPERATING POINTS, NEED FOR STABILIZATION OF OPERATION POINT		
11	31	DIFFERENT TYPES OF BIASING CIRCUIT	11	PLOTING THE WAVE SHAPE OF FULL WAVE RECTIFIER WITH SERIES FILTER
	32	SINGLE STAGE TRANSISTOR AMPLIFIER CIRCUIT		
	33	CONCEPT OF DC & AC LOAD LINE AND ITS USE		
12	34	EXPLANATION OF PHASE REVERSAL OF OUTPUT VOLTAGE WITH RESPECT TO INPUT VOLTAGE	12	PLOTING OF INPUT & OUTPUT CHARACTERISTICS OF CE CONFIGURATION
	35	CONSTRUCTION OF FET		
	36	OPERATION & CHARACTERISTICS OF FET'S		
13	37	APPLICATION OF FET'S & INSTRUCTION OF MOSFET	13	PLOTING OF I/P & O/P CHARACTERISTICS OF CB CONFIGURATION
	38	CONSTRUCTION OF MOSFET		
	39	OPERATION & CHARACTERISTICS OF MOSFET IN DEPLETION MODES		
14	40	MOSFET IN ENHANCEMENT MODE & ITS APPLICATION	14	PLOTING OF V-I CHARACTERISTICS OF FET
	41	INTRODUCTION OF CMOS		
	42	CMOS CONSTRUCTION		
15	43	CMOS ADVANTAGES & APPLICATION	15	COPY CHECKING AND REVISION
	44	BJT		
	45	COMPARISON OF JFET, MOSFET & BJT		

Lesson Plan

Name of the faculty : VISITING FACULTY-01

Discipline : Instrumentation and Control

Semester : 2nd

Subject : BEE

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Work Load(Lecture/Practical)Per week (in hours): Lectures-03,Practical-02

Week	Theory		Practical	
	Lecture day	Topic(including assignment/test)	Practical day	Topic
1 st	1 st	Concept of electricity, various applications of electricity, advantages of electricity over other types of energy.	1 st	Description about instruments
	2 nd	Definition- voltage, current, potential difference, power, energy and their units.		
	3 rd	Ohm's law and its practical applications, concepts of resistance, conductance, resistivity and their units		
2 nd	4 th	Effect of temperature on resistance, temperature coefficient of resistance	2 nd	Familiarization of measuring instruments viz voltmeter and ammeter
	5 th	Series and parallel combination of resistors, wattage consideration, simple problems		
	6 th	Kirchhoff's current law and Kirchhoff's voltage law and their applications to simple circuits.		
3 rd	7 th	Conversion of electrical circuits from Star to Delta and Delta to Star.	3 rd	Familiarization of measuring instruments viz CRO, wattmeter and multimeter
	8 th	DC Circuit Theorem- Thevenin's theorem, Norton's theorem		
	9 th	Superposition theorem		
4 th	10 th	Maximum Power transfer theorem	4 th	Verification of ohm's law
	11 th	Application of network theorems in solving d. c circuit problems		
	12 th	Concept of voltage sources- symbol, graphical representation and characteristics of constant/ ideal and practical sources		
5 th	13 th	Concept of current sources- symbol, graphical representation and characteristics of constant/ideal and practical current sources.	5 th	To verify in d.c circuits: Thevenin's theorem and norton theorem
	14 th	Basic idea about primary and secondary cells		
	15 th	Construction, working and applications of Lead-Acid battery, Nickel- Cadmium cell and Silver-Oxide cells		
6 th	16 th	Concepts of magnetic field produced by flow of current, Magnetic circuit, concept of magneto-motive force (MMF) and flux in circuit	6 th	To verify D.C circuit using Super position theorem
	17 th	Concepts of reluctance, permeability, analogy between electric and magnetic circuit		
	18 th	Faraday's laws of electro-magnetic induction, principles of self and mutual induction		

7 th	19 th	Self and mutually induced e.m.f, simple numerical problems	7 th	To find the voltage current relationship in a single phase R-C
	20 th	Concept of current growth, decay in RL circuit		
	21 th	Concept of time constant in an inductive (RL) circuit		
8 th	22 th	Energy stored in an inductor	8 th	To find the voltage current relationship in a single phase R-L
	23 th	Series and parallel combination of inductors		
	24 th	Concept of alternating voltage and current		
9 th	25 th	Difference between alternating current(a.c) and direct current(d.c)	9 th	To measure (very high) resistance of an ammeter and voltmeter
	26 th	Concept of cycle, frequency, time period, amplitude, instantaneous value, average value		
	27 th	Concept of r.m.s. value, maximum value, form factor and peak factor		
10 th	28 th	Representation of sinusoidal quantities by phasor diagrams	10 th	To observe change in resistance of a bulb in hot and cold conditions, using ammeter
	29 th	Equation of sinusoidal wave form		
	30 th	Derivation of equation of sinusoidal wave form		
11 th	31 th	Effect of alternating voltage applied to a pure resistance	11 th	Verification of Kirchhoff's Current Law
	32 th	Effect of alternating voltage applied to a pure inductance and Pure capacitance		
	33 th	Concept of Inductive reactance, Capacitive reactance and impedance		
12 th	34 th	Alternating voltage applied to resistance and inductance in series	12 th	Verification of Kirchhoff's Voltage Law in a dc circuit
	35 th	Alternating voltage applied to resistance and capacitance in series		
	36 th	Impedance triangle and phase angle		
13 th	37 th	Solutions and phasor diagrams for simple RLC circuits (series and parallel)	13 th	Measurement of power and power factor in a single phase R.L.C. circuit
	38 th	Series resonance conditions (with derivation)		
	39 th	Parallel resonance conditions (with derivation)		
14 th	40 th	Power in pure resistance, inductance and capacitance, power in combined RLC circuits	14 th	Final Checking and discussion
	41 th	Power factor, active and reactive power and their significance, importance of power factor		
	42 th	Definition of conductance, susceptance and admittance		
15 th	43 th	Brief idea about Various Types(thermal, hydro, nuclear) of Power Plants and principle of power generation	15 th	Visit to a nearby Power Station(s)
	44 th	Comparative study of various power plants (thermal, hydro and nuclear)		
	45 th	Elementary block diagram of thermal, hydro and nuclear power stations		

LESSON PLAN

Name of Faculty : Mr. Pardeep Nandal

Discipline : Instrumentation & Control Engg.

Semester : 6th

Subject : BIO MEDICAL INSTRUMENTATION

Work Load : THEORY- 04 , Practical- 03

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Week	Lecture Day	Theory	Practical Day	Practicals	
		Topic		Topic	
1	1	INTRODUCTION OF SUBJECT	1	G-1	INTRODUCTION
	2	INTRODUCTION OF BIO MEDICAL INSTRUMENT			
	3	DEVELOPMENT OF BIO MEDICAL INSTRUMENTATION		G-2	INTRODUCTION
	4	MAN INSTRUMENTATION SYSTEM & ITS COMPONENTS			
2	5	IN-VIVO MEASUREMENTS	2	G-1	INTRODUCTION OF EQUIPMENT
	6	IN-VITRO MEASUREMENTS			
	7	RESEARCH AND CLINICAL INSTRUMENTATION		G-2	INTRODUCTION OF EQUIPMENT
	8	CLINICAL INSTRUMENTATION			
3	9	INTRODUCTION OF PHYSIOLOGY	3	G-1	TO STUDY THE VARIOUS PHYSIOLOGICAL SYSTEMS OF THE BODY
	10	PHYSIOLOGICAL SYSTEM OF THE BODY			
	11	CARDIOVASCULAR SYSTEM		G-2	TO STUDY THE VARIOUS PHYSIOLOGICAL SYSTEM OF THE BODY
	12	CARDIOVASCULAR SYSTEM			
4	13	CARDIOVASCULAR SYSTEM	4	G-1	TO STUDY THE VARIOUS PHYSIOLOGICAL SYSTEM OF THE BODY
	14	RESPIRATORY SYSTEM			
	15	RESPIRATORY SYSTEM		G-2	TO STUDY THE VARIOUS PHYSIOLOGICAL SYSTEM OF THE BODY
	16	NARVOUS SYSTEM			
5	17	NARVOUS SYSTEM	5	G-1	TO STUDY THE ELECTODE TISSUE INTERFACE AND CONTACT IMPEDENCE
	18	BIO CHEMICAL SYSTEM			
	19	BIO CHEMICAL SYSTEM		G-2	TO STUDY THE ELECTODE TISSUE INTERFACE AND CONTACT IMPEDENCE
	20	BIO ELECTRIC SIGNALS AND ELECTRODES			
6	21	STUDY OF BIO ELECTRIC POTENTIAL	6	G-1	TO STUDY THE ELECTODE TISSUE INTERFACE AND CONTACT IMPEDENCE
	22	RESTING AND ACTION POTENTIAL			

	23	BIO-ELECTRODES		G-2	TO STUDY THE ELECTODE TISSUE INTERFACE AND CONTACT IMPEDENCE
	24	ELECTRODE-TISSUE INTERFACE			
7	25	ELECTRODE-TISSUE INTERFACE	7	G-1	TO STUDY OF DIAGNOSTIC INSTURMENTS
	26	CONTACT IMPEDANCE			
	27	TYPES OF ELECTRODES		G-2	TO STUDY OF DIAGNOSTIC INSTURMENTS
	28	TYPES OF ELECTRODES			
8	29	INTRODUCTION OF DIAGNOSTIC INSTRUMENTS	8	G-1	TO STUDY THE CONCEPT OF EEG
	30	ELECTROCARDIOGRAPH (ECG)			
	31	ELECTROENCEPNALOGRAPH (EEG)		G-2	TO STUDY THE CONCEPT OF EEG
	32	ELCTROMYOGRAPH (EMG)			
9	33	PACEMAKERS	9	G-1	TO STUDY THE CONCEPT OF EMG
	34	DEFIBRILLATORS			
	35	SPIROMETER		G-2	TO STUDY THE CONCEPT OF EMG
	36	PLUSE OXYMETER SPO2			
10	37	NON INVASIVE BLOOD PRESSURE (NIBP)	10	G-1	TO STUDY THE CONCEPT OF ECG
	38	GLUCOMETER			
	39	SPEECH AUDIOMETER		G-2	TO STUDY THE CONCEPT OF ECG
	40	PLETHYSMOGRAPH			
11	41	INTRODUCTION OF BIOTELEMETRY	11	G-1	MEASUREMENT OF BLOOD SUGAR OF A PATIENT USING GLUCOMETER
	42	TELE MEDICINE			
	43	INTRODUCTION OF ICU		G-2	MEASUREMENT OF BLOOD SUGAR OF A PATIENT USING GLUCOMETER
	44	ELEMENTS OF ICU			
12	45	ELEMENTS OF ICU	12	G-1	TO MEASURE BOOD PRESSURE OF A PERSON USING DIGITAL BP GAUGE
	46	ELEMENTS OF ICU			
	47	COMPUTER APPLICATION IN BIO MEDICAL		G-2	TO MEASURE BOOD PRESSURE OF A PERSON USING DIGITAL BP GAUGE
	48	COMPUTER APPLICATION IN BIO MEDICAL DEVICE			
13	49	COMPUTRIZED AXIAL TOMOGRAPHY	13	G-1	VISIT OF ICU OF A HOSPITAL AND PREPARE A REPORT
	50	COMPUTRIZED AXIAL TOMOGRAPHY			
	51	CAT SCANNERS		G-2	VISIT OF ICU OF A HOSPITAL AND PREPARE A REPORT
	52	CAT SCANNERS			
14	53	APPLICATION OF EMBEDDED SYSTEM	14	G-1	PRACTICAL FOR THOSE STUDENTS WHO ABSENT DURING PRACTICAL
	54	BIO MEDICAL INSTRUMENTATION			
	55	APPLICATION OF EMBEDDED SYSTEM IN BIO-MEDICAL		G-2	PRACTICAL FOR THOSE STUDENTS WHO ABSENT DURING PRACTICAL
	56	EMBEDDED SYSTEM IN BMI			
15	57	REVISION	15	G-1	PRACTICAL FOR THOSE STUDENT WHO IS ABSENT DURING PRACTICALS

58	REVISION		
59	REVISION		
60	REVISION		
		G-2	PRACTICAL FOR THOSE STUDENT WHO IS ABSENT DURING PRACTICALS

LESSON PLAN

Name of Faculty : VISITING FACULTY-2

Discipline : Instrumentation & Control Engg.

Semester : 4th

Subject : CPA

Work Load : LECTURE 02, PRACTICAL 08

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Week	lecture Day	Theory	Week	Practicals day	Practicals Topic
1	1	NEED FOR INFORMATION STORAGE AND RETRIVAL	1	G-1	OPERATING DATABASE & QUERYING THE DATABASE
	2	CREATING DATA BASE FILE		G-2	OPERATING DATABASE & QUERYING THE DATABASE
2	3	QUERYING DATABASE FILE ON SINGLE AND MULTIPLE KEYS & ORDERING THE DATA ON SELETED KEY	2	G-1	REPORT GENERATION & PROGRAMMING IN DATA BASE
	4	PROGRAMMING A VERY SIMPLE APPLICATION		G-2	REPORT GENERATION & PROGRAMMING IN DATA BASE
3	5	BASIC STRUCTURE OF 'C' PROGRAM	3	G-1	USE INSTRUMENTATION AND CONTROL ENGINEERING RELATED CAI
	6	EXECUTING A C PROGRAM		G-2	USE INSTRUMENTATION AND CONTROL ENGINEERING RELATED CAI PACKAGES DRAWING ETC
4	7	CONSTANTS AND VARIABLES	4	G-1	EXERCISE ON DATA ACQUISTION SYSTEM AND CONTROL
	8	DATA TYPE		G-2	EXERCISE ON DATA ACQUISTION SYSTEM AND CONTROL
5	9	OPERATORS AND EXPRESSIONS	5	G-1	EXERCISE ON CONTROL ON/OFF SWITCH AND PROPORTIONAL
	10	MANAGING INPUT OUTPUT OPERATIONS LIKE READING CHARACTERS		G-2	EXERCISE ON CONTROL ON/OFF SWITCH AND PROPORTIONAL CONTROL
6	11	WRITING A CHARACTER	6	G-1	PROGRAMMING EXERCISE ON EXECUTING C PROGRAM &
	12	FORMATTED INPUT AND FORMATTED OUTPUT THROUGH PRINT		G-2	PROGRAMMING EXERCISE ON EXECUTING C PROGRAM & PROGRAMMING EXERCISE ON EDITING C PROGRAM
7	13	SCAN, GETCH	7	G-1	PROGRAMMING EXERCISE ON DEFINING VARIABLES AND ASSIGNING
	14	PUTCH STATEMENTS ETC		G-2	PROGRAMMING EXERCISE ON DEFINING VARIABLES AND ASSIGNING VALUES TO THE VARIABLES
8	15	DECISION MAKING AND BRANCHING USING IF-ELSE	8	G-1	PROGRAMMING EXERCISE ON ARITHMETIC AND RELATIONAL OPERATORS AND ALSO ON ARITHMETIC EXPRESSIONS AND THEIR
	16	SWITCH, GO TO STATEMENTS		G-2	PROGRAMMING EXERCISE ON ARITHMETIC AND RELATIONAL OPERATORS AND ALSO ON ARITHMETIC EXPRESSIONS AND THEIR EVALUATION
9	17	DECISION MAKING LOOPING USING DO-WHILE	9	G-1	PROGRAMMING EXERCISE ON READING A CHARACTER AND ON
	18	AND FOR STATEMENTS		G-2	PROGRAMMING EXERCISE ON READING A CHARACTER AND ON WRITING A CHARACTER

10	19	ARRAY ONE DIMENSIONAL AND TWO DIMENSIONAL	10	G-1	PROGRAMMING EXERCISE ON FORMATTING INPUT USING PRINT AND OUTPUT USING SCAN
	20	FUNCTIONS		G-2	PROGRAMMING EXERCISE ON FORMATTING INPUT USING PRINT AND OUTPUT USING SCAN
11	21	FUNCTIONS	11	G-1	PROGRAMMING EXERCISE ON SIMPLE IF AND IF-ELSE STATEMENT
	22	CONCEPT OF POINTERS		G-2	PROGRAMMING EXERCISE ON SIMPLE IF AND IF-ELSE STATEMENT
12	23	STRUCTURE	12	G-1	PROGRAMMING EXERCISE ON SWITCH AND GOTO STATEMENT AND
	24	AND FILES		G-2	PROGRAMMING EXERCISE ON SWITCH AND GOTO STATEMENT AND DO-WHILE STATEMENT
13	25	MAT LAB	13	G-1	PROGRAMMING EXERCISE ON FOR STATEMENT ON FOR STATEMENT
	26	ALLEBRADELY		G-2	PROGRAMMING EXERCISE ON FOR STATEMENT ON FOR STATEMENT AND ON ONE DIMENSIONAL ARRAY AND TWO DIMENSIONAL ARRAY
14	27	SLC 100 ON PLC	14	G-1	INTERNET USES / APPLICATION AND APPLICATION OF MAT LAB. PSIM
	28	SLC 100 ON PLC		G-2	INTERNET USES / APPLICATION AND APPLICATION OF MAT LAB. PSIM
15	29	DCS SOFTWARE	15	G-1	MULTISIM
	30	DCS SOFTWARE		G-2	PSPICE ETC

Lesson Plan

Name of the faculty : Mr. Tejpal Rawat (H.O.D)

Discipline : Electronics and Communication Engg.

Semester : VIth

Subject : EDM

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Work Load(Lecture)Per week (in hours): Lectures-03

Week	Theory	
	Lecture day	Topic(including assignment/test)
1 st	1 st	Introduction of entrepreneurship
	2 nd	Concept /Meaning and its need
	3 rd	Qualities and functions of entrepreneur and barriers in entrepreneurship
2 nd	4 th	Sole proprietorship and partnership forms of business organisations
	5 th	NSIC Schemes of assistance by entrepreneurial support agencies at National, State, District level
	6 th	NRDC Schemes of assistance by entrepreneurial support agencies at National, State, District level
3 rd	7 th	DC, MSME Schemes of assistance by entrepreneurial support agencies at National, State, District level
	8 th	SIDBI, NABARD Schemes of assistance by entrepreneurial support agencies at National, State, District level
	9 th	Commercial Banks, SFC's Schemes of assistance by entrepreneurial support agencies at National, State, District level
4 th	10 th	TCO, KVIB, DIC Schemes of assistance by entrepreneurial support agencies at National, State, District level
	11 th	Technology Business Incubator (TBI)
	12 th	Science and Technology Entrepreneur Parks(STEP)
5 th	13 th	Introduction to Market Survey and Opportunity Identification
	14 th	Scanning of business environment
	15 th	Salient features of National and State industrial policies
6 th	16 th	resultant business opportunities
	17 th	Types of market survey
	18 th	conduct of market survey
7 th	19 th	Assessment of demand and supply in potential areas of growth
	20 th	Identifying business opportunity
	21 th	Considerations in product selection
8 th	22 th	Introduction Project report Preparation
	23 th	Preliminary project report
	24 th	project report including technical aspects

9 th	25 th	project report including economic aspects
	26 th	project report including market feasibility aspects
	27 th	Detailed project report including technical, economic and market feasibility
10 th	28 th	Common errors in project report preparations
	29 th	Exercises on preparation of project report
	30 th	Introduction to Management
11 th	31 th	Definitions and importance of management Functions of management: Importance and Process of planning, organising, staffing, directing and controlling
	32 th	Principles of management (Henri Fayol, F.W. Taylor) Concept and structure of an organisation
	33 th	Types of industrial organisations a) Line organisation b) Line and staff organisation c) Functional Organisation
12 th	34 th	Introduction -Leadership and Motivation
	35 th	a) Leadership • Definition and Need • Qualities and functions of a leader • Manager Vs leader • Types of leadership
	36 th	b) Motivation • Definitions and characteristics • Factors affecting motivation • Theories of motivation (Maslow, Herzberg, McGregor)
13 th	37 th	Management Scope in Different Areas
	38 th	a) Human Resource Management • Introduction and objective • Introduction to Man power planning, recruitment and selection • Introduction to performance appraisal methods
	39 th	b) Material and Store Management • Introduction functions, and objectives • ABC Analysis and EOQ
14 th	40 th	c) Marketing and sales • Introduction, importance, and its functions • Physical distribution
	41 th	Marketing and sales Introduction to promotion mix Sales promotion
	42 th	d) Financial Management • Introductions, importance and its functions • Elementary knowledge of income tax, sales tax, excise duty, custom duty and VAT
15 th	43 th	Miscellaneous Topics a) Customer Relation Management (CRM)

		<ul style="list-style-type: none">•Definition and need•Types of CRM
	44 th	b) Total Quality Management (TQM) <ul style="list-style-type: none">•Statistical process control•Total employees Involvement•Just in time (JIT)
	45 th	c) Intellectual Property Right (IPR) <ul style="list-style-type: none">•Introductions, definition and its importance•Infringement related to patents, copy right, trade mark

LESSON PLAN

Name of Faculty : MR. PARDEEP NANDAL

Discipline : Instrumentation & Control Engg.

Semester : 6th

Subject : EMPLOYBILITY SKILLS-II

Work Load : 02 Practical

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Week	Practical Day	Practicals
		Topic
1	1	MOCK OF INTERVIEW
2	2	MOCK OF INTERVIEW
3	3	PREPARING FOR MEETING
4	4	PREPARING FOR MEETING
5	5	GROUP DISCUSSION
6	6	GROUP DISCUSSION
7	7	PREPARE FOR SEMINAR
8	8	SEMINAR PRESENTATION
9	9	SEMINAR PRESENTATION
10	10	ELEMENTS OF GOOD PRESENTAITON
11	11	STRUCTURE AND TRACK OF PRESENTATION
12	12	PAPER READING
13	13	HOW TO PREPARE PAOWER PRINT PRESENTATION
14	14	POWER POINT PRESENTATION
15	15	REVISION

Lesson Plan

Name of the faculty : Mrs. Suparna Ambesange (H.O.D)

Discipline : Instrumentation and Control

Semester : VIth

Subject : EDM

Lesson Plan Duration : 15 weeks(from 9th Jan,2018 to 30th April,2018)

Work Load(Lecture)Per week (in hours): Lectures-03

Week	Theory	
	Lecture day	Topic(including assignment/test)
1 st	1 st	Introduction of entrepreneurship
	2 nd	Concept /Meaning and its need
	3 rd	Qualities and functions of entrepreneur and barriers in entrepreneurship
2 nd	4 th	Sole proprietorship and partnership forms of business organisations
	5 th	NSIC Schemes of assistance by entrepreneurial support agencies at National, State, District level
	6 th	NRDC Schemes of assistance by entrepreneurial support agencies at National, State, District level
3 rd	7 th	DC, MSME Schemes of assistance by entrepreneurial support agencies at National, State, District level
	8 th	SIDBI, NABARD Schemes of assistance by entrepreneurial support agencies at National, State, District level
	9 th	Commercial Banks, SFC's Schemes of assistance by entrepreneurial support agencies at National, State, District level
4 th	10 th	TCO, KVIB, DIC Schemes of assistance by entrepreneurial support agencies at National, State, District level
	11 th	Technology Business Incubator (TBI)
	12 th	Science and Technology Entrepreneur Parks(STEP)
5 th	13 th	Introduction to Market Survey and Opportunity Identification
	14 th	Scanning of business environment
	15 th	Salient features of National and State industrial policies
6 th	16 th	Resultant business opportunities
	17 th	Types of market survey
	18 th	Conduct of market survey
7 th	19 th	Assessment of demand and supply in potential areas of growth
	20 th	Identifying business opportunity
	21 th	Considerations in product selection
8 th	22 th	Introduction Project report Preparation

	23 th	Preliminary project report
	24 th	Project report including technical aspects
9 th	25 th	Project report including economic aspects
	26 th	Project report including market feasibility aspects
	27 th	Detailed project report including technical, economic and market feasibility
10 th	28 th	Common errors in project report preparations
	29 th	Exercises on preparation of project report
	30 th	Introduction to Management
11 th	31 th	Definitions and importance of management Functions of management: Importance and Process of planning, organising, staffing, directing and controlling
	32 th	Principles of management (Henri Fayol, F.W. Taylor) Concept and structure of an organisation
	33 th	Types of industrial organisations a) Line organisation b) Line and staff organisation c) Functional Organisation
12 th	34 th	Introduction -Leadership and Motivation
	35 th	a) Leadership •Definition and Need •Qualities and functions of a leader •Manager Vs leader •Types of leadership
	36 th	b) Motivation •Definitions and characteristics •Factors affecting motivation •Theories of motivation (Maslow, Herzberg, McGregor)
13 th	37 th	Management Scope in Different Areas
	38 th	a) Human Resource Management •Introduction and objective •Introduction to Man power planning, recruitment and selection •Introduction to performance appraisal methods
	39 th	b) Material and Store Management •Introduction functions, and objectives •ABC Analysis and EOQ
14 th	40 th	c) Marketing and sales •Introduction, importance, and its functions •Physical distribution
	41 th	Marketing and sales Introduction to promotion mix Sales promotion
	42 th	d) Financial Management •Introductions, importance and its functions •Elementary knowledge of income tax, sales tax, excise duty, custom duty and VAT

15 th	43 th	Miscellaneous Topics a) Customer Relation Management (CRM) •Definition and need •Types of CRM
	44 th	b) Total Quality Management (TQM) •Statistical process control •Total employees Involvement •Just in time (JIT)
	45 th	c) Intellectual Property Right (IPR) •Introductions, definition and its importance •Infringement related to patents, copy right, trade mark

Lesson Plan

Name of the faculty : Mrs. Suparna Ambesange (H.O.D)
Discipline : Instrumentation and Control
Semester : VIth
Subject : Project Work
Lesson Plan Duration : 15 weeks(from 9th Jan,2018 to 30th April,2018)

Work Load(Practical)Per week (in hours): Practical-03

week	Practical	
	Practical day	Topic
1 st	1 st	Introduction regarding project work Need, requirement and scope of Project
2 nd	2 nd	Formulation of groups
3 rd	3 rd	Finalization of topics
4 th	4 th	Submission of synopsis
5 th	5 th	Submission of circuit diagram
6 th	6 th	Finalization of Components and IC's
7 th	7 th	all the components assemble first in the breadboard testing the output
8 th	8 th	Artwork
9 th	9 th	PCB fabrication
10 th	10 th	Preparation of PCB's- etching Process
11 th	11 th	Preparation of PCB's- Drilling process
12 th	12 th	Placement of components along with soldering
13 th	13 th	Testing of circuit/Troubleshooting
14 th	14 th	Submission of rough Project report
15 th	15 th	Final submission of Project along with report

Lesson Plan

Name of the faculty : Mr. Pardeep Nandal

Discipline : Instrumentation and Control

Semester : VIth

Subject : Project Work

Lesson Plan Duration : 15 weeks(from 9th Jan,2018 to 30th April,2018)

Work Load(Practical)Per week (in hours): Practical-03

week	Practical	
	Practical day	Topic
1 st	1 st	Introduction regarding project work Need, requirement and scope of Project
2 nd	2 nd	Formulation of groups
3 rd	3 rd	Finalization of topics
4 th	4 th	Submission of synopsis
5 th	5 th	Submission of circuit diagram
6 th	6 th	Finalization of Components and IC's
7 th	7 th	all the components assemble first in the breadboard testing the output
8 th	8 th	Artwork
9 th	9 th	PCB fabrication
10 th	10 th	Preparation of PCB's- etching Process
11 th	11 th	Preparation of PCB's- Drilling process
12 th	12 th	Placement of components along with soldering
13 th	13 th	Testing of circuit/Troubleshooting
14 th	14 th	Submission of rough Project report
15 th	15 th	Final submission of Project along with report

Lesson Plan

Name of the faculty : Mr. Jai Parkash

Discipline : Instrumentation and Control

Semester : VIth

Subject : Project Work

Lesson Plan Duration : 15 weeks(from 9th Jan,2018 to 30th April,2018)

Work Load(Practical)Per week (in hours): Practical-03

week	Practical	
	Practical day	Topic
1 st	1 st	Introduction regarding project work Need, requirement and scope of Project
2 nd	2 nd	Formulation of groups
3 rd	3 rd	Finalization of topics
4 th	4 th	Submission of synopsis
5 th	5 th	Submission of circuit diagram
6 th	6 th	Finalization of Components and IC's
7 th	7 th	all the components assemble first in the breadboard testing the output
8 th	8 th	Artwork
9 th	9 th	PCB fabrication
10 th	10 th	Preparation of PCB's- etching Process
11 th	11 th	Preparation of PCB's- Drilling process
12 th	12 th	Placement of components along with soldering
13 th	13 th	Testing of circuit/Troubleshooting
14 th	14 th	Submission of rough Project report
15 th	15 th	Final submission of Project along with report

LESSON PLAN

Name of Faculty : Mr PARDEEP NANDAL

Discipline : Instrumentation & Control Engg.

Semester : 6th

Subject : INSTRUMENTATION DRAWING

Work Load : 08 Practical

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Week	Practical Day	Practicals
		Topic
1	1	STUDY OF SYMBOLS ELECTRONIC SYMBOLS, PROCESS INSTRUMENTATION SYMBOLS
	2	STUDY OF SYMBOLS ELECTRONIC SYMBOLS, PROCESS INSTRUMENTATION SYMBOLS
2	3	SCHEMATIC SYMBOLS, BALLOON SYMBOLS GRAPHICAL SYMBOLS FOR PIPE FITTING, VALVEST PIPING
	4	SCHEMATIC SYMBOLS, BALLOON SYMBOLS GRAPHICAL SYMBOLS FOR PIPE FITTING, VALVEST PIPING
3	5	LINE SYMBOLS, CLOUR CODING OF LINES
	6	LINE SYMBOLS, CLOUR CODING OF LINES
4	7	FLOW SHEET CODES, INSTRUMENTS IDENTIFICATION
	8	FLOW SHEET CODES, INSTRUMENTS IDENTIFICATION
5	9	BLOCK DIAGRAM SCHEMATIC DIAGRAM WIRING DIAGRAM
	10	BLOCK DIAGRAM SCHEMATIC DIAGRAM WIRING DIAGRAM
6	11	GRAPHICAL PANEL DIAGRAM AND BLOW UP DIAGRAM
	12	GRAPHICAL PANEL DIAGRAM AND BLOW UP DIAGRAM
7	13	INSTALLATION INSTUMENT SYSTEMS STUDY OF INSTALLATION PROCEDURE OF INSTRUMENT
	14	INSTALLATION INSTUMENT SYSTEMS STUDY OF INSTALLATION PROCEDURE OF INSTRUMENT
8	15	CHECK LIST OF GOOD INSTALLATION PROCEDURES INSTRUMENTATION DRAWING OF POWER PLANT
	16	CHECK LIST OF GOOD INSTALLATION PROCEDURES INSTRUMENTATION DRAWING OF POWER PLANT
9	17	POWER PLANT BLOCK DIAGRAM OR FLOW CHART FORM
	18	POWER PLANT BLOCK DIAGRAM OR FLOW CHART FORM
10	19	INTRODUCTION TO PCB'S SINGLE SIDED AND DOUBLE SIDED BOARDS PCB LAYOUT DESIGNING
	20	INTRODUCTION TO PCB'S SINGLE SIDED AND DOUBLE SIDED BOARDS PCB LAYOUT DESIGNING
11	21	SKETCHED OF PROCESS CONTROLLERS PENEUMATIC, HYDRAULIC AND PI ETC
	22	SKETCHED OF PROCESS CONTROLLERS PENEUMATIC, HYDRAULIC AND PI ETC
12	23	SKETCHES CONTROL VALUES AND PLUGS
	24	SKETCHES CONTROL VALUES AND PLUGS
13	25	SCHEMATIC DIAGRAMS OF HYDRAULIC PNEUMATIC COMPONENT SINGLE ACTING CYLINDER DOUBLE
	26	SCHEMATIC DIAGRAMS OF HYDRAULIC PNEUMATIC COMPONENT SINGLE ACTING CYLINDER DOUBLE
14	27	TANDOM VALUE, SHUTTLE VALUE , SPRING RETURN CYLINDER
	28	TANDOM VALUE, SHUTTLE VALUE , SPRING RETURN CYLINDER
15	29	DIAGRAM OF SOL-SOL VALVE, PNEUMATIC RELAYS
	30	DIAGRAM OF SOL-SOL VALVE, PNEUMATIC RELAYS

Lesson Plan

Name of the faculty : VISITING FACULTY-1

Discipline : Instrumentation and Control

Semester : 4th

Subject : MM&A

Lesson Plan Duration : 15 weeks(from 9th Jan,2018 to 30th April,2018)

Work Load(Lecture/Practical)Per week (in hours): Lectures-04,Practical-06

Week	Theory		Practical	
	Lecture day	Topic(including assignment/test)	Practical day	Topic
1 st	1 st	Introduction to microprocessors	1 st	Description about instruments
	2 nd	Evolution of microprocessors		
	3 rd	Importance of microprocessors	2 nd	Description about instruments
	4 th	Application of microprocessor		
2 nd	5 th	Architecture of a Microprocessor-8085	3 rd	Familiarization with 8085 based kit
	6 th	Concept of a bus	4 th	Familiarization with 8085 based kit
	7 th	Concept of a bus organization		
	8 th	Functional block diagram of 8085 microprocessor		
3 rd	9 th	Interrupt and type of interrupt with brief explanation	5 th	Familiarization of micro-controller (8051) based kit
	10 th	Function of ALU and resisters		
	11 th	Function of each remaining blocks	6 th	Familiarization of micro-controller (8051) based kit
	12 th	Pin details of 8085 and related signals.		
4 th	13 th	Explanation of Pin details	7 th	Write a program to perform the sum of two numbers using of 8085 microprocessor
	14 th	Serial and parallel ports		
	15 th	Demultiplexing of address/data bus	8 th	Write a program to perform the sum of two numbers using of 8085 microprocessor
	16 th	Demultiplexing of memory read/write cycles		
5 th	17 th	Programming (with respect to 8085 microprocessor)	9 th	Write a program to perform the

	18 th	Brief idea of machine and assembly languages		multiplication of two numbers using of 8085 microprocessor
	19 th	Brief idea of Machines and Mnemonic codes	10 th	Write a program to perform the multiplication of two numbers using of 8085 microprocessor
	20 th	Instruction format		
6 th	21 th	Addressing modes of 8085 microprocessor	11 th	Application of 8085 instruction set to develop various programs regarding a data transfer operations
	22 nd	Identification of instructions as to which addressing mode they belong.		
	23 rd	Concept of Instruction set. Explanation of the instructions of the following groups of instruction set	12 th	Application of 8085 instruction set to develop various programs regarding a data transfer operations
	24 th	Data transfer groups, Arithmetic Group, Logic Group		
7 th	25 th	Stack with Push ,POP operation	13 th	Application of 8085 instruction set to develop various programs regarding a conditional operations
	26 th	I/O operation		
	27 th	Machine Control Group	14 th	Application of 8085 instruction set to develop various programs regarding a conditional operations
	28 th	Programming exercises in assembly language. (Examples can be taken from the list of experiments)		
8 th	29 th	Introduction to Interfacing and Data Transfer Schemes	15 th	Application of 8051 instruction set to develop various programs regarding arithmetic operations
	30 th	Memory mapped I/O		
	31 th	I/O mapped schemes	16 th	Application of 8051 instruction set to develop various programs regarding arithmetic operations
	32 th	Interrupts of 8085		
9 th	33 th	Maskable interrupts	17 th	Application of 8051 instruction set to develop various programs regarding
	34 th	Non-maskable interrupts		

				conditional operations
	35 th	Software interrupts	18 th	Application of 8051 instruction set to develop various programs regarding conditional operations
	36 th	Marking of interrupts		
10 th	37 th	I/O Chips:8255 Pin configuration	19 th	Testing of general Input on Micro controller Board.
	38 th	8255:block diagram	20 th	Testing of general Input on Micro controller Board.
	39 th	8259: pin configuration		
	40 th	8259: block diagram		
11 th	41 th	8257: Pin configuration	21 th	Testing of general output on Micro controller Board.
	42 th	8257:block diagram	22 nd	Testing of general output on Micro controller Board.
	43 th	Brief explanation of Micro controllers		
	44 th	Comparison of microcontroller and microprocessor		
12 th	45 th	Architecture of 8051	23 th	Use of software development tools like KEIL Compiler.
	46 th	Brief explanation of blocks of 8051 microcontroller	24 th	Use of software development tools like KEIL Compiler.
	47 th	Connecting external memory with 8051 microcontroller		
	48 th	Hardware I/O pins		
13 th	49 th	Ports of 8051 microcontroller	25 th	File checking and discussion
	50 th	Counters, timers of 8051 microcontroller	26 th	File checking and discussion
	51 th	Serial port		
	52 th	I/O interrupts.		
14 th	53 th	Addressing Modes of 8051 microcontroller	27 th	Viva and file Checking and discussion
	54 th	Types of addressing modes of 8051 microcontroller	28 th	Checking and discussion
	55 th	Instruction set,data transfer basic Instructions		
	56 th	Conditional basic instructions in 8051		
15 th	57 th	Arithmetic basic instruction in 8051 microcontroller	29 th	Final checking and discussion
	58 th	Assemblers and Compilers	30 th	Final checking and discussion
	59 th	Assembly Language Programming based on basic instruction		
	60 th	Programming based on basic instructions		

Name of the Faculty : **Jai Parkash**
Discipline : **Instrumentation & Control**
Semester : **6th Semester**
Subject : **PLC, DCS and SCADA**
Lesson Plan Duration : 15 weeks (from 9th January, 2018 to 30th April, 2018)

Work Load (Lecture/ Practical) per weeks (in hours): Lectures-04, Practical-03

week	Theory		Practical	
	Lecture Day	Topic (including assignment/ test)	Practical Day	Topic
1 st	1 st	Introduction of PLC	1 st	Introduction of PLC, DCS and SCADA Equipments and kits
	2 nd	Concept of PLC		
	3 rd	Building blocks of PLC		
	4 th	Functions of various blocks		
2 nd	5 th	Limitations of Relays	2 nd	Components/sub-components of a PLC
	6 th	Advantages of PLCs over Electromagnetic Relays		
	7 th	Different Programming Languages		
	8 th	PLC Programming Languages		
3 rd	9 th	Advantages of PLC	3 rd	Learning functions of different modules of a PLC system
	10 th	Applications of PLC		
	11 th	PLC manufacturer etc		
	12 th	Assignment and Class Test of Unit 1		

4 th	13 th	Basic Operation and Principles of PLC Architecture	4 th	Practical steps in programming a PLC (a) using a hand held programmer (b) using computer interface
	14 th	Scan Cycle (PLC Operation)		
	15 th	Memory structures: Program File Memory		
	16 th	Storage Memory (or Data File Memory)		
5 th	17 th	I/O structure (Modules)	5 th	Practical steps in programming a PLC (a) using a hand held programmer (b) using computer interface
	18 th	Programming Terminal		
	19 th	Power Supply		
	20 th	Racks and Chasis		
6 th	21 th	Module Addressing	6 th	Introduction to ladder diagram concepts, instruction list syntax
	22 th	PLC Registers		
	23 th	Sourcing and Sinking Inputs/Outputs		
	24 th	Assignment and Class Test of Unit 2		
7 th	25 th	Basic instructions like latch (Bit Instructions)	7 th	Introduction to ladder diagram concepts, instruction list syntax
	26 th	Master Control Relays Instruction		
	27 th	Self-Holding Relays (One Shot, One-Shot Rising)		
	28 th	Timers (On, Off, Retentive, Non-Retentive)		
8 th	29 th	Timer Instructions (Parameter)	8 th	Basic logic operations, AND, OR, NOT functions
	30 th	Timer Instructions: Timer ON-Delay (TON) Instruction		
	31 th	Timer instructions: Timer OFF-Delay (TOF) Instruction		
	32 th	Timer Instructions: Retentive Timer (RTO) Instruction		
9 th	33 th	Counter (Up Counters, Down- Counter, Up-Down Counter)	9 th	Basic logic operations, AND, OR, NOT functions
	34 th	Counter Instruction Parameters		
	35 th	Counter Instructions like Count-Up (CTU) Instruction		
	36 th	Counter Instructions like Count-Down (CTD) Instruction		
10 th	37 th	RESET (RES) Instruction, MCR Instruction	10 th	Logic control systems with time response as applied to clamping operation
	38 th	Arithmetic Instructions (ADD, SUB, DIV, MUL etc.)		
	39 th	Boolean Instructions		

	40 th	Sequencers Instruction		
11 th	41 th	Shift Register Instructions	11 th	Logic control systems with time response as applied to clamping operation
	42 th	MOV Instruction		
	43 th	RTC (Real Time Clock Function)		
	44 th	Watch Dog Timer		
12 th	45 th	Comparison instructions like equal, not equal, greater, greater than equal, less than, less than equal	12 th	Sequence control system e.g. in lifting a device for packaging and counting
	46 th	Programming based on Basic Instructions, Timer, Counter, and Comparison instructions using Ladder Program		
	47 th	Ladder Diagram for Boolean Logic of Inputs		
	48 th	Assignment and Class Test of Unit 3		
13 th	49 th	Concept of DDC	13 th	Sequence control system e.g. in lifting a device for packaging and counting
	50 th	DCS: Basic Principles		
	51 th	DCS I/O hardware		
	52 th	Remote Terminal Unit		
14 th	53 th	Assignment and Class Test of Unit 4	14 th	Use of PLC for an Application
	54 th	SCADA: Basic Principles		
	55 th	Block Diagram of SCADA		
	56 th	Difference between Open Architecture and Dedicated System		
15 th	57 th	Difference between DCS and SCADA	15 th	Use of PLC for an Application

	58 th	Assignment and Class Test of Unit 5		
	59 th	Revision and Test of whole syllabus		
	60 th	Revision of previous questions papers		

LESSON PLAN

Name of Faculty :Rakesh Malik

Discipline : I & C

Semester : 4th

Subject : Principle of Telemetry

Work Load : lecturers-03,Practicals-06

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Week	Lecture day	Theory (Including Assignments and Tests)	Week	Day	Practicals Topic
1	1	Introduction to Land line Telemetry-Pneumatic system	1	G-1(1)	Realization of Various Process lags.
	2	Flopper nozzle		G-2(2)	Realization of Various Process lags.
	3	Pilot relay			
2	4	Bleed types feed back relay Limitations	2	G-1(3)	Measurement of pressure using pneumatic transmitters
	5	Electric system Current system		G-2(4)	Measurement of pressure using pneumatic transmitters
	6	Impulse system - Position system or Ratio system			
3	7	Frequency system	3	G-1(5)	Measurement of differential pressure using PDPT
	8	Voltage system		G-2(6)	Measurement of differential pressure using PDPT
	9	Introductio to RF Communication Amplitude modulation			
4	10	Frequency modulation Phare modulation	4	G-1(7)	Realization of electric Transmitters
	11	Pulse modulation		G-2(8)	Realization of electric Transmitters
	12	Pulse code modulation			
5	13	Introduction to Transmitters	5	G-1(9)	Study of Hydraulic Transmitters
	14	Pneumatic Transmitter		G-2(10)	Study of Hydraulic Transmitters
	15	PDPT bellow type			
6	16	PDPT diaphragm type	6	G-1(11)	Study of different types of pilot relays.
	17	PDPT diaphragm type		G-2(12)	Study of different types of pilot relays.
	18	Electric transmitters			
	19	Electronic force balance DPT		G-1(13)	To observe AM on CRO

7	20	Electronic force balance DPT	7	G-2 (14)	To observe AM on CRO
	21	Hydraulic transmitter			
8	22	Hydraulic transmitter	8	G-1(15)	To observe FM on CRO
	23	Introduction to Transmission Channels		G-2(16)	To observe FM on CRO
	24	Wireline channels			
9	25	Radio Channels	9	G-1(17)	To calculate modulation index(m) for AM
	26	Radio Channels		G-2(18)	To calculate modulation index(m) for AM
	27	Multiplexing channels			
10	28	Time division multiplexing	10	G-1(19)	To calculate modulation index(m) for FM
	29	Time division multiplexing		G-2(20)	To calculate modulation index(m) for FM
	30	Frequency division multiplexing			
11	31	Introduction to Data Communication Modulation of signals using Amplitude shift keying	11	G-1(21)	To observe PAM on CRO
		32		Demodulation of signals using Amplitude shift keying	G-2(22)
	33			Frequency shift keying	
12	34	Phase shift keying	12	G-1(23)	To observe PPM on CRO
	35	Errors and correction in above system		G-2(24)	To observe PPM on CRO
	36	Errors and correction in above system			
13	37	Instrumentation to instrumentation Buses	13	G-1(25)	
	38	General view of instrumentation buses		G-2(26)	To observe PWM on CRO
	39	General view of instrumentation buses			
14	40	Field programmable buses	14	G-1(27)	Revision and Practical work
	41	Field programmable buses		G-2(28)	Revision and Practical work
	42	Field programmable buses			
15	43	- Inter bus	15	G-1(29)	Revision and Practical work
	44	- Inter bus		G-2 (30)	Revision and Practical work
	45	- Inter bus			

LESSON PLAN

Name of Faculty :Rakesh Malik

Discipline : I & C

Semester : 4th

Subject : Transducers And Signal Conditioning

Work Load : lecturers-03,Practicals-06

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Week	Lecture day	Theory	Week	Practical day	Practical
		(Including Assignments and Tests)			
1	1	Basic concepts , Definition and classification of transducers,	1	G-1(1)	Study of Strain guage and measurement of strain for a given sample.
	2	Selection criteria of transducer, characterctics of transducer.		G-2(2)	Study of Strain guage and measurement of strain for a given sample.
	3	Variable Resistance Transducers Construction, working principle, selection criteria and application of Potentiometer, strain gauge, load cell			
2	4	Construction, working principle, selection criteria and application of - Hot wire anemometer, photo resistors	2	G-1(3)	Study of piezoelectric pressure transducer
	5	Construction, working principle, selection criteria and application of- Resistive temperature transducers		G-2(4)	Study of piezoelectric pressure transducer
	6	Construction, working principle, selection criteria and application of- Thermistors			
3	7	Construction, working principle, selection criteria and application of - Carbon Microphones	3	G-1(5)	Study of Resistance temperature detector
	8	Construction, working principle, selection criteria and application of- Accelerometer ,advantages ,disadvantage and limitation of Variable Resistance Transducers		G-2(6)	Study of Resistance temperature detector
	9	Variable Inductance transducer Construction, working principles and application of - Electromagnetic pick up			

4	10	Construction, working principles and application of-Induction potentiometer	4	G-1(7)	Study of thermistors and measurement of temp.
	11	Construction, working principles and application of- Linear variable differential transformer		G-2(8)	Study of thermistors and measurement of temp.
	12	Construction, working principles and application of-Synchronous transmitter and receivers, advantages and limitations			
5	13	Variable capacitance Transducers Construction, basis principle selection criteria and application of Capacitance pick up	5	G-1(9)	Study of Calibration of LVDT
	14	Construction, basis principle selection criteria and application of condenser microphone		G-2(10)	Study of Calibration of LVDT
	15	Construction, basis principle selection criteria and application of - Differential capacitor pick up			
6	16	Advantages of Variable capacitance transducer	6	G-1(11)	Study of capacitive transducer and measurement of angular displacement
	17	Disadvantage of Variable capacitance transducer		G-2(12)	Study of capacitive transducer and measurement of angular displacement
	18	Limitation of Variable capacitance transducer			
7	19	Introduction to Piezoelectric Transducers	7	G-1(13)	Study of magnetic pick up
	20	Construction, basis principle - Piezoelectric Transducers		G-2 (14)	Study of magnetic pick up
	21	Selection criteria and application of - Piezoelectric Transducers			
8	22	Construction, basis principle selection criteria and application of - Seismic pick up	8	G-1(15)	Study and draw characteristics of capacitance transducer
	23	Construction, basis principle - Ultrasonic Transducers		G-2(16)	Study and draw characteristics of capacitance transducer
	24	Selection criteria and application of - Ultrasonic Transducers			
9	25	Advantage of Piezoelectric Transducers	9	G-1(17)	Study of thermocouple
	26	Disadvantages and limitations of Piezoelectric Transducers		G-2(18)	Study of thermocouple
	27	Other types of transducers Transducers based upon hall effect			
10	28	Optical transducers-photo diode, photo transistor	10	G-1(19)	To study and draw characteristics of LDR
	29	Optical transducers- LDR and LED		G-2(20)	To study and draw characteristics of LDR

	30	Digital transducer- single shaft encoder		G-2(20)	
11	31	Techo generator	11	G-1(21)	To study and draw characterstics of Photodiode
	32	Advantage of Digital Transducer		G-2(22)	To study and draw characterstics of Photodiode
	33	Disadvantage and limitations fo Digital Transducer			
12	34	Magnetostrictive transducers	12	G-1(23)	To study and draw characterstics of Photo Transistor
	35	Magnetostrictive transducers		G-2(24)	To study and draw characterstics of Photo Transistor
	36	Principle of Analog Signal Conditioning			
13	37	Principle of Analog Signal Conditioning	13	G-1(25)	To study and draw characterstics of Capacitance transducer
	38	Linearization		G-2(26)	To study and draw characterstics of Capacitance transducer
	39	Linearization			
14	40	Various types of conversions (from V to F, from F to V)	14	G-1(27)	Revision and Practice
	41	V to I converters		G-2(28)	Revision and Practice
	42	I to V converters			
15	43	Filtering	15	G-1(29)	Revision and Practice
	44	Impedance matching		G-2(30)	Revision and Practice
	45	Filtering and impedance matching			

LESSON PLAN

Name of Faculty : Mrs. Suparna A, & Sh. Jai Prakash

Discipline : Instrumentation & Control Engg.

Semester : 6th

Subject : SCA/SS

Work Load : 05 Practical

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Week	Practical Day	Practicals
		Topic
1	1	INTRUCTION OF TEAM BUILDING
	2	INTRODUCTION OF TEAM WORK
	3	MEANING ASPECTS OF TEAM BUILDING
	4	SKILL NEEDED FOR TEAM WORK
	5	A MODEL OF TEAM BUILDING V/S GROUP
2	6	CHARACTERISITICS OF EFFECTIVE TEAM ROLE OF TEAM LEADS
	7	ROLE OF TEAM MEMBERS
	8	INTER GROUP COLLABORATION
	9	ADVANTAGES OF INTER-GROUP COLLABORATION
	10	DIFFICULTIES FACED IN INTER GROUP COLLABORATION
3	11	FACTORS SHAPING INTER-GROUP COLLABORATION
	12	INTRODUCTION OF GROUP DISCUSSION
	13	MEANING OF GD
	14	WHY GROUP DISCUSSION
	15	CHARACTERS TESTED IN A GD
4	16	TIPS ON GD TYPES OF GD SKILL
	17	GD CONSEQUENCES
	18	GD BEHAVIOUR
	19	GD ESSENTIAL ELEMENTS
	20	GD DIFFERENT CHARACTERS IN GD TRAIL
5	21	GD ETIQUETTE
	22	AREAS TO BE CONCENTRATED WHILE PREPARING FOR GD
	23	INITIATING A GD TECHNIQUES
	24	INITIATE A GD NON-VERBAL COMMUNICATION IN GD
	25	MOVEMENT AND GESTURES TO BE AVOIDED IN A GD TOPICS
6	26	TOPICS FOR GD
	27	INTRODUCTION OF MANNERS
	28	TOPICS OF ETIQUETTE (MEANING)
	29	MODERN ETTIQUETTE
	30	BENEFITS OF ETIQUETTE
7	31	CLASSIFICATION OF ETIQUETTE
	32	ACCOMPANYING WOMEN
	33	TABOO TOPICS
	34	PROPOSING THE TOAST
	35	INTRODUCTION OF MANNERS
8	36	POOR MANNERS
	37	GOOD MANNERS
	38	PRACTICING GOOD MANNERS

	39	MANNERS AT THE WHEEL
	40	DRIVING
9	41	MANNERS IN THE FLIGHT
	42	RESPECTING THE SACRED
	43	VISITING HOLY PLACES
	44	DEALING WITH THE CHALLENGED
	45	PROFESSIONAL MANNERS
10	46	SOCIAL SKILLS
	47	MANNERS (GETTING)
	48	REVISION OF GROUP DISCUSSION
	49	REVISION OF COLLABORATION
	50	REVISION OF STRESS MANAGEMENT
11	51	REVISION TEAM BUILDING
	52	REVISION TEAM WORK
	53	REVISION ETIQUETTE
	54	REVISION MANNERS
	55	REVISION OF BENEFITS OF ETIQUETTE
12	56	REVISION FACTORS SHAPING INTER GROUP COLLABORATION
	57	REVISION SKILL NEEDED OF TEAM BUILDING
	58	REVISION WHY GROUP DISCUSSION
	59	REVISION CHARACTERS TESTED IN A GD
	60	REVISION TIPS ON GD TYPES
13	61	REVISION GD CONSEQUENCES
	62	REVISION GD BEHAVIOUR
	63	REVISION GD ESSENTIAL ELEMENTS
	64	REVISION CLASSIFICATION ETIQUETTE
	65	REVISION MANNERS
14	66	REVISION GOOD MANNERS
	67	REVISION POOR MANNERS
	68	REVISION MANNERS IN GROUP DISCUSSION
	69	ASSIGNMENT ON PRACTICE GOOD MANNERS
	70	ASSIGNMENT ON DEALING WITH THE CHALLENGED
15	71	REVISION MANNERS IN THE FLIGHT
	72	REVISION MANNERS AT THE WHEEL
	73	REVISION TABOO TOPICS-PROPOSING THE TOAST

LESSON PLAN

Name of Faculty : Mr. PARDEEP NANDAL & SH. RAKESH MALIK

Discipline : Instrumentation & Control Engg.

Semester : 4th

Subject : SOFT SKILL / SCA

Work Load : 05 Practical

Lesson Plan Duration :15 weeks(from 9th Jan,2018 to 30th April,2018)

Week	Practical Day	Practicals
		Topic
1	1	INTRODUCTION ABOUT SOFT SKILLS
	2	WHAT IS ART OF LISTENING
	3	INTRODUCTION ABOUT LISTENING TWO EAR AND MOUTH
	4	TYPES OF LISTENING
	5	BENEFOR OF LISTEING
2	6	FACTORS ABOUT RELATED TO LISTENING
	7	FACTORS THAT HAMPER LISTENING
	8	COMMON POOR LISTENING HABITS
	9	ADVANTAGE OF LISTENING
	10	LISTENING TIPS
3	11	INTRODUCTION ABOUT READING
	12	COGNITIVE PROCESS OF READING
	13	DISCUSSION ABOUT GOOD READERS
	14	BENEFITS OF READING
	15	DIFFERENT TYPES OF READING
4	16	TIPS FOR EFFECTIVE READING
	17	DIFFERENT STAGE OF READING
	18	DETERMINE STUDENT READING RATE
	19	ADJUSTING READING RATE
	20	ACTIVITIES FOR INCREASING READING RATE
5	21	PROBLEM WITH READING
	22	BECOMING AN EFFICIENT READER
	23	INTROCUTION ABOUT SPEAKING
	24	WHAT MAKES COMMUNATION IMPORTANT
	25	DEFINE COMMUNICATION
6	26	FEATURES OF COMMUNICATION
	27	COMMUNICATION PROCESS
	28	CHANNELS OF COMMUNCATION
	29	FORMAL AND INFORMAL COMMUNICATION N/W
	30	IMPORTANCE OF COMMUNICATION
7	31	BURRES OF COMMUNICAITON
	32	TIPS OF EFFECTIVE COMMUNICATION
	33	CONVERSATION TIPS
	34	WHAT IS PRESENTATION
	35	TIPS FOR POWERFUL PRESENTATION
8	36	ART OF PUBLIC SPEAKING
	37	IMPORTANCE OF PUBLIC SPEAKING
	38	BENEFIT OF PUBLIC SPEAKING
	39	PUBLIC SPEAKING TIPS
	40	OVER COMING FEARS FOR PUBLIC SPEAKING
9	41	INTRODUCTION ABOUT WRITING
	42	IMPORTANCE ABOUT WRITING
	43	FEATURES OF WRITING

	44	BENEFITS OF WRITING
	45	CREATIVE WRITING TIPS
10	46	DRAWBACK OF WRITTEN COMMUNICATION
	47	INTRODUCTION ABOUT EMAIL
	48	INTRODUCTION ABOUT MAIL MAGIC
	49	USE OF APPROPRIATE SALUTATION
	50	MAKE THE SUBJECT MATTER SIGNIFICENT
11	51	KEEP A DICTIONERY CLOSE BY
	52	USE COMMAS WHEN IN DOUBT
	53	USE SMILEY WHEN IN DOUBT
	54	PREFACE INCLUDING PREVIOUS MESSGAGE
	55	SHORTEN THE FILE ATTACHMENT
12	56	RESEND BEFORE PRESSING THE SEND BUTTON
	57	BE POLITE AND REPLICATE GOOD DEEDS
	58	ANTICIPATE EMPATHIZE
	59	UNDERSTANT WHAT NETTQUELTE
	60	INTROCUTION ABOUT
13	61	DISCUSSION ABOUT TOPICS REALTED TO Gender
	62	DISCUSSION ABOUT PROVISION OF PUNISHMENT
	63	PUT PUNISHMENT AGAINT VIOLATION
	64	ILLEGAL FLESH TRADE
	65	REOBLIZATION OF VICTIM
14	66	RAPE WILL ACT MAKE TO HELP VICTIM
	67	DISCUSSION ABOUT GENERAL TOPICS
	68	TEST
	69	ASSIGNMENT
	70	REVISION
15	71	REVISION / DISCUSSION
	72	COPY CHECKING
	73	REVISION / DISCUSSION
	74	COPY CHECKING
	75	DISCUSSION