

Lesson Plan- AMT

Name of the Faculty : V.F.
Discipline : I&C Engineering
Semester : 6th
Subject : AMT
Lesson Plan Duration : 16 weeks (From 6/03/2023 to 23/06/2023)

Work Load (Lecture/Practical) per week(in hours)P: Lectures-04 Practicals-03

Week	Theory		Practicals	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1st	1 st	Introduction to Subject	1 st	To measure flow using rotameter
	2 nd	Review of Measurement System	2 nd	
	3 rd	Functional elements of a measuring system	3 rd	
	4 th	Contd..... Functional elements of a measuring system		
2nd	5 th	Contd..... Functional elements of a measuring system	4 th	”
	6 th	Input-output configuration of instrumentation system		
	7 th	Contd....Input-output configuration of instrumentation system	5 th	
	8 th	Contd....Input-output configuration of instrumentation system	6 th	
3rd	9 th	Measurement of (Length, Angle & Area): Length Measuring Standard Instruments Meter Rods, Scale, Tapes	7 th	To measure flow using orifice
	10 th	Micrometer		
	11 th	Vernier Calliper	8 th	
	12 th	Angle Measuring Standard Instruments : Protector	9 th	
4th	13 th	Clinometers	10 th	”
	14 th	Dial Bevel Protractor		
	15 th	Area Measuring Standard Instruments: Graphical Method	11 th	
	16 th	Numerical Method	12 th	

5 th	17 th	Class test	13 th	To measure temperature using thermocouple
	18 th	Measurement of Vibration (Velocity & Vibration): Introduction		
	19 th	Linear Velocity Measurement by using (Electro Magnetic Transducer)	14 th	
	20 th	Linear Velocity Measurement by using (Seismic Transducer)	15 th	
6 th	21 st	Linear Velocity Measurement by using (Doppler)	16 th	”
	22 nd	Linear Velocity Measurement by using (Digital Transducer)		
	23 rd	Revision/Test/Assignment	17 th	
	24 th	Angular Velocity Measurement by using Tachogenerator (Photo Electric)	18 th	
7 th	25 th	Angular Velocity Measurement by using Tachogenerator (Tooth Rotor Variable Reluctance)	19 th	”
	26 th	Angular Velocity Measurement by using Stroboscope Methods	20 th	
	27 th	Vibration Measurement by using Seismic Transducer (Potentiometric)	21 st	
	28 th	”		
8 th	29 th	Vibration Measurement by using Seismic Transducer (LVDT)	22 nd	Measurement of temperature using optical pyrometer
	30 th	”		
	31 st	Vibration Measurement by using Seismic Transducer (Strain Gauge Accelerometers)	23 rd	
	32 nd	”	24 th	
9 th	33 rd	Revision/Test/Assignment	25 th	”
	34 th	Opto Electronic Measurement: Introduction		
	35 th	Photo sensitive devices – light emitting diodes	26 th	
	36 th	LDR, photo conductors	27 th	
10 th	37 th	Photo voltaic cell, photo Thyristor	28 th	”
	38 th	photo transistors, opto-isolator	29 th	
	39 th	Light modulating techniques – light suppression	30 th	
	40 th	light attenuation		
11 th	41 st	photo-metric and radiometric fittings	31 st	To measure level using any method
	42 nd	Revision/Test/Assignment		
	43 rd	Miscellaneous Measurements: Introduction	32 nd	

	44 th	Measurement of density and specific gravity (by using Hydrometer).	33 rd	
12 th	45 th	Measurement of density and specific gravity (by using LVDT).	34 th	”
	46 th	Measurement of density and specific gravity (by using Gamma Rays).		
	47 th	Measurement of density and specific gravity (by using Force Balance Methods).	35 th	
	48 th	Measurement of Ph.	36 th	
13 th	49 th	”	37 th	”
	50 th	Measurement of Viscosity by using falling sphere viscometer		
	51 st	Measurement of Viscosity by using falling piston viscometer	38 th	
	52 nd	Measurement of Viscosity by using rotating cylinder viscometer	39 th	
14 th	53 rd	Measurement of Thickness by using Resistive methods	40 th	File Check
	54 th	Measurement of Thickness by using Capacitive methods	41 st	
	55 th	Measurement of Thickness by using Inductive methods	42 nd	
	56 th	Measurement of Thickness by using Nuclear methods		
15 th	57 th	Measurement of Thickness by using Ultrasonic methods	43 rd	File Check
	58 th	Revision		
	59 th	Revision	44 th	
	60 th	Test	45 th	
16 th	61 st	Revision	46 th	File Check & Revision
	62 nd	Revision	47 th	
	63 rd	Revision	48 th	
	64 th	Revision		

Lesson Plan- BMI

Name of the Faculty : V.F.
Discipline : I&C Engineering
Semester : 6th
Subject : BMI
Lesson Plan Duration : 16 weeks (From 06/03/2023 to 23/06/2023)

Work Load (Lecture /Practical) per week(in hours)P: Lectures-04 Practicals-03

Week		Theory		Practical
	Lecture Day	Topic (including assignment/test)	Practical Day	Topic
1st	1st	Introduction to Subject : BMI	1st	To measure blood pressure of a person using analog B.P. gauge
	2nd	Introduction, development of biomedical instrumentation	2nd	”
	3rd	man-instrumentation system its components	3rd	”
	4th	research and clinical instrumentation		
2nd	5th	in-vivo and in-vitro measurements	4th	To measure blood pressure of a person using digital B.P. gauge
	6th	Specifications of medical instrumentation system	5th	”
	7th	Physiology Introduction	6th	”
	8th	physiological systems of the body		
3rd	9th	cardiovascular system	7th	To study the various physiological systems of the body.
	10th	„	8th	”
	11th	respiratory system	9th	”
	12th	„		
4th	13th	nervous system	10th	To study the electrode-tissue interface and contact impedance
	14th	„	11th	”
	15th	bio-chemical system	12th	”
	16th	„		
5th	17th	Assignment/Test	13th	”
	18th	Bioelectric Signals and Electrodes	14th	”
	19th	Study of bio-electric potentials	15th	”
	20th	resting and action potentials		

6th	21st	Bio-electrodes	16th	To study the concept of EEG.
	22nd	electrode- tissue interface	17th	„
	23rd	contact impedance	18th	„
	24th	types of electrodes		
7th	25th	Topic Contd..	19th	„
	26th	Assignment/Test	20th	„
	27th	Diagnostic Instruments (Brief Study)	21st	„
	28th	Electro cardiograph(ECG)		
8th	29th	„	22nd	To study the concept of EMG
	30th	Electro encephalograph (EEG)	23rd	„
	31st	„	24th	„
	32nd	Electro myograph (EMG)		
9th	33rd	„	25th	Visit of Intensive Care Units (ICUs)of a hospital and to prepare a report.
	34th	Pacemakers	26th	„
	35th	Defibrillators	27th	„
	36th	Spirometer		
10th	37th	pulse oxymeter SPO2	28th	„
	38th	NIBP (non invasive blood pressure)	29th	„
	39th	Glucometer	30th	„
	40th	Speech audiometer		
11th	41st	Assignment/Test	31st	Measurement of blood sugar of a patient using glucometer
	42nd	Bio-telemetry Introduction	32nd	„
	43rd	Block Diagram of Bio-Telemetry Systems	33rd	„
	44th	Telemedicine		
12th	45th	Intensive Care Unit: Introduction	34th	Measurement of heart beat with ECG machine using cardio-scope / ECG machine
	46th	Elements of Intensive Care Unit (ICU)	35th	„
	47th	Introduction of Ventilators	36th	„
	48th	Computer applications:		

13th	49th	Computer applications in biomedical devices	37th	„
	50th	Topic Contd..	38th	„
	51st	Computerized Axial Tomography(CAT) scanners	39th	„
	52nd	„		
14th	53rd	„	40th	To study spirometer concepts & automation in diagnosis
	54th	Test	41st	„
	55th	Application of embedded system in Bio-medical instrumentation	42nd	„
	56th	„		
15th	57th	„	43rd	„
	58th	Revision	44th	„
	59th	Revision/Test	45th	„
	60th	Revision/Test		
16th	61 st	„	46th	„
	62 nd	Revision	47th	„
	63 rd	Revision/Test	48th	„
	64 th	Revision/Test		

Lesson Plan- EDM

Name of the Faculty : V.F.
Discipline : I&C Engineering
Semester : 6th
Subject : EDM
Lesson Plan Duration : 16 weeks (From 06/03/2023 to 23/06/2023)

Work Load (Lecture/Practical) per week(in hours)P: Lectures-03

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

6th	16th	Converting an idea into a business opportunity
	17th	Project report Preparation: Preliminary project report
	18th	Detailed project report including technical, economic and market feasibility
7th	19th	Common errors in project report preparations
	20th	Exercises on preparation of project report
	21st	Sample project report
8th	22nd	Introduction to Management : Definitions and importance of management Functions of management: Importance and process of planning, organising, staffing, directing and controlling
	23rd	Principles of management (Henri Fayol, F.W. Taylor) Concept and structure of an organisation
	24th	Types of industrial organisations and their advantages Line organisation, staff organisation
9th	25th	Line and staff organisation Functional Organisation
	26th	Leadership and Motivation: Leadership ,Definition and Need , Qualities and functions of a leader , Manager Vs leader
	27th	Types of leadership ,Case studies of great leaders
10th	28th	Motivation Definition and characteristics ,Importance of self motivation
	29th	Factors affecting motivation Theories of motivation (Maslow, Herzberg, Douglas, McGregor)
	30th	Management Scope in Different Areas: Human Resource Management Introduction and objective Introduction to Man power planning, recruitment and selection Introduction to performance appraisal methods
11th	31st	Material and Store Management Introduction functions, and objectives ABC Analysis and EOQ
	32nd	Marketing and sales Introduction, importance, and its functions Physical distribution Introduction to promotion mix Sales promotion
	33rd	Financial Management Introductions, importance and its functions knowledge of income tax, sales tax, excise duty, custom duty, VAT, GST
12th	34th	Work Culture: Introduction and importance of Healthy Work Culture in organization
	35th	Components of Culture Importance of attitude, values and behavior
	36th	Behavioral Science – Individual and group behavior. Professional ethics – Concept and need of Professional Ethics and human values
13th	37th	Revision/Test/Assignment
	38th	Basic of Accounting and Finance: Basic of Accounting: Meaning and definition of accounting Double entry system of book keeping
	39th	Trading account, PLA account and balance sheet of a company

14th	40th	Objectives of Financial Management : Profit Maximization v/s Wealth Maximization
	41st	Revision/Test/Assignment
	42nd	Total Quality Management (TQM) Statistical process control Total employees Involvement Just in time (JIT)
15th	43rd	Intellectual Property Right (IPR) Introduction, definition and its importance
	44th	Infringement related to patents, copy right, trade mark
	45th	Revision/Test/Assignment
16th	46th	Revision/Test/Assignment
	47th	Revision/Test/Assignment
	48th	Revision/Test/Assignment

Lesson Plan- PLC,DCS & SCADA

Name of the Faculty : V.F.
Discipline : I&C Engineering
Semester : 6th
Subject : PLC, DCS and SCADA
Lesson Plan Duration : 16 weeks (From 06/03/2023 to 23/06/2023)

Work Load (Lecture/Practical) per week(in hours): Lectures-04 Practicals-03

Week	Theory		Practicals	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1st	1 st	Introduction to Subject	1 st	Components/sub-components of a PLC
	2 nd	Introduction to PLC What is PLC	2 nd	Learning functions of different modules of a PLC system
	3 rd	Concept of PLC	3 rd	
	4 th	Building blocks of PLC		
2nd	5 th	Functions of various blocks	4 th	Practical steps in programming a PLC: using a hand held programmer
	6 th	limitations of relays		
	7 th	Advantages of PLCs over electromagnetic relays	5 th	
	8 th	Different programming languages	6 th	
3rd	9 th	PLC manufacturer etc.	7 th	Practical steps in programming a PLC : using computer interface
	10 th	Revision/assignment		
	11 th	Working of PLC Introduction	8 th	
	12 th	Basic operation and principles of PLC	9 th	
4th	13 th	Scan Cycle	10 th	Introduction to ladder diagram concepts, instruction list syntax
	14 th	Memory structures		
	15 th	„	11 th	
	16 th	I/O structure	12 th	
5th	17 th	„	13 th	Basic logic operation : AND function
	18 th	Programming terminal		
	19 th	„	14 th	Basic logic operation : OR function
	20 th	power supply	15 th	Basic logic operation : NOT function
6th	21 st	Comparisons and selection of PLC as per industrial demands	16 th	Basic logic operation :XOR function
	22 nd	Assignment/Test		
	23 rd	Instruction Set Basic instructions like latch	17 th	Basic logic operation :NAND function
	24 th	master control self holding relays	18 th	Basic logic operation : NOR function

7th	25th	Timer instruction like ON/OFF retentivetimers, resetting of timers.	19th	Use of Timer Instruction in Ladder Diagram
	26th	„	20th	
	27th	Counter instructions like up counter, down counter, resetting of counters	21st	Use of Counter Instruction inLadder Diagram
	28th	„		
8th	29th	Arithmetic Instructions (ADD,SUB)	22nd	Use of Arithmetic Instructions (ADD,SUB)in Ladder Diagram
	30th	Arithmetic Instructions (DIV,MUL etc.)		
	31st	MOV instruction	23rd	Use of Arithmetic Instructions (DIV,MUL etc)in Ladder Diagram
	32nd	RTC(Real Time Clock Function)	24th	Use of RTC, MOV instruction in Ladder Diagram
9th	33rd	Watch Dog Timer	25th	Use of Comparison instructionslike equal, not equal) in Ladder Diagram
	34th	Comparison instructions like equal,not equal)		
	35th	Comparison instructions like greater, greater than equal)	26th	Use of Comparison instructionslike greater, greater than equal) in Ladder Diagram
	36th	Comparison instructions like less than,less than equal)	27th	Use of Comparison instructionslike less than, less than equal) in Ladder Diagram
10th	37th	Programming based on basic instructions, timer, counter, and Comparison instructions using ladderprogram.	28th	Logic control systems with time response asapplied to clamping operation
	38th	„	29th	
	39th	„	30th	
	40th	Assignment/Revision		
11th	41st	Assignment/Test	31st	Sequence control system in liftinga device for packaging and counting
	42nd	DCS Concepts Concept of DDC		
	43rd	Introduction to DCS	32nd	
	44th	Block Diagram of DCS	33rd	
12th	45th	„	34th	Sequence control system for starting of different machines in aplant
	46th	I/O hardware		
	47th	Remote Terminal Unit	35th	
	48th	„	36th	
13th	49th	Advantages of DCS in operation and safety	37th	Use of PLC for traffic light control (Ladder Diagram)
	50th	SCADA Concepts Block Diagram of SCADA		
	51st	Concept of SCADA	38th	
	52nd	Applications of SCADA in the field of Instrumentation and Control	39th	
14th	53rd	„	40th	Use of PLC for vehicle parkingsystem (Ladder Diagram)
	54th	Introduction to RTU	41st	
	55th	Introduction to HMI and its advantages.	42nd	

	56 th	Difference between DCS and SCADA		
15 th	57 th	Assignment/Test	43 rd	To study supervisory control and dataacquisition (SCADA) system for a cement plant/thermal power plant.
	58 th	Ladder Programming based on Previous Year Question Papers		
	59 th	„	44 th	
	60 th	Test	45 th	
15 th	61 st	Assignment/Test	46 th	Revision/ File Check
	62 nd	Revision	47 th	Revision/ File Check
	63 rd	Revision	48 th	Revision/ File Check
	64 th	Revision		