

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Fourth
Subject Title : Measurements & Control
Subject Code : 134ME41

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme										Total Marks	
L	T	P		Theory		Test	Total		PR		OR		TW		
				Max	Min		Max	Min	Max	Min	Max	Min	Max		Min
3	-	2	3	80	32	20	100	40	-	-	25	10	25	10	150

Rationale:-

The art of measurement plays an important role in all branches of engineering. With advances in technology, measurement techniques have also taken rapid strides, with many types of instrumentation devices, innovations, refinements. The course aims at making a Mechanical Engineering student familiar with the principles of instrumentation, transducers & measurement of non-electrical parameters like temperature, pressure, flow, speed, force and stress

Objectives:

To understand principles and working of different measuring instruments

To understand applications of measurements and control for setup for boilers, air conditioners ,motor speed control etc.

Syllabus

Part I:- Theory

Sr.No.	Details	L	M
Section - I			
1	Significance of measurement:, classification of instruments, static terms and characteristics- range and span, accuracy and precision, reliability, calibration, hysteresis and dead zone, drift, sensitivity, threshold and resolution, repeatability and reproducibility, linearity. Dynamic characteristics- speed of response, fidelity and dynamic errors, overshoot. Measurement of error- classification of errors, environmental errors, signal transmission errors, observation errors, operational errors. Transducers : Classification of transducers- active and passive, resistive, inductive, capacitive, piezo, resistive, thermo resistive Specification, selection and application for pressure, temperature, flow, humidity, displacement, velocity, force, strain, sound .	10	14

2	Control systems Block diagram of automatic control system, closed loop system, open loop system, feed back control system, feed forward control system, servomotor mechanism, comparison of hydraulic, pneumatic, electronic control systems, proportional control action. Applications of measurements and control for setup for boilers, air conditioners ,motor speed control	10	14
3	Displacement measurement Potentiometer, LVDT, Eddy current generation type, tachometer, incremental and absolute type. Speed measurement - Mechanical Tachometers, Revolution counter & timer, Slipping Clutch Tachometer, Electrical Tachometers, Eddy current Drag Cup Tachometer, Magnetic and photoelectric pulse counting methods, Contactless Electrical tachometer, Inductive Pick Up, Capacitive Pick Up, Stroboscope	7	12
Section - II			
4	Temperature measurements- Non-electrical methods- bimetel and liquid in glass thermometer, pressure thermometer Electrical methods- RTD, platinum resistance thermometer, thermistor Thermoelectric methods- elements of thermocouple, law of intermediate temperature, law of intermediate metals, thermo emf measurement. Quartz thermometer, Pyrometers- radiation and optical	7	12
5	Flow measurements- Variable head flow meters, variable area meter- rota meter, turbine meter, anemometer- hot wire and hot film, electromagnetic flow meter, ultrasonic flow meter. Strain Measurement- Stress-strain relation, types of strain gauges, strain gauge materials, resistance strain gauge- bonded and unbounded, types (foil, semiconductor, wire wound gauges), , selection and installation of strain gauges load cells, rosettes	7	12
6	Miscellaneous Measurement Acoustics measurement- sound characteristics – intensity, frequency, pressure, power – sound level meter, piezoelectric crystal type. Humidity measurement –hair hygrometer, Humistor hygrometer Liquid level measurement – direct and indirect methods Force measurement -Tool Dynamometer (Mechanical Type) Shaft Power Measurement - Eddy Current Dynamometer, Strain Gauge Transmission Dynamometer.	7	16
	Total	48	80

Part II:-Practicals

List of Practicals:

1. Measurement of strain by using a basic strain gauge and hence verify the stress induced.
2. Speed Measurement by using Stroboscope.
3. Measuring Position and Displacement with LVDT.
4. Measuring Angle with RVDT.
5. Measurement of flow by using rotameter.
6. Temperature control using Thermal Reed switch & Bimetal switch.
7. Temperature calibration by using Thermocouple.
8. Determination of negative temperature coefficient and calibration of a thermister.
9. Measurement of force & weight

Text Books:

1. Mechanical Measurements & Instrumentation, A.K. Sawhney, Dhanpat Rai & Sons, New Delhi. 1994
2. Mechanical Measurement & Control, R.V. Jalgaonkar, Everest Publishing House, Pune
3. Mechanical Measurements & Control, D.S. Kumar Metropolitan Publications, New Delhi

Reference Books:-

1. Instrumentation Devices & Systems, C.S. Narang, Tata McGraw Hill Publications
 2. Mechanical Measurement & Control, R.K. Jain, Khanna Publications, New Delhi
- Instrumentation, Measurement and Analysis, B.C. Nakra and K.K. Chaudhry, Tata McGraw Hill Publication

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Fourth
Subject Title : Thermodynamics & Heat Transfer
Subject Code : 134ME42

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme										Total Marks	
L	T	P		Theory		Test	Total		PR		OR		TW		
				Max	Min		Max	Min	Max	Min	Max	Min	Max		Min
4	-	2	3	80	32	20	100	40	-	-	25	10	25	10	150

Rationale:-

This subject aims at introduction of basic concepts, laws & principles of thermodynamics. It covers the zeroth, first and second law of thermodynamics and heat transfer. It also includes the basic principles and applications of air compressors & steam generation & steam process.

Objectives:

- To understand the laws of thermodynamics and it's applications.
- To understand the different modes of heat transfer in practical applications.
- To understand the working and applications of various air compressors.
- To understand the process of steam generation & steam process

Syllabus

Part I: - Theory

Sr.No.	Details	Hrs	Marks
Section - I			
1.	<u>Basic concepts of thermodynamics.</u> 1.1) System, surroundings, boundary, universe, control volume, Properties (intensive, extensive), process, path, cycle, working substance, cyclic process, reversible, irreversible process. 1.2) Thermodynamic equilibrium, zeroth law of thermodynamics, temperature & its measurement. 1.3)Energy, stored energy & energy in transition, thermodynamic work, heat, specific heat and its units 1.4) Calorific value, types 1.5) Gas laws-Boyle`s, charles`, ideal gas equation, characteristic & universal gas constant. 1.6) Numericals based on work & gas laws, pressure.	10	12

2.	<u>First law of thermodynamics.</u> 2.1) First law of thermodynamics & Joules experiment 2.2) first law applied to a process & cyclic process. 2.3) Internal energy & enthalpy 2.4) Determination of heat transfer, work transfer, internal energy change for the following process` i) Isobaric, ii) Isochoric, iii) Isothermal, iv) Adiabatic, v) Polytropic. 2.5) Steady flow energy equation for open system. First law applied to flow process` i) boiler ii) nozzle iii) turbine iv) condenser v) centrifugal pump v) compressor vi) evaporator. 2.6) throttling process. 2.7) Numericals based on I law, various process, and steady flow energy equation.	12	16
3	Steam generation & process 3.1. Pure substance, phase transformation at constant pressure, p-v diagram for water, various states of steam 3.2. Enthalpy changes during steam formation, properties of steam & property diagrams 3.3. Process of steam, constant pressure, constant volume, reversible adiabatic, Isothermal, polytropic & throttling process. 3.4. Numericals based on the above	10	12
Section - II			
4	<u>Second Law of Thermodynamics</u> 3.1) limitations of I law of thermodynamics. 3.2) concept of heat reservoir & heat sink, heat engine, heat pump & refrigerator. 3.3) thermal efficiency of heat engine, cop of refrigerator & heat pump. 3.4) Kelvin planck`s & Clausius statements of second law of thermodynamics. 3.5) Equivalence of Kelvin & Clausius statement 3.6) Entropy & change in entropy during various processes. 3.7) Numericals based on the above topics	10	12
5	<u>Heat Transfer.</u> 4.1) modes of heat transfer conduction, convection & radiation. 4.2) Fourier`s law of conduction, good conductors & insulators. 4.3) Conduction through single & multilayered slabs & cylinders, through spheres. 4.4) free & forced convection. 4.5) combined convection & conduction. 4.6) Radiation heat transfer. 4.7) Heat exchangers, overall heat transfer coefficient, LMTD. 4.8) Numericals on heat transfer	12	14
6	<u>Air Compressors.</u> 5.1) Use of compressed air, classification of compressors. 5.2) Reciprocating air compressor. Work done during various	10	14

	process of compression with or without consideration of clearance volume. Isothermal & adiabatic efficiencies. F.A.D, Volumetric efficiency 5.3) Multistage compression, optimum stage pressure. 5.4) power required & cylinder dimensions. 5.5) Rotary compressors, comparison of rotary with reciprocating compressor. 5.6) Numericals on the above discussion		
	Total	64	80

Part II: - Practicals

1) Experiment on Thermal conductivity- Determination of thermal conductivity of a Good conductor.
2) Experiment on Thermal conductivity -Determination of thermal conductivity of an Insulator.
3) Experiment on radiation heat transfer- Determination of Emissivity of a plate
4) Heat exchanger Experiment – Determination of Overall heat transfer coefficient of Parallel flow & counter flow heat exchanger
5) Reciprocating air compressor –Determination of F A D & volumetric efficiency of a compressor
6) Experiment on calorimeter- Determination of calorific value of a fuel

Text Books:-

1. Thermal Engineering by R.K.Rajput, Laxmi Publishers, 17th Edition 2009

References:-

1. Thermodynamics –P.K NAG ,Tata McGraw Hill Publications 3rd Edition 2006
2. A text Book of Thermal Engineering – R.S.Khurmi&J.K.Gupta-S.Chand Publications- 15th Edition-2009.
3. Thermodynamics & Heat Engines by R.Yadav , Vol I

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Fourth
Subject Title : Manufacturing Processes II
Subject Code : 134ME43

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		PR		OR		TW		
			Max	Min			Max	Min	Max	Min	Max	Min	Max	Min	
3	-	3	3	80	32	20	100	40	25	10	-	-	50	20	175

Rationale:

Manufacturing Process is a core technology subject for mechanical engineering course. Manufacturing is the basic area for any mechanical engineering technician. The technician should be introduced to the basic processes of manufacturing. This subject will help the student to be familiarized with working principles and operations like turning, drilling, boring, facing, grinding, shaping, milling, broaching, unconventional machining and computer numeric control which are the basic manufacturing processes.

The basic knowledge of these processes will be helpful to select the most appropriate process for getting the desired results in terms of getting the raw material converted to finished product as per the requirements.

Objectives:

The student will be able to

1. Know and identify basic manufacturing processes for manufacturing different components.
2. Operate & control different machines and equipments.
3. Inspect the job for specified dimensions.
4. Produce jobs as per specified dimensions.
5. Select the specific manufacturing process for getting the desired type of output.
6. Adopt safety practices while working on various machines.

Syllabus

Part I: - Theory

Chapter	Name of the Topic	Hours	Marks
Section – I			
01	Drilling & Reaming 1.1 Classification. 1.2 Basic parts and their functions - Radial drilling machine. 1.3 Types of operations. 1.4 Specifications of drilling machine. 1.5 Types of drills and reamers 1.6 Twist drill nomenclature. 1.7 Cutting parameters , machining time calculation. 1.8 Work and Tool Holding	08	12
02	Boring Machine 2.1 Classification 2.2 Horizontal Boring Machines 2.3 Vertical Boring Machines 2.4 Jig Boring Machine 2.5 Size of Boring Machines	05	08
03	Broaching Machine 1.1 Types of Broaching machine 1.2 Advantages, Limitation and applications broaching 1.3 Broach 1.4 Size of broaching	04	08
04	Milling Machine 4.1 Classification. 4.2 Basic parts and their functions – column and knee type. 4.3 Types of operations 4.4 Types of milling cutters. 4.5 Cutting parameters, machining time calculation. 4.6 Milling operations – plain milling, side and face milling, form milling, gang milling, end milling, face milling, T-slot milling, slitting. 4.7 Work and Tool Holding Devices 4.8 Dividing Heads	07	12
Section – II			
05	Grinding Machine 5.1 Classification of machines , 5.2 Grinding wheel composition, types and shapes, 5.3 Designation. Types of Grinding operations.	04	6
06	Gear Manufacturing 6.1 Materials 6.2 Methods of manufacture 6.3 Gear cutting by (i) milling, (ii) single point cutting tool	07	10

	on planer/shaper, (iii) Shear speed process, (iv) Gear planning, (v) Gear Shapers & Gear hobbing 6.4 Gear Finishing Processes: (i) Honing, (ii) Lapping, (iii) Burnishing, (iv) Buffing and (v) polishing		
07	Non traditional machining processes 7.1 Electrical discharge Machining. Principle of working, Setup of EDM, Dielectric fluid, tools (electrodes), Process parameters, Applications. 7.2 Laser Beam Machining. Physical principle of Laser, Laser action in ruby rod, Types of Lasers. Set-up for LBM. Characteristics, controlling Parameters, Application Of Laser Beam for Welding (LBW) 7.3 Other non traditional machines such as EBM, ECM, CHM, Principle of working, Applications.	07	12
08	Introduction to NC, CNC and DNC machine 8.1 Basic Components of an NC system , 8.2 The NC procedure, 8.3 NC Coordinate Systems, 8.4 NC Motion Control Systems & its applications. 8.5 CNC and DNC	02	06
09	Semi Automatic and Automatic Machines 9.1 Advantages of Automation 9.2 Types of Transfer Machines 9.3 Types of Machining Centers 9.4 Selecting of machining centers	04	06

Part – II : Practicals

Sr.No.	Details Of Practical Contents
01	TURNING & GRINDING: One job consisting of operations such as plain turning, step turning, Chamfering, taper turning. 50 % of available time should be used.
02	MILLING & SHAPING: One job involving shaping, milling and surface grinding operations. 50 % of available time should be used.

Text Books:

1. S.K. Hajra Chaudhary- Workshop Technology Vol I & II – Media Promotors and Publisher, New Delhi. Eighth Edition 1986

Reference Books:

1. B.S. Raghuwanshi- Workshop Technology – Dhanpat Rai and sons, New Delhi, Ninth Edition 2002
2. Production Technology- P.C. Sharma , S. Chand, Third Edition 2009
3. Manufacturing Technology R.K. Rajput Laxmi Publication (P) Ltd, First edition 2007
4. Basic Manufacturing Processes & workshop Technology- S.K.Garg-Third edition 2009

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Fourth
Subject Title : Fluid Mechanics & Machinery
Subject Code : 134ME53

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		PR		OR		TW		
			Max	Min			Max	Min	Max	Min	Max	Min	Max	Min	
4	-	2	3	80	32	20	100	40	-	-	25	10	25	10	150

Rationale:

Knowledge of fluid flow & related machinery is essential in all fields of engineering.

Hydraulic machines have important role in power generation, water supply and irrigation and also in most of engineering segments.

This subject requires knowledge of basic engineering sciences, applied mechanics, mathematics etc.

The fundamentals of this subject are essential for the subject “Fluid Power Engineering” in sixth semester.

Objectives:

The student will be able to

- 1) Measure various properties such as pressure, velocity, flow rate using various instruments.
- 2) Calculate different parameters such as co-efficient of friction, power, efficiency etc of various systems.
- 3) Describe the construction and working of turbines and pumps.
- 4) Test the performance of turbines and pumps.
- 5) Plot characteristics curves of turbines and pumps

Syllabus

Sr. No	Contents	L	M
Section- I			
1	Properties of fluid 1.1 Density, Specific gravity, Specific Weight, Specific Volume 1.2 Dynamic Viscosity, Kinematic Viscosity, Surface tension, Capillarity 1.3 Vapour Pressure, Compressibility	04	04
2	Fluid Pressure & Pressure Measurement 2.1 Fluid pressure, Pressure head, Pressure intensity 2.2 Concept of absolute vacuum, gauge pressure, atmospheric pressure, absolute pressure. 2.3 Simple and differential manometers, Bourden pressure gauge. 2.4 Concept of Total pressure on immersed bodies, center of pressure. Note: Numericals on Manometers, Total Pressure & Centre of pressure	09	12
3	Fluid Flow 3.1 Types of fluid flows 3.2 Continuity equation 3.3 Bernoulli's theorem 3.4 Venturimeter – Construction, principle of working, Coefficient of discharge, Derivation for discharge through venturimeter. 3.5 Orifice meter – Construction, Principle of working, hydraulic coefficients, Derivation for discharge through Orifice meter 3.6 Pitot tube – Construction, Principle of Working Note :- Numericals on Venturimeter, orifice meter, pitot tube	10	12
4	Flow Through Pipes 5.1 Laws of fluid friction (Laminar and turbulent) 5.2 Darcy's equation and Chezy's equation for frictional losses. 5.3 Minor losses in pipes 5.4 Hydraulic gradient and total gradient line. 5.5 Hydraulic power transmission through pipe Note: Numericals to estimate major and minor losses	09	12

Section- II			
5	Impact of jet 5.1 Impact of jet on fixed vertical, moving vertical flat plates. 5.2 Impact of jet on curved vanes with special reference to turbines& pumps	04	04
6	Hydraulic Turbines 6.1 Layout of hydroelectric power plant. 6.2 Features of Hydroelectric power plant. 6.3 Classification of hydraulic turbines. 6.4 Selection of turbine on the basis of head and discharge available 6.5 Construction and working principle of Pelton wheel, Francis and Kaplan turbine. 6.6 Draft tubes – types and construction, Concept of cavitation in turbines 6.7 Calculation of Work done, Power, efficiency of turbine.	16	20
7	Centrifugal Pumps 7.1 Construction , principle of working and applications 7.2 Types of casings and impellers. 7.3 Concept of multistage 7.4 Priming and its methods, Cavitation 7.5 Manometric head, Work done, Manometric efficiency, Overall efficiency, NPSH 7.6 Performance Characteristics of Centrifugal pumps 7.7 Trouble Shooting 7.8 Construction, working and applications of submersible, jet pump Note :-Numericals on calculations of overall efficiency and power required to drive pumps.	12	16
	Total	64	80

Skills to be developed:

Intellectual Skills:

- 1) Select and use appropriate flow measuring device.
- 2) Select and use appropriate pressure measuring device.
- 3) Analyze the performance of pumps and turbines

List of Practical:

01. Calibration of Bourden pressure gauge with the help of Dead Weight Pressure gauge.
02. Verification of Bernoulli's Theorem.
03. Determination of Coefficient of Discharge of Venturimeter.
04. Determination of Coefficient of Discharge, coefficient of contraction and coefficient of velocity of orifice meter.
05. Determination of coefficient of friction of flow through pipes.
06. Trial on Pelton wheel to determine overall efficiency.
07. Trial on centrifugal pump to determine overall efficiency.

Text Books

1. Hydraulics and Fluid Mechanics including Hydraulic Machines by Dr. P. N. Modi & Dr. S. M. Seth (Standard Book House, Delhi) Sixteenth Edition, 2007
2. Fluid Mechanics and Hydraulic Machines by Dr. R.K. Bansal (Laxmi Publications (P) Ltd) Ninth edition, 2010

Reference books:-

1. Engineering Fluid Mechanics by K. L. Kumar (Eurasia Publishing House(P) Limited, New Delhi) Eighth Edition, 2009
2. Fluid Mechanics by Victor L. Streeter, Benjamin Wylie (McGraw Hill) Ninth Edition, 2003
3. Fluid Mechanics by Frank M. White (McGraw Hill) Fifth Edition, 2003
4. Fluid Mechanics by Robert W. Fox, Alan T. McDonald (Wiley-India) Seventh Edition, 2008
5. Fluid Mechanics by Yunus A. Cengel, John M. Cimbala (Tata McGraw Hill) First Edition, 2006

Course Name : Diploma in Mechanical Engineering

Course Code : DME

Semester : Fourth

Subject Title : Computer Aided Machine Drawing - II

Subject Code : 134ME45

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme										Total Marks	
L	T	P		Theory		Test	Total		Pract		Oral		Termwork		
				Max	Min		Max	Min	Max	Min	Max	Min	Max		Min
2	-	4	-	-	-	-	-	50	20	-	-	50	20	100	

Rationale: This subject is an advanced course in Machine Drawing and is in continuation with Machine Drawing I. Understanding of working drawings is essential for a diploma holder in mechanical engineering in order to manufacture the parts with specified tolerances and accuracy. The emphasis is given on understanding and preparing the assembly and detail drawings of the machine units.

Objective: At the end of this course students will be able to

- Draw the assembly and details of the given machine components as specified.
- Read and interpret the given production drawing properly.
- To understand the drawing details of the standard machine components.
- To understand simple assemblies of different joints and couplings.
- Know the significance and use of tolerances of size, forms and positions.
- Effectively use CAD software to produce the drawing of machine components as required.

Syllabus

Part I -Theory

Sr. No	Contents	L
1	Advanced Isometric Projections of Machine Parts: Parts with surfaces inclined to principle planes of projections having edges as three dimensional curves, having spherical surfaces etc.	3L/6P
2	Limits, Fits and Tolerances:- 1. Characteristics of surface roughness- Indication of machining symbol showing direction of lay, roughness grades, machining allowances, manufacturing methods. 2. Introduction to ISO system of tolerance, dimensional tolerances, elements of interchangeable system, hole & shaft based system, limits, fits & allowances. Selection of fit. 3. Geometrical tolerances, tolerances of form and position and its geometric representation. 4. General welding symbols, sectional representation and symbols used in Engineering practices	6L/12P

3	Bearings: Simple, solid, bushed, pedestal, foot step bearings, roller and ball bearings. Conventional representation of ball and roller bearings.	1L/2P
4	Conventional Representation:- 1. Standard convention using SP – 46 (1988) (a) Materials C.I., M.S, Brass, Bronze, Aluminum, wood, Glass, Concrete and Rubber (b) Long and short break in pipe, rod and shaft. (c) Ball and Roller bearing, pipe joints, cocks, valves, internal /external threads. (d) Various sections- Half, removed, revolved, offset, partial and aligned sections. (e) Knurling, serrated shafts, splined shafts, and chain wheels. (f) Springs with square and flat ends, Gears, sprocket wheel (g) Countersunk & counter bore. (h) Tapers	3L/6P
5	Pipe Joints: Common types of joints for cast iron, wrought iron and non ferrous pipes used for boilers and thermal power plants and process industries.	1L/2P
6	Types of Pulleys	1L/2P
7	Gears: Profiles of involute gear teeth, exact and approximate methods for drawing profiles. conventional representation of spur, bevel gears, worm and worm wheels, rack and pinion etc.	2L/4P
8	Preparation of Detail and Assembly Drawing: Drawing of simple machine sub assemblies. The subassemblies should not include more than 15 parts inclusive of fasteners. Eg. Assemblies of jigs and fixtures, steam engine and IC engine subassemblies, m/c tool subassemblies like lathe. tailstock, tool posts, vices, different types of valves etc.	15L/30P

Part II- Practicals

Sr No	Topic	Paper/CAD Drawings
1	Advanced Isometric Drawings	3
2	Dimensioning with Tolerances	1
3	Free hand sketches: bearings, pipe joints, pulleys, welded joints etc	4
4	Conventional Representation	1
5	Gear tooth profile	1
6	Assembly and detail drawings	15

Practical (Term work)

Each student should prepare a sheet of IS A2 size on each practical day based on the lecture class. These sheets will be assessed regularly. The sheets should cover all the topics from the syllabus. Maximum emphasis will be given on the assembly and detail drawings. (Covering about 16 to 18 sheets out of 24 to 26 total sheets.) . Models of components studied under "assembly and detail drawings" topics are to be created using "Computer Aided Drafting" techniques.

Learning Resources:**Text Books**

1. Engineering Drawing : N.D.Bhat , Charotar Publishers,49th Edition 2010
2. Machine Drawing : N.D Bhatt, Charotar Publishers,38th edition 2003

Reference Books:-

1. Machine Drawing : P.S.Gill, S.Kataria & sons, 3rd edition 2007
2. Machine Drawing :Siddeshwar, Tata McGraw Hill Publications,2005

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Fourth
Subject Title : Development of Life Skills
Subject Code : 134HM46

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme										Total Marks	
L	T	P		Theory		Test	Total		PR		OR		TW		
				Max	Min		Max	Min	Max	Min	Max	Min	Max		Min
-	-	2	-	-	-	-	-	-	-	-	-	-	25	10	25

Rationale

Anyone aspiring for professional success in various fields of technology and management has to make a quick and lasting impact on the employers at different levels of his/her career. Effective communication skills is a necessity today and a mastery of both productive skills and managerial skills will enable students, job seekers and technologists in industry to realize their goals of entering either a prestigious institution or getting a coveted job. Their oral skills will enable them to perform better during interviews, group discussion, and presentation and while delivering speeches. Presentation skills will give the students confidence, foster team spirit and enhance their power of expression which will be helpful for them in future while holding seminars and conferences. Further, all competitive exams are exacting and require students to be proficient in the written form. All writings in industries and management require responsible and formal communication. Powerful written communication is possible only by understanding the basics of various kinds of formal writing like summaries and resume. Ability to write honest and impressive resumes is imperative in order to secure a job of one's choice. In addition, managerial skills like time management, body language and positive thinking will shape their personality and enable all round development.

Thus it can be concluded that efficacious communication in verbal and nonverbal form is indeed the sure gateway to success in the professional world.

Objective

1. To train students in overcoming stage fright, to attain composure, to organize thought process and develop voice modulation and body language.
2. To develop students' interpersonal skills and leadership quality, to improve their listening and persuasive skills, and train them in the ways of identifying the source of information, collecting and planning .

3. To prepare students for interview, make them aware of personal grooming and concept of time, to teach students positive thinking as an ongoing process, to have optimistic approach, to cultivate right values and attitude.

LEARNING STRUCTURE:

Application:

To enable the students to communicate effectively through oral communication and presentation skills

Procedures:

1. Techniques of communicating confidently
2. Principles governing the appropriate use of verbal communication
3. Techniques of effective speaking

Principles:

1. Principles of management in communication skills
2. Principles of appropriation and contextualization of the use of non-verbal communication

Concept:

1. Concept of oral and written skills
2. Concept of manners, etiquette and personality development
3. Concept of time management and interview techniques

Facts:

1. Theory of communication
2. Theory of oral skills
3. Formats of resume and summarization

SYLLABUS

Sr. No.	Topic	Hours
01	Oral Skills and Writing Skills <ul style="list-style-type: none"> • Elocution • Group Discussion • Presentations • Technical paper presentation • Planning and preparing for an industrial visit • Written report on an industrial visit 	4 4 6 2 2 2
02	Managerial Skills <ul style="list-style-type: none"> • Interview Techniques 	2

	<ul style="list-style-type: none"> • Resume • Time Management • Manners & Etiquette • Personality Development • Positive thinking 	2 2 2 2 2
	Total	32
03	Practical <ol style="list-style-type: none"> 1. Students deliver a prepared speech. 2. Group discussions conducted in class 3. Group of 6-7 students make a power point presentation 4. Assignments on resume writing . 5. Mock interviews in class 6. Role play by students. 	

Term Work- Students should submit term work file based on above topics.

Skills to be developed for practical:

Intellectual Skills:

1. Skills of elocution
2. Collecting and summarizing information
3. Drafting and presenting

Motor Skills:

1. Use of appropriate body language and oral skills

Text Book:

1. Business Communication- Raman Meenakshi, Oxford, India, First edition, 2008

Books for Reference:

1. Contemporary Management, Gupta C. B., APH, New Delhi, First edition, 1992
 2. Organisational Behaviour, Sekaran Uma, Tata Mcgraw Hill, New Delhi, Second edition, 2008
 3. Technical Communication, Raman Meenakshi, Sharma Sangeeta, OUP, India, Second impression, 2004
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Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Fourth
Subject Title : Student Center Activity/Test

Teaching Scheme			Paper Hours	Examination Scheme										Total Marks	
L	T	P		Theory		Test	Total		PR		OR		TW		
				Max	Min		Max	Min	Max	Min	Max	Min	Max		Min
-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	

Rationale:–

Most of the diploma holders join industries. Due to globalization and competition in the industrial and service sectors the selection for the job is based on campus interviews or competitive tests.

While selecting candidates a normal practice adopted is to see general confidence, ability to communicate and attitude, in addition to basic technological concepts.

The purpose of introducing professional practices is to provide opportunity to students to undergo activities which will enable them to develop confidence. Expert lectures, E-learning sources, E-library, Internet, seminars on technical topics and group discussion are planned in a semester so that there will be increased participation of students in learning process.

Objectives:

The Student will be able to:

1. Acquire information from different sources
2. Prepare notes for given topic
3. Present given topic in a seminar
4. Interact with peers to share thoughts
5. Take the advantages of E-learning sources