

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Second
Subject Title : Mathematics - II
Subject Code : 134MA21b

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	125

Rationale:

The study of mathematics is necessary to develop in the student, the skills essential for studying engineering subjects. The subject is an extension of basic mathematics of first semester which is a prerequisite for engineering studies.

Objective:

1. To lay a strong foundation in study of calculus which is the backbone for study in engineering.
2. To make students well versed in the prerequisites for further studies in mathematics and engineering.

Syllabus

Sr. No.	Contents	L	M
	Section- I		
1	Function : 1.1 Definition of function. 1.2 Types of Functions: Polynomial, constant, explicit function, implicit function, periodic function, even and odd functions, inverse function, exponential function, logarithmic function, composite function. 1.3 Simple problems based on function.	05	10
2	Limits : 2.1 Concept of limit of a function. 2.2 Theorems on limits (Without proof) 2.3 Limits of algebraic, trigonometric functions. 2.4 Standard limits	10	10

3	Derivatives : 3.1 Derivatives of standard functions by first principle. 3.2 Rules of differentiation. 3.3 Derivative of composite function. (chain rule). 3.4 Derivative of implicit function, parametric function. 3.5 Logarithmic differentiation.	11	20
Section- II			
4	Second ordered derivative.	02	04
5	Applications of derivatives : 5.1 Equation of tangent and normal to the given curve. 5.2 Maxima and minima of function. 5.3 Rate problems.	10	16
6	Partial derivatives: Partial derivatives of first order of functions of two variables.	02	06
7	Vector Algebra : 7.1 Definition of vector, types of vector, vector addition, subtraction, multiplication by scalar. 7.2 Dot product, cross product and their properties.	08	14
	Total	48	80

REFERENCE BOOKS:

- 1) Basic Mathematics – II by B.M.Patel, J.M.Rawal and others - Nirali Prakashan, 6th edition -Jan 2010
- 2) Mathematics for Polytechnic - S. P. Deshpande- Pune Vidyarthi Griha Prakashan, Revised edition – Aug.2010

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Second
Subject Title : Physics- II
Subject Code : 134PH22

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	-	2	3	80	32	20	100	40	25	10	-	-	25	10	150

Rationale:–

Physics is the foundation of any engineering discipline. Its principles, laws, rules, results and conclusions drawn from observations and predictions of various phenomena occurring in nature; play important role in solving field problems in engineering and technology.

Though the span of physics is from quark to galaxy or particle physics to astrophysics; here certain topics are carefully selected for particular discipline. These topics will provide sufficient fundamental as well as background knowledge for the particular branch. Proper attention is given to the selection of sub-topics and their depth so that student will be able to cope up with innovations and new technologies in his field.

Objectives:-

The student should be able to.

- analyze the relation between pressure, volume and temperature of gas and the behavior of gas.
- identify good and bad conductors of heat needed for a given task.
- identify the phenomena of interference, diffraction and polarization of light and its industrial applications.
- use the properties of laser, x-rays and photoelectric effect for various engineering applications.
- identify, analyze, discriminate and interpret logical sequence of field problems with the study of physics.
- analyze different materials based on their crystal structures and select the proper material for specific purposes

Syllabus

No.	Contents	L	M
	SECTION – I		
1	<p>Sound</p> <p>Transverse and longitudinal waves, velocity of sound, Newton's formula, Laplace's correction, effect of temperature, pressure, humidity on velocity of sound, concept of resonance, resonance tube (closed at one end), experimental determination of velocity of sound by resonance tube, transverse vibration of strings, laws of vibrating strings, sonometer,</p>	07	16
2	<p>Gas laws and specific heats</p> <p>Boyle's law, Charles's law, Gay-Lussac's law, Kelvin scale of temperature, general gas equation, universal gas constant, N.T.P., principal specific heats and relation between them, problems</p>	04	10
3	<p>Expansion, heat transmission and laws of thermodynamics</p> <p>Expansions of solids–linear, aerial and cubical, relation between them, modes of transmission of heat, coefficient of thermal conductivity, good and bad conductors and applications, Searle's and Lee's method, laws of thermodynamics, isothermal, isobaric, isochoric and adiabatic processes, problems</p>	05	14
	SECTION – II		
4	<p>Modern Physics</p> <p>X-rays</p> <p>Production of x-rays, continuous and characteristic x-rays, properties and applications of x-rays, problems, Moseley's law and its importance.</p> <p>Photoelectric effect</p> <p>Photoelectric effect, laws and characteristics of photoelectric effect, Einstein's photoelectric equation, problems, construction, working and applications of photocells</p> <p>Laser</p> <p>Spontaneous and stimulated emission, population inversion, pumping, lasing, properties and applications of laser, helium-neon laser and its applications, holography and its applications</p>	10	24

5	Crystal Structure Lattice, Bravais lattice, unit cell, cubic crystal structures(SC, BCC, FCC) ,coordination number, packing efficiency, relation between radius of atoms and unit cell length, Miller Indices, Miller planes and directions	04	10
6	Introduction to Nanotechnology Introduction, Importance, properties of nanostructure materials, , Characterisation methods, Applications of nonmaterial in Mechanical and Automobile Engineering	02	06
	Total	32	80

Practicals

List of experiments

1. Study of crystal structure
2. To locate Miller planes and find Miller indices of given planes
3. To determine wavelength of given Laser light using diffraction grating.
4. To determine grating element by Laser diffraction.
5. To verify first law of vibrating strings using sonometer.
6. To verify second law of vibrating strings using sonometer
7. To determine velocity of sound using Resonance Tube.
8. To find thermal conductivity of good conductor by Searle's method.
9. To find thermal conductivity of bad conductor by Lee's Disc Method.

Learning Resources-

Text Book: -

Engineering Physics by Gaur R. K. and Gupta S. L., Dhanpat Rai Publications, New Delhi, Eighth Edition, 2001., Physics text book of 11th & 12th std.(NCERT)

References:-

1. Fundamentals of Physics Extended, By Halliday D., Resnik R. and Walker, Wiley – India, New Delhi, Eighth Edition, 2008.
2. Physics for scientists and Engineers by Serway R. A. and Jewett, Jr. J. W., Thomson Learning (Indian reprint), New Delhi, Sixth Edition, 2007.

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Second
Subject Title : Chemistry - II
Subject Code : 134CH23

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	-	2	3	80	32	20	100	40	25	10	-	-	25	10	150

Rationale:-

This syllabus of chemistry is under the category of applied science. It is intended to teach students the quality of water & its treatment as per the requirement, & selection of various construction materials & their protection by metallic & organic coatings. The topics covered will provide sufficient fundamental as well as background knowledge for the particular branch. Proper attention is given to the selection of sub-topics and their depth so that student will be able to cope up with innovations and new technologies in his field.

Objectives:-

1. Implementing the knowledge for the utilization of water resources in engineering & trouble shooting of the problems while using unsuitable water.
2. Able to select appropriate materials used in construction, lubrication, nanotechnology etc.
3. Apply knowledge to enhance operative life span of engineering material & structure by various protective methods.

Syllabus

SECTION - I				
No.	Chapter	Contents	No. of Hours	Marks
1	Water	Introduction, Hard and soft water, hardness and its determination (EDTA method only). boiler problems-scale, sludge, priming and foaming, caustic embitterment and corrosion, their causes and prevention, Water softening processes – Lime – Soda process, Zeolite Permutit method, Ion exchange method and comparison of methods, Numerical problems on hardness by EDTA method.	07	20

2	Lubricants	Lubricant, Lubrication, Function of lubricant, Types of lubricants, Mechanisms of lubrication, Ideal lubricant and properties: Viscosity, Viscosity index, fire point, flash point, pour point, cloud point, Saponification value, Acid value.	04	10
3	Alloys	Defination, purpose of alloy, Preparation methods, types: Ferrous & Non Ferrous alloy, Ferrous alloy: Steel, Alloy steel, Composition, Properties and uses, Non Ferrous alloy: Alloy of Cu, Zn, Al, Sn, Pb Composition, Properties and uses.	04	10
SECTION – II				
4	Corrosion	Introduction, Types of corrosion (dry and wet corrosion), factors affecting the corrosion, types and mechanism of Atmospheric corrosion, oxide films, electrochemical corrosion, mechanism of electrochemical corrosion, types of electrochemical corrosion: galvanic corrosion and concentration cell corrosion, protective measures against corrosion: coatings (galvanic and zinc, organic coating agents, Electroplating, metal cladding.).	07	15
5	Fuels	Classification, chracteristics combustion and chemical principles involved in it, calorific value: gross and net calorific values. Solid Fuels: Types, selection of coal, Proximate and ultimate analysis of coal Liquid Fuels: Petroleum: its chemical composition and fractional distillation, cracking of heavy oil residues – thermal and catalytic cracking, Gaseous Fuels: Composition and properties of Natural, coal gas, LPG	07	15
6	Superconductors	Introduction to superconductors, types, properties, preparation and structure of 1: 2: 3 superconductors, Fullerenes, Organic electronic materials.	03	10
Total			32	80

List of experiments Part II:- Practicals

1. To estimate the amount of iron in plain carbon steel alloy.
2. To estimate the amount of copper in Brass alloy.
3. To estimate the amount of zinc in Brass alloy.
4. To estimate of hardness of water by EDTA complexometric titration.
5. To estimate estimate amount of chloride in tap water by Mohr's Method
6. To determine saponification value of given oil.
7. To determine acid value of given lubricating oil.
8. To determine relative viscosity of given oil.
9. To determine flash point value of given lubricating oil using Able's apparatus.
10. To determine flash point value of given lubricating oil using Penksy Martin's apparatus.

Learning Resources:

Text Book :-

1. Engineering Chemistry Jain & Jain Dhanpat Rai & Co. (Pvt.)
Delhi-110 006Ltd Edition: Fifteenth (2008)

Reference Books:-

1. A Text Book of Chemistry Shashi Chawla Educational & Technical Publishers
Dhanpat Rai & Co. (Pvt.) Ltd, Edition: Third (2005)

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Second
Subject Title : Communication Skill - II
Subject Code : 134HM24

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	-	2	3	80	32	20	100	40	-	-	25	10	25	10	150

Rationale:

The main objective of this subject is to enable students to develop effective communication skills. The basic concepts of oral, written and nonverbal communication will train them to become efficient and effective speakers. The study of Body Language will enable them to comprehend the effective use of gestures and posture. The students have been exposed to the Language Skills pertaining to English and principles of written communication will enhance their confidence and make them well versed in technical writing skills. In order to give students a proper exposure to good writing, a text book containing selected passages is introduced. Some inspirational stories and quotes will widen their horizons of knowledge and will also guide them to use these quotes in appropriate context.

Effective communication skills through enhanced language learning can motivate students to prosper in different spheres of life. The innovative learning strategies will enable students to improve their pronunciation, diction and become confident speakers. The listening skills will help them to comprehend the content and enhance their analytical skills. The development of speaking skills will improve their power of expression and instill assertiveness and confidence within them. Students will also become proficient in their conversational skills by learning correct usage of words and developing neutral accent. This will prepare them for larger responsibilities in their professional field where communication is a part and parcel of life. Eloquent speech, effective presentation and perfect articulation of ideas can leave a lasting impression and make one successful in personal and professional life.

Objectives:

1. To facilitate learner friendly atmosphere and train students to eliminate stage fear and fear of foreign language through active participation in activities
2. To train students to focus, absorb, comprehend and reproduce the key concepts
3. To acquire neutral accent and communicate fluently and confidently without the influence of mother tongue.
4. To understand and use the basic concepts of communication and speak and write effectively.
5. Instill self-confidence and presence of mind through impromptu activities.
6. Drafting effective letters in the proper format.

7. Develop scientific curiosity in students through topics like scientific queries and the universe and to develop in them scientific bent of mind.

LEARNING STRUCTURE

Application:

Enabling students to become eloquent speakers and efficient listeners through enhanced communication learning . Using appropriate oral, written and non-verbal skills.

Procedure:

1. Technique of providing responses to short and long questions
2. Principles governing the appropriate use of non verbal and oral skills
3. Technique of effective listening , speaking and comprehension .

Principles:

1. Principles of comprehending the basic of communication
2. Principles of appropriation and contextualization of the use of body language
3. Principles of drafting coherent, logical and simple sentences

Concepts:

1. Concept of spoken, written and non-verbal types of communication
2. Concept of Body Language and spoken communication through presentations
3. Formats of letters, reports and technical descriptions.

Facts:

1. Theory of communication skills
2. Theory of Body Language
3. Formats of letters: official letters pertaining to day- to -day situations and campus related situations.

CONTENT: Theory

Section I

Name of Topic	Lectures	Marks
<p>Communication Skills-II (TEXT) compiled by Mrs. R. Thomas (4 or 5 chapters giving exposure to good English and 4 or 5 topics related to communication-process , types , body language and barriers)</p> <ul style="list-style-type: none"> • Testing grasp of the matter and expression in 2 or 3 sentences <ol style="list-style-type: none"> 1.1. Definition, Communication Cycle/process 1.2. The elements of communication: 1.3. Definition of communication process 1.4. Stages in the process: defining the context, knowing the audience, designing the messages, encoding, selecting proper channels, 	48	15

transmitting, receiving, decoding and feedback 1.5. Introduction to effective oral communication 1.6. .Communication Barriers and how to overcome them, knowing the audience, structuring the messages, selecting proper channels, minimizing barriers and facilitating feedback 2.1 Success stories to motivate students and character building to inculcate work ethics and values <ul style="list-style-type: none"> • Descriptive answers to test the grasp of the matter and ability to express • composition 		15 10
Total		40

Section II

SR.NO	TOPIC	Marks	
1	Reporting skills <ul style="list-style-type: none"> • Converting a conversation into a narration • Correcting grammatical errors in the given passage • Active and passive voice 	15	
2	Narration and Summarization <ul style="list-style-type: none"> • Explaining proverbs in one's own words • Preparing a précis 	10	
2.	Technical Writing <ul style="list-style-type: none"> • Description of objects • Description of process 	15	
	Total	40	
	TOTAL	80	

Enhanced Language Learning Through language laboratory

CONCEPT:

1. Concept of oral skills
2. Concept of listening skills

SR.NO	TOPIC		
1	<p style="text-align: center;">LISTENING SKILLS</p> <ul style="list-style-type: none"> • Introduction to listening skills, listening to recorded text, speeches of famous Indian orators and answering questions • Listening to conversations and panel discussions and encouraging students' comments . • Introduction to phonetics ; listening to the correct articulation of words • Recording and listening to one's own voice 		
2	<p style="text-align: center;">SPEAKING SKILLS</p> <ul style="list-style-type: none"> • Extempore • Role play and video recording • Mock interviews • JEST a minute • Technical quiz (to update knowledge in their respective discipline) • Correction of commonly mispronounced words • Conversation through role play to un*- derstand barriers • Explaining proverbs orally in one's own words • .Power point presentation on technical topics 		
3	<p style="text-align: center;">READING SKILLS</p> <ul style="list-style-type: none"> • Techniques of reading – silent reading and reading aloud • Summarization –oral summary <p style="text-align: center;">Reading Passages</p> <ul style="list-style-type: none"> • Pause • Diction • Enunciation • Voice modulation • Accent • pitch 		

Term work : testing student's receptive and reading skills

Assignments:

1. Listening comprehension (2hours)
2. Conversation sessions-enacting from newspaper report (4hrs)
3. Barriers that hinder a particular communication situation(1 hr)

4. Developing a story based on a proverb/ spin a yarn-(2hrs)
5. Speech sessions(3 hrs)
6. Description of objects and process (4 hrs)
7. Reading sessions –(2 hrs)
8. Conversational Skills: Role Plays (6 hrs)
Students are going to perform the role on any 6 situations, given by the teacher.
9. Dialogue writing for the given situations. (2 hrs-2 assignments)
10. Newspaper Report Writing (6 hrs- 2 assignments)
Write any two events from the newspaper as it is.
Write any two events on the given situations by the teacher.

Skills to be developed:

Intellectual Skills:

1. Skills of Speaking in correct English
2. Compiling information and summarizing
3. Understanding the barriers in communication

Motor Skills:

1. Use of appropriate body language
2. Use of appropriate medium for communication
3. Assessing audience

Listening Skills:

1. Skills of listening and Comprehension

Learning Resources:

Text Book: Communication Skills II-
Compiled by Mrs. Thomas , H&M Dept

Reference Books: Books for reference:

- 1.Communication Skills for Engineers, Sunita Mishra and Muralikrishna , Pearson, New Delhi,First edition,2006
 - 2.Technical Communication, Raman Meenakshi, OUP, India, Second impression,2004
 - 3.Cliffs TOEFL, Pyle Michael,BPB publications,First edition,1992
 - 4.Developing Communication Skills, Mohan Krushan, Banerji Meera, Macmillan, India, First Edition,,2000
 5. Communication Skills, Bhattacharya Joyeeta, Reliable Skills, Mumbai,First Edition, 2003
 6. Eveyones Guide to Effective Writing, JAYakaran, Apple Publishing,First edition,2001.
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Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Second
Subject Title : Engineering Mechanics
Subject Code : 134SE25

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	125

Rationale:

This course in Applied Mechanics is designed to cover the applications of the principles of mechanics of engineering in general

. This deals with static forces on the structures and bodies in motion and principles of equilibrium.

The laboratory work covered under this course will provide suitable learning experiences to develop the desired abilities, skills and attitude to analyze and solve the problems encountered in Engineering.

Objectives:

Students will be able to

1. Resolve the forces.
2. Find the resultant of given force system.
3. Find the reactions of beam.
4. Find the center of gravity of composite solids.
5. Find M.A, V, R efficiency and establish Law of Machine.

Syllabus

Section I			
Sr. No.	Contents	L	M
A)	Statics:		
1	Fundamental concepts: Statics, Dynamics, Kinematics, Kinetics, Concept of force system of forces: Co-planar Concurrent, parallel, Principle of transmissibility of a force.	02	03
2	Resolution and Composition of forces: Resolution of a force, concept of a moment of a force, laws of moments and couples, Composition of co-planar, concurrent, non-concurrent, parallel forces, Resultant of a general system of co-planer forces.	07	13

3	Equilibrium: Definition, Relation between resultant & equilibrant, condition of equilibrium, Types of support-conditions, roller, hinge & fixed. Free body diagram, simply supported & over hanging beams	07	9
4	Plane Truss: Forces in the members of plane truss using method of sections, Center of gravity and centroid: Definition centroid of regular plane area and their combinations, Center of gravity of simple solids: Cube, Cylinder, Prism, Sphere, Cone and their combination Note: Simple Problem on Plane Truss	08	15
Section II			
5	Graphic Statics: Representation of a force, Bow's Notation, Space Diagram, Force diagram, Funicular polygon, Condition of equilibrium, Reaction of beams subjected to uniformly distributed and concentrated loads, forces in members of a truss, centroid of a plane area.	05	7
6	Friction: Laws of friction, terms used: Co-efficient of friction, angle of friction, repose, equilibrium of bodies on level and inclined planes.	05	7
B)	Kinematics:		
1	Projectile: Rectilinear Motion, Motion of projectile, Time of flight, Maximum height and horizontal range, relation between angle of projection and range, maximum horizontal range.	03	7
2	Angular Motion: Definition, Angular displacement, Angular velocity, Angular acceleration, Tangential and Radial components equations of circular motion, Relation between rectilinear and circular motion super elevation.	04	6
C)	Kinetics		
1	Work, Power and Energy: Definition of terms, form of energy, law of conservation of energy, Relation between force, mass & acceleration and its application.	03	6
2	Simple Mechanics: Definition of terms used: mechanical advantage, velocity ratio, efficiency, friction in the machine , law of machine, conditions of the reversibility, study of simple machines : simple screw jack, axle and wheel, differential axle and wheel, worm and worm wheel, single purchase crab.	04	7
	Tutorial:- Examples based on the above syllabus covering the applications of the principles of mechanics in civil engineering field will be studied in tutorial classes.		
	Total	48	80

Term Work:

Sr.No.	Name of Experiments		Hours
A	Note- Two half-imperial size drawing sheets in the graphic static with minimum five problems out of the following:		
	1	Resultant of concurrent forces.	
	2	Resultant of parallel forces	
	3	Resultant of non-concurrent, non-parallel forces.	
	4	Reactions of a simply supported beam.	
	5	Equilibrium of bodies.	
	6	Forces in members of truss.	
	7	Centroids of plane areas	
B	Laboratory journal containing minimum five experiments out of the following:		
	1	Law of polygon of forces	
	2	Forces in members of a roof truss.	
	3	Forces in jib crane.	
	4	Simple screw jack.	
	5	Single purchase crab.	
	6	Worm and worm wheel.	
	7	Differential axle and wheel	
		Total	32

Text Books:

Sr. No.	Title of Book	Author	Edition & Publication
1.	Applied mechanics	S. B. Junnarkar	17 th , Revised Edition 2010, Charotar Publishing House Pvt. Ltd. 17th

Reference Books:

Sr. No.	Title of Book	Author	Edition & Publication
1.	Fundamentals of Applied Mechanics	Dadhe, jamdar and Walawalkar	2006, Sarita prakashan

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Second
Subject Title : Basic Workshop Practice - II
Subject Code : 134ME26

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	-	-	-	-	-	-	-	-	-	-	50	20	50

Rationale:

Mechanical Engineering Diploma student is expected to know basic workshop practice like, Fitting, planing, marking, chiseling, grooving, turning of wood. Various basic operations on Lathe machine like metal cutting, facing, Drilling, Tapping. The students are required to identify, operate and control various machines. The students are required to select and use various tools and equipments related to sheet metal processes.

Objectives:

The student will able to

- Know basic workshop processes.
- Read and interpret job drawing.
- Identify, select and use various marking, measuring, holding, striking and cutting tools & equipments.
- Operate, control different machines and equipments.
- Inspect the job for specified dimensions.
- Produce jobs as per specified dimensions.
- Adopt safety practices while working on various machines.

Syllabus for Practical

List of Practical

Sr.No.	Details Of Practical Contents
01	METAL TURNING: Demonstration of Lathe machine. Demonstration of various parts of Lathe machine. Demonstration of various operations performed on Lathe. One simple job involving plain turning, step turning and chamfering

02	<p>WOOD TURNING: Demonstration of different wood working processes, like planing, marking, chiseling, grooving, turning of wood etc. One simple job involving turning, step turning, ball turning operation on wood</p>
03	<p>SHEET METAL SHOP: Demonstration of different sheet metal tools / machines. Demonstration of different sheet metal operations like sheet cutting, bending, edging, end curling, lancing, soldering and riveting. One simple job involving sheet metal operations and soldering and riveting</p>
04	<p>FITTING SHOP: Demonstration of different fitting tools and drilling machines and power tools. Demonstration of different operations like chipping, filing, drilling, tapping, cutting etc. One simple fitting job involving practice of chipping, filing, drilling, tapping, cutting etc.</p>

Text Books:

1. Mechanical Workshop Practice-K.C.John-PHI Learning Pvt Ltd. EEE 2010

Reference Books:

1. B.S. Raghuwanshi- Workshop Technology – Dhanpat Rai and sons, New Delhi, Ninth Edition 2002
2. S.K. Hajra Chaudhary- Workshop Technology Vol I & II – Media Promotors and Publisher, New Delhi. Eighth Edition 1986

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Second
Subject Title : Engineering Graphics- II
Subject Code : 134ME27

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	-	4	-	-	-	-	-	50	20	-	-	50	20	100	

Rationale:–

This subject is in continuation with the subject Engineering Graphics – I and deals with the topics of Projections & Sections of solids, Development of lateral surfaces, Reading Orthographic Projections, Isometric drawings & free hand sketches.

An introduction to computer drafting & its application in the Orthographic & Sectional Orthographic Projections & Isometric drawings will be useful in the existing and changing technological requirements of the modern world.

This course aims at building the foundation for further courses in drawing and other allied subjects.

Objectives:

The student will able to

- Understand the fundamentals of Engineering Graphics
- Read and interpret object drawings.
- To develop ability to handle and use drafting software.

Syllabus

No	Topic	Contents	Hrs
1	Projections of Solids	Projections of solids with axis inclined to one reference plane & parallel to other reference plane (Solids – prisms, pyramids, cylinder, cone & cube)	6
2	Sections of solids	Sections of solids by different auxiliary (Straight) cutting planes perpendicular to one reference plane, True shape of section. (Solids with axis perpendicular to one reference plane.) (No problems with given true shape of section)	5

3	Development of lateral surfaces of cut solids	Development of lateral surfaces of solids cut with straight cutting plane only (No problems on reverse development).	5
5	Pictorial Views-	Isometric Projections and Isometric Views. (No problems with circular slots on inclined surfaces)	4
6	Reading of Simple Orthographic Projections-	Missing Views including Sectional Views of simple machine parts .(Full Section in one view)	6
7	Machine Elements- Free hand sketching.	I.S. Convention for internal & external threads, single start threads, hexagonal & square-nuts , bolts & washers; Set screws, conventions for drilled through & blind holes, tapped holes.	2
8	Computer Aided Drafting-	Solving problems each on Multi view Orthographic Projection including Sectional Orthographic Projections, Reading Orthographic Projections & Isometric Views with the help of Computer aided drafting.	4

Practicals

- A. The students should workout the problems on the following topics on quarter imperial drawing sheets during the practicals.
1. Two sheets on Projections of solids.
 2. Two sheets on problems Sections of solids.
 3. Two sheet on problems on development of surfaces.
 4. Two Sheets on Isometric Projections.
 5. Three sheets on problems from reading orthographic projections.
 6. One sheet on free hand sketches
- B. Problem solving by drafting software (one practical per week).
1. Orthographic & Sectional orthographic projections.
 2. Reading orthographic projections.
 3. Isometric Drawings

Text Book:

1. Engineering Drawing : N.D.Bhat, Charotar Publishers,49th Edition 2010
2. Engineering Graphics & Engineering – S.T.Ghan, M.V.Rawalani- Nirali Publications- seventh Edition -2009

Reference Books:-

1. Engineering Drawing- D.A.Jolhe - TATA McGraw Hill- 2008
2. Engineering Graphics- K.R.Mohan – Dhanpatrai publishing co.-First edition-2009
3. Engineering Drawing- S. Chand Co., R. K. Dhawan Reprint 2010
4. Engineering Drawing -Amar Pathak Dreamtech Press, 2010

Course Name : Diploma in Mechanical Engineering
Course Code : DME
Semester : Second
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

