



Neptune Institute of Management & Technology

(Established Under R.S. (XXI of 1860) Act of Govt. of NCT of Delhi)

(ISO 9001 - 2000 Internationally Certified Institute)

Syllabus: Diploma in Mechanical Engineering

COURSE	Diploma in Mechanical Engineering (D.E.- Mechanical Engineering)
Min. Qualification	10th with 2 yrs. exp.
Course Fees	Rs. 6,000/- per sem.
Exam Fees	Rs.1,000/- per sem.
Reg. Fees	Rs.1,000/-
Duration	1 sem to 6 sem.
Subject Covered	<p>Ist Sem</p> <ol style="list-style-type: none"> 1. Communication English 2. Applied Mathematics-I 3. Engineering Physics-I 4. Engineering Chemistry-I 5. Computer Application Lab 6. Workshop Practice Lab <p>IInd Sem</p> <ol style="list-style-type: none"> 1. Applied Mathematics-II 2. Engineering Physics-II 3. Engineering Chemistry-II 4. Engineering Graphics 5. Engineering Physics-II Lab 6. Engineering Chemistry-II Lab <p>IIIrd Sem</p> <ol style="list-style-type: none"> 1. Engineering Mechanics 2. Manufacturing Technology-I 3. Fluid Mechanics 4. Machine Drawing 5. Engineering Mechanics Lab 6. Workshop-I <p>IVth Sem</p> <ol style="list-style-type: none"> 1. Thermodynamics 2. Manufacturing Technology-II 3. Electrical and Electronics Engineering 4. Refrigeration and Air Conditioning 5. Thermodynamics Lab 6. Workshop-II <p>Vth Sem</p> <ol style="list-style-type: none"> 1. Design of Machine Elements



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2. Thermal Engineering
3. Metrology
4. Mechatronics
5. Metrology Lab
6. Workshop-III Lab
7. Principles of Management

Vth Sem

1. Industrial Engineering and Management
2. CAD/CAM
3. Automobile Technology
4. CAD/CAM Lab
5. Project
6. Marketing Management



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SYLLABUS

SEMESTER : I

SUBJECT: COMMUNICATION ENGLISH

BLOCK 1 Grammar (Non-Textual)

Unit 1: Functional Analysis

Unit 2: Voice and parts of speech

Unit 3: Direct and indirect speech

Unit 4: Preposition

BLOCK 2 Grammar

Unit 1: One word substitute

Unit 2: Articles and question tags

Unit 3: Prefixes and suffixes

Unit 4: Tenses

BLOCK 3 Compositions

Unit 1: Comprehension

Unit 2: Simple passage

Unit 3: Moral story

Unit 4: Science and technology



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BLOCK 4 Letter and dialogue Writing

Unit 1: Letter writing - personal

Unit 2: Letter writing - official

Unit 3: Dialogue writing

Unit 4: Hints development

BLOCK 5 Proses

Unit 1: An Astrologer's day – R.K. Narayanan

Unit 2: The sun, The planets and the stars – C.Jones

Unit 3: The continuing spell of Ramanujam

Unit 4: On saying 'please' – A.G.Gardiner

SUBJECT : Applied Mathematics-I

BLOCK 1 Algebra

Unit 1: Determinants

Unit 2: Matrices

Unit 3: Permutation and combination

Unit 4: Binomial Theorem

BLOCK 2 Complex numbers



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Unit 1: Real and imaginary parts

Unit 2: Demoivre's Theorem

Unit 3: Finding the n^{th} roots of unity

Unit 4: Solving equations

BLOCK 3 Analytical geometry

Unit 1: Pair of straight lines

Unit 2: Circles

Unit 3: Family of circles

Unit 4: Concentric circles

BLOCK 4 Trigonometry

Unit 1: Compound angles

Unit 2: Multiple angles

Unit 3: Sub multiple angles

Unit 4: Sum and product formulae

BLOCK 5 Differential calculus

Unit 1: Limits

Unit 2: Differentiation

Unit 3: Differentiation methods

Unit 4: Successive differentiation



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SUBJECT: Engineering Physics – I

BLOCK 1 S I units and Statics

Unit 1: Fundamental quantities

Unit 2: Derived quantities

Unit 3: Concurrent forces

Unit 4: parallelogram Law of forces

BLOCK 2 Properties of matter

Unit 1: Stress and strain

Unit 2: Young's modulus

Unit 3: Viscosity

Unit 4: Surface Tension

BLOCK 3 Dynamics

Unit 1: Projectile Motion

Unit 2: Angle of projection

Unit 3: Circular Motion

Unit 4: Application of circular motion

BLOCK 4 Rotational motion of rigidity bodies



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Unit 1: Moment of Inertia

Unit 2: Kinetic energy

Unit 3: Angular Momentum

Unit 4: Kepler's Law

BLOCK 5 Remote sensing and sound

Unit 1: Active and Passive remote sensing

Unit 2: Microwave remote sensing

Unit 3: Types of sound waves

Unit 4: Acoustics

SUBJECT: Engineering Chemistry - I

BLOCK 1 Acids – Bases, Catalysis

Unit 1: Theories of Acids and Bases

Unit 2: Industrial application

Unit 3: Positive and Negative catalyst

Unit 4: Characteristics of Catalyst

BLOCK 2 Pollution

Unit 1: Air Pollution

Unit 2: Global warming

Unit 3: Water Pollution



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Unit 4: Green Chemistry

BLOCK 3 Electro chemistry and corrosion

Unit 1: Types of conductors

Unit 2: Industrial applications of Electrochemistry

Unit 3: Electrochemical theory

Unit 4: Electroplating

BLOCK 4 Organic coatings

Unit 1: Paint

Unit 2: Varnish

Unit 3: Adhesives

Unit 4: Lubricants

BLOCK 5 Colloids and Ceramics

Unit 1: Colloidal solution

Unit 2: Brownian Movement

Unit 3: Water purification

Unit 4: Ceramics

SUBJECT: Computer Application Lab

Practicals



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Windows

- 1.a. Starting a program, running a program.
- b. Starting the Windows in safe mode
- c. Running multiple Programs and switching between windows.
- d. Moving the windows, and the task bar.
- e. Startup to MS-DOS prompt.
- 2.a. Creating and removing a folder.
- b. Making the taskbar wider, arranging icons on the Desktop.
- c. Displaying and hiding the taskbar clock.
- d. Controlling the size of start menu options.
- e. Creating shortcuts.
- 3.a. Installing a screen saver.
- b. Assigning Wallpaper to Desktop.
- c. Adding a program to the start menu.
- d. Recovering files and folders from Recycle bin.
- e. Customizing the mouse settings.
- 4 a. Expanding and collapsing a folder.
- b. Recognizing file types using icons.
- c. Running a program from explorer.



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- d. Renaming a file or folder.
- e. Selecting two or more files for an operation.
- 5.a. Displaying the properties for a file or folder.
- b. Using cut and paste operations to copy a file.
- c. Using copy and paste operations to copy a file.
- d. Moving and copying files with mouse.
- e. Sorting a folder.
- 6.a. Finding a file or folder, by name.
- b. Defragmenting the disk using disk defragmenter.
- c. Compressing a file using WinZip.
- d. Controlling the speaker volume.
- e. Recording and saving an audio file.

MS Word

- a. Prepare a newsletter with borders, two columns text, header and footer and a graphic image and spell check the document.
- b. Create a table to show the paradigm of the verb “eat” in all 12 tenses



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Tense		Present	Past	Future
Simple	He	Eats	Ate	Will eat
	I	Eat	Ate	Will eat
	You/They	Eat	Ate	Will eat
Continuous	He	Is eating	Was eating	Will be eating
	I	Am eating	Was eating	Will be eating
	You/They	Are eating	Was eating	Will be eating
Perfect	He	Has eaten	Had eaten	Will have eaten
	I	Have eaten	Had eaten	Will have eaten
	You/They	Have eaten	Had eaten	Will have eaten
Perfect continuous	He	Has been eating	Had been eating	Will have been eating
	I	Have been eating	Had been eating	Will have been eating
	You/They	Have been eating	Had been eating	Will have been eating

c. Prepare your Bio-data/Resume

d. Do the mail merge operation for sending applications to many companies with your resume

MS EXCEL

1. Create a worksheet in Excel for a company:

a. Copy, Move and Merge the cells

b. Adding Comments

c. Adding, Deleting the cells, Rows and Columns

d. Hiding and Unhiding the columns, Rows and gridlines.

2. Using formula and functions prepare worksheet for storing subject marks of ten students

and perform the following:



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- a. Calculate the student wise total and average
 - b. Calculate the subject wise total and average
 - c. Calculate the overall percentage and also individual percentage of the student.
3. Create Bar Graph and Pie Chart for various data

MS Power Point

- a. Create a simple presentation with atleast 5 slides to introduce your friend and include sounds in slides.
- b. Create a presentation with 5 slides for the essay Astrologer's Day by R.K Narayanan

Internet

- a. Creating an E-Mail account.
- b. Sending an E-Mail to a known Address
- c. Viewing an E-Mail received from your friend/relative.
- d. Printing an E-Mail received
- e. Use of Attachment Facility
- f. Use of Address Book Facility
- g. Use of Sent Folder
- h. Use of Save Draft Folder
- i. Use of Trash Folder
- j. Browse a given web-site address.



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k. Search a Particular topic through a Search engine.

SUBJECT: Workshop Practice lab I

Fitting

1. Fittion
2. V - Joint
3. L - Joint
4. T - Joint
5. Half round joint
6. Dovetail Joint
7. U – Joint
8. Hexagonal – Joint
9. Step - Joint
10. Drilling and Tapping M8
11. Drilling and Tapping M10

Wiring

1. Single lamp controlled by single switch.
2. Two Lamps controlled by Two independent switches.
3. Stair case Wiring
4. Fluorescent lamp circuit.
5. Circuit diagram of a fan
6. Circuit diagram of an iron box



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7. Circuit diagram of a mixie
8. Soldering practice

Sheet Metal

1. Hemming
2. Seaming
3. Tray
4. Cylinder
5. Cone
6. Hopper
7. Dust Pan
8. Funnel

SEMESTER : II

SUBJECT: Applied Mathematics - II

BLOCK 1 Vector Algebra

Unit 1: Introduction

Unit 2: Vector Properties

Unit 3: Product of Vectors

Unit 4: Application of Vectors



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Syllabus: Diploma in Mechanical Engineering

BLOCK 2 Integral Calculus

Unit 1: Integration

Unit 2: Standard Integrals

Unit 3: Integration by parts

Unit 4: Bernoulli's Theorem and Applications

BLOCK 3 Differentiation

Unit 1: Velocity and Acceleration

Unit 2: Tangents and Normals

Unit 3: Maxima and Minima

Unit 4: Partial differentiation

BLOCK 4 Application of Integration

Unit 1: Definite Integral.

Unit 2: Area and Volume

Unit 3: Solution of differential equations

Unit 4: Second order differential equation with constant coefficients

BLOCK 5 Probability Distributions

Unit 1: Continuous random variable

Unit 2: Discrete random variable

Unit 3: Discrete Distributions (Binomial, Poisson)



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Syllabus: Diploma in Mechanical Engineering

Unit 4: Continuous Distribution

SUBJECT: Applied Mathematics – II

BLOCK 1 Vector Algebra

Unit 1: Introduction

Unit 2: Vector Properties

Unit 3: Product of Vectors

Unit 4: Application of Vectors

BLOCK 2 Integral Calculus

Unit 1: Integration

Unit 2: Standard Integrals

Unit 3: Integration by parts

Unit 4: Bernoulli's Theorem and Applications

BLOCK 3 Differentiation

Unit 1: Velocity and Acceleration

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Syllabus: Diploma in Mechanical Engineering

Unit 1: Definite Integral.

Unit 2: Area and Volume

Unit 3: Solution of differential equations

Unit 4: Second order differential equation with constant coefficients

BLOCK 5 Probability Distributions

Unit 1: Continuous random variable

Unit 2: Discrete random variable

Unit 3: Discrete Distributions (Binomial, Poisson)

Unit 4: Continuous Distribution

SUBJECT: Engineering Physics – II

BLOCK 1 Heat

Unit 1: Heat - Kinetic Theory of Gases:

Unit 2: Specific Heat

Unit 3: Isothermal Changes

Unit 4: Adiabatic Changes

BLOCK 2 Gases & Non Conversional Energy

Unit 1: Liquefaction of Gases

Unit 2: Joule Thomson Effect & Linde's process



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Unit 3: Renewable and Non-renewable sources

Unit 4: Alternate sources of Energy-

BLOCK 3 Light & Magnetism

Unit 1: Optical Instruments

Unit 2: Lasers

Unit 3: Basic definitions of Magnetism

Unit 4: Hysteresis Loop

BLOCK 4 Electricity

Unit 1: Basic laws

Unit 2: Force on a moving charge

Unit 3: Measuring Instruments

Unit 4: Heating Effect of Electric Current

BLOCK 5 Dielectric effect & Electronics

Unit 1: Chemical Effect of Electric Current

Unit 2: Capacitor

Unit 3: Semiconductors , PN Junction & Transistors

Unit 4: Logic Gates



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SUBJECT: Engineering Chemistry – II

BLOCK 1 Nuclear Chemistry

- Unit 1: Radio activity and definitions
- Unit 2: Half life period & Nuclear fission & fusion
- Unit 3: Applications of radio active isotopes
- Unit 4: Abrasives

BLOCK 2 Fuels and Refractories

- Unit 1: Fuels - classification
- Unit 2: Solid and Liquid Fuels
- Unit 3: Gas Fuels
- Unit 4: Refractories

BLOCK 3 Water Treatment

- Unit 1: Water Treatment Methods
- Unit 2: EDTA Method
- Unit 3: Water -purification
- Unit 4: Lime and manufacturing process

BLOCK 4 Plastics and Rubber

- Unit 1: Thermoplastics,



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Syllabus: Diploma in Mechanical Engineering

Unit 2: Thermo set plastics

Unit 3: Natural rubber-

Unit 4: Synthetic rubber

BLOCK 5 Metallurgy

Unit 1: Tungsten & Titanium

Unit 2: Powder metallurgy

Unit 3: Purpose of alloying

Unit 4: Non ferrous alloys

SUBJECT: Engineering Graphics

BLOCK 1 Drawing Office Practice

Unit 1: Basics of Engg Drawing

Unit 2: Dimensioning

Unit 3: Scales

Unit 4: Geometrical Constructions, conics and geometrical curves

BLOCK 2 Projection

Unit 1: Orthographic Projection

Unit 2: Projection of simple solids

Unit 3: Section of Solids



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Syllabus: Diploma in Mechanical Engineering

Unit 4: Half & Full Sectioning

BLOCK 3 Pictorial drawings

Unit 1: Introduction

Unit 2: Isometric Drawings

Unit 3: Conversion of orthographic views

BLOCK 4 Development of Surfaces:

Unit 1: Cube, Cylinder

Unit 2: Prism

Unit 3: Pyramids

Unit 4: Tee and Elbow

BLOCK 5 AutoCAD

Unit 1: Introduction

Unit 2: AutoCAD commands

Unit 3: Drawing -line, circle, arc, polygon,

Unit 4: Drawing - ellipse, rectangle



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SUBJECT: Engineering Physics Lab

List of Experiments

- 1 VERNIER CALIPERS - To find the volumes of the solid cylinder and hollow cylinder using vernier callipers.

- 2 SCREW GAUGE – To find the thickness of (a) glass plate (b) given sphere using screw gauge. Hence calculate the volume of the glass plate and the sphere.

- 3 SIMPLE PENDULUM – To find the acceleration due to gravity in the laboratory, using simple pendulum. Calculate the acceleration due to gravity, by $L-T^2$ graph.

- 4 CONCURRENT FORCES -To verify the parallelogram law of forces and Lami's theorem.

- 5 COPLANAR – PARALLEL FORCES – To verify the conditions of the Co-planar parallel forces.

- 6 TORSION PENDULUM – To find the rigidity modulus of the thin wire and moment of inertia of the disc by using symmetric masses.

- 7 COMPARISON OF VISCOSITIES – To compare the coefficient of viscosities of two liquids by capillary flow method.



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8 VISCOSITY OF A HIGHLY VISCOUS LIQUID – To find the coefficient of viscosity of a highly viscous liquid.

9 SURFACE TENSION: To find the surface tension of the given liquid by capillary rise method

10 YOUNG'S MODULUS – To find the young's modulus of the material of the given metre scale.

11 SPECTROMETER – 1. To find the angle of the prism.

12 SPECTROMETER – 2. To find the refractive index of the material of the prism.

13 DEFLECTION MAGNETOMETER – To compare the magnetic moments of two given magnets by (a) Equal distance method and (b) Null method.

14 SONO METER – To find the frequency of the given tuning fork.

15 JOULE'S CALORIMETER – To determine the specific heat capacity of the given liquid.

16 COPPER VOLTAMETER – To determine electro – chemical – equivalent of copper.



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17 OHM'S LAW – To determine the resistance of two given coils of wire using Ohm's law. Also verify the laws of resistances.

18 POTENTIO METER – To compare the e.m.fs of two given cells.

19 PN JUNCTION DIODE – For the given semiconductor diode draw (a) Forward bias (b) Reverse bias characteristic curves.

20 SOLAR CELLS – V. I. Characteristics.

SUBJECT: Applied Chemistry Lab

List of Experiments

1. Qualitative Analysis

Acid radicals : Chloride, Carbonate, Sulphate, Nitrate

Basic radicals: Lead, Cadmium, Copper, Aluminium, Zinc, Calcium, Magnesium, Ammonium

Identification of acid and basic radicals in

1. Lime Stone (Calcium Carbonate)

2. Pollutant (Lead nitrate or Cadmium Carbonate)



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3. Fertilizer(Ammonium sulphate)

4. Electrolyte(Ammonium Chloride)

5. Fungicide(Copper sulphate)

6. Coagulant(Aluminium Sulphate)

7. Mordant(Zinc Sulphate)

8. Gypsum(Calcium Sulphate)

9. Epsom(Magnesium Sulphate)

10. Analysis of an Effluent (containing pollutants like Lead, Cadmium, Zinc, Copper).Students may be given above four pollutants , in four separate test tubes in solution form and asked to report metallic pollutants with procedure (Basic Radical Analysis Procedure) and their harmful effects.

2. VOLUMETRIC ANALYSIS (DOUBLE TITRATIONS)

ACIDIMETRY AND ALKALIMETRY

1. Estimation of Hydrochloric acid

2. Estimation of Sodium Hydroxide

3. Estimation of Sodium Carbonate

4. Comparison of Strengths of two bases

PERMANGANIMETRY



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5. Estimation of Ferrous Ammonium Sulphate

6. Estimation of Ferrous Sulphate

7. Comparison of Potassium Permanganate.

WATER ANALYSIS

8. Estimation of Total Hardness by EDTA method.

9. Calculation of pH of four sample solutions and calculation of H⁺ Ion concentration for a particular sample solution.

SEMESTER : III

SUBJECT: Engineering Mechanics

BLOCK 1 Mechanical Properties of Materials

Unit 1: Basic Definitions

Unit 2: Stress

Unit 3: Strain

Unit 4: Stress-Strain Calculations

BLOCK 2 Geometrical Properties of Sections

Unit 1: Basic Definitions

Unit 2: Moment of Inertia

Unit 3: Thin cylinders

Unit 4: Thin Spherical Shells



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BLOCK 3 Theory of Simple Bending

Unit 1: Shear Force

Unit 2: Bending Moment

Unit 3: Cantilever

Unit 4: Simple Bending

BLOCK 4 Torsion and Springs

Unit 1: Theory of Torsion

Unit 2: Torsional Rigidity

Unit 3: Hollow Shaft

Unit 4: Springs

BLOCK 5 Deflection

Unit 1: Beams

Unit 2: Friction

Unit 3: Gear Drives

Unit 4: Belt Drives

Books :

1. Applied Mechanics by A.K.Upadhyay, Charotar Publishers
Strength of Materials by R.S.Khurmi, S.Chand & Co



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SUBJECT: Manufacturing Technology-I

BLOCK 1 Foundry

Unit 1: Patterns

Unit 2: Moulding

Unit 3: Casting

Unit 4: Furnace

BLOCK 2 Forging and Welding

Unit 1: Hot Working operation

Unit 2: Welding

Unit 3: Types of Welding

Unit 4: Types of Testing

BLOCK 3 Powder Metallurgy and Heat Treatment

Unit 1: Methods of Manufacturing

Unit 2: Metallurgy

Unit 3: Heat Treatment

Unit 4: Hardening

BLOCK 4 Lathe

Unit 1: Simple Lathe



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Unit 2: Semi Automatic Lathe

Unit 3: Fully Automatic Lathe

Unit 4: Multi Spindle Automatic Lathe

BLOCK 5 Metrology

Unit 1: Measuring Instruments

Unit 2: Marking Instruments

Unit 3: Comparators

Unit 4: Gauges

Books :

1. R.S. Khurmi & J.K. Gupta, A Text Book of workshop Technology, Edn.2, S.Chand & Co., New Delhi
2. Begeman, Manufacturing Process, Edn.-5, TMC, New Delhi.

SUBJECT: Fluid Mechanics

BLOCK 1 Properties of Fluids

Unit 1: Basic Definition

Unit 2: Pressure measurement

Unit 3: Mechanical Gauges

Unit 4: Diaphragm Pressure gauge



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BLOCK 2 Flow of Fluids

Unit 1: Type of Fluids

Unit 2: Bernoulli's Theorem

Unit 3: Orifice Meter

Unit 4: Venturi Meter

BLOCK 3 Jets and Pumps

Unit 1: Impact of Jets

Unit 2: Turbine

Unit 3: Types Turbines

Unit 4: Pumps

BLOCK 4 Pneumatic Systems

Unit 1: Basics of Pneumatic systems

Unit 2: Flow Control Valve

Unit 3: FRL Unit

Unit 4: Application of Pneumatic Systems

BLOCK 5 Hydraulic Systems

Unit 1: Basics of Hydraulic Systems

Unit 2: Accumulator



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Unit 3: Fluid Power Pump

Unit 4: Application of Hydraulic Systems

Books :

1. .S. Khurmi, A Text Book of Hydraulics, Fluid Mechanics, S.Chand & Co, New Delhi
- 1R.K.Rajput, A Text Book of Hydraulics

SUBJECT: Machine Drawing

BLOCK 1 Section Views

Unit 1: Need Sectioning

Unit 2: Hatching

Unit 3: Half Sectioning and full sectioning

Unit 4: Removed and offset sections

BLOCK 2 Limits, Fits and Tolerances

Unit 1: Basic Definitions

Unit 2: Limits

Unit 3: Fits

Unit 4: Tolerances

BLOCK 3 Keys and Surface finish



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Syllabus: Diploma in Mechanical Engineering

Unit 1: Basic Definitions

Unit 2: Types of Keys

Unit 3: Design of shaft and keys

Unit 4: Indication of surface roughness

BLOCK 4 Threads and Fasteners

Unit 1: Basic Definition

Unit 2: Types of Threads

Unit 3: Types of Bolts and nuts

Unit 4: Types of Rivets

BLOCK 5 CAD Drawings

Unit 1: AutoCAD Theory

Unit 2: Sleeve and Cotter Joint

Unit 3: Machine Vice

Unit 4: Screw Jack

Books :

1. N.D.Bhatt, Machine Drawing, Edn.37, Charotar Publishing House
R.C.Parkinson, Engineering Drawing Published by English University Press, London



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SUBJECT: Engineering Mechanics Lab

Laboratory Experiments :

1. Test on Ductile Materials
2. Hardness Test
3. Torsion test
4. Bending and deflection tests
5. Impact test
6. Tests on springs of circular section
7. Shear test
8. Verifying the Bernoulli's Theorem
9. Determination of Coefficient of discharge of a Venturimeter
10. Determination of Coefficient of discharge of a Orificemeter
11. Performance test on a reciprocating pump
12. Performance test on a centrifugal pump
13. Performance test on an impulse turbine
14. Performance test on a reaction turbine

SUBJECT: Workshop –I



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Smithy :

Exercises:

1. Round rod to hexagonal rod
2. Round rod to square rod
3. Round rod to square headed bolt
4. Round rod to 'S' Shape
5. Round rod to flat with 25mm

Foundry :

Exercises:

Preparation of sand mould:

6. Solid pattern
 - a. Stepped Pulley
 - b. Bearing top
 - c. Gear Wheel
 - d. T-pipe
7. Split pattern



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- a. Bent Pipe
- b. Dumbles
- 8. Loose Piece Pattern- Dowtail
- 9. Cylindrical core making
- 10. Melting and casting

Welding :

Exercises:

- 11. Arc welding
 - a. Lap joint (Material: 25mm x 3mm Ms Flat)
 - b. Butt joint (Material: 25mm x 6mm Ms Flat)
 - c. T-joint (Material: 25mm x 3mm Ms Flat)
 - d. Corner joint (Material: 25mm x 3mm Ms Flat)
- 12. Gas Welding
 - a. Lap joint (Material: 25mm x 3mm Ms Flat)
 - b. Butt Joint (Material: 25mm x 6mm Ms Flat)
- 13. Gas cutting: Profile cutting.
- 14. Spot welding-Lap joint(18/20swg)
- 15. Demonstration of Soldering and brazing



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SEMESTER : IV

SUBJECT: Thermodynamics

BLOCK 1 Thermodynamics and Expansion of Gases

Unit 1: Basic Definitions

Unit 2: Steam Properties

Unit 3: Gas Properties

Unit 4: Law of Perfect Gases

BLOCK 2 Steady flow energy equation and Air Cycles

Unit 1: Steady flow system

Unit 2: Steam Boilers

Unit 3: Air Cycles

Unit 4: P-V Diagram

BLOCK 3 Internal Combustion engines

Unit 1: Diesel Engines

Unit 2: Petrol Engines

Unit 3: Ignition Systems

Unit 4: Lubrication Systems



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BLOCK 4 Fuels & Performance of I.C.Engines

Unit 1: Classification of fuels

Unit 2: Performance of IC Engines

Unit 3: Break power calculation

Unit 4: Morse test

BLOCK 5 Air Compressors

Unit 1: Basic Definition

Unit 2: Types of Compressor

Unit 3: Working Principle of Compressor

Unit 4: Problems

Books :

1. R.S.Khurmi and J.K. Gupta, Thermal Engineering, Edn. 18, published by S.Chand & Co
2. P.K.Nag, Applied Thermodynamics, Edn.24, TMC, New Delhi.

SUBJECT: Manufacturing Technology

BLOCK 1 Planer, Shaper and Slotter

Unit 1: Planer

Unit 2: Shaper



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Unit 3: Slotter

Unit 4: Jig and fixtures

BLOCK 2 Drilling Machines and Milling Machines

Unit 1: Types of Drilling Machines

Unit 2: Types of Drilling Operations

Unit 3: Types of Milling Machines

Unit 4: Types of Milling Operations

BLOCK 3 Grinding, Broaching & Boring

Unit 1: Types of Grinding Machines

Unit 2: Principle and Operation of Grinding Machines

Unit 3: Broaching

Unit 4: Boring

BLOCK 4 Gear Manufacturing

Unit 1: Gear Manufacturing in Milling operation

Unit 2: Gear Manufacturing in Shaping operation

Unit 3: Milling Procedure for Spur Gear

Unit 4: Milling Procedure for Helical & bevel gears



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Syllabus: Diploma in Mechanical Engineering

BLOCK 5 Jigs and Fixtures and Press works

Unit 1: Jigs

Unit 2: Fixtures

Unit 3: Mechanical Press

Unit 4: Hydraulic Press

Books :

1. Hajra Choudry & Battacharya, Elements of Workshop Technology-Vol-I & II, Edn. 11, Mumbai.
2. Jain & Gupta, Production Technology, Khanna Publishers, New Delhi.

SUBJECT: Electrical & Electronics Engineering

BLOCK 1 DC Circuits and Batteries

Unit 1: Basic Laws

Unit 2: Series, Parallel connections

Unit 3: Batteries

Unit 4: Types of Batteries

BLOCK 2 DC Machines

Unit 1: DC Generator

Unit 2: DC Motors

Unit 3: Types of Starters

Unit 4: Applications of DC Machines



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Syllabus: Diploma in Mechanical Engineering

BLOCK 3 AC Machines

Unit 1: Transformers

Unit 2: AC Motors

Unit 3: Types of Starters

Unit 4: Applications of AC Motors

BLOCK 4 Electronic Devices

Unit 1: Semi Conductor Theory

Unit 2: Diode

Unit 3: Transistor

Unit 4: Thyristors

BLOCK 5 Electrical Safety

Unit 1: Earthing

Unit 2: Types of Earthing

Unit 3: Electric Shock

Unit 4: Safety precautions

Books :



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1. B.L. Theraja, Fundamentals of Electrical and Electronics Engineering, S.Chand & Co.
2. T.Thiyagarajan, Fundamentals of Electrical and Electronics Engineering, Scitech Publications.

SUBJECT: Refrigeration and Air Conditioning

BLOCK 1 Refrigeration System & refrigeration equipments

Unit 1: Basic Definition

Unit 2: Refrigeration Systems

Unit 3: Refrigeration Equipments

Unit 4: Problems

BLOCK 2 Vapour Compression and Absorption Systems

Unit 1: Vapour Compression Systems

Unit 2: Heat Exchangers

Unit 3: Vapour Absorption Refrigeration System

Unit 4: Electrolux System

BLOCK 3 Refrigeration Flow Controls & Refrigerants

Unit 1: Refrigeration flow control

Unit 2: Refrigerants

Unit 3: Lubricants

Unit 4: Applications of Refrigeration



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BLOCK 4 Psychrometry and Comport Air conditioning

Unit 1: Basic Definitions

Unit 2: Psychometric Processes

Unit 3: Enthalpy calculation

Unit 4: Problems

BLOCK 5 Air Conditioning Systems and Cooling load calculations

Unit 1: Air Conditioning Systems

Unit 2: Fan and Blowers

Unit 3: Insulating Materials

Unit 4: Cooling load calculations

Books :

1. P.L.Ballaney, Refrigeration and Air Conditioning, Khanna Publishers, New Delhi.
2. V.K.Jain, Refrigeration and air conditioning.

SUBJECT: Thermodynamics Lab

Laboratory Experiments :



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1. Determining flash and fire points of the given oil using open cup apparatus.
2. Determining flash and fire points of the given oil using close cup apparatus.
3. Determining the absolute viscosity of the given lubricating oil using Redwood viscometer.
4. Determining the absolute viscosity of the given lubricating oil using Saybolt viscometer.
5. Valve timing diagram of four-stroke cycle petrol engine.
6. Valve timing diagram of four-stroke cycle diesel engine.
7. Port timing diagram of two-stroke cycle petrol engine.
8. Load test (Performance Test) on petrol engine.
9. Load test (Performance Test) on diesel engine.
10. Morse test on multicylinder petrol engine.
11. Heat balance sheet on I.C engine.
12. Emission test for petrol / diesel engine.
13. Volumetric efficiency of air compressor.



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SUBJECT: Workshop –II

1. Introduction of safety in operating machines.
2. Introduction to lathe, drilling machine & shaping machine and its parts.
3. Introduction to work holding devices and tool holding devices.
4. Types of tools used in lathe work, drilling & shaping.
5. Types of measuring instruments and their uses.
6. Setting of work and tools.
7. Operation of lathe, drilling & shaping.
8. Practice on a lathe, drilling and shaping machine

Note: The dimensions may be modified according to the materials specified.

Enclosure: Sketches of Lathe, drilling & shaping Exercises.



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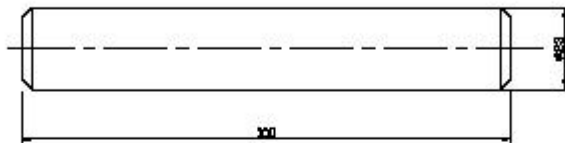
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Syllabus: Diploma in Mechanical Engineering

LATHE

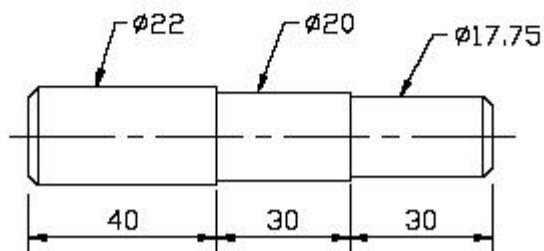
1.0 LATHE

EX.NO.1 PLAIN TURNING



MATERIAL M.S. OF SIZE DIA
25X105mm.

EX.NO.2 STEP TURNING





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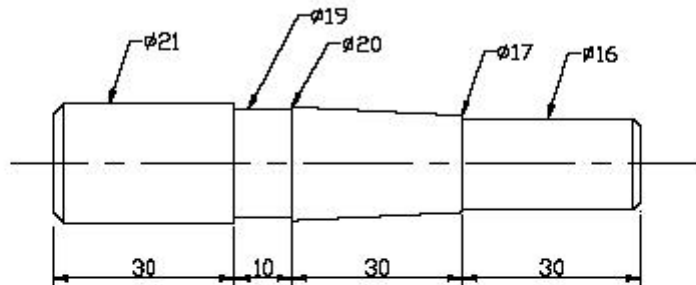
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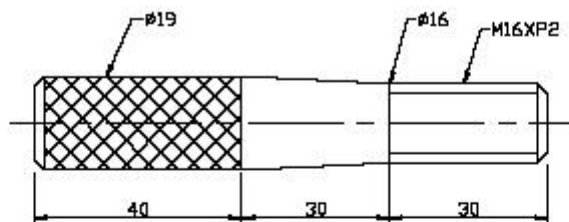
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EX.NO.3 TAPER TURNING

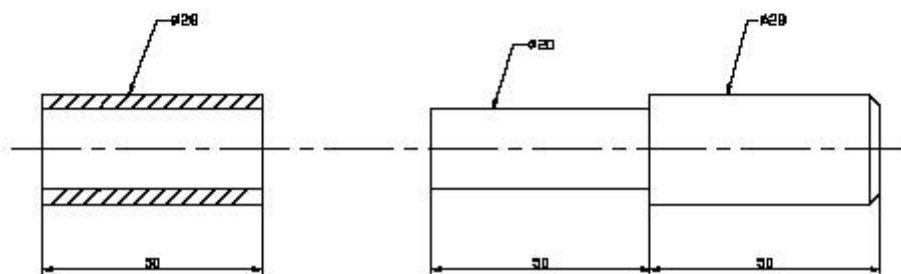


EX.NO.4 THREAD CUTTING AND KNURLING



EX.NO.5

BUSHING





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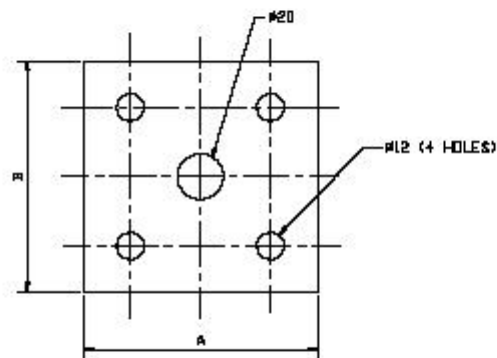
Syllabus: Diploma in Mechanical Engineering

DRILLING

2.0 DRILLING

EX.NO.1

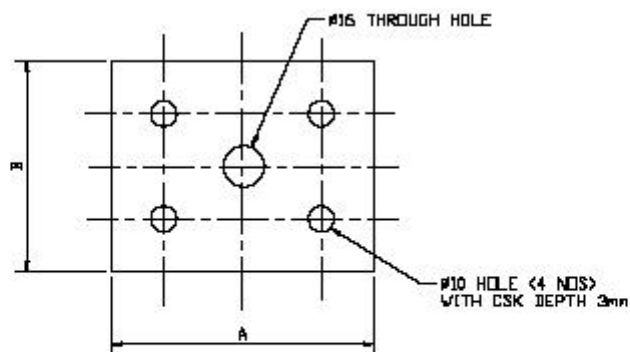
THROUGH HOLE DRILLING



MATERIAL M.S. OF SIZE 75X50X6mm.

EX.NO.2

THROUGH HOLE DRILLING WITH COUNTER SUNK



MATERIAL M.S. OF SIZE 75X50X6mm.



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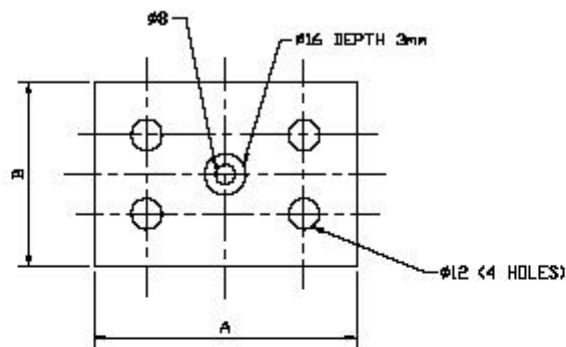
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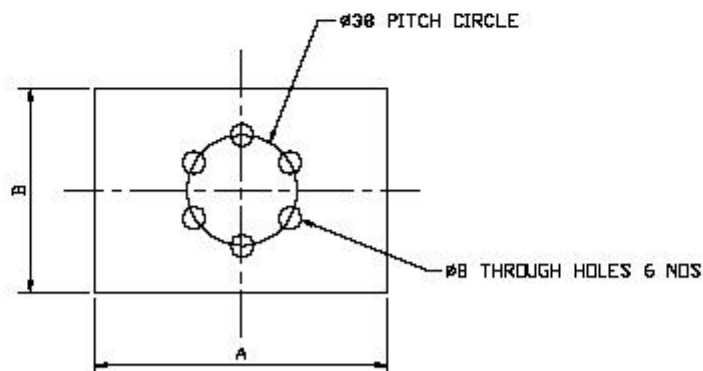
Syllabus: Diploma in Mechanical Engineering

EX.NO.3 PART DRILLING



MATERIAL:M.S. OF SIZE 75X50X6mm.

EX.NO.4 THROUGH HOLE DRILLING (ON PITCH CIRCLE)



MATERIAL:M.S. OF SIZE 75X50X6mm.



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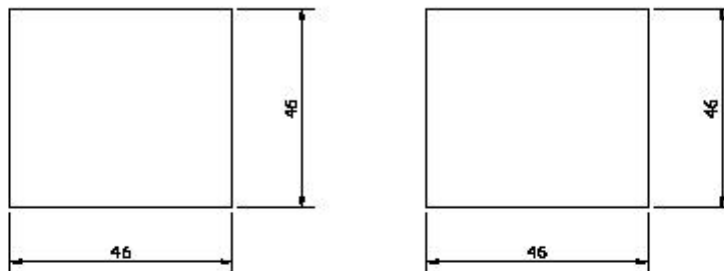
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SHAPING

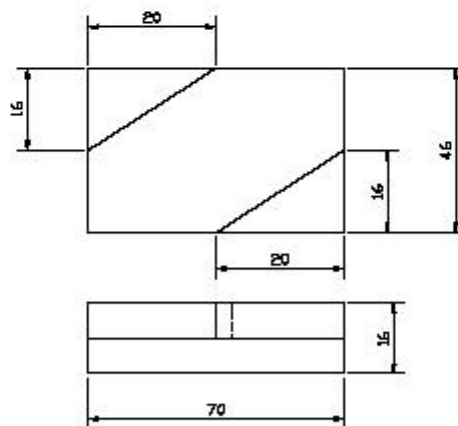
3.0 SHAPING

EX.NO.1 MACHINING FLAT SURFACE USING A SHAPER



MATERIAL: C.I. OF SIZE 50X50X50mm.

EX.NO.2 CROSS CUT MACHINING USING SHAPER



MATERIAL: C.I. OF SIZE 75X50X20mm.



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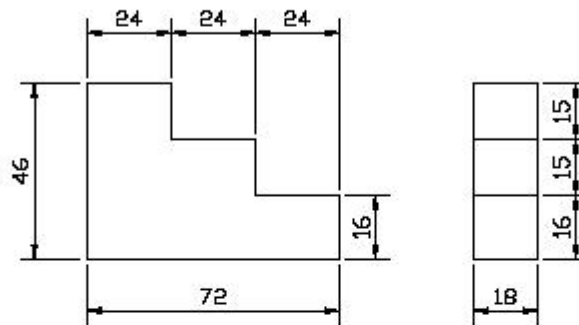
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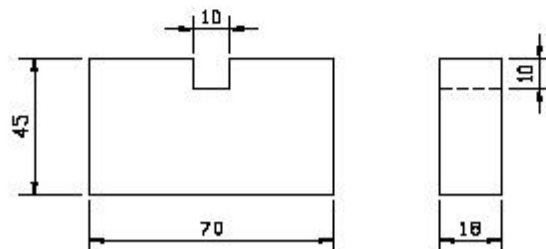
Syllabus: Diploma in Mechanical Engineering

EX.NO.3 MACHINING A STEPPED BLOCK



MATERIAL: C.I. OF SIZE 75X50X20mm.

EX.NO.4 SLOTTING USING A SHAPER



MATERIAL: C.I. OF SIZE 75X50X20mm.



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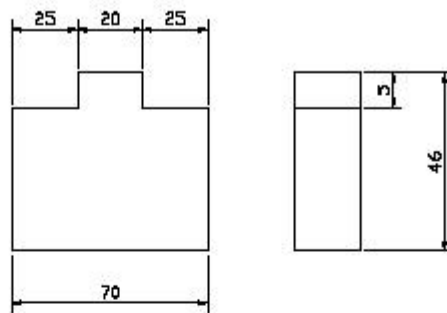
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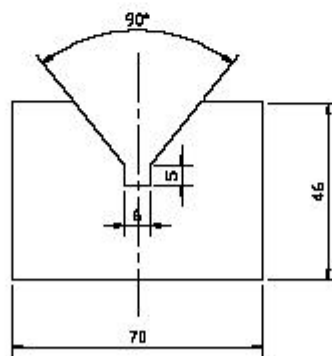
Syllabus: Diploma in Mechanical Engineering

EX.NO.5 SHAPING INVERTED 'T' BLOCK



MATERIAL C.I. OF SIZE 75X50X20mm.

EX.NO.6 SHAPING A 'V' BLOCK



MATERIAL C.I. OF SIZE 75X50X20mm.



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SEMESTER - V

SUBJECT: Design of Machine Elements

BLOCK 1 Design of shafts

Unit 1: Selection of Materials

Unit 2: Design of shaft

Unit 3: Maximum bending movement

Unit 4: Twisting movement

BLOCK 2 Design of Bolt

Unit 1: Selection of Materials

Unit 2: Design of Bolt

Unit 3: Design of pin and key

Unit 4: Design of cotter joint and couplings

BLOCK 3 Design of Belts

Unit 1: Selection of Materials

Unit 2: Design of flat belts

Unit 3: Design of V belts



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Unit 4: Power Design of V-belt drives

BLOCK 4 Design of Bearings

Unit 1: Selection of Materials

Unit 2: Design of ball and radial bearing

Unit 3: Design of roller bearing

Unit 4: Design of Cylindrical bearing

BLOCK 5 Design of Levers and gears

Unit 1: Selection of Materials

Unit 2: Design of Levers

Unit 3: Design of gears

Unit 4: Design of spur gears

Books :

1. Pandya & Shah, Machine Design, Edn. 1995 Charotar Publishing House.
2. R.S.Khurmi & J K Gupta, A text book of machine design, Edn. 18, New Delhi.

SUBJECT: Thermal Engineering

BLOCK 1 Steam and Expansions of steam



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Unit 1: Basic definitions

Unit 2: Enthalpy and Entropy

Unit 3: Types of Steam

Unit 4: Problems using mollier chart

BLOCK 2 Steam Boilers and Performance of Boilers

Unit 1: Classification of Boilers

Unit 2: Boilers mounting and accessories

Unit 3: Performance of Boilers

Unit 4: Problems

BLOCK 3 Thermal Power Plant

Unit 1: Layout of thermal power plant

Unit 2: Pollution effects in thermal power plant

Unit 3: Steam turbine

Unit 4: Problems

BLOCK 4 Nuclear Power Plant

Unit 1: Layout of Nuclear power plant

Unit 2: Nuclear fuels

Unit 3: Moderator

Unit 4: Safety precautions in Nuclear Power Plant



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Syllabus: Diploma in Mechanical Engineering

BLOCK 5 Energy Engineering and Management

Unit 1: Basic Definitions

Unit 2: Energy Engineering

Unit 3: Conventional sources

Unit 4: Non-conventional sources

Books :

1. R.K.Rajput, Thermal Engineering
2. R.S.Khurmi & J K Gupta, Thermal Engineering, Edn. 18, New Delhi.

SUBJECT: Metrology

BLOCK 1 Standards of measurements

Unit 1: Introduction to Metrology

Unit 2: Objectives of Metrology

Unit 3: Classification of standards

Unit 4: Classification of measuring instruments



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BLOCK 2 Linear and Angular Measurements

Unit 1: Vernier Calipers and gauges

Unit 2: Bevel Protectors

Unit 3: Sine bar

Unit 4: Taper measurement

BLOCK 3 Measurement of threads and gears

Unit 1: Screw thread gauges

Unit 2: Gear tooth vernier

Unit 3: Measurement of tooth profile

Unit 4: Alignment of gears

BLOCK 4 Measurement of Surface finish

Unit 1: BIS Methods of Measuring surface finish

Unit 2: Comparison methods of surface finish

Unit 3: Inspection

Unit 4: Surface Photographs

BLOCK 5 Comparators

Unit 1: Types Comparators

Unit 2: Mechanical Comparators



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Syllabus: Diploma in Mechanical Engineering

Unit 3: Electrical Comparators

Unit 4: Electronics Comparators

Books :

1. R.K.Rajput, Engineering Metrology & Instrumentation, 4th Edition 2004, S.K. Kataria & Sons, New Delhi.
2. M.Mahajan, Engineering Metrology, 2005, Dhanpatrai & Co, New Delhi.

SUBJECT: Mechatronics

BLOCK 1 Introduction, sensors & transducers

Unit 1: Introduction to Mechatronics

Unit 2: Control Systems

Unit 3: Displacement, position & Proximity Sensors

Unit 4: Velocity and Motion Sensors

BLOCK 2 Actuation Systems

Unit 1: Mechanical Actuation Systems

Unit 2: Electrical Actuation Systems

Unit 3: Pneumatic Actuation Systems

Unit 4: Hydraulic Actuation Systems



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BLOCK 3 Basic System Models, I/O systems

Unit 1: Mathematical Model

Unit 2: Mechanical and Electrical systems building blocks

Unit 3: Hydro and pneumatic Systems building blocks

Unit 4: Interfacing I/O ports

BLOCK 4 Programmable Logic Controller

Unit 1: Basic Block diagram and Structure of PLC

Unit 2: I/O processing

Unit 3: Ladder diagram

Unit 4: Selection PLC

BLOCK 5 Design Examples

Unit 1: Design Process stages

Unit 2: Traditional Vs Mechatronics designs

Unit 3: Case studies of Car Park barrier

Unit 4: Case studies of Automatic washing machine

Books :

1. R.K.Rajput, A Text Book of Mechatronics, 1st Edn. 2007, S.Chand & co
HMT, Mechatronics, 1st Edition 1998, TMC, New Delhi.



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SUBJECT: Metrology Lab

I. Linear Measurements:

1. Determination of the thickness of ground MS flat to an accuracy of 0.02mm using vernier caliper.
2. Determination of the diameter and length of a turned cylindrical (turned in lab exercise) to an accuracy of 0.02mm using vernier caliper.
3. Determination of the inside diameter of a bush component to an accuracy of 0.02 using vernier caliper.
4. Determination of diameter of a cylindrical component to an accuracy of 0.01mm using micrometer and check the result with digital micrometer
5. Determination of inside diameter of the bore of a bush cylindrical component to an accuracy of 0.01mm using inside micrometer.
6. Determine the heights of gauge blocks or parallel bars to accuracy of 0.02mm using vernier height gauge and check the result with digital vernier height gauge.
7. Determine the depth of a blind bore component to an accuracy of 0.02mm using vernier depth gauge.
8. Determine the thickness of ground MS plates using slip gauges



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I. Angular Measurements:

9. Determination of angle of v-blocks, dovetails in mechanical components using universal bevel protractor.
10. Determination of angle of machined surfaces of components using sine bar with slip gauges.
11. Measurement of V-Thread dimensions.
12. Measurement of spur gear tooth dimensions.

SUBJECT: Workshop- III

1. Introduction to planning machine and its parts.
2. Introduction to slotting machine and its parts.
3. Introduction to milling machine and its parts.
4. Introduction to grinding machine and its parts.



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5. Introduction to turret and capstan lathe.
6. Introduction to work holding devices.
7. Types of tools used in planning and slotting machines.
8. Types of cutter used in milling machine.
9. Types of grinding wheels used in grinding machines.
10. Types of tools used in turret and capstan lathes.
11. Setting of work, tools and cutters in planning, slotting, milling and grinding machines.
12. Operation performed in planning, slotting, milling and grinding machines.
13. Operation of planning, slotting, milling, grinding, capstan and turret machines.

Enclosure : Sketches for Exercises



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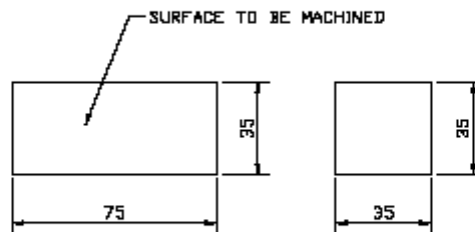
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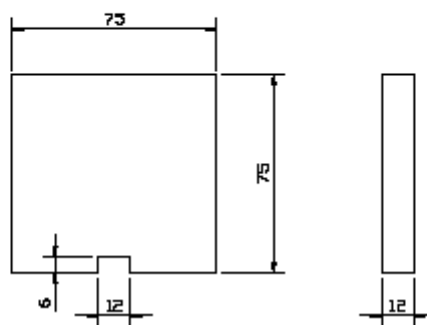
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Syllabus: Diploma in Mechanical Engineering

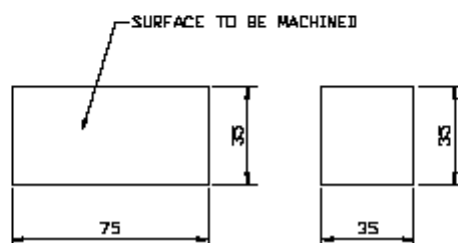
1. STUDY OF PLANNING MACHINE AND MACHINE A FLAT SURFACE



2. STUDY OF SLOTTING MACHINE AND MACHINE A SIMPLE SLOT



3. STUDY OF MILLING MACHINE AND MACHINE A PLANE SURFACE USING PLAIN MILLING CUTTER





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Syllabus: Diploma in Mechanical Engineering



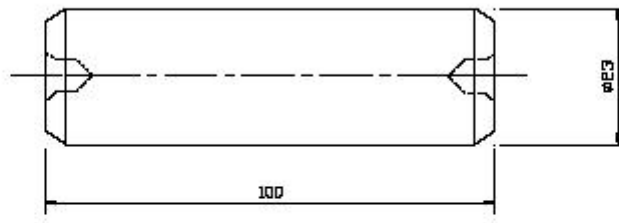
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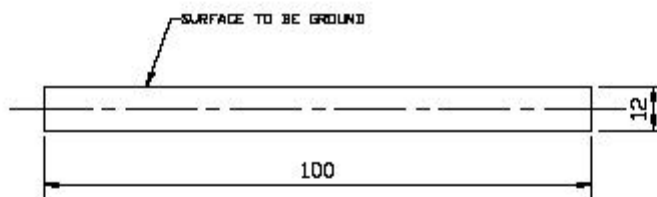
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Syllabus: Diploma in Mechanical Engineering

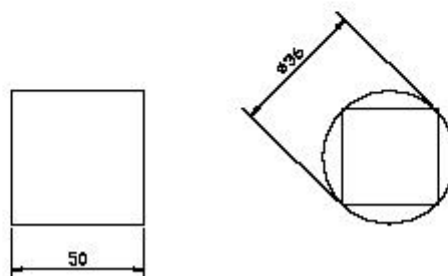
4. STUDY OF CYLINDRICAL GRINDER AND GRIND A CYLINDER



5. STUDY OF SURFACE GRINDER AND GRIND A PLANE SURFACE



6. PLANNING A SQUARE - CAST IRON 50mmX50mm



MATERIAL: φ36mmX50mm M.S. ROUND ROD



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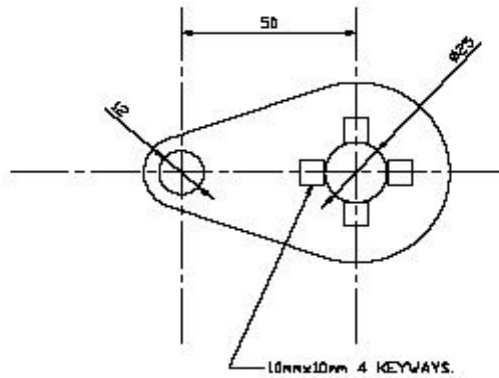
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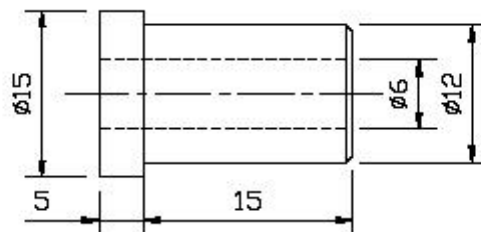
Syllabus: Diploma in Mechanical Engineering

7. SLOTTING:

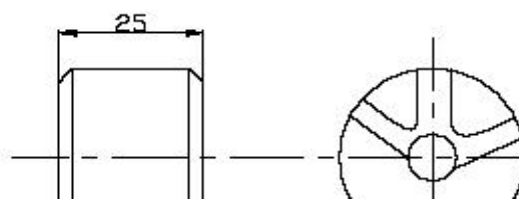
DRILLING HOLES IN RADIAL DRILLING MACHINE. MAKING INTERNAL KEYWAY AND MACHINING AN EXTERNAL PROFILE.



7.b. BUSH TURNING



8. GEAR CUTTING IN MILLING MACHINE





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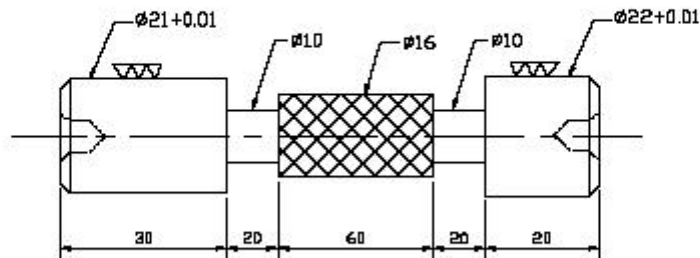
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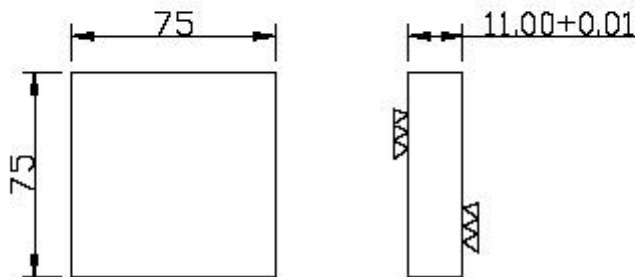
Syllabus: Diploma in Mechanical Engineering

9. GRINDING A CYLINDER IN CYLINDRICAL GRINDING MACHINE



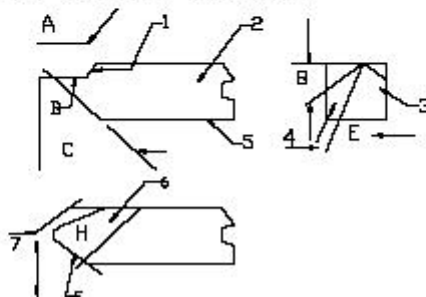
MATERIAL: $\phi 25 \times 100$ mm M.S ROUND ROD

10. GRINDING A FLAT SURFACE IN SURFACE GRINDER



MATERIAL: 75X75X12mm

11. GRINDING A SINGLE POINT CUTTING TOOL IN TOOL AND CUTTER GRINDER





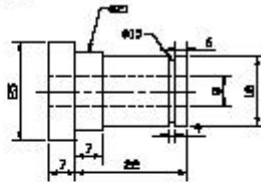
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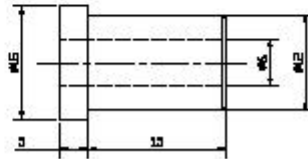
(ISO 9001 - 2000 Internationally Certified Institute)

Syllabus: Diploma in Mechanical Engineering

12. STEP TURNING AND DRILLING



13. BUSH TURNING



SUBJECT: Principles of Management

BLOCK 1

INTRODUCTION TO MANAGEMENT:- What is Management; Management as science, an art and profession; Objectives; Functions; nature of management?

ROLE OF A MANAGER:- Role of a manager; Qualities of a Professional Manager; Tasks of a manager; Managing the technology and other resources

BLOCK 2

PLANNING:- Need for Planning; Types of Planning and the Elements of Planning.



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Syllabus: Diploma in Mechanical Engineering

MANAGERIAL DECISION MAKING:- Introduction; Definitions of Decision Making; Kinds of Decisions; Decisions making styles; Components of Decision Making; Decision Making Procedure; Approaches to Decision Making; Some Decision Making Strategies

BLOCK 3

ORGANIZING:- Organizational Structure; Organizational Design; Different Types of Organizational Design; Common Organizational Designs.

CONTROLLING:- Controlling Concepts; **Characteristics of the Control Process; Management Control Strategies; Designing Effective Control Systems**

BLOCK 4

FEED BACK SYSTEM:- Dysfunctional Consequences of Control; Feed forward control; Concurrent control; Feedback control; Steps in the Control Process

STAFFING:- Staffing; Human Resource Management; HR Planning; Recruitment; Recruitment Need; Selection

MOTIVATION:- Motivation and its Theories

BOOKS AND REFERENCES:

1. Robbins & Judge; "Organisational Behaviour"; PHI 12th Edition.
2. Aswathappa; "Organisational Behaviour"; HPH Edition 2007.
3. Ramasamy; "Principles of Management"; HPH Edition 2008
Hatch; "Organizational Theory"; Oxford University Press; 2nd Edition.

SEMESTER - VI



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Syllabus: Diploma in Mechanical Engineering

SUBJECT: Industrial Engineering and Management

BLOCK 1 Plant Engineering and Plant Safety

Unit 1: Plant Layout

Unit 2: Plant Maintenance

Unit 3: Plant Safety

Unit 4: Plant Safety rules

BLOCK 2 Work study, Method study and work Measurement

Unit 1: Work study

Unit 2: Method study

Unit 3: String and flow diagram

Unit 4: Work Measurement

BLOCK 3 Production Planning and Quality Control

Unit 1: Production Planning

Unit 2: Critical Path Method

Unit 3: Quality Control

Unit 4: Types of measurements

BLOCK 4 Principles of Management and Personnel Management

Unit 1: Administration and Organisation



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Syllabus: Diploma in Mechanical Engineering

Unit 2: Leadership and Motivation

Unit 3: Total Quality Management

Unit 4: Personnel Management

BLOCK 5 Financial Management and Material Management

Unit 1: Fixed and Working capital

Unit 2: Equity shares

Unit 3: Depreciation

Unit 4: Material Management

Books :

1. O.P.Khanna, Industrial Engineering and Management, Rev. Edition-2004, Dhanpat Rai Publications (P)Ltd, New Delhi.
2. Joseph L.Masse, Essentials of Management, 4th Edition, Prentice Hall of India, New Delhi.

SUBJECT: CAD/CAM

BLOCK 1 Computer Aided Design

Unit 1: CAD Definition

Unit 2: I/O Devices

Unit 3: Memory



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Syllabus: Diploma in Mechanical Engineering

Unit 4: Types of CAD systems

BLOCK 2 Computer Aided Manufacturing

Unit 1: CAM Definition

Unit 2: Integrated CAD/CAM Organisation

Unit 3: Master Production schedule

Unit 4: Product Development cycle

BLOCK 3 CNC Machines

Unit 1: Numerical Control

Unit 2: NC, CNC and adaptive control systems

Unit 3: Types of CNC Machines

Unit 4: CNC EDA Machines

BLOCK 4 CNC components and Part programming

Unit 1: Drives

Unit 2: Actuating systems

Unit 3: CNC programming procedures

Unit 4: CAD Models

BLOCK 5 GT – FMS – CIM –AGV and Robotic



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Syllabus: Diploma in Mechanical Engineering

Unit 1: FMS

Unit 2: CIM

Unit 3: AGV

Unit 4: Robotic

Books :

1. CAD/CAM/CIM, R.Radhakrishnan, S.Subramanian, V.Raju, 2nd, 2003, New Age International Pvt Ltd..
2. CAD/CAM, Mikell P.Groover, Emory Zimmers Jr. Indian Reprint Oct 1993, Prantice Hall of India

SUBJECT: Automobile Technology

BLOCK 1 Automotive Engines

Unit 1: Basics Engine Component

Unit 2: Construction of Automotive Engines

Unit 3: Stages of Combustion

Unit 4: Cooling and Lubrication systems

BLOCK 2 Fuel and Fuel Feed Systems

Unit 1: Ideal Petrol

Unit 2: Natural Gas and Bio Gas

Unit 3: Layout of fuel feed system in petrol engine

Unit 4: Layout of fuel feed system in Diesel Engine



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Syllabus: Diploma in Mechanical Engineering

BLOCK 3 Transmission

Unit 1: Power Transmission Systems

Unit 2: Gear Box Construction

Unit 3: Shaft Construction

Unit 4: Differential Construction

BLOCK 4 Automotive Chassis

Unit 1: Front Axle

Unit 2: Steering System

Unit 3: Suspension System

Unit 4: Brake Systems

BLOCK 5 Automobile Electrical Equipment

Unit 1: Lead acid Battery

Unit 2: Starter Motor

Unit 3: Drive Mechanism

Unit 4: Ignition Systems

Books :



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Syllabus: Diploma in Mechanical Engineering

1. Automobile Transmission and Power Systems, William.H.Grouse.
2. Narang. G.B.S., "Automobile Engineering", Khanna Publishers, New Delhi.

SUBJECT: CAD/CAM lab

PART-1 CAD Practical

3D CAD Drawing – Solid Modeling & Lisp Programming

1. Predefined 3D objects – converting 2D plan into a 3D model – 3Dmesh – 3Dface - 3Dpoly -creating surfaces – Rulsurf – Revsurf – Tabsurf – Edgesurf – isolines -3DView – viewports –Vpoint – hide – dview – modelspace - paper space.
2. 3D solid primitives - creating region – pedit – extrude – revolve - combining object – union –subtract – intersect – Align – Fillet – chamfer - Advanced 3D editing techniques – align - 3D array–Mirror 3D - Rotate3D.
3. Working with UCS – 3D coordinate system – DDUCS – Plan – UCS icon
4. Solid Rendering – material attaching and detaching – shade with color – slice and sectioning –script – 3D orbit – calculating mass properties
5. Developing LISP program – constructing a list – input/output functions – control structures -arithmetic operations – trigonometric functions – special functions.



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Syllabus: Diploma in Mechanical Engineering

3D solid modeling and LISP programming practice

- i) Geneva Mechanism
- ii) Cast Iron Block
- iii) Bearing Block
- iv) Bushed Bearing
- v) Gib and Cotter joint
- vi) Screw Jack
- vii) Universal Coupling

Part-2 CAM Practical

Exercise practice

CNC Lathe

1. Develop a part program for step turning and simulate
2. Develop a part program for taper turning and simulate
3. Develop a part program for circular interpolation and simulate
4. Develop a part program for multiple turning operation and simulate
5. Develop a part program for thread cutting, grooving and simulate
6. Develop a part program for internal drills, boring and simulate

CNC Milling

- 7 Develop a part program for grooving and simulate



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8. Develop a part program for drilling (canned cycle) and simulate
9. Develop a part program for mirroring with subroutines and simulate
10. Develop a part program for rectangular and circular pocketing and simulate

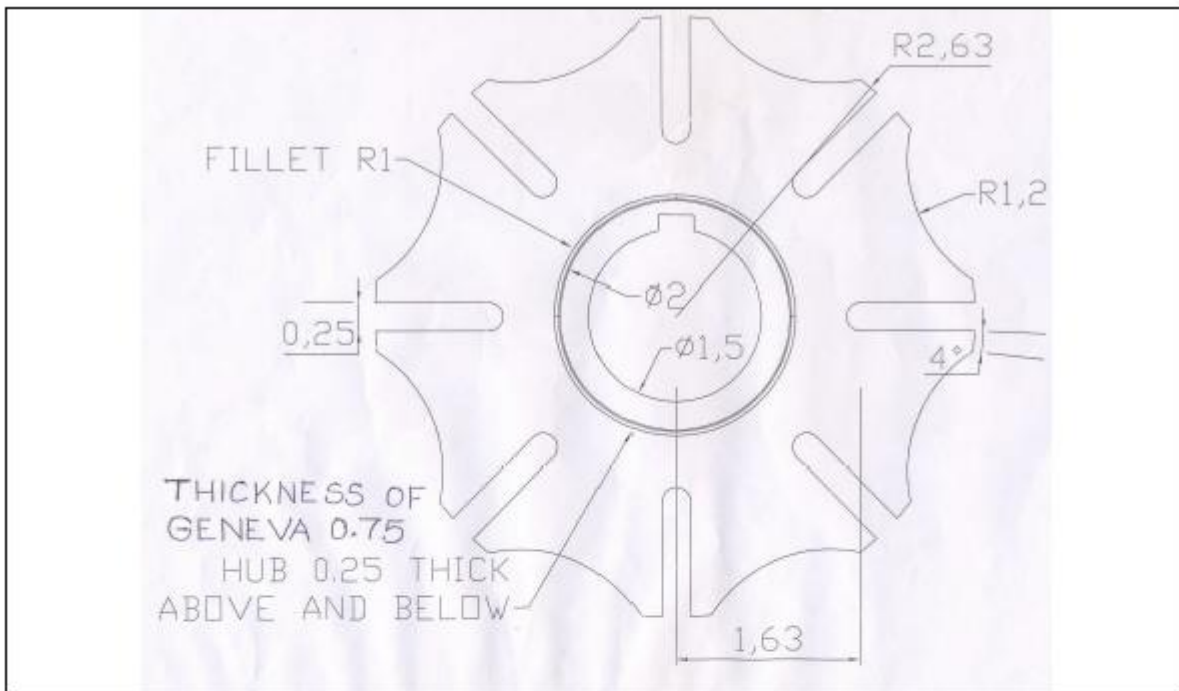


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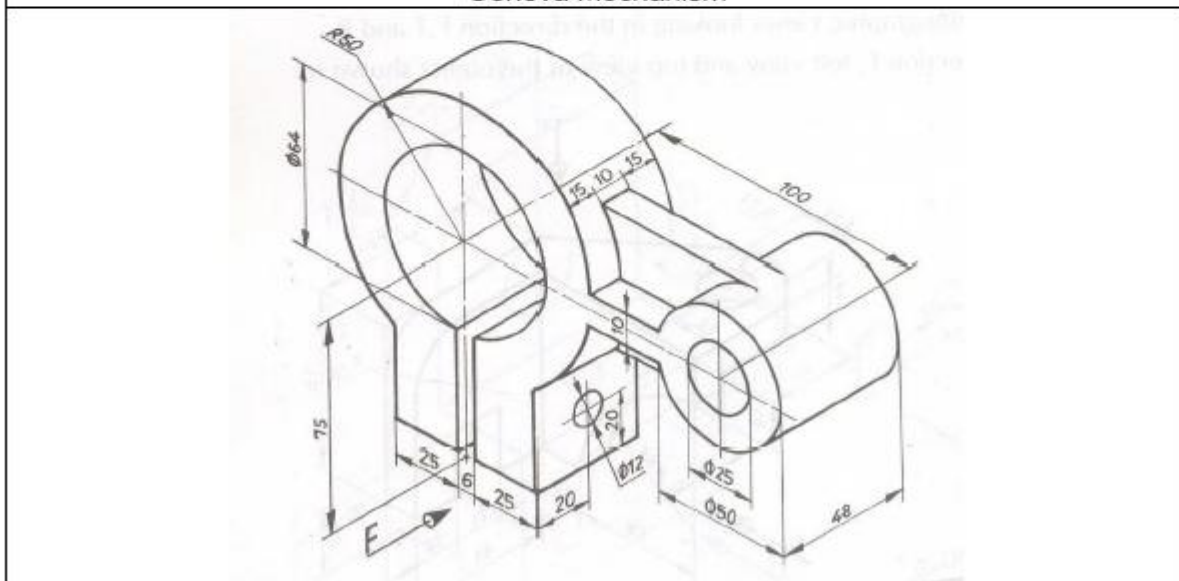
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Geneva Mechanism



Cast iron Block



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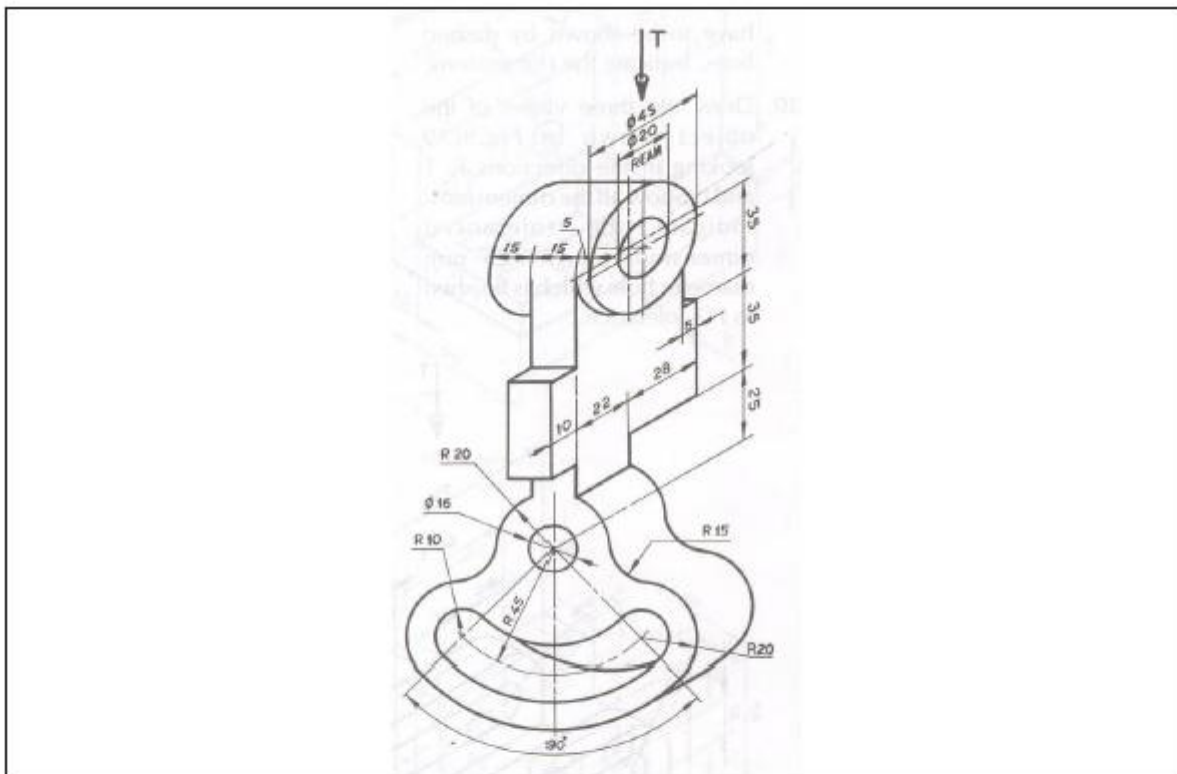


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Bearing Block

3		SHAFT	Fe 410 W	1	
2		BUSH	BRASS	1	
1		BLOCK	CAST IRON	1	
ITEM NO	DRAWING NO	DESCRIPTION	MATERIAL	NO OFF	
DESIGN NO		UNLESS OTHERWISE STATED		NAME	DATE
DATE		DIMENSIONS IN MM		DESIGNED	
DRAWN		DIAFERS 1 x 45°		DRAWN	
CHECKED				CHECKED	
APPROVED				APPROVED	
A B C & COMPANY BANGALORE			STAMPED		
			APPROVED		



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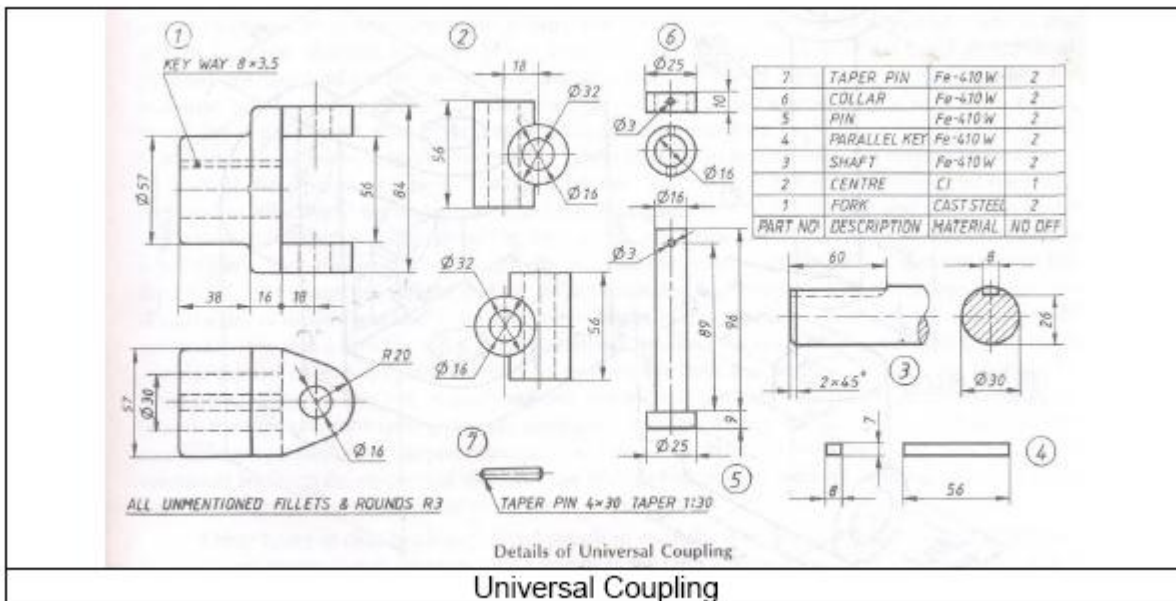


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CAM Practicals – Lathe	
<p>STEP TURNING</p>	<p>MULTIPLE TURNING CYCLE</p>
<p>TAPER TURNING</p>	<p>THREADCUTTING & GROOVING</p>
<p>CIRCULAR INTERPOLATION</p>	<p>INTERNAL DRILLS & BORES</p>



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CAM Practical - Milling

<p>GROOVING</p>	<p>MIRRORING WITH SUBROUTINES</p>
<p>DRILLING</p>	<p>RECTANGULAR POCKETING & CIRCULAR POCKETING-POCKET DEPTH 3mm</p>



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SUBJECT: MARKETING MANAGEMENT

BLOCK 1

INTRODUCTION TO MARKETING:- Origin, Definitions and Evolution of Marketing, Concepts of Marketing - Traditional and Modern Concepts of Marketing, Distinction between Market and Marketing, Distinction between Marketing and Selling, Scope and Importance of Marketing.

MARKETING ENVIRONMENT:- Concept, Forces of Marketing Environment, Economic, Social, Political, Physical, Technological, Demographic, International Environment.

BLOCK 2

CONSUMER BEHAVIOUR:- Meaning of Consumer Behaviour, Need and Importance of Consumer Behaviour, Factors affecting Consumer Behaviour - economic factors, social and cultural factors, psychological factors, personal factors, distinction between Consumer and Customer

MARKET SEGMENTATION:- Concept, Basis for Market Segmentation, Benefits of Market Segmentation, Requires of sound Market Segmentation, Target Marketing, Product Positioning

BLOCK 3

MARKETING MIX:- Concept, Marketing Mix Elements - Product, Price, Place, Promotion, People, Process, Packaging

PRODUCT DECISIONS:- Concept of Product, Levels of Product, Product Mix Decisions, Product Line Decisions, Individual Product Decisions, Branding, Product Life-cycle - Stages and Strategies



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PRICING DECISIONS:- Meaning, Factors influencing Product Pricing Decisions, Methods of Pricing

BLOCK 4

PLACE DECISIONS:- Meaning, Channels of Distribution, Logistic Management.

PROMOTION DECISIONS:- Meaning, Steps in Promotion Mix, Elements of Promotion Mix - Advertising, Publicity, Sales Promotion, Personal Selling, Direct Marketing and Public Relations

MARKETING RESEARCH:- Meaning, Need and Scope of Marketing Research, Process of Marketing Research, Areas of Marketing Research.

Reference Books :

1. Marketing Management : Philip Kotler,
2. Marketing Management : Rajan Saxena,
3. Marketing Management : Joseph P.Guiltonan & Gordon W.Paul,
4. Marketing Management : V.S.Ramaswami & S.Namakumari.
5. Marketing (The Oxford Textbook) : Keith Blois.
6. Fundamentals of Marketing : Willian J.Stanton & Michael J.Etzal.
7. Marketing Management : Dr.K.N.Sontakki,
8. Marketing Management : Sherlekar.

Project work