



**Deenbandhu Chhotu Ram
University Of Science And
Technology, Haryana B.E./B.Tech
CSE Sem 1 syllabus**

Manufacturing Processes

ME 101B MANUFACTURING PROCESSES

UNIT-I

Introduction: Introduction to Manufacturing Processes and their Classification, automation in manufacturing, Industrial Safety; Introduction, Types of Accidents, Causes and Common Sources of Accidents, Methods of Safety, Electric Safety Measures, First Aid. Plant Layout, Principles of Plant Layout, Objectives of Layout, Types of Plant and shop layouts and their Advantages.

UNIT-II

Engineering Materials: General Properties and Applications of Engineering Materials, Mild Steel, Medium Carbon Steel, High Carbon Steel, High Speed Steel and Cast Iron, Non-Ferrous Materials, Shop's Tools Materials, Super Alloys or High Temperature Materials

Foundry: Introduction to Casting Processes, Basic Steps in Casting Process, Pattern, Types of Patterns, Pattern allowances, Risers, Runners, Gates, Molding Sand and its composition, Sand Preparation, Molding Methods, Core Sands and Core Making, Core Assembly, Mold Assembly, Melting (Cupola) and Pouring, Fettling, Casting Defects and Remedies. Testing of Castings

UNIT-III

Cold Working (Sheet Metal Work): Sheet Metal Operations, Measuring, Layout Marking, Shearing, Punching, Blanking, Piercing, Forming, Bending and Joining - Advantages and Limitations. Hot Working Processes: Introduction to Hot Working, Principles of Hot

Working Processes, Forging, Rolling, Extrusion, Wire Drawing.

Introduction to Machine Tools: Specifications and Uses of commonly used Machine Tools in a Workshop such as Lathe, Shaper, Planer, Milling, Drilling, Slotter, Introduction to Metal Cutting. Nomenclature of a Single Points Cutting Tool and Tool Wear, Mechanics of Chips Formation, Type of Chips, Use of Coolants in machining.

UNIT-IV

Welding: Introduction to Welding, Classification of Welding Processes, Gas Welding: Oxy- Acetylene Welding, Resistance Welding; Spot and Seam Welding, Arc Welding: Metal Arc, TIG & MIG Welding, Welding Defects and Remedies, Soldering & Brazing, Comparisons among Welding, Brazing and Soldering
Surface Finishing Processes, Introduction to Heat Treatment Processes, Estimating o Manufacturing Cost

Text Books:

1. Workshop Technology Vol. I & II - Hazra & Chaudhary, Asian Book Comp., New Delhi.
2. Process and Materials of Manufacture -- Lindberg, R.A. Prentice Hall of India, New Delhi.
3. Principles of Manufacturing Materials and Processes - Campbell, J.S.- McGraw- Hill.

Reference Books:

1. Manufacturing Science - Amitabha Ghosh & Ashok Kumar Malik, - East-West Press.
2. Manufacturing Process and Systems - Ostwald, Munoz , John Wiley.
3. Workshop Technology, Vol.1, 2 & 3 – Chapman, WAJ, Edward Arnold.

COMMUNICATIVE ENGLISH

HUM 101B COMMUNICATIVE ENGLISH

UNIT I Communicative Grammar:

- A) Spotting the errors pertaining to tenses, conditional sentences, Concord – grammatical concord, notional concord and the principle of proximity b/w subject and verb
- B) Voice, Reported Speech.

UNIT II Language through Literature:

Linguistic Reading of the following texts

- A) 'Kabuliwallah' by Rabindranath Tagore*
- B) 'Am I Blue?' by Alice Walker*
- C) 'If You are Wrong, Admit It' by Dale Carnegie*
- D) 'Engine Trouble' by R.K. Narayan*

The prescribed texts will be used as case studies for various components of the syllabus. * the Source is given in the list of Texts Books given below.

UNIT III Group Communication:

- A) Communication: concept, Process and Barriers
- B) Communicating using Standard Pronunciation with the help of IPA
- C) Formal Speaking with peers (e.g. discussion, talks on current issues in a class)

- B) Writing official letters on issues concerning students and social life
- C) Writing small reports on scientific issues, IT issues, University fests/programmes
- C) E-mail writing and writing for web

UNIT IV Communicative Creativity:

- A) Comprehension: Extracting, interpreting, summarizing, reviewing and analyzing the prescribed texts.
- B) Composition: Developing themes and situations through role play activities or dialogue writing.

TEXT BOOKS

1. Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. A Comprehensive Grammar of the English Language. London: Longman, 1989
2. Communicative English for Engineers and Professionals by Nitin Bhatnagar & Mamta Bhatnagar New Delhi: Pearson / Longman
3. Crystal, David. Rediscover Grammar. London: Longman/Pearson, 1988.
4. *Tagore, Rabinder. "Kabuliwallah" , Famous Indian Stories. Ed. M.G.Narsimha Murthy .Mumbai: Orient Blackswan, 2009. (Web source: www.angelfire.com)
5. * Walker, Alice. "Am I Blue" , An Anthology of Short Stories . Ed. Usha Bande .New Delhi: OUP , 2004. (Web source- www.old.li.scru.edu)
6. *Narayanan .K.R. "Engine Trouble", Contemporary English Prose

.Ed. K.P.K.Menon. New York: OUP,1976. (Web Source-
www.scribd.com)

7. *Carnegie, Dale. "If you are wrong admit it", An Anthology of
Modern Prose. Ed Manmohan K.Bhatnagar.Delhi :Macmillan India
Ltd,2006.

MATHEMATICS-I

MATH 101B MATHEMATICS - I

Credits 4

UNIT-I

Infinite series : Convergence and divergence, Comparison, D'
Alembert's ratio, Integral, Raabe's, Logarithmic and Cauchy root tests,
Alternating series, Absolute and conditional convergence.
Applications of Differentiation : Taylor's and Maclaurin's series,
Asymptotes, Curvature Asymptotes.

UNIT-II

Partial Differentiation & its Applications : Functions of two or
more variables; partial derivatives, Total differential and
differentiability, Derivatives of composite and implicit functions,
Jacobians, Higher order partial derivatives.
Homogeneous functions, Euler's theorem, Taylor's series for
functions of two variables (without proof), maxima-minima of function
of two variables, Lagrange's method of undetermined multipliers,
Differentiation under integral sign.

UNIT-III

Applications of Single & Multiple Integration : Applications of
single integration to find volume of solids and surface area of solids
of revolution. Double integral, change of order of integration, Double
integral in polar coordinates, Applications of double integral to find
area enclosed by plane curves and volume of solids of revolution.
Triple integral, volume of solids, change of variables, Beta and
gamma functions and relationship between them.

UNIT-IV

Vector Calculus : Differentiation of vectors, scalar and vector point

functions Gradient of a scalar field and directional derivative, divergence and curl of a vector field and their physical interpretations.

Integration of vectors, line integral, surface integral, volume integral, Green, Stoke's and Gauss theorems (without proof) and their simple applications.

TEXT BOOKS :

1. Advanced Engineering Mathematics : F. Kreyszig.
2. Higher Engineering Mathematics : B.S. Grewal.

REFERENCE BOOKS :

1. Engineering Mathematics Part-I : S.S. Sastry.
2. Differential and Integral Calculus : Piskunov.
3. Advanced Engineering Mathematics : R.K. Jain and S.R.K.Iyengar

ENGINEERING GRAPHICS AND DRAWING

ME 103 B ENGINEERING GRAPHICS AND DRAWING

UNIT I Basics of Engineering Graphics and Drawing – Drawing Papers, Minidrafter, Pencils. Drawing Paper Layout, Title Block, Types of Lines, Lettering, Dimensioning, types of Projections; First and Third Angle systems of Orthographic Projections. Projection of Points in different Quadrants. Projections of Straight Lines – Contained by both Reference Planes, Contained by one and inclined to other Reference Plane, Contained by one and Parallel to other Reference Plane, Parallel to both Reference Plane, Perpendicular to one of the Reference Planes, Inclined to one Plane but Parallel to the other Reference Planes, Inclined to both the Reference Planes, True Length of a Line and its Inclination with Reference Planes, Traces of a Line.

UNIT II Projections of Planes – Parallel to one Reference Plane, Inclined to one Plane but Perpendicular to the other, Inclined to both Reference Planes. Projections of Polyhedral Solids and Solids of Revolution- in simple positions with axis perpendicular to a Reference Plane, with axis parallel to both Reference Planes, with axis parallel to one Reference Plane and inclined to the other Reference Plane, Projections of sections of Prisms, Pyramids, Cylinders and Cones. True Shape of Sections of Solids.

UNIT III Development - Development of Surfaces of various Solids objects. Free Hand Sketching - Orthographic Views from Isometric,

Views of Simple Machine Components such as Brackets, Bearing Blocks, Guiding Blocks and Simple Couplings and Pipe Joints.

UNIT IV Isometric Projections - Introduction, Isometric Scale, Isometric Views and Drawing of various Plane and Solids objects. Perspective drawing and oblique view. graphic Drawings - Screw Threads, Bolts, Nuts and Washers, Bolted, Riveted and Welded Joints

Text Books:

1. Engineering Drawing: MB Shah and BC Rana, Pearsons
2. Engineering Graphics and Drafting: P.S. Gill, S.K. Kataria and Sons.

Reference Books:

1. A Text Book of Engineering Drawing: RK Dhawan, S Chand & Company
2. Engineering Drawing Plane and Solid Geometry : N.D. Bhatt, Charotar Publishing House.

PRINCIPLES OF ELECTRICAL ENGINEERING

EE 101B PRINCIPLES OF ELECTRICAL ENGINEERING

Credits 4

UNIT-1

D.C. Circuit Analysis: Basic concepts of electric circuits, Ohm's Law, Independent energy sources, Dependent energy sources, passive elements, circuit properties, Kirchoff's laws, applications of Kirchoff's laws, Nodal and Loop methods of Analysis, , Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Reciprocity Theorem, Maximum Power Transfer Theorem, Millman's Theorem, Star-Delta or delta-star transformation, Applications of network theorems P-spice for DC circuit analysis.

UNIT-2

A.C. Circuits: Sinusoidal signal, Phasors, polar & rectangular, exponential & trigonometric representations, Resistance, Inductance & Capacitance components, behavior of these components in A.C. circuits, Phasor relationship for circuit elements, Impedance & Admittance, instantaneous & peak values, average and RMS values,

active power, reactive power, apparent power, power factor, complex power, behavior of AC series , parallel circuits, RL, RC & RLC A.C. circuits (series and parallel), Resonance-series and parallel R-L-C Circuits, Q-factor, cut-off frequencies & bandwidth.

UNIT-3

Three Phase Circuits: Phase and line voltages and currents, balanced star and delta circuits, power equation, measurement of power by two wattmeter method.

Measuring Instruments: Principle, Construction & working of moving coil type voltmeter & ammeter, moving iron type voltmeter & ammeter, Electrodynamic type wattmeter, single-phase induction type energy meter.

UNIT-4

Transformers: Ampere's law, Mutual Inductance, Construction, Working principle and phasor diagrams of Single-phase Transformer, Emf equation, Equivalent circuit, testing, efficiency and regulation of single-phase transformer, Auto transformer.

Rotating Machines: Construction and working principle of dc motor and generator and its characteristics. Construction and working principle of 3-phase Induction machines & 3-phase synchronous machines, torque-speed characteristics.

TEXT BOOKS:

1. Basic Electrical Engg (2nd Edition) : Kothari & Nagarath, TMH
2. Electrical Technology (Vol-I): B.L Theraja & A K Theraja, S.Chand
3. Fundamental of electrical Engineering, Rajendra Prasad, PHI, Edition 2005.
4. Basic Electrical Engineering, V.N Mittle & Arvind Mittal, TMH, Second Edition
5. Basic Electrical Engineering, S.N. Singh, PHI

REFERENCE BOOKS:

1. Electrical Engineering Fundamentals: Deltoro, PHI
2. Basic Electrical Engineering (TMH WBUT Series), Abhijit Chakrabarti & Sudipta Nath, TMH
3. Basic Electrical Engineering, T.K. Nagsarkar & M.S. Sukhija, Oxford
4. Introduction to Electrical Engineering, M.S. Naidu & S, Kamakshaiah, TMH

ENGINEERING PHYSICS - I

PHY 101B ENGINEERING PHYSICS - I

UNIT-I PHYSICAL OPTICS: Interference: Division of wave front-Fresnel's Biprism, Division of amplitude - Newton's rings, Michelson interferometer, applications. Diffraction : Difference between Fraunhofer and Fresnel diffraction, Fraunhofer diffraction through a slit, Plane transmission diffraction grating and its spectra, dispersive and resolving powers. Polarization : Polarised and unpolarized light, double refraction, Nicol prism, quarter and half wave plates, Plane, Elliptically & circularly polarised light, Polarimetry: Biquartz and Laurent's half-shade polarimeters.

UNIT-II LASER & FIBRE OPTICS: Introduction, Spontaneous and stimulated emissions, Laser action, characteristics of laser beam, Ruby laser, He-Ne, Nd-Yag and semiconductor lasers, applications of laser. Introduction, Propagation of light in fibres, Types of fiber (pulse & continuous), numerical aperture, Modes of propagation in optical fibre, application of optical fibre. **ACOUSTIC OF BUILDINGS:** Introduction, Reverberation, Sabine's formula for reverberation time, Absorption coefficient and its measurements, factors affecting the architectural acoustics and their remedy, Sound absorbing materials.

UNIT-III TRANSMISSION OF HEAT AND THERMAL

RADIATION: Modes of transmission of heat, Thermal conductivity, Rectilinear flow of heat through a rod, Radial flow of heat through a spherical shell, determination of Thermal conductivity of good and bad conductors. Black body, Emissive and Absorptive Powers, Wein's Displacement Law, Kirchhoff's Law, Stefan's Law, Determination of Stefan's Constant.

UNIT-IV NUCLEAR & ELEMENTARY IDEA OF PARTICLE

PHYSICS: Outline of interaction of charged particles and of Gamma-rays with matter. Counters: Gas filled counters (Ionization Chamber, Proportional Counter and G M Counter). Detector: Scintillation detector, Semiconductor detectors (p-n junction detector), Biological effects of nuclear radiation. Introduction to elementary particles, Interaction in particle physics: strong, electromagnetic, weak and gravitational.

TEXT BOOKS :

1. A text book of Optics - Brij Lal and Subramanyam
2. Perspectives of Modern Physics - Arthur Beiser (TMH)
3. Modern Engineering Physics - A.S. Vasudeva (S. Chand)
4. Engineering Physics by R.K. Gaur and S.L. Gupta
5. Engineering Physics by H.K Malik and A.K. Singh (Tata McGraw Hill).
7. Engineering Physics by S.P. Taneja (Chand Pub.)

REFERENCE BOOKS:

1. Physics Vol-I & II - Resnick & Halliday (Wiley Eastern)
2. Heat and Thermodynamics - M.N. Saha & B.N. Srivastava
3. Nuclear Physics Principles and Applications by John Lilley(Wiley-India).

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