

SVM Institute of Technology, Bharuch

Department of A.S&H

Syllabus: Mid Semester Examination (Evensem 2018-19)

BE – II (4th Sem)(CHEMICAL, CIVIL, MECHANICAL)

Name of Faculty: HiralDayma

Subject Code:2140003

Subject Name: Engineering Economics & Management (EEM)

| Sr. No. | Unit | Topics |
|----------------|-------------|--|
| 1 | 1 | Introduction to Economics; Definitions, Nature, Scope, Difference between Microeconomics & Macroeconomics Theory of Demand & Supply; meaning, determinants, law of demand, law of supply, equilibrium between demand & supply Elasticity; elasticity of demand, price elasticity, income elasticity, cross elasticity |
| 2 | 2 | Theory of production Production function, meaning, factors of production (meaning & characteristics of Land, Labour, capital & entrepreneur), Law of variable proportions & law of returns to scale Cost; meaning, short run & long run cost, fixed cost, variable cost, total cost, average cost, marginal cost, opportunity cost. Break even analysis; meaning, explanation, numerical |
| 3 | 3 | Markets Market meaning, types of markets & their characteristics (Perfect Competition, Monopoly, Monopolistic Completion, Oligopoly) National Income; meaning, stock and flow concept, NI at current price, NI at constant price, GNP, GDP, NNP, NDP, Personal income, disposal income. |
| 4 | 6 | Introduction to Management & Management Principles Definitions, Nature, scope Management & administration, skill, types and roles of managers Management Principles; Scientific principles, Administrative principles, Maslow's Hierarchy of needs theory |
| 5 | 9 | Introduction to production management Definitions, objectives, functions, plant layout types & factors affecting it, plant location, factors affecting it. Introduction to Human Resource Management; definitions, objectives of manpower planning, process, sources of recruitment, process of selection |

Reference Books:

1. Engineering Economics, R.Paneerselvam, PHI publication
2. Fundamentals of Management: Essential Concepts and Applications, Pearson Education, Robbins S.P. and Decenzo David A.
3. Economics: Principles of Economics, N Gregory Mankiw, Cengage Learning
4. Principles and Practices of Management by L.M.Prasad
5. Principles of Management by Tripathy and Reddy
6. Modern Economic Theory, By Dr. K. K. Dewett & M. H. Navalur, S. Chand Publications

| Sr.No. | Unit | TOPICS |
|--------|---------|--|
| 1 | Unit 1. | Introduction: Introduction of fluid, fluid classifications, hypothesis of continuum, Shear stress in a moving fluid, molecular structure of material, fluid density, viscosity, causes of viscosity in gases and liquids, surface tension, capillary effect, vapor pressure, cavitations, compressibility and the bulk modulus |
| 2 | Unit 2. | Pressure and head: Types of Pressure, Pascal's law of pressure at a point, variation of pressure vertically in a fluid under gravity, equality of pressure at the same level in a static fluid, general equation for the variation of pressure due to gravity from a point to point in a static fluid, pressure and head, the hydrostatic paradox, pressure measurements using Elastic Pressure Transducers, Force Balance Pressure gauge, Electrical Pressure Transducers. |
| 3 | Unit 3. | Static forces on surface and buoyancy: Fluid static, action of fluid pressure on surface, resultant force and center of pressure on a plane surface under uniform pressure, resultant force and center of pressure on a plane surface immersed in a liquid, pressure diagrams, forces on a curved surface due to hydrostatic pressure, buoyancy, equilibrium of floating bodies, stability of a submerged body, stability of floating bodies, determination of the metacentric height, determination of the position of the metacentre relative to the center of buoyancy. |
| 4 | Unit 4. | Motion of fluid particles and streams: Fluid flow, different types of flow, frames of reference, analyzing fluid flows, motion of a fluid particle, acceleration of a fluid particle, discharge and mean velocity, continuity of flow, continuity equations for 2-D and 3-D flow in Cartesian coordinates of system. |
| 5 | Unit 5. | Energy Equation and Its Application: Momentum and fluid flow, Momentum equation for 2-D and 3-D flow along a stream line, momentum correction factor, Euler's equation of motion along a stream line, Mechanical energy of a flowing fluid – Bernoulli's theorem, kinetic energy correction factor, pitot tube, determination of volumetric flow rate via pitot tube, changes of pressure in tapering pipe, principle of venturimeter, pipe orifices, theory of small orifices discharging to atmosphere, theory of large orifices, Rotameter |
| 6 | Unit 6. | Two dimensional Ideal flow: Rotational and ir-rotational flow, circulation and vorticity, streamlines and the stream functions, velocity potential and potential flow, relation between stream function and velocity potential; flow nets, stream function and velocity potential for uniform flow, vortex flow. |

SVM Institute of Technology, Bharuch
 Department of Mechanical Engineering
Syllabus: Mid Semester examination (Even sem 2018-19)
BE – II (4thSem) Mechanical

Name of Faculty: B. C. Patel , V R P & V S

Subject Code: 2141907

Subject Name : MDID

| Sr. No. | Unit | Topics |
|---------|--------|--|
| 1 | Unit 1 | <p>Introduction: Concepts of stresses and Strain, Combinations of Axial, Shear, Torsional and Bending loads; Theories of Failures: Distortion energy (von Mises), Maximum-Shear stress, Maximum Principal stress, Coulomb-Mohr Theory, Selection and Use of theories of failures; Factor of safety, Contact stresses, Crushing and Bearing stress. Application Problems: Eccentric Loading; Cotter and Knuckle Joints; Design and analysis of levers: Cranked, Bell crank, Foot, Rocker arm.</p> |
| 2 | Unit 2 | <p>Beams and Columns: Different types of supports / end conditions, Revision of Stresses in beams: Effect of Section, Orientation, and type of loading; Deflection of beams for different loading conditions. Compressive axial loading of columns and struts, Slenderness ratio, Compressive stress and Buckling of members, Effect of end conditions; Euler’s Formula, Applications, validity and limitations;</p> |
| 3 | Unit 3 | <p>Power Screws and Threaded Joints: Forms of thread, Single and Multiple threaded screw, Terminology of power screw, Torque requirement of lifting/lowering, Self-locking, Efficiency of threads, coefficient of friction, design of screw and nut. Basic types of screw fastening, Cap and Set screw, Bolt of Uniform strength, locking devices, Terminology of Screw thread, Bolted Joint: Simple and Eccentric loading, Torque requirement for bolt tightening, Design of turnbuckle, Elastic analysis</p> |

SUBJECT CO-ORDINATOR

(B. C. Patel)

SUBJECT TEACHER

(VRP & VS)

Reference Books:

1. Design of Machine Elements, V B Bhandari, 3/e, McGraw Hill.
2. Machine Design: An Integrated Approach, R L Norton, Pearson
3. Fundamentals of Machine Component Design, R C Juvinall, 4/e, Wiley.
4. Machine Design , R. S. Khurmi

SVM Institute of Technology, Bharuch
 Department of Mechanical Engineering
 Syllabus: Mid Semester Examination (Even semester 2018-19)
 BE – II (4th Semester)

Name of Faculty:H.G.Shah

Subject Code: 2141908

Subject Name: Manufacturing Process II

| Sr. No. | Unit | Topics |
|---------|--------|---|
| 1 | Unit 1 | Basic Introduction, Importance of Manufacturing, Economics and Technological Definition, Classification and Selection of Manufacturing Processes. |
| 2 | Unit 2 | Patterns, Types of patterns, allowances and material used for patterns, moulding materials, moulding sands, Moulding sands; properties and sand testing: Grain fineness, moisture content, clay content and permeability test. Core materials and core making. Moulding practices: Green, dry and loam sand moulding, pit and floor moulding; shell moulding; permanent moulding; carbon dioxide moulding. Metal casting: Melting furnaces: Rotary, Pit electric, Tilting and cupola. Review of casting processes, casting design considerations, capabilities and applications of casting processes; Gating and Rising design |
| 3 | Unit 3 | Principle of welding, soldering, Brazing and adhesive bonding. Classification of welding and allied processes. Capabilities and applications; welding parameters, general concepts of weldability, welding metallurgy and weldment design, Gas welding and gas cutting, Arc welding, Power sources and consumables, Resistance welding: Spot, Projection and seam welding process, Atomic hydrogen, ultrasonic, Plasma and laser beam welding, Electron beam welding, and special welding processes e.g. TIG, MIG, friction and explosive welding, welding of C.I. and Al. Defects of welding and remedial actions. Numerical Calculation of Different process parameters of welding. |
| 4 | Unit 4 | Metal working, Elastic and plastic deformation, Concept of strain hardening, Hot and cold working, Rolling, Principle and operations, Roll pass sequence, Forging, Forging operations, extrusion, Wire and tube drawing processes. |

Books :
 Manufacturing Technology Vol. II, By P.N. Rao, Tata McGraw Hill.
 Production technology, by R.K. Jain, Khanna publishers.

SVM Institute of Technology, Bharuch

Department of Mechanical Engg.

Syllabus: Mid Semester Examination (Even semester 2018-19)

BE – IV (4th Semester) Mechanical

Name of Faculty:MayurKevadiya, Krishna kumar, Tejasmehta

Subject Code: 2141901

Subject Name:MMM

| Sr. No. | Unit | Topics |
|---------|--------|--|
| 1 | Unit 1 | Mechanical Measurement: Need of mechanical measurement, Basic definitions: Hysteresis, Linearity, and Resolution of measuring instruments, Threshold, Drift, Zero stability, loading effect and system response. Measurement methods, Generalized Measurement system, Static performance characteristics, Errors and their classification. |
| 2 | Unit 2 | Linear and angular measurements: Linear Measurement Instruments, Vernier calliper, Micrometer, Interval measurements: Slip gauges, Checking of slip gauges for surface quality, Optical flat, Limit gauges, Problems on measurements with gauge. |
| 3 | Unit 3 | Metrology: Basics of Metrology, Need for Inspection, Accuracy and Precision, Objectives, Standards of measurements. |
| 4 | Unit 4 | Metrology of Gears and screw threads: Gear tooth terminology, Sources of errors in manufacturing of gears, Measurement of tooth thickness: Gear tooth vernier, Constant chord method, Addendum comparator method and Base tangent method, Measurement of tooth profile: Tool maker's microscope or projector, Involute tester, Measurement of pitch, Measurement of run out, Lead and Backlash checking. Measurement of concentricity, Alignment of gears. Screw Thread Measurement: Errors in threads, screw thread gauges, measurement of element of the external and internal threads, thread calliper gauges. |
| 5 | Unit 5 | Measurement of Force, Torque and Strain: Force measurement: load cells, cantilever beams, proving rings, differential transformers. Measurement of torque: Torsion bar dynamometer, servo controlled dynamometer, absorption dynamometers. Power Measurements. Measurement of strain: Mechanical strain gauges, electrical strain gauges, strain gauge: materials, gauge factors, theory of strain gauges and method of measurement, bridge arrangement, temperature compensation. |

Text Book(s):

- 1) Mechanical Measurements and Instrumentations, Er. R K Rajput, Kataria Publication
- 2) Mechanical Measurement and Metrology by R K Jain, KhannaPublisherMechanical Measurement & Control by D.S. Kumar.

SHRI S'AD VIDYA MANDAL INSTITUTE OF TECHNOLOGY
COLLAGE CAMPUS, OLD N.H.-8, BHARUCH.
REGULAR(MID) EXAMINATION - MARCH- 2019
B.E. SECOND YEAR (FOURTH SEMESTER)
BRANCH:MECHANICAL(19)

FACULTY NAME:PROF.NENSI GANDHI

SUBJECT NAME: COMPLEX VARIABLES AND NUMERICAL METHODS

SUBJECT CODE:2141905

SYLLABUS FOR REGULAR(MID) EXAMINATION

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|---|---------|---|
| 1 | CHAPTER | Interpolation: Finite Difference, Forward, Backward and central operators, Interpolation by polynomials: Newton's Forward, Backward Interpolation formulae , Newton's divided Gauss & Stirling's central difference formulae, and Lagrange's formulae for unequal Intervals |
| 2 | CHAPTER | Numerical Integration: Newton-cotes formula, Trapezoidal and Simpson's formulae, error formulae, Gaussian quadrature formulae |
| 3 | CHAPTER | Solutions of system of Linear Equations: Gauss elimination, partial pivoting , Gauss-Jacobi and Gauss-Seidel methods |
| 4 | CHAPTER | Roots of Algebraic and Transcendental Equations: Bisection, false position, Secant and Newton-Raphson methods, Rate of convergences |
| 5 | CHAPTER | Eigen values by power and Jacobi methods |
| 6 | CHAPTER | Numerical solution of Ordinary Differential Equations: Euler and Runge-Kutta methods |

Reference Books:

1. R. V. Churchill and J. W. Brown, Complex Variables and Applications (7th Edition), McGraw-Hill (2003)
2. J. M. Howie, Complex Analysis, Springer-Verlag(2004)
3. M. J. Ablowitz and A.S. Fokas, Complex Variables-Introduction and Applications, Cambridge University Press, 1998 (Indian Edition)
4. E. Kreyszig, Advanced Engineering Mathematics(8th Edition), John Wiley (1999)
5. S. D. Conte and Carl de Boor, Elementary Numerical Analysis-An Algorithmic Approach (3rdEdition), McGraw-Hill, 1980
6. C.E. Froberg, Introduction to Numerical Analysis (2nd Edition), Addison-Wesley,1981
7. Gerald C. F. and Wheatley,P.O., Applied Numerical Analysis (Fifth Edition),Addison-Wesley, Singapore, 1998.
- 8.Chapra S.C, Canale, R P, Numerical Methods for Engineers ,Tata McGraw Hill, 2003

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