PURAN MURTI
CAMPUS

A Unit of Puran Murti Educational Society
Approved by AICTE ,Recognized Under Section 2 (f) by UGC
Affiliated to Deenbandhu Chhotu Ram University of Science
And Technology, Murthal, Sonepat

Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 2nd YEAR (SEMESTER – III: CIVIL ENGINEERING)
Choice Based Credit Scheme w.e.f. 2019-20 (applicable to the students admitted in 2018)

S. No.	Course No.	Course Title	Teaching Schedule			Marks of Class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P/D		Theory	Practical			
1	MC 203C OR MC 201C	CONSTITUTION OF INDIA (GROUP-A) OR ENVIRONMENTAL STUDIES (GROUP-B)	2	-	-	25	75	-	100	0	3
2	ECE 209C	BASIC ELECTRONICS	2	-	-	25	75	-	100	2	3
3	BT 221C	BIOLOGY FOR ENGINEERS (common with BT and ME)	3	-		25	75	-	100	3	3
4	Maths215C	MATHS III (TRANSFORM AND DISCRETE MATHEMATICS	2	-	-	25	75	-	100	2	3
5	CE 201C	STRENGTH OF MATERIALS	3	1	-	25	75	-	100	4	3
6	CE 203C	SURVEYING	3	1	-	25	75	-	100	4	3
7	CE 205C	FLUID MECHANICS	3	1	-	25	75	-	100	4	3
8	CE 207C	BUILDING CONSTRUCTION AND MATERIALS	3	-	2	25	75	-	100	4	3
9	CE 209C	STRENGTH OF MATERIALS LAB	-	-	2	25		75	100	1	3
10	CE 211C	SURVEYING LAB	-	-	2	25		75	100	1	3
11	CE 213C	FLUID MECHANICS LAB	-	-	2	25		75	100	1	3
12	ECE 289C	BASIC ELECTRONICS LAB	-	-	2	25		75	100	1	3
		Total	21	3	10	300	600	300	1200	27	

MOOC   Humanities and Social Sciences

Note:
1   The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.
2   Electronics gadgets including Cellular phones are not allowed in the examination
3   For student admitted in B. Tech. 1st Semester (C-Scheme) in 2019 and all trailing students, Examinations and evaluation of students shall be conducted as per guidelines AICTE Examinations Reforms covering the entire syllabus. The students shall be made aware about the reforms.

Campus:
Puran Murti Campus
Kami Road, Sonepat (Delhi-NCR), Haryana - 131001, India
Contact no.:7438900900

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Technology, Murthal, Sonipat

Subject: Environmental Studies
Subject Code: MC 201C
(Common for all branches of B.Tech and B.Arch)

L	T	P/D	Credits	Field Work	:		25Marks
3	--	--	0	Examination(Theory/Practical)		:	75Marks
				Total	:		100 Marks
				DurationofExamination	:		3 Hours

UNIT I

Topic No 1 The Multidisciplinary Nature of Environmental Studies

Topic No 2 Introduction to Environment: Definition, Scope, and importance of environmental studies need for public awareness

Topic No 3 Environmental Pollution: Definition, Cause and effects

Topic No 4 Air pollution, Water pollution, Soil pollution

Topic No 5 Marine pollution,Noise pollution

Topic No 6 Role of an individual in prevention of pollution

Topic No 7 , Pollution case studies

UNIT II

Topic No 8 Natural Resources: Water resources: over-utilization, floods, drought

Topic No 9 dams-benefits and problems; Mineral resources: Use and exploitation

Topic No 10 environmental effects; Food resources : changes caused by modern agriculture

Topic No 11 fertilizer-pesticide problems, water logging, Energy resources

Topic No 12 Growing energy needs, renewable and non renewable energy sources

Topic No 13. Land resources : Land as a resource

Topic No 14 land degradation

Topic No 15 man induced landslides

Topic No 16 soil erosion and desertification

UNIT III

Topic No 17 Ecosystems and Biodiversity: Concept of an ecosystem

Topic No 18 Structure and function, Energy flow, Ecological succession

 Topic No 19 ecological pyramids. Concept of Biodiversity

Topic No 20 definition and types, Hot-spots of biodiversity

Topic No 21 Threats to biodiversity, Endangered and endemic species of India,

Topic No 22 Conservation of biodiversity

UNIT IV

Topic No 23 Social Issues and Environment: Water conservation, rain water harvesting

Topic No 24 Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion

Topic No 25 Public awareness. Population growth, variation among nations

Topic No 26 Family Welfare Programme. Human Population and the Environment - Population growth

 Topic No 27 Field Work - Visit to a local area to document environmental assets

 Topic No 28 river/forest/grassland/hill/ mountain

Topic No 29 Visit to a local polluted site—Urban/Rural/Industrial/Agricultural.

Topic No 30 Study of common plants, insects, birds. Study of simple ecosystems—pond, river, hill slopes, etc
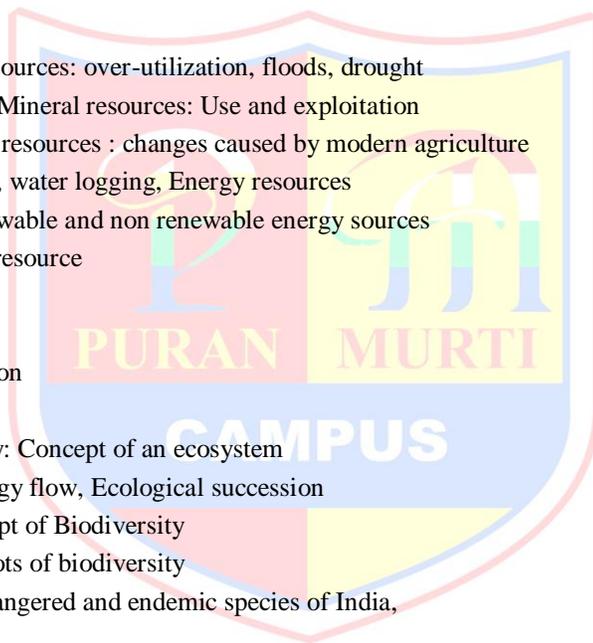
REFERENCES BOOKS:

A Textbook of Environmental Studies by Asthana D.K. and Asthana Meera
Fundamental Concepts in Environmental Studies by Mishra D.D.
Environmental Studies by S.C Sharma M.P Poonia
Textbook of Environmental Studies for Undergraduate by ErachBharucha
Environmental Studies: Third Edition by R. Rajagopalan

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Subjet: BIOLOGY for Engineers
Subject Code: BT221C
B.TECH. (Common with BT, ME & CE 3rd Semester and CHE, EE & EEE 4th Semester)
Choice Based Credit System (effective from Session 2019-20)
SEMESTER-IV

L	T	P	Credits		Field work	: 25
3	1	0	4		Exam Marks	: 75
					Total Marks	: 100
					Duration of Examination	3 Hrs

UNIT I Introduction:

Topic No 1 Significance of biology; why study biology ; Biological observation in history that led to the discovery of major engineering basics (Brownian motion & origin of thermodynamics);

Topic No 2 Fundamental similarities and difference between science and engineering- human as the best machines

Topic No 3 comparison between eye camera, flying of a bird and aircraft etc.

Topic No 4 classification based on (a) cellularity- unicellular or a multicellular (b) Ultrastructure-prokaryotes or eukaryotes (c) Energy and carbon utilization- autotrophs and lithotrophs

Topic No 5(d) Ammonia excretion –aminotelic, uricotelic (e) Habit- aquatic or terrestrial ; Molecular Taxonomy three major kingdoms of life.

Topic No 6 Single-celled organism-Microorganism and Microbiology: concept of single called organism , species and strains; Identification and classification of microorganism

Topic No 7; Ecological aspects of single celled organism; Microscopy

UNIT II Biomolecules Proteins and Enzymes

Topic No 8: Molecules of the life –Monomeric unit and polymeric structure –sugar , starch and cellulose , Amino acid and proteins

Topic No 9 Nucleotides and DNA/RNA;Two carbon unit and lipids.

Topic No 10: proteins structure and function ; Hierarchy in protein structure –primary , secondary , tertiary and quaternary structure

Topic No 11 proteins as enzymes, transporters , receptors and structural elements;

Topic No 12 Enzymes classification and mechanism of action

Topic No 13 Enzymes catalysed reaction ; Enzyme kinetic and kinetic parameters;RNA catalysi

UNIT III Genetics Genes, Chromosomes and information transfer

Topic No14 Genetics is to biology what Newtons law are to physics; model laws of genetics; concept of allele, recessiveness and dominance, segregation and independent assortment

Topic No15 Genetic material passes from parent to offspring ; Epistasis; Mapping of phenotype yto genes, gene/linkage mapping ; single gene disorder in human ; meiosis and mitosis

Topic No 16 DNA as genetic material ; Hierarchy of DNA structure single stranded to double stranded to nucleosomes to chromosomes

Topic No 17 Moleculear basis of information transfer concept of genetic code ; Universality and degeneracy of genetic code.

UNIT IV Metabolism

Topic No 18 Similarities between fundamental principles of energy transaction in physical and biological world;

Topic No19 Thermodynamics as applied to biological system; Exothermic and endothermic versus endergonic and exergonic reaction;

Topic No 20 Concept of Keqand its relation to standard free energy ; Spontaneity; APT as an energy currency;

Topic No 21 Glycolysis and Krebs cycle (breakdown of glucose to CO_2 to H_2O

Topic No 22 Photosynthesis (synthesis of glucose from CO_2 toH_2O); Energy Yielding

Topic No 23 energy consuming reaction; Concept of energy change.

TEXT BOOKS:

1 Biology : a Gopal approach Campbell , N.A Reece, J.B Urry ,Lisa; Cain M.L Wasserman , S.A Minorsky,P.VJackson, R.B Person Education ltd

2 Outline of Biochemistry , conn E.E Stumpf, P.K Burening ,G; Doi, R.H;John Wiley and sons

REFERENCE BOOKS:

1. Principles of Biochemistry(V Edition) by Nelson, D.L; and Cox, M.M.W.H Freeman and company.
2. Molecular Genetics (second Edition) stent G.S; Calender , R.W.H Freeman Company Distributed by satishkumarjain for CBS Publisher.
3. Microbiology , Prescott, L.M.J.P; Harley and CA Klein 1995, 2nd edition W.M.C Brown Publisher

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Subject: MATHEMATICS-III
Subject Code: MATH 215C
(Transform & Discrete Mathematics)
B.Tech. Semester-III (CE)

L	T	P	Credits		Field work	: 25
2	0	0	2		Exam Marks	: 75
					Total Marks	: 100
					Duration of Examination	3 Hrs

UNIT I Basic operations on sets
Topic No 1 Cartesian products, disjoint union (sum),
Topic No 2 power sets. Different types of relations
Topic No 3 their compositions and inverses
Topic No 4 Different types of functions
Topic No 5 their composition and inverses

UNIT II
Topic No 6 Syntax and semantics, proof systems, satistiability, validity, soundness
Topic No 7 completeness, deduction theorem etc. Decision problems of propositional logic
Topic No 8 Introduction to first order logic and first order theory
Topic No 9 Basic counting techniques - inclusion and exclusion, pigeon-hole principle, permutation and combination.

UNIT III
Topic No 10 Polynomials, Orthogonal Polynomials-Lagrange's, Chebysev Polynomials
Topic No 11 Trigonometric Polynomials, LaplaceTransform, Properties of Laplace Transform
Topic No 12 Laplace transform of periodic function.
Topic No 13. Finding inverse Laplace transform by different methods
Topic No 14. solving ODEs by Laplace Transform method

UNIT IV
Topic No 15 Fourier transforms: properties, methods
Topic No 16, inverses and their applications.

.TEXT BOOKS:
1. C. L. Liu, Elements of Discrete Mathematics, 2nd Ed., Tata McGraw-Hill, 2000.
2. S. Lipschutz and M.L. Lipson, Schaum's Outline of theory and problems of Discrete Mathematics, 2nd Ed., Tata McGraw-Hill, 1999.
3. Erwin Kreyszig -Advanced Engineering Mathematics, 9th Edition, John' Wiley & Sons, 2006.
4. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 35th Edition, 2000.

REFERENCE BOOKS:
1. J.P. Tremblay and R.P. Manohar, Discrete mathematics with Applications to Computer Science, Tata McGraw-Hill, 1997.
2. R. C. Penner, Discrete Mathematics: Proof Techniques and Mathematical Structures, World Scientific, 1999.
3. Erwin Kreyszig -Advanced Engineering Mathematics, 9th Edition, John' Wiley & Sons, 2006.
4. S.S. Sastry, Engineering Mathematics, PHI, Vol. I & II.
5. Veerarajan T., Engineering Mathematics, Tata McGraw-Hill, New Delhi, 2008.

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Subject: STRENGTH OF MATERIALS
Subject Code: CE 201C
B. Tech. 2ⁿᵈ Year (Semester – III)

L	T	P	Credits		Class Work	:	25 Marks
3	1	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

UNIT- I Introduction , Shear force and Bending moment diagrams

Topic No 1 Concept of Equilibrium General Equilibrium equations, concept of free body diagrams, Concept of stress and strain, generalized Hooke's law

Topic No 2 Stress-strain diagram of ductile and brittle material, compound and composite bars, thermal stresses, Analysis of Principal stresses and Strains

Topic No 3 Mohr's stress circle, Relationship among elastic constants.

Topic No 4 Types of load on beam and frames, classification of beams, statically determinate and indeterminate problems

Topic No 5 shear force and bending moment diagrams: simply supported

Topic No 6 overhung and cantilever beams subjected to any combination of point loads

Topic No 7 uniformly distributed and varying load and moment

Topic No 8 relationship between load

Topic No 9 shear force and bending moment.

UNIT-II Theory of pure bending, Slope & Deflection

Topic No 10 Centroid of simple and built up section, second moment of area, derivation of flexural formula for straight beams

Topic No 11 bending stress calculation for beams of simple and built up section, RCC beams

Topic No 12 Shear Stresses in Beams: Shear stress formula for beams , shear stress distribution in beams

Topic No 13 Relationship between bending moment, slope & deflection, Mohr's theorem, moment area method

Topic No 14 method of integration, Macaulay's method, calculations for slope and deflection of (i) cantilevers and (ii) simply supported beams

Topic No15 with or without overhang under concentrated load

Topic No16 distributed loads or combination of concentrated and uniformly distributed loads.

UNIT-III

Topic No 17 Torsion of Circular shafts: Basic assumptions, torsion formula, power transmitted by shafts

Topic No 18 design of solid and Hollow shafts based on strength and stiffness

Topic No 19 Columns & Struts: Column under axial load, concept of instability and buckling, slenderness ratio

Topic No 20 derivation of Euler's formulae for the elastic buckling load, Eulers, Rankine, Gordon's formulae Johnson's empirical formula

Topic No 21 for axial loading columns and their applications

Topic No 22 eccentric compression of a short strut of rectangular & circular sections.

UNIT-IV

Topic No 23 Strain energy: strain energy under axial, bending, shear, torsion, gradual, sudden and impact loading

Topic No 24 Theories of failures Analysis of determinate Trusses Introduction, determination of forces in member of trusses by method of joints

Topic No 25 method of sections, Deflection of Joints of plane frames by castigliano's first theorem and unit load method.

Topic No 26 Thin cylinder and Spheres: Introduction, stresses and strains in thin cylinders and spherical shell

Topic No 27 volumetric change, wire wound thin cylinders thin vessels subjected to internal pressure.

TEXT BOOKS:
1   Strength of Materials by G H Ryder, ELBS publishers
 2 Elements of Strength of Materials by Timoshenko & Young, East- West Press, New Delhi
3   Mechanics of Materials by Beer and Johnston, Tata McGraw Hill.
4   Elementary Structural Analysis, Norris & Wilbur, McGraw Hill Publisher
5   Engineering Mechanics Shames
6   Tata McGraw Hill Edition (Fourth Edition) 2002.

REFERENCE BOOKS:
1   Strength of Materials by Sadhu Singh, Khanna Publishers
2   Basic Structural Analysis, C.S. Reddy, Tata McGraw Hill Publication.
3.   Fundamentals of Solid Mechanics by M L Gambhir, Prentice Hall of India
4.   Strength of Materials Ramamurtham and Narayanan, S. Chand & Co.
5.   Fundamentals of Structural Analysis B D Nautiyal, New Age Publishers

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Subject: SURVEYING
Subject Code: CE 203C
B. Tech. 2nd Year (Semester – III)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT- I Introduction to Surveying , Compass surveying & Plane Table Surveying
Topic No 1 Definition, importance, Objectives, History of surveying and mapping,
Topic No 2 Importance, Maps and maps Numbering systems, Maps
Topic No 3 Scale, Principles of survey, Classification of surveys, different techniques of surveying,
Topic No 4 Chain Surveying: Ranging, Chaining, Offsets, Errors in Chaining
Topic No 5 Corrections to length measured with a tape
Topic No 6 Purpose of compass surveying, Comparison of compass surveying and chain surveying
Topic No 7 Dip, Magnetic Declination, W.C.B., Q.B., and R.B   Introduction to plane table surveying
Topic No 8 principle, instruments, working operations, setting up the plane table, centering, leveling
Topic No 9 Orientation, methods of plane table survey, danger circle, Lehmann's Rules, errors in plane tabling

UNIT-II Leveling: Trigonometric Leveling Contours
Topic No 10 definitions of terms used in leveling, different types of levels, parallax, staves, adjustments, bench marks,Classification of leveling
Topic No 11 booking and reducing the levels, rise and fall method, line of collimation method, errors in leveling,
            Permanent adjustments
Topic No 12 Two peg test, reciprocal leveling, Corrections to curvature and refraction, cross sections and longitudinal,Leveling
Topic No 13 Definitions & terms, curvature & refraction Methods: direct & reciprocal
Topic No 14 eye and object correction, coefficient of refraction
Topic No 15 Definition, representation of reliefs, horizontal equivalent, contour interval
Topic No 16 characteristics of contours, methods of contouring
Topic No 17 contour gradient, uses of contour maps.

UNIT-III Tachometry, Theodolite Traversing
Topic No 18: Definitions and terms used in tachometry, angular tachometry with staff vertical and staff inclined
Topic No 19 Analytic lens theory, Tachometric field work
Topic No 20 tangential method of tachometry, direct reading tachometer
Topic No 21 types of theodolites, measurement of angles, temporary and permanent adjustments
Topic No 22 closed & open traverse, consecutive and independent co-ordinates
Topic No 23 advantages & disadvantages of traversing closing error, Bowditch, Transit rules.

UNIT-IV Triangulation, Curves
Topic No 24 Triangulation systems, classification, strength of figure, selection of triangulation stations
Topic No 25 grade of triangulation, field work of triangulation, triangulation computations
Topic No 26 Introduction to EDM, Total Station and its working, survey adjustment and treatment of observation
Topic No 27 adjustment of triangulation figures by method of least squares
Topic No 28 Definition, elements of a simple curve, different methods of setting out a simple circular curve
Topic No 29 elements of a compound curve, reverse curves
Topic No 30 introduction of transition curves
Topic No 31 vertical curves and sight distances
Text Books
1. Surveying volume 1 and 2 by S.K. Duggal, McGraw Hill Publishers, New Delhi
2. Surveying Vol. I and II by B.C. Punmia, Luxmi Publications, New Delhi
3. Syrveying and Levelling by R. Subramanian, Oxford University Press.
4. Plane Surveying by A.M. Chandra, New Age International Publishers
Reference Books
1   Surveying by N. Singh, Tata McGraw Hill, New Delhi.
2   A Text Book of Surveying by C.Venkataramiah, Universities Press, Hyderabad

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Subject: FLUID MECHANICS
Subject Code: CE 205C
B. Tech. 2nd Year (Semester – III)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT - I Scope& development of Fluid Mechanics Fluid properties
Topic No 1 Density, Specific weight, Viscosity, Kinematic and Dynamic viscosity, Surface tension, Compressibility
Topic No 2 Newtonian and Non Newtonian fluids, Types of fluids
Topic No 3 capillary action. Kinematics of fluid motion, Classification of flow
Topic No 4 Continuity equations in Cartesian coordinates, Velocity Potential
Topic No 5 Stream Function and Flow nets. Definitions of Reynolds Number
Topic No 6 Froude Number, Mach Number, Weber Number and Euler Number

UNIT – II Fluid statics
Topic No 7 Absolute and Gauge pressure, Measurement of pressure, Mechanical gauges, Barometers, Piezometers,Simple and Differential manometer
Topic No 8 Inclined manometer, and Micro manometer. Hydrostatic forces on plane horizontal, Vertical and Inclined surfaces,
Topic No 9 Curved surface. Buoyant force, Archimedes principle, Metacentric height,
Topic No 10 Theoretical and Experimental determination of metacentric height
Topic No 11 Stability of floating and submerged bodies
Topic No 12 Dimensional Analysis and Dynamic Similitude, Buckingham's π-Theorem.

UNIT – III Fluiddynamics and pipe flows
Topic No 13 Euler's equation of motion, Bernoulli's equation and its limitations
Topic No 14 Momentum equation, Energy and Momentum correction factors
Topic No 15 Energy losses in pipe flows, Darcy-Weisbach equation
Topic No 16 Estimation of friction factor, Loss at sudden expansion
Topic No 17 contraction and bends, Pipe flow computations, Hydraulic gradient and total energy lines
Topic No 18 Pipes in series and parallel. Flow measuring devices: Venturimeter and Orifice meters, etc
.
UNIT – IV Laminar flow , Boundary layer Theory , Drag and Lift
Topic No 19 Navier stokes equation of motion (no derivation), Laminar flow through pipes, parallel plates
Topic No 20 Couttee flow, Flow past a sphere, Stokes law.
Topic No 21- development of boundary layer on a flat surface, boundary layer thickness
Topic No 22 laminar and turbulent boundary layers, separation of boundary layer and methods for prevention
Topic No 23 Definitions, Pressure drag and Friction drag, Stream line and Bluff bodies
Topic No 24 Total drag, Drag at different Reynolds numbers, Profile drag
Topic No 25 Drag characteristics of two dimensional bodies, Circulation
Topic No 26 Lift and Magnus effect, Lift characteristics

Text Books:
1. R. J. Garde and Mirajgaonkar, "Engineering Fluid Mechanics", Nem Chand & Brothers, Roorkee.
2. K L Kumar, "Engineering Fluid Mechanics", Eurasia Publishing House.
3. R.K. Bansal, "Fluid Mechanics and Hydraulic Machine", Laxmi Publications(P) Ltd. New Delhi.

Reference Book
1. H. Schlichting, "Boundary Layer Theory", McGraw Hill Publishing Company, New York.
2. Fox R. W. and McDonald, A T, "Introduction to Fluid Mechanics", John Wiley Wilson
3. Fluid Mechanics Through Problems, R J Garde,Nem Chand & Brothers, Roorkee
4. Hydraulics and Fluid Mechanics, P N Modi & S M Seth
5. Streeter, V L and Benjamin, W E , "Fluid Mechanics", McGraw Hill.

Subject: BUILDING CONSTRUCTION AND MATERIALS

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Subject Code: CE 207C

B. Tech. 2nd Year (Semester – III)

L	T	P	Credits			
3	--	2	4	**Class Work**	:	**25 Marks**
				Examination	:	**75Marks**
				Total	:	**100 Marks**
				Duration of Examination	:	**3 Hours**

UNIT - I Bricks, Rocks and Stones, Timber

Topic No 1 Composition of good brick earth, harmful ingredient, manufacture of bricks

Topic No 2 characteristics of good bricks, testing of bricks, classification of bricks as per IS 1077-1985.

Topic No 3 Classification of rocks, test for stones, characteristics of a good building stone

Topic No 4 deterioration of stones, common building stones of India, comparison of the brick work and stone work.

Topic No 5 Classification and identification of timber, defects in timber, characteristics of good timber

Topic No 6 seasoning of timber and its methods, preservation of timber

UNIT – II Cement , Steel, Aggregates

Topic No 7 Types, Manufacture, basic properties of cement compounds, grades, packing, storage

Topic No 8 quality control and curing, additives, special cements, all testing as per IS.

Topic No 9 Manufacture of steel, market forms of steel e.g. mild steel and HYSD steel bars, rolled steel sections

Topic No 10 stainless steel mortars Classification of Aggregates, Characteristics of Aggregate

Topic No 11 Deleterious Materials and Organic Impurities, Soundness, Alkali-Aggregate Reaction, Thermal Properties of Aggregate

Topic No 12 Fine Aggregate, Coarse Aggregate, Broken Brick Coarse Aggregate, Testing of Aggregates

UNIT – III Masonry , Construction equipment's,

Topic No 13 stone masonry, basic terms, materials for stone masonry, classification

Topic No 14 dressing of stones, joints in stone masonry, Brick Masonry,

Topic No 15 laying tools, basic terms, bonding of bricks, tools, inspection of brickwork

Topic No 16 strength of brick work, Cavity walls, features, wall ties

Topic No 17, construction of cavity wall, Lintels

Topic No 18 Modern equipment's used in the construction of multi storey buildings and bridges

UNIT – IV Earthwork, Damp proof course , Foundation , Stairs & Stair cases

Topic No 19 Points of its requirement in buildings, D.P.C. at Plinth level, in basement and roof tops etc

Topic No 20 Basement & Retaining walls. Drawings.

Topic No 21 types and suitability, spread, arch, combined, cantilevered, Raft, Grillage, Piles & wells, Footings in block cotton soil

Topic No 22, IS Specifications and drawings Suitability of location, stairs in multi-storeyed buildings, Residential and buildings

Topic No 23 dimensions, Requirements, classification, types of stairs, Lift & escalators, drawings.

Text Books

1. Building Materials by P C Varghese, PHI.
2. Engineering Materials, by S.C. Rangawala, Charotar Publishing House, Anand.
3. Building Construction by Sushil Kumar, Standard Publisher and Distributors.
4. Building Construction by B. C. Punima, Laxmi Publisher House

Reference Books

1. Engineering Materials, by Sushil Kumar, Metropolitan Press
2. Engineering Materials by N.C. Choudhary, Technical Publishers.
3. Materials Science, J.C. Anderson & KDB Lever, ELBS fifth Edn., 2004.
4. Indian Practical Civil Engg. Handbook, P N Khanna, Engineers Publishers, 2000.
5. National Building Code, B. I. S.

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Subject: STRENGTH OF MATERIALS LAB
Subject Code: CE 209C
B. Tech. 2ⁿᵈ Year (Semester – III)

L	T	P	Credits		Class Work	:	25 Marks
--	--	2	1		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

List of Experiments:

1. To determine Rockwell hardness number of the specimen of steel/soft metal.
2. To determine Brinnel hardness number of the specimen of steel/soft metal.
3. To determine Vickers hardness number of the specimen of steel/soft metal.
4. To study the behavior of ductile material under tension on Universal Testing Machine
5. To study the behavior of brittle material under tension on Universal Testing machine
6. To study the behavior of brittle material under compressionon Universal Testing machine
7. To determine the modulus of rigidity of brass bar on torsion testing machine
8. To determine the impact strength of M.S./C.I. specimen on Izod impact testing machine.
9. To determine the impact strength of M.S./C.I. specimen on Charpy impact testing machine.
10. To determine Young's modulus of the material of a beam simply supported at the ends and carrying a concentrated load at the center.

Note: **Seven experiments are to be performed from the above list. Remaining three experiments should be performed as designed & set by the concerned Institution as per the scope of the syllabus.**

Campus:
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PURAN MURTI
C A M P U S

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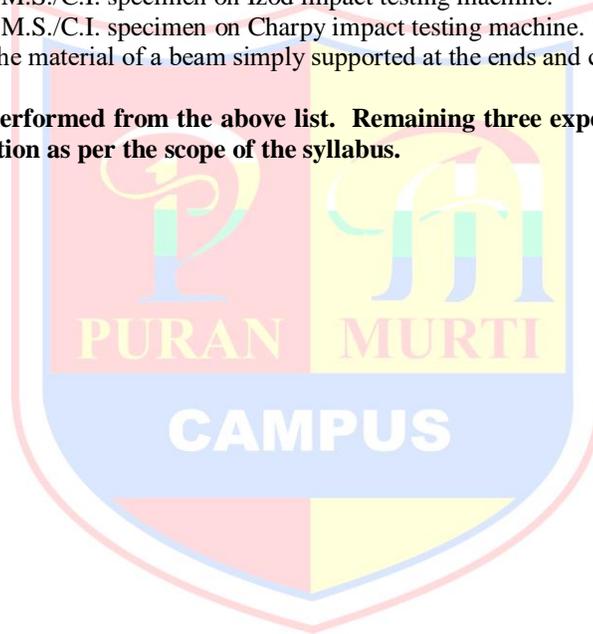
Subject: SURVEYING LAB
Subject Code: CE 211C
B. Tech. 2nd Year (Semester – III)

L	T	P	Credits			
--	--	2	1	**Class Work**	:	**25 Marks**
				Examination	:	**75 Marks**
				Total	:	**100Marks**
				Duration of Examination	:	**3 Hours**

List of Experiments

1.   Chain Survey of an area
2.   Leveling Exercises.
3.   Measurement of vertical and horizontal angles with Theodolite.
4.   Tachometric Survey
5.   Tachometric Constants.
6.   Two point / three point problem.
7.   Plane table survey of an area.
8.   Setting out a simple circular curve by different methods.
9.   Setting out transition curve.
10. Measurements with Total Station.

Note: Ten experiments are to be performed in the Semester taking atleast seven experiments from the above list.   Remaining three experiments should be performed as designed & set by the concerned Institution as per the scope of the syllabus.
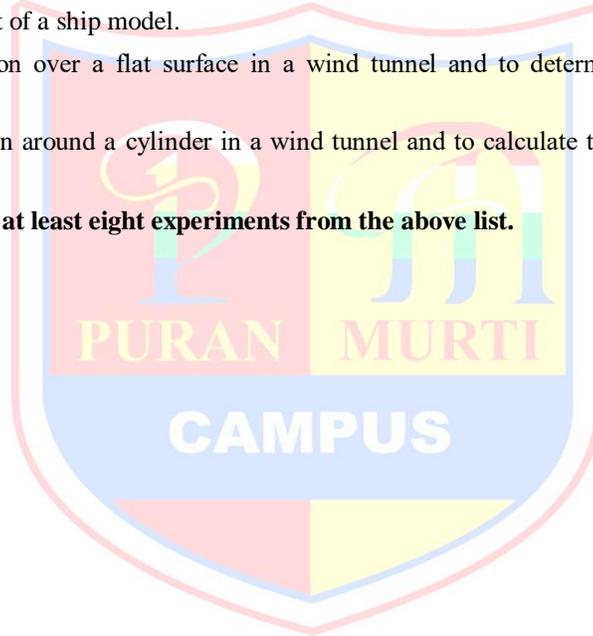
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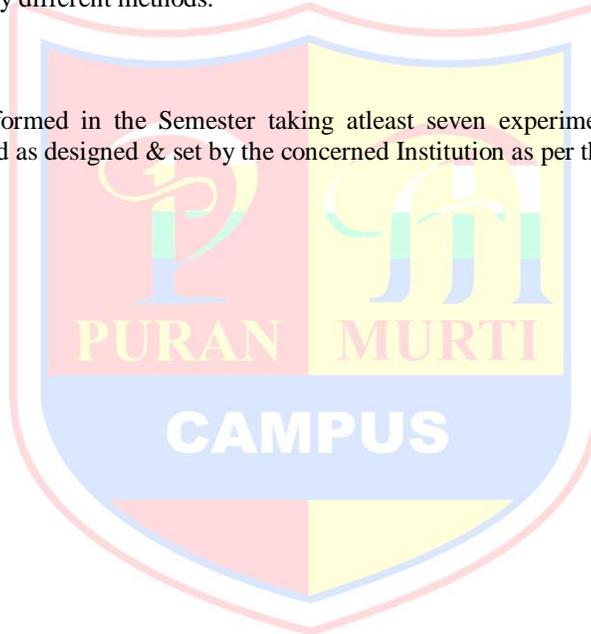
Subject: FLUID MECHANICS LAB
Subject Code: CE 213C
B. Tech. 2nd Year (Semester – III)

L	**T**	**P**	**Credits**			
--	--	2	1	**Class Work**	:	**25 Marks**
				Examination	:	**75 Marks**
				Total	:	**100 Marks**
				Duration of Examination	:	**3 Hours**

List of Experiments

1. Verification of Bernoulli's Theorem.

2. Calibration of Venturimeter.

3. Calibration of an orifice meter.

4. Determination of Coefficients of Contraction, Velocity and Discharge of a circular orifice.

5. Determination of friction factor for pipes.

6. Visualization of laminar and turbulent flow and estimating critical Reynold's number.

7. Determination of metacentric height of a ship model.

8. To measure the velocity distribution over a flat surface in a wind tunnel and to determine the Reynold's no. and boundary layer thickness along the plate.

9. To measure the pressure distribution around a cylinder in a wind tunnel and to calculate the coefficient of drag at different Reynold's number.

Note: Students are required to complete at least eight experiments from the above list.

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Subject: BASIC ELECTRONICS LAB
Subject Code: ECE 289C
B. Tech. 2nd Year (Semester – III)

L	T	P	Credits			
--	--	2	1	**Class Work**	:	**25 Marks**
				Examination	:	**75Marks**
				Total	:	**100 Marks**
				Duration of Examination	:	**3 Hours**

Experiment I: To conduct laboratory Session covering, Identification, Specifications, Testing of R, L, C Components (Colour Codes), Potentiometers, Switches (SPDT, DPDT and DIP), Bread Boards and Printed Circuit Boards (PCBs);

Experiment II: To conduct laboratory Session covering Identification, Specifications, Testing of Active Devices – Diodes, BJTs, JFETs, MOSFETs, Power Transistors, SCRs and LEDs.

Experiment III: To study the operation of Digital Multi Meter, Function / Signal Generator, Regulated Power Supply (RPS), Cathode Ray Oscilloscopes; Amplitude, Phase and Frequency of Sinusoidal Signals using Lissajous Patterns on CRO; (CRO);

Experiment IV: To examine the experimental Verification of PN Junction Diode Characteristics in A) Forward Bias B) Reverse Bias, Zener Diode Characteristics and Zener Diode as Voltage Regulator, Input and Output Characteristics of BJT in Common Emitter (CE) Configuration.

Experiment V: To study Drain and Transfer Characteristics of JFET in Common Source (CS) Configuration.

Experiment VI: Study of Half Wave and Full Wave Rectification, Regulation with Filters, Gain and Bandwidth of BJT Common Emitter (CE) Amplifier.

Experiment VII: To study Op-Amp Applications – Adder, Subtractor, Voltage Follower and Comparator; Op-Amp Applications – Differentiator and Integrator, Square Wave and Triangular Wave Generation.

Experiment VIII: To study Truth Tables and Functionality of Logic Gates – NOT, OR, AND, NOR, NAND, XOR and XNOR Integrated Circuits (ICs).

Experiment IX: To verify Truth Tables and Functionality of Flip-Flops – SR, JK and D Flip-Flop ICs.

Experiment X: To study Serial-In-Serial-Out and Serial-In-Parallel-Out Shift operations using 4-bit/8-bit Shift Register ICs; Functionality of Up-Down / Decade Counter ICs.

Note: **Seven experiments are to be performed from the above list. Remaining three experiments should be performed as designed & set by the concerned Institution as per the scope of the syllabus.**

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