

4 year B.Tech. Degree Course
Civil Engineering
Choice Based Credit System
(With effect from the academic year 2020-21)
III Semester – Scheme & Syllabus



SRI VENKATESWARA UNIVERSITY COLLEGE OF ENGINEERING: TIRUPATI-517502
DEPARTMENT OF CIVIL ENGINEERING

R20 Scheme of Instruction effective from the academic year 2020-2021

THIRD SEMESTER

S. No	Course Code	Category	Course Title	Scheme of Instruction(Hours/Week)				No. of Credits	Scheme of Evaluation		
				Lecture	Tutorial	Practical	Total		Sessional Marks	Semester End Examination Marks	Total
1	MA301B	BS	Mathematics – III (<i>Common to all branches</i>)	3	-	-	3	3	40	60	100
2	CE302C	PC	Strength of Materials	3	-	-	3	3	40	60	100
3	HS303C	HSS	Managerial Economics and Accountancy (<i>Common to all branches</i>)	3		-	3	3	40	60	100
4	CE304C	PC	Surveying	3	-	-	3	3	40	60	100
5	CE305C	PC	Building Materials and Construction	3		-	3	3	40	60	100
6	CE306C	PC	Engineering Geology	3	-	-	3	3	40	60	100
7	CE 307P	PCL	Surveying Lab	-	-	3	3	1.5	40	60	100
8	CE 308P	PCL	Materials Testing Lab	-	-	2	2	1	40	60	100
9	CE309S	SC	Skill Development Course I	1	-	2	3	2	40	60	100
10	MC310A	MC	Constitution of India (<i>Common to all branches</i>)	2	-	-	2	-	-	100	100
Total				21	-	7	28	22.5	360	640	1000

Category	No. of. Courses	Credits
Basic Science Course - BS	01	03
Professional Core Courses/ Professional Core Practical's -PCC/PCP	06	14.5
Humanities and Social Sciences -HSS	01	03
Skill Oriented Course -SC	01	02
Mandatory Course -MC	01	0
Total Credits		22.5(R)

R- Regular Program

4 year B.Tech. Degree Course
Civil Engineering
Choice Based Credit System
(With effect from the academic year 2020-21)

III Semester – Syllabus
MA 301B Mathematics – III

Instruction Hours/week: 3(L)

Credits :3

Sessional Marks : 40

Semester-end Examination Marks: 60

Course Educational Objective (CEOs):

1. To introduce the solution methodologies for second order Partial Differential Equations with applications in engineering
2. To provide an overview of probability and statistics to engineers

UNIT I

Complex analysis - I: Analytical functions - Cauchy-Riemann equations – Construction of Analytic functions- Complex integration - Cauchy's theorem - Integral formula - Evaluation of integrals.

UNIT II

Complex analysis - II: Taylor's and Laurent's' series- Transformations- Conformal mapping - Bilinear transformations - Transformation of $1/z$, z^2 , $\sin z$ and $\cos z$.

UNIT III

Complex analysis –III: Singularities - Poles - Residues - Residue theorem – Contour integration- Evaluation of real integrals

UNIT IV

Partial differential equations - I : Formation of differential equations - Classification - First order linear partial differential equations – Lagrange's' linear equation - Method of multipliers - first order non-linear partial differential equations - Charpits method.

UNIT V

Partial differential equations - II: Method of separation of variables - One dimensional wave equation - Heat equation – Laplace's equation.

Text Books:

1. Grewal B S, Higher Engineering Mathematics, 40th Edition, Khanna Publications, 2007.
2. Venkataraman M K, Engineering Mathematics, Vol. I & II, National Publishing Company, 1993.
3. Venkataraman M K, Engineering Mathematics, National Publishing Company, 1995.
4. Grewal B S, Engineering Mathematics, 13th Edition, Khanna Publications.
5. Kreyszig E, Advanced Engineering Mathematics, 8th edition, Wiley, 1998.

Course Outcomes (COs):

At the end of the course students will be able to

1. Solve field problems in engineering involving PDEs.
2. Formulate and solve problems involving random variables and apply statistical methods for analysing experimental data.

With effect from the academic year 2020 – 2021
III Semester

Program Outcomes(PO's) Course Outcomes (CO's)	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
CO1	2	2		1	2					2	1	
CO2	2	1		1	1	1		1		1	1	1

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CE 302C STRENGTH OF MATERIALS

Instruction Hours/week : 3(L)

Credits :3

Sessional Marks : 40

Semester-end Examination Marks:60

Course Educational Objective (CEOs):

1. To acquire the knowledge about behavior of members subjected to various types of forces on the members.
2. To impart procedure for drawing shear force and bending moment diagrams for beams.
3. To make the student able to analyze flexural stresses in beams due to.
4. To enable the student to apply the concepts of strength of materials in engineering applications and design problems.

UNIT I

SHEAR FORCE AND BENDING MOMENT:

Definition of beam - Types of beams - Concept of shear force and bending moment - S.F and B.M diagrams for cantilever, simply supported and overhanging beams subjected to point loads, u.d.l, uniformly varying loads and combination of these loads - Point of contra flexure - Relation between S.F, B.M and rate of loading at a section of a beam.

UNIT II

FLEXURAL STRESSES AND SHEAR STRESSES:

Theory of simple bending - Distribution of flexural stresses and shear stresses - Resilience due to flexure and shear. Principal stresses and principal strains - Mohr's circle of stresses.

UNIT III

COMBINED DIRECT AND BENDING STRESSES:

Stresses under the combined action of direct loading and B.M - Core of a section - Circular, rectangular and triangular (solid and hollow) - Determination of stresses in the case of chimneys, retaining walls and dams.

UNIT IV

COLUMNS AND STRUTS:

Introduction – classification of columns – Axially loaded compression members – Euler's crippling load theory – derivation of Euler's critical load formulae for various end conditions – Equivalent length – Slenderness ratio – Euler's critical stress – Limitations of Euler's theory – Rankine – Gordon formula – eccentric loading and Secant formula – Prof. Perry's formula.

UNIT V

CYLINDERS:

Thin cylinders subjected to internal fluid pressure - Thick cylinders under internal and external pressure - Compound cylinders.

TEXT BOOKS:

- 1) Mechanics of Structures Vol.I & Vol.II by S.B.Junnarkar.
- 2) Analysis of Structures by Vazirani & Ratwani.
- 3) Strength of Materials Vol.I & Vol.II by Timoshenko.
- 4) Strength of Materials by Andrew Pytal and Ferdinand L.Singer (Longman).

REFERENCES:

- 1) Engineering Mechanics by Egor. P. Popov.

Course Outcomes (COs):

After completion of the course the student will be able to:

- 1) Develop shear force and bending moment diagrams for different load cases.
- 2) Compute the flexural stresses for different load cases and different cross-sections.

With effect from the academic year 2020 – 2021
III Semester

Program Outcomes(PO's) Course Outcomes (CO's)	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
CO1	2	2	2		1	1			1	2	1	1
CO2		2	1		1	1			1	2	1	1

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HS 303C MANAGERIAL ECONOMICS AND ACCOUNTANCY

Instruction Hours/week : 3(L)

Credits :3

Sessional Marks : 40

Semester-end Examination Marks :60

Course Educational Objective (CEOs):

1. To learn the fundamental concepts of economics and analysis methods.
2. To study depreciation methods and inflation process and trade policies.
3. To acquire knowledge in basic concepts of accounting, principles.
4. To learn the techniques for preparing cost sheet.

Unit -I

Introduction to Engineering Economics, Fundamental concepts, Time value of money, Cash flow and Time Diagrams, choosing between alternative investment proposals, Methods of Economic analysis (pay back, ARR, NPV, IRR and B/C ratio), The effect of borrowing on investment, Equity vs Debt Financing, concept of leverage, Income tax leverage.

Unit -II

Depreciation and methods of calculating depreciation (straight line, sum of the years digit method, Declining balance method, Annuity method, Sinking fund method), National income accounting Methods of estimation, Various concepts of National Income, Significance of National income Estimation and its limitations.

Unit -III

Inflation: Definition, Process and Theories of inflation and Measure of control. New Economic Policy 1991(Industrial Policy, Trade Policy, Fiscal Policy), Impact on Industry.

Unit -IV

Accounting Principles, procedure, Double entry system, Journal, ledger, Trial balance, Cashbook, preparation of Trading and Profit and Loss account, Balance sheet.

Unit -V

Cost Accounting: Introduction, Classification of costs, Methods of costing, Techniques of costing, Cost sheet and preparation of cost sheet, Break-even Analysis, Meaning and its application, Limitation.

TEXT BOOKS:

1. Henry Malcom Steiner, Engineering Economics Principles, 2nd Edition, McGraw Hill Education, 1996.
2. Dewett. K.K., Modern Economic Theory, Sultan Chand and Co., 2006.
3. A.N. Agarwal, Indian Economy, Wiley Eastern Limited, New Delhi.
4. Jain and Narang, Accounting Part-I, Kalyani Publishers, 2011.
5. Arora, M.N. Cost Accounting: Principles and Practice, 12th Edition, Vikas Publication, 2012.

Course Outcomes (COs): After the completion of the course the student will be able to:

1. Understand Macro Economic environment of the business and its impact on enterprise.
2. Identify various cost elements of the product and its effect on decision making.
3. Understand the concepts of financial management and smart investment.
4. Prepare the Accounting records and interpret the data for Managerial Decisions.

With effect from the academic year 2020 – 2021
III Semester

Program Outcomes(PO's) Course Outcomes (CO's)	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
CO1			1	1		2					1	
CO2			1	1		2					1	
CO3			1	1		2					1	
CO4			1	1		2					1	1

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CE 304C SURVEYING

Instruction Hours/week : 3(L)

Credits :3

Sessional Marks : 40

Semester-end Examination Marks :60

Course Educational Objectives (CEOs):

1. Highlight the purpose of surveying in civil engineering construction,
2. Explain different types of curves, their requirement and curve setting.
3. Formulate survey observations and perform calculations
4. Train on utilization of surveying instruments like EDM, Total station and GPS.

UNIT – I

Introduction and Basic Concepts: Introduction, Objectives, classification and principles of surveying, Scales, Shrinkage of Map, Conventional symbols and Code of Signals, Surveying accessories, phases of surveying.

Measurement of Distances and Directions

Linear distances- Approximate methods, Direct Methods- Chains- Tapes, ranging, Tape corrections, indirect methods- optical methods- E.D.M. method.

Prismatic Compass- Bearings, included angles, Local Attraction, Magnetic Declination and dip.

UNIT - II

Levelling and Contouring

Leveling- Basics definitions, types of levels and levelling staves, temporary adjustments, methods of levelling, booking and Determination of levels- HI Method-Rise and Fall method, Effect of Curvature of Earth and Refraction.

Contouring- Characteristics and uses of Contours, Direct & Indirect methods of contour surveying, interpolation and sketching of Contours.

Computation of Areas and Volumes

Areas - Determination of areas consisting of irregular boundary and regular boundary (coordinates, MDM, DMD methods), Planimeter.

Volumes - Computation of areas for level section and two level sections with and without transverse slopes, determination of volume of earth work in cutting and embankments, volume of borrow pits, capacity of reservoirs.

UNIT - III

Theodolite Surveying: Types of Theodolites, Fundamental Lines, temporary adjustments, measurement of horizontal angle by repetition method and reiteration method, measurement of vertical Angle, Trigonometrical levelling when base is accessible and inaccessible.

Traversing: Methods of traversing, traverse computations and adjustments, Gale's traverse table, Omitted measurements.

UNIT - IV

Tacheometric Surveying: Principles of Tacheometry, stadia and tangential methods of Tacheometry.

Curves: Types of curves and their necessity, elements of simple curve, setting out of simple Curves, Introduction to compound curves. Elements of Reverse curve - Transition curve – length of curve – Elements of transition curve - Vertical curves.

UNIT - V

MODERN SURVEYING INSTRUMENTS:

Modern Field Survey Systems: Principle of Electronic Distance Measurement, Modulation, Types of EDM instruments, Distomat, Total Station – Parts of a Total Station – Accessories – Advantages and Applications, Field Procedure for total station survey, Errors in Total Station Survey; Global Positioning Systems- Segments, GPS measurements, Applications of GPS.

TEXT BOOKS:

1. Surveying and levelling by R. Subramanian, Oxford university press, New Delhi.
2. Chandra A M, “Higher Surveying”, New age International Pvt. Ltd., Publishers, New Delhi, 2002.
3. Hoffman. B, H. Lichtenegga and J. Collins, Global Positioning System - Theory and Practice, Springer -Verlag Publishers, 2001.

REFERENCES:

1. Arthur R Benton and Philip J Taety, Elements of Plane Surveying, McGraw Hill – 2000.
2. Arora K R “Surveying Vol 1, 2 & 3), Standard Book House, Delhi, 2004.
3. Surveying (Vol – 1, 2 & 3), by B. C. Punmia, Ashok Kumar Jain and Arun Kumar Jain - Laxmi Publications (P) ltd., New Delhi.
4. Chandra A M, “Plane Surveying”, New Age International Pvt. Ltd., New Delhi, 2002.
5. Surveying by Bhavikatti; Vikas publishing house ltd.
6. Duggal S K, “Surveying (Vol – 1 & 2), Tata McGraw Hill Publishing Co. Ltd. New Delhi, 2004.
7. Surveying and leveling by R. Agor Khanna Publishers 2015.

Course Outcomes (COs):

After completion of the course the student will be able to:

- Identify data collection methods and prepare field notes.
- Measure and layout elevations and relative position of points, understand plans and field notes.
- Ability to design, set out curves and use modern equipment.
- Calculate angles, distances, levels, estimate measurement errors and apply corrections.
- Interpret survey data and compute areas and volumes.

With effect from the academic year 2020 – 2021
III Semester

Program Outcomes(PO's) Course Outcomes (CO's)	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
CO1	2	2	2		2	1	2	1		1		1
CO2	1	1	2	1			1			2		1
CO3	2	2		1	2	1		2	1			2
CO4	2	2	1			1		1		1	1	1
CO5	2	2	1			1		1		1	1	1

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CE 305C BUILDING MATERIALS AND CONSTRUCTION

Instruction Hours/Week: 3(L)
Sessional Marks : 40

Credits : 3
Semester-end Examination Marks: 60

Course Educational Objective (CEOs):

- To learn and understand the manufacturing, physical and mechanical properties of various construction materials and their testing procedures.
- To study the basic building components.
- To learn the methods to be followed in constructing various components of a building.

UNIT-I STONES-BRICKS

Stone as building material-Selection of stones for construction-Tests on stones-Qualities of a good building stone-Deterioration of stones-Preservation of stones.

Bricks-composition of good brick earth-Manufacture of bricks-Classification of bricks-Tests for bricks-Absorption, Crushing strength, Hardness, presence of soluble salts, shape and size, soundness, structure-Uses of bricks-Refractories.

UNIT-II CEMENT-AGGREGATES

Cement ingredients-Setting action of cement-Manufacturing process of ordinary cement -Types of cement – Field and laboratory tests for cement-storage and uses of cement.

Aggregates-Qualities-classification of aggregates-Testing of Aggregates—Grading of aggregates-classification of sand-Bulking of sand- properties of good sand.

UNIT-III TIMBER AND OTHER MATERIALS

Timber-Qualities of good timber- Market forms-Industrial timber, Plywood, Veneer-. Steel -Market forms of steel. Aluminum -properties , alloys of aluminium.

UNIT-IV CONSTRUCTION ELEMENTS

Types of foundations, Stone Masonry-joints in stone masonry, classification of stone masonry. Brick Masonry-Bonds in brick masonry, types of brick masonry. Lintels- Types of lintels. Roofs and its types. Flooring -types of flooring, timber floors, composite floors. Damp proofing- meaning, causes, effects, materials used for damp proofing, methods of damp proofing.

UNIT-V OTHER ELEMENTS

Pointing-objects, mortar for pointing, method of pointing, types of pointing. Plastering-requirements of good plaster, methods of plastering. Painting-types of paints, painting on different surfaces failure of paint, defects in painting. Varnishing- characteristics of ideal varnish, ingredients, types, process of varnishing. Distempering-properties, ingredients of a distemper, process of distempering.

Thermal Insulation - insulating materials, thermal insulation of exposed doors, windows, exposed roofs and exposed walls. Acoustics-definition, types of absorbent materials, conditions for good acoustics, methods of sound insulation.

TEXTBOOKS:

1. Sushil Kumar “Building Materials and construction”, 20th edition, reprint 2015, Standard Publishers
2. Dr. B. C. Punmia, Ashok kumar Jain, Arun Kumar Jain, “Building Construction, Laxmi Publications (P) Ltd., New Delhi.
3. Rangwala S. C. “Engineering Materials”, Charotar Publishing House, India.

REFERENCES:

1. S. K. Duggal, “Building Materials”, (Fourth Edition) New Age International (P) Limited, 2016 National Building Code (NBC) of India
2. P C Vergese, “Building Materials”, PHI Learning Pvt. Ltd
3. Building Materials and Components, CBRI, 1990, India
4. Jagadish. K.S, “Alternative Building Materials Technology”, New Age International, 2007.
5. M. S. Shetty, “Concrete Technology”, S. Chand & Co. New Delhi.

Course Outcomes (COs):

After completion of the course the student will be able to:

- Explain the manufacturing, physical and mechanical properties of various construction materials and their testing procedures.
- Describe the basic building components.
- Apply the methods to be followed in constructing various components of a building.

Program Outcomes(PO's) Course Outcomes (CO's)	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
CO1	2	2	1	1		1	1	1		1	1	2
CO2	2	2	2		1	1	2	1		2		1
CO3	2	1	2	2		1	1		1	1	2	2

CE 306C ENGINEERING GEOLOGY

Instruction Hours/Week : 3(L)

Credits : 2

Sessional Marks : 40

Semester-end Examination Marks: 60

Course Educational Objective (CEOs):

1. To learn various geological parameters.
2. To study characteristics of various minerals and their Identification.
3. To study the formation and features of rocks and their Identification .
4. To learn elements of geological structures.
5. To acquire knowledge in preliminary causes for landslides and earth quakes.

UNIT – I

Introduction to geology and its various branches -Role of Earth Sciences in Civil Engineering Operations, Processes acting at the surface of the earth - Volcanism, Geological action of wind, glaciers, rivers and oceans - Application of Earth Science in Civil Engineering Practices, Understanding the earth, internal structure and composition. Weathering, erosion and denudations process on earth material and natural agencies, Geological work of wind, river underground water and glaciers.

UNIT – II

Mineralogy: Mineral properties, composition and their use in the manufacture of construction materials – Quartz Group; Feldspar Group; Kaolin; Asbestos; Carbonate Group ; Gypsum; Mica Group; Ore minerals - Iron ores; pyrite; Chlorite. Study of minerals like Garnet, Olivine, Hornblende, Augite, Calcite, Talc, Kyanite, Bauxite and Clay minerals.

UNIT – III

Petrology: Origin and formation of rocks - Classification of rocks - Igneous, Sedimentary and Metamorphic rocks - Their textures and structures -Study of rocks like Granite, Gabbro, Dolerite, Basalt, Breccia, Conglomerate, Sand stone, Shale, Limestone, Laterite, Quartzite, Schist, Gneiss, Marble, Slate. Definition of rock - Rock forming processes - Geological classification of rocks - Megascopic study, Chemical and Mineralogical Composition of rock.

UNIT – IV

Structural Geology: Elements of structural geology like strike, dip, outcrop. Study of folds, joints, faults and their importance in civil engineering works. Dykes and sills, common structures and textures - Out crop, strike and dip study of common geological structures associating with the rocks such as folds, faults unconformities, and joints – their important types. Their importance insitu and drift soils, common types of soils, their origin and occurrence in India.

UNIT – V

Geology of dams, reservoirs, tunnels landslides and rock falls. Earthquakes. Groundwater exploration. Rock as construction materials. Site selection for dams and tunnels – analysis of failures in dams and tunnels - Seismic zones of India - Earth quakes, their causes and effects. Seismic waves, Richter scale. Landslides - causes and effects; Tsunami –causes and effects.

TEXT BOOKS:

1. A text book of geology By Mukharjee.P.K.
2. A Text Book of Engineering Geology - N.Chennakesavulu.

3. Engineering and general Geology by Parbin Singh
4. Engineering Geology by R.E.Goodman

REFERENCES:

1. Principles of Engineering geology and Geotechnics By Krynine & Judd
2. Geology for Engineers by Blyth & de freitaus
3. Fundamental of Engineering Geology by F.H.Bell.

Course Outcomes (COs):

After completion of the course the student will be able to:

1. To apply the geological knowledge to Civil Engineering Constructions, at different stages. The kind of study exposes the geological draw backs, if any.
2. To help the site engineers to take suitable precautionary measures to overcome the drawbacks but also to take advantage of the site geology findings wherever possible.
3. To take precautionary measures in civil engineering constructions based on geological parameters.

Program Outcomes(PO's) Course Outcomes (CO's)	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
CO1	2	2	1	1	1		1			1		1
CO2	2	1	2	1			1	1				
CO3	2	2	1					1				1

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CE 307P SURVEYING LAB

Instruction Hours/week : 3 (P)

Credits : 1.5

Sessional Marks : 40

Semester-end Examination Marks: 60

Course Educational Objective (CEOs):

1. To apply the possess knowledge about survey field techniques
2. To apply the possess knowledge about traverse survey
3. To determine distances, areas of polygons
4. To gain knowledge of modern field measurement tools and techniques

EXERCISE – 1

Measurement of distance by chain, Tape and Area of a polygon by cross staff survey

EXERCISE – 2

Compass traversing and adjustment of closing error by Bowditch method (Graphical method)

EXERCISE – 3

Plane table survey; finding the area of a given boundary

EXERCISE – 4

Fly levelling: Height of the instrument method and rise and fall method.

EXERCISE – 5

Fly levelling; Longitudinal Section and Cross sections of a given road profile.

EXERCISE – 6

Theodolite Survey: Determining the Horizontal and Vertical Angles Finding the distance between two inaccessible points.

EXERCISE – 7

Tachometric survey: Heights and distance problems using tachometric principles.

EXERCISE – 8

Set out simple curve using Perpendicular offsets from long chord and Rankine's deflection angles method.

EXERCISE – 9

Total Station: Determination of area using total station.

EXERCISE – 10

Total Station: Determination of Remote height.

Course Outcomes (COs):

After completion of the course the student will have:

1. Ability to use the techniques, skill and surveying equipment for engineering practice.
2. Ability to apply mathematics concepts in the field of surveying.
3. Ability to develop an understanding of modern surveying equipment

With effect from the academic year 2020 – 2021
III Semester

<div> <div>Program</div> <div>Outcomes(PO's)</div> </div> <div> <div>Course</div> <div>Outcomes (CO's)</div> </div>												
	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
CO1	2	1								1		
CO2	2	2								1		
CO3	1	2	2			1	1			1		2

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CE 308P MATERIAL TESTING LAB

Instruction Hours/Week : 2(P)
Sessional Marks : 40

Credits : 1
Semester-end Examination Marks: 60

Course Educational Objective (CEOs):

1. To make student understand the fundamental modes of loading of the structures
2. To train student in methods for determining mechanical properties of materials.

LIST OF EXPERIMENTS

1. Tension and Torsion Test on Mild Steel bar and HYSD bar
2. (a) Deflection Test on Simply Supported Beam
(b) Charpy Impact Test
3. (a) Deflection Test on Fixed Beam
(b) Izod Impact Test
4. (a) Compression Test on Wood
(b) Shear Test on Wood
5. (a) Test on Closed coil Helical Spring
(b) Bending Test on Carriage Spring
6. (a) Deflection Test on beam under Uniform Bending
(b) Bending Test on R.S. Joist
- 7 Sieve Analysis of coarse and fine aggregates
- 8 Bulking of Sand by Volume and Weight methods
- 9 Normal consistency, Initial and Final Setting Times of Cement
- 10 Tests on concrete
 - a) Slump Test
 - b) Compressive Strength of Concrete Cubes
 - c) Compaction Factor Test
 - d) Compressive Strength of Concrete Cylinders
- 11 (a) Specific gravity & Water absorption of Coarse aggregate
(b) Specific gravity of Cement
- 12 Water absorption and Compressive Strength of Bricks

Course Outcomes (COs):

After completion of the course the student will be able to

1. Determine the properties of different building construction materials.
2. Analyse the behaviour of different construction materials.

With effect from the academic year 2020 – 2021
III Semester

<div> <div>Program</div> <div>Outcomes(PO's)</div> <div>Course</div> <div>Outcomes (CO's)</div> </div>												
	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
CO1	1	2	1	1		1		1	1	1	2	
CO2	2	2	1					1	1	1	1	1

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CE 309S COMPUTER SKILLS

Instruction Hours/week: 2 (P)

Credits :1

Sessional Marks : 40

Semester-end Examination Marks: 60

Course Educational Objectives (CEOs):

1. To learn and use MSWORD.
2. To learn and use MSEXCEL,MSPOWERPOINT
3. To learn and browse the INTERNET and EMAIL

EXERCISE – 1:

MS WORD: Text Basics, Text Formatting and saving file, working with Objects

EXERCISE – 2 :

MS WORD: Header & Footers, Working with bullets and numbered lists, Tables

EXERCISE –3:

MS WORD: Styles and Content, Merging Documents, Sharing and Maintaining Document

EXERCISE –4 :

MS WORD: Sharing and Maintaining Document, : Proofing the document, Printing

EXERCISE –5:

MS EXCEL: Introduction to Excel, Formatting excel work book

EXERCISE –6

MS EXCEL: Perform Calculations with Functions, Sort and Filter Data with Excel

EXERCISE – 7:

MS EXCEL: Create Effective Charts to Present Data Visually, Analyze Data Using PivotTables and Pivot Charts, Protecting and Sharing the work book

EXERCISE – 8:

MS EXCEL: Use Macros to Automate Tasks, Proofing and Printing

EXERCISE – 9:

MS POWER POINT: Setting Up PowerPoint Environment, Creating slides and applying themes, Working with bullets and numbering, Working with Objects, Slide show option and print

EXERCISE – 10:

INTERNET AND EMAIL: What is Internet, Receiving Incoming Messages , Sending Outgoing Messages, Email addressing , Email attachments, Browsing, Search engines , Text chatting, Job Searching.

COURSE OUTCOMES (COs):

After completion of the course the student will be able to:

1. Use MS WORD, MS EXCEL AND POWER POINT in any civil engineering project works and for personal works.

With effect from the academic year 2020 – 2021
III Semester

<div> <div>Program</div> <div>Outcomes(PO's)</div> <div>Course</div> <div>Outcomes (CO's)</div> </div>												
	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
CO1	2	2	2	1	2	1		1	1	2		1

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MC310A CONSTITUTION OF INDIA

Instruction Hours/Week : 2(L)

Credits : -

Sessional Marks : 100

End Semester Examinations Marks : -

Course Educational Objectives(CEOs): Students will learn:

1. To Understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
2. To address the growth of Indian opinion regarding modern Indian intellectuals' constitutional role and entitlement to civil and economic rights as well as the emergence of nationhood in the early years of Indian nationalism.
3. To address the role of socialism in India after the commencement of the Bolshevik Revolution in 1917 and its impact on the initial drafting of the Indian Constitution.

Unit-I

History of Making of the Indian Constitution:

History ,Drafting Committee, (Composition & Working)

Philosophy of the Indian Constitution: Preamble Salient Features

Unit-II

Contours of Constitutional Rights & Duties:

- Fundamental Rights
- Right to Equality
- Right to Freedom
- Right against Exploitation
- Right to Freedom of Religion
- Cultural and Educational Rights
- Right to Constitutional Remedies
- Directive Principles of State Policy
- Fundamental Duties.

Unit-III

Organs of Governance:

- Parliament
- Composition
- Qualifications and Disqualifications
- Powers and Functions
- Executive
- President
- Governor
- Council of Ministers
- Judiciary, Appointment and Transfer of Judges, Qualifications
- Powers and Functions

Unit-IV

Local Administration:

- District's Administration head: Role and Importance,
- Municipalities: Introduction, Mayor and role of Elected Representative, CEO of Municipal

Corporation.

- Pachayati raj: Introduction, PRI: Zila Pachayat.
- Elected officials and their roles, CEO Zila Pachayat: Position and role.
- Block level: Organizational Hierarchy (Different departments),
- Village level: Role of Elected and Appointed officials,
- Importance of grass root democracy

Unit-V

Election Commission:

- Election Commission: Role and Functioning.
- Chief Election Commissioner and Election Commissioners.
- State Election Commission: Role and Functioning.
- Institute and Bodies for the welfare of SC/ST/OBC and women.

TEXT BOOKS/REFERENCES:

1. The Constitution of India, 1950 (Bare Act), Government Publication.
2. Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.

Course Outcomes(COs):

Students will be able to:

1. Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
2. Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
3. Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
4. Discuss the passage of the Hindu Code Bill of 1956.

E-RESOURCES:

1. nptel.ac.in/courses/109104074/8
2. nptel.ac.in/courses/109104045/
3. nptel.ac.in/courses/101104065/
4. www.hss.iitb.ac.in/en/lecture-details
5. www.iitb.ac.in/en/event/2nd-lecture-institute-lecture-series-indian-constitution

With effect from the academic year 2020 – 2021
III Semester

<div> <div>Program</div> <div>Outcomes(PO's)</div> </div> <div> <div>Course</div> <div>Outcomes (CO's)</div> </div>												
	PO(1)	PO(2)	PO(3)	PO(4)	PO(5)	PO(6)	PO(7)	PO(8)	PO(9)	PO(10)	PO(11)	PO(12)
CO1	2	2			2	1	2			2	1	1
CO2	2	1	1		1	1				1	1	1
CO3	2	2			2	1	2			2	1	1
CO4					2	1	2			2	1	1

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