| SHOK TECHNOLOGIC | K.a. | SA | MRA | T ASH | IOK 1 | ГЕСН | NC | DLO | GICAL | | τιτι | JTE | |
|--|---|-------------------------|-----------------|---------------------|----------------------|--------------------|-------------|----------------|-----------|----------|------------|--------|-----------|
| GIA | | | (E | Engine | ering | Colle | ge | e), V | IDISH, | A M.F |) . | | |
| Stante A | and the second se | | (An | Autono | mous Ir | nstitute | Aff | iliated | d to RGF | V Bho | pal) | | |
| VIDISHA M.P. | T | | | C | SIVIL | ENG | IN | EE | RING- | | | | |
| Semester/ | Year | V/III | | F | Program | ו | | | | B.T | ech | | |
| Subject | DC | Subject | t | CE-5 | 01 | Subje | ct | | Adv | vance S | Surve | eving | g |
| Category | | Maxi | mum N | larks All | otted | Name |). | | | | | 5 | |
| | Tł | neory | | | | Practica | al | | Total | Conta | act H | ours | Total |
| End Sem | Mid-Se | m Assig | nment | Quiz | End Sem | Lab- Work | C, | Quiz | Marks | L | Т | Р | Credits |
| 60 | 20 | 1 | 0 | 10 | 30 | 10 | | 10 | 150 | 3 | - | 2 | 4 |
| Droroquioi | too: | | | | | | | | | | | | |
| Surveying | | | | | | | | | | | | | |
| Course Ol | bjective: | | | | | | | | | | | | |
| 1. To | o understa | and the b | asics a | and ele | ments | of diffe | ren | nt typ | es of cu | irves o | n roa | ads a | and their |
| pr | eliminary | survey | | | | | | | | | | | |
| 2. To | b learn about surveying applications in setting out of curves, buildings, culverts and tunnels | | | | | | | | | | | | |
| 3. I c | To get introduced to different geodetic methods of survey such as triangulation, trigonometric levelling | | | | | | | | | | | | |
| 4. To | 4. To learn about errors in measurements and their adjustments in a traverse | | | | | | | | | | | | |
| 5. To get introduced to modern advanced surveying techniques involved such as Remote | | | | | | | | | | | | | |
| sensing, Total station, GPS, Photogrammetry etc. | | | | | | | | | | | | | |
| After completion of the course, the student will be able to: | | | | | | | | | | | | | |
| 1. set out curves, buildings, culverts and tunnels | | | | | | | | | | | | | |
| 2. ca | arrv out a | aeodetic s | urvev. | taking a | accurat | e meas | ure | ement | ts usina | instrum | ents | and | |
| ac ຣເ | carry out a geodetic survey, taking accurate measurements using instruments and adjusting the traverse apply mathematical adjustment of accidental errors involved in surveying measurements | | | | | | | | | | | | |
| 3. pl | an a surve | ey for appl | ication | s such | as road | l alignm | ent | t and | height o | f the b | uildin | g | |
| 4. in | voke adva | anced surv | veying | techniq | ues ove | er conve | enti | onal | methods | in the | field | of civ | vil |
| | | | | De | ecriptic | 200 | | | | | | Ire | CO's |
| UNITS | Modern | equipme | ent's fo | or surv | evina: | Digital | lev | els a | and the | odolites | ; | 113. | 003 |
| I | Electron | nic Distar | nce me ms (G | easuren PS), Dig | nent(ED gital Pla | DM), To nimeter | otal r . | Sta | tion and | Globa | al | 7 | CO1 |
| | Surveyi | ing Astron | nomy: | Definitio | ons of | astrono | mic | cal te | erms, co | ordinat | е | | |
| | system | s for lo tric Cart | cating | heave | enly b | odies, | ge | eogra | phic, g | eodetio |), h | | |
| II | resourc | es mappi | ing, co | nverge | nce of | meridi | an. | par | allel of | latitude |), | 9 | CO1 |
| | shortest distance between two points on the earth, determination of | | | | | | | | | | | | |
| | latitude | latitude and longitude. | | | | | | | | | | | |
| | GPS S | urveying: | Introdu | ction & | compo | nents o | of G | PS, | Space s | egmen | t, | Ī | |
| | surveys | segment Map dati | ums (| user se GPS rec | eivers | GPS of | ena bse | s or ervati | on meth | ods an | d d | | |
| | their ad | vantages | over c | onventio | onal me | ethods. | | | | 2 un | - | Q | CO^{2} |
| | Digital - | Terrain Mo | odel (D | TM): To | pogran | hic rep | res | entat | ion of th | e terrai | n | 0 | 002 |
| | and gei | neration o | f DTM | on com | puters | usings | spo | t heig | phts and | contou | ır | | |
| | maps. | | | | | | | | | | | | |

| IV | Photogrammetry: Principle, definitions and classifications of terrestrial and aerial photogrammetry, flight planning for aerial photography, scale and relief displacements of vertical aerial photographs, stereoscopic vision on vertical photographs, computation of position, length and elevations of objects using photographs and photo mosaic.9CO3Remote Sensing: Principle, components, classification, remotePrinciple, components, classification, remote1000000000000000000000000000000000000 | | | | | | | |
|--|---|------------------------------------|---------|----------|--|--|--|--|
| V | Remote Sensing: Principle, components, classification, remote sensing data acquisition process, different types of remote sensing satellite imagery with special relevance to Indian Remote Sensing Satellites (IRS) and applications.7CO4Geographic Information Systems (GIS): Definition, components and7CO4 | | | | | | | |
| Geographic Information Systems (GIS): Definition, components and advantages. | | | | | | | | |
| Guest Lect | ures (if any) | | | | | | | |
| Total Hour | 'S | | 40 | | | | | |
| Suggestive | list of experiments: | | | | | | | |
| Measurement of horizontal angle by repitation. Determination of constants by tachemeter. | | | | | | | | |
| 2. De | termination of constants by tachometer. | die teeleereetre | | | | | | |
| 3. IVIE | asurement of norizontal distance by star | dia tachometry. | | | | | | |
| 4. TO | setting simple circular curve by Ranking | method tangential angle | | | | | | |
| 6 Plc | offing a closed traverse in field by using t | heodolite | | | | | | |
| 7. Plo | otting of a open traverse in field by using | theodolite. | | | | | | |
| 8. Pra | actising of modern equipment's. | | | | | | | |
| 9. De | termination of horizontal and vertical dis | tance by total station. | | | | | | |
| 10. Determination of traversing and area calculation by total station. | | | | | | | | |
| Text Book- | | | | | | | | |
| 1. Surveying and Leveling-Part-I & II by T.P. Kanetkar and S.V. Kulkarini, Pune Vidyarthi Griha Prakashan, Pune | | | | | | | | |
| Engineering Surveying: Theory and Examination Problems for Students by W. Schofield, Butterworth, Heinemann, Oxford. | | | | | | | | |
| Reference | Books- | | | | | | | |
| 1. Su | rveying: Problems Solving with theory an | id objective type questions by A.N | 1. Chan | dra, New | | | | |
| Ag | e International Publishers N. Delhi. | | | | | | | |
| 3. Ad | vance Surveying by A.M. Chandra, New | Age International Publishers N. | Deini. | Dolhi | | | | |
| 4. Su | mete Sensing and image intermetation h | Haw Hill Fublishing Company Lic | | Deini. | | | | |
| J. Re | mole Sensing and Image interpretation t | by Linesand T.M. and Klefer K.W | ۷. | | | | | |
| | inment Mid term exam. End term exam | and Practical Viva | | | | | | |
| Rubric ⁻ End | term exam Practical: 50% Quiz and 5 | 0% Viva | | | | | | |
| List/Links c | f e-learning resource | | | | | | | |
| https://swa | avam.gov.in/nd1 noc20 ce51/preview | | | | | | | |
| https://npte | I.ac.in/courses/105107121 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Recommer | ndation by Board of studies on | 13-06-2024 | | | | | | |
| Approval by Academic council on | | | | | | | | |
| Compiled and designed by | | | | | | | | |
| Subject handled by department Civil Engineering | | | | | | | | |

| SAMRAT ASHOK TECHNOLOGICAL INSTITUTE | | | | | | | | | | | | |
|---|--|--------------------------|----------------|------------|--------------------|----------------------|-----------|---------------------|---------------------|--------|--------|------------|
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| A Conte | and the second s | | (A | An Auton | omous | Institute / | Affiliate | d to RG | PV Bho | pal) | | |
| the song direct | | | - | | | . ENG | INEE | RING | | | | |
| Semester/Y | ear | V/III | | Р | rogram | | | | B.Te | ch | | |
| Subject Category | DC | Subject Code: | | CE-502 | SI N | ubject ame: | | Flui | d Mech | nanic | s - I | [|
| | | Maximu | ım I | Marks All | otted | unio. | | | Cont | act H | ours | |
| | The | ory | | 1 | End | Practical | 1 | Total | 00110 | | | Total |
| End Sem | Mid-Sem | Assignme | ent | Quiz | Sem | Work | Quiz | Marks | L | Т | Ρ | Credits |
| 60 | 20 | 10 | | 10 | 30 | 10 | 10 | 150 | 3 | - | 2 | 4 |
| Droroquioito | 201 | | | | | | | | | | | |
| Fluid Mechanics - I | | | | | | | | | | | | |
| Course Objective: | | | | | | | | | | | | |
| Students ar | e expected | to learn va | iriou | us types | of flows | in open | channe | and als | so to de | sign | oper | channel |
| sections in | a most eco | onomical fa | shi | on with i | minimur | n wetted | perime | eter and | learn a | bout | critio | cal flows, |
| non-unitorm | non-uniform flows in open channel and longitudinal slopes in open channel and also to learn about the characteristics of hydraulic jump, fluid flow patterns and learns to use boundary layer theory and drag | | | | | | | | | | | |
| forces etc. | | | | | | | | | | | | |
| Course Outcomes: | | | | | | | | | | | | |
| After completion of the course, the student will be able to: | | | | | | | | | | | | |
| 1. Visualize fluid flow phenomena observed in Civil Engineering systems such as flow through | | | | | | | | | | | | |
| pipes, analysis of pipe distribution system. 2 Analyse fluid flows in open channel hydraulics and other devices such as weirs and flumes | | | | | | | | | | | | |
| Analyse huid hows in open channels for most economical sections like rectangular, trapezoidal and circular | | | | | | | | | | | | |
| sec | tions | | | . CL C | | (L. 1.) | | | | | | |
| 4. Ana 5 Des | alyse the ef | tect of drag |) & I liffe | ift forces | s due to | fluid. achine-lik | ke turbi | nes pur | nos etc | | | |
| | | | | | | | | | | | Ire | CO'e |
| UNITS | Turbulent | flow: Lami | inar | and tur | bulent b | oundarv | lavers | and lam | ninar su | b r | 115. | COS |
| | layer, hy | /dro-dynam | ical | lly smo | oth an | d rough | bour | idaries, | veloci | ty | | |
| | distributio | n in turbu | ulen | it flow, | resista | nce of | smooth | and a | artificial | ly | | |
| | roughene | d pipes, co | mm | iercial pi | pes, agi | ng of pipe | es. | | | | | |
| 1 | Pipe flow | problems: | Lo | sses due | e to suc | lden exp | ansion | and cor | ntraction | ח, | g | CO1 |
| | hvdraulic | and energy | iv c | uue io | lines, s | iphon, pi | s or e | series. | pipes i | n | Ū | 001 |
| | parallel, b | ranching of | f pip | bes, Thre | e Rese | rvoir prot | plems. | 001100, | p.p.co . | | | |
| | Pipe Net | work: Wate | er H | lammer, | Transr | nission d | of pow | er. Harc | ly Cros | s | | |
| | Method. | | | | | | | | | | | |
| | Uniform f | low in ope | en | channels | s: Chan | nel geor | netry a | and eler | nents o | of | | |
| | channel s | section, ve | eloc | ity distri | bution, | energy | in ope | n chanı | nel flov | ۷, | | |
| 11 | flow and | hergy, type d its con | es o nnu | tations | Chezy | w and its | Mann | utations ing's f | , uniion ormulae | - - | 9 | CO2 |
| | determina | ation of nor | ma | l depth a | and velo | city, Nor | mal an | d critica | I slope | S, | | |
| | Economic | al sections | of | different | channe | I. Saint V | enanet | equatio | n. | | | |
| | Non unifo | orm flow in | op | en char | nels: E | asic ass | umptio | ns and | dynam | ic | | |
| | equations | of grad | uall | y varie | d flow, rapidly | charac | teristics | s analy | sis an | d | _ | 000 |
| | rectangula | ar channel | vv k Is a | and its | basic o | character | istics, | surges | in ope | n | 1 | CO3 |
| | channels | & channel | flow | routing, | venturi | flume. | | 5 | | | | |

| IV | Forces on immersed bodies: Types of drag cylinder and on an aerofoil development of h | g, drag on a sphere, a flat plate, a ift, lifting vanes, Magnus effect. | 8 | CO4 | | | | | |
|--|--|---|-------------------------------|--------------------------|--|--|--|--|--|
| V | specific speed and unit quantities, various types of turbines and their classifications, Peloton turbine-their construction and settings, speed regulation, dimensions of various elements, Action of jet, torque, power and efficiency for ideal case, characteristic curves. Reaction turbines: construction & settings, draft tube theory, runaway speed, simple theory of design and characteristic curves, cavitation. Pumps: Centrifugal pumps: Various types and their important components, mano metric head, total head, net positive suction head, specific speed, shut off head, energy losses, cavitation, principle of working and characteristic curves. Reciprocating pumps: Principle of working, Coefficient of discharge, slip, single acting and double acting pump, Mano metric head, Acceleration head. | | | | | | | | |
| Overet Least | head. | | | | | | | | |
| Guest Lecti | ures (if any) | | 40 | | | | | | |
| Suggestive | s list of experiments: | | 40 | | | | | | |
| 1. Det 2. Stu 3. Stu 4. Stu 5. Cal 6. To 7. Det ove 8. Stu 9. Stu 10. Stu | termination of friction factor dy the performances characteristics of Pe dy the performances characteristics of Fra dy the performances characteristics of Ka ibration of multistage (Two) Pump & Study study the performance & details of operati termination of coefficient of discharge for a er weir dy of the characteristic of the Reciprocatin dy of Hydraulic Jump. dy of surges in open channel flow. | Iton Wheel ancis Turbine plan Turbine y of characteristic of variable spee on of Hydraulic Ram (Water Ham a broad crested weir & to plot wate ng pump | ed pum mer efi er surfa | p fect) ce profile | | | | | |
| Text Book- 1. Fluid Mechanics - Modi& Seth - Standard Book house, Delhi 2. Open Channel Flow by Rangaraju- Tata McGraw - Hill Publishing Comp. Ltd., New Delhi 3. Fluid Mechanics - A.K. Jain - Khanna Publishers, Delhi 4. Fluid Mechanics, Hydraulics & Hydraulic Machanics - K.R. Arora - Standard Publishers Distributors 1705- B, NaiSarak, Delhi-6 | | | | | | | | | |
| Hyd. of open channels By Bakhmetiff B.A. (McGraw Hill, New York) Open Channel Hyd. By Chow V.T. (McGraw Hill, New York). Engineering Hydraulics By H. Rouse Centrifugal & Axial Flow Pump ByStempanoff A.J. New York Dr. D.S. Kumar, Fluid Mechanics and Fluid Power Engineering. | | | | | | | | | |
| Quiz, Assig | nment, Mid-term exam, End term exam ar I term exam, Practical: 50% Quiz and 50% | nd Practical Viva. Viva | | | | | | | |
| List/Links of | f e-learning resource | | | | | | | | |
| https://swayam.gov.in/nd1_noc20_ce59/preview https://nptel.ac.in/courses/103102211 | | | | | | | | | |
| Recommen | dation by Board of studies on | 13-06-2024 | | | | | | | |
| Approval by | / Academic council on | | | | | | | | |
| Compiled a | nd designed by | | | | | | | | |
| Subject handled by department Civil Engineering | | | | | | | | | |

| (Engineering College), VIDISHA M.P. (An Autonomous Institute Affiliated to RGPV Bhopal) CIVIL ENGINEERING Semester/Year V/III Program B.Tech Subject Category DC Subject Code: CE-503 Subject Name: Structural Design & Drawing – I (R.C.C.) Maximum Marks Allotted Practical Total Total Image: Theory End Lab- Contact Hours Total End Sem Mid-Sem Assignment Quiz End Lab- T P 60 20 10 10 30 10 150 3 - 2 4 Prerequisites: Mechanics of material Course Objective: Student is expected to learn basic fundamentals of reinforced concrete design & provision of IS 456-2000 code of practice for the design of concrete structure, the stress strain behaviour of steel and concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
|---|--|--|--|--|--|--|--|
| (An Autonomous Institute Affiliated to RGPV Bhopal) CIVIL ENGINEERING Semester/Year V/III Program B.Tech Subject Category DC Subject Code: CE-503 Subject Name: Contact Hours Total Maximum Marks Allotted Practical Total Contact Hours Total End Sem Mid-Sem Assignment Quiz End Lab- Work Quiz Marks L T P 60 20 10 10 30 10 150 3 - 2 4 Prerequisites: Mechanics of material Course Objective: Student is expected to learn basic fundamentals of reinforced concrete design & provision of IS 456- 2000 code of practice for the design of concrete structure, the stress strain behaviour of steel and concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
| CIVIL ENGINEERING Semester/Year V/III Program B.Tech Subject Category DC Subject Code: CE-503 Subject Name: Structural Design & Drawing – I (R.C.C.) Maximum Marks Allotted Contact Hours Total Credits End Sem Mid-Sem Assignment Quiz End Lab- Work Contact Hours Total Credits 60 20 10 10 30 10 10 150 3 - 2 4 Mechanics of material Course Objective: Student is expected to learn basic fundamentals of reinforced concrete design & provision of IS 456- 2000 code of practice for the design of concrete structure, the stress strain behaviour of steel and concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
| Semester/YearV/IIIProgramB.TechSubject CategoryDCSubject Code:CE-503Subject Name:Structural Design & Drawing – I (R.C.C.)Maximum Marks AllottedCe-503Practical Marks AllottedTotal MarksTotal Contact HoursTotal CreditsEnd SemMid-SemAssignmentQuizEnd SemLab- WorkQuizMarksLTP602010103010101503-24Prerequisites:Mechanics of materialCourse Objective:Student is expected to learn basic fundamentals of reinforced concrete design & provision of structure, the stress strain behaviour of steel and concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
| Subject CategoryDCSubject Code:CE-503Subject Name:Structural Design & Drawing – I (R.C.C.)Maximum Marks AllottedImage: CelebolContact HoursTotal Contact HoursTotal CreditsEnd SemMid-SemAssignmentQuizEnd SemLab- WorkQuizTotal MarksImage: CelebolTotal Credits602010103010101503-24Prerequisites:Mechanics of materialCourse Objective:Student is expected to learn basic fundamentals of reinforced concrete design & provision of IS 456- 2000 code of practice for the design of concrete structure, the stress strain behaviour of steel and concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
| CategoryDCCode:CE-303Name:(R.C.C.)Maximum Marks AllottedTheoryPracticalTotalEnd SemMid-SemAssignmentQuizEndLab- SemVorkQuizMarksLTP602010103010101503-24Prerequisites:Mechanics of materialCourse Objective:Student is expected to learn basic fundamentals of reinforced concrete design & provision of IS 456- 2000 code of practice for the design of concrete structure, the stress strain behaviour of steel and concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
| Maximum Marks Allotted Contact Hours Total Image: Theory Practical Total Contact Hours Total End Sem Mid-Sem Assignment Quiz End Lab- Quiz Marks L T P 60 20 10 10 30 10 10 150 3 - 2 4 Prerequisites: Mechanics of material Course Objective: Student is expected to learn basic fundamentals of reinforced concrete design & provision of IS 456- 2000 code of practice for the design of concrete structure, the stress strain behaviour of steel and concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
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| End SemMid-SemAssignmentQuizLindLusQuizMarksLTPP602010103010101503-24Prerequisites:Mechanics of materialCourse Objective:Student is expected to learn basic fundamentals of reinforced concrete design & provision of IS 456- 2000 code of practice for the design of concrete structure, the stress strain behaviour of steel and concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
| 60 20 10 10 30 10 10 150 3 - 2 4 Prerequisites: Mechanics of material Course Objective: Student is expected to learn basic fundamentals of reinforced concrete design & provision of IS 456-2000 code of practice for the design of concrete structure, the stress strain behaviour of steel and concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
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| 2000 code of practice for the design of concrete structure, the stress strain behaviour of steel and concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
| concrete, basic concepts of working stress and limit state methods, knowledge of limit state design for | | | | | | | |
| oncrete, basic concepts of working stress and limit state methods, knowledge of limit state design for lexure, shear, torsion, bond and anchorage, behaviour of columns subjected to direct and eccentric load | | | | | | | |
| I use of interaction diagrams, design of staircases and various types of foundations along with the | | | | | | | |
| application of all the above to provide economic solution for the real life problems of Civil Engineering. | | | | | | | |
| Course Outcomes: | | | | | | | |
| After completion of the course, the student will be able to: | | | | | | | |
| 1. Design various reinforced concrete elements by working stress and limit state method. | | | | | | | |
| 2. Interpret the appropriate relevant industry design codes related to structure design. | | | | | | | |
| 3. Familiar with professional and contemporary issues in the design and construction of reinforced | | | | | | | |
| | | | | | | | |
| UNITS Descriptions Hrs. CO's Region Principles of Structural Design: Assumptions Mechanism of load | | | | | | | |
| transfer. Various properties of concrete and reinforcing steel. Introduction | | | | | | | |
| to working stress method and various limit state methods of design- | | | | | | | |
| Collapse, Serviceability and durability, partial safety factor for load and 9 CO1 | | | | | | | |
| material. Calculation of various loads for structural design including wind | | | | | | | |
| and earthquake loads, Partial load factors. Analysis of singly and doubly | | | | | | | |
| | | | | | | | |
| Design of Beams: Rectangular & Flanged Beams, Lintel, Cantilever, | | | | | | | |
| reinforcement. Redistribution of moments in continuous beams. Circular | | | | | | | |
| girders, Deep beams, Design of Beam for strength and serviceability with | | | | | | | |
| provision for the bond, anchorage, development length and splicing. | | | | | | | |
| | | | | | | | |
| Design of Slabs: Slabs spanning in one direction. Cantilever, simply | | | | | | | |
| Design of Slabs: Slabs spanning in one direction. Cantilever, simply supported and Continuous slabs, Slabs spanning in two directions, 7 CO1 | | | | | | | |
| IIIDesign of Slabs: Slabs spanning in one direction. Cantilever, simply supported and Continuous slabs, Slabs spanning in two directions, Introduction to Circular slabs, Waffle slabs, Flat slabs, Yield line theory.7CO1 | | | | | | | |
| III Design of Slabs: Slabs spanning in one direction. Cantilever, simply supported and Continuous slabs, Slabs spanning in two directions, Introduction to Circular slabs, Waffle slabs, Flat slabs, Yield line theory. 7 CO1 Columns & Footings: Effective length of columns, short and long columns- 7 CO1 | | | | | | | |
| III Design of Slabs: Slabs spanning in one direction. Cantilever, simply supported and Continuous slabs, Slabs spanning in two directions, Introduction to Circular slabs, Waffle slabs, Flat slabs, Yield line theory. 7 CO1 Columns & Footings: Effective length of columns, short and long columns-Square, Rectangular and Circular columns, Isolated and combined footings. Strap footings. Columns and banding 7 CO1 | | | | | | | |
| III Design of Slabs: Slabs spanning in one direction. Cantilever, simply supported and Continuous slabs, Slabs spanning in two directions, Introduction to Circular slabs, Waffle slabs, Flat slabs, Yield line theory. 7 CO1 IV Columns & Footings: Effective length of columns, Isolated and combined footings, Strap footing, Columns subjected to axial loads and bending moments (sections with no tension). Annular footings, Design of short and 9 CO2 | | | | | | | |

| V | Staircases: Staircases with waist slab having equal and unequal flights with different support conditions, Slab less tread-riser staircase for various support condition as per the codal provisions. 7 CO3 NOTE: - All the designs for strength and serviceability should strictly be as per the latest version of IS:456. Use of SP-16 (Design aids) 7 CO3 | | | | | | | | | |
|--|--|-------------------------------|----|--|--|--|--|--|--|--|
| Guest Lecti | ires (if any) | | | | | | | | | |
| Total Hours | s | | 40 | | | | | | | |
| Suggestive | list of experiments: | | | | | | | | | |
| Design | a & drawing of simply supported beam. a & drawing of cantilever beam. a & drawing of continuous beam. a & drawing of simply supported one way siab. a & drawing of two-way slab. a & drawing of one-way continuous slab. a & drawing of circular slab. a & drawing of rectangular column. a & drawing of rectangular footing. a & drawing of staircase (waist slab type) a & drawing of staircase (tread-riser type) | lab. | | | | | | | | |
| Text Book-1.Reinfo2.Limit3.Desig4.ReinfoReference B1.Reinfo | Reinforced concrete design - Pillai Menon, Tata McGraw Hills Limit State Design by P.C.Varghese ; Prentice Hall of India, New Delhi Design of Reinforced Concrete Elements by Purushothaman; Tata McGraw Hill, New Delhi Reinforced Cement Concrete by Gupta &Mallick, Oxford and IBH Reinforced Cement Concrete by P. Dayaratnam, Oxford and IBH Plain & Reinforced Concrete Vol. I– O.P. Jain & Jay Krishna | | | | | | | | | |
| Plain 8 Plain 8 | & Reinforced Concrete Vol. I– O.P. Jain & & reinforced concrete – B.C. Punmia. | Jay Krishna | | | | | | | | |
| Modes of E | valuation and Rubric | | | | | | | | | |
| Quiz, Assig Rubric: End | nment, Mid-term exam, End term exam ar I term exam. Practical: 50% Quiz and 50% | nd Practical Viva. 9 Viva. | | | | | | | | |
| List/Links of | f e-learning resource | | | | | | | | | |
| https://nptel https://nptel https://nptel | Lac.in/courses/105/105/105105162/ Lac.in/courses/105/106/105106112/ Lac.in/courses/105/105/105105105/ | | | | | | | | | |
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| Recommendation by Board of studies on 13-06-2024 | | | | | | | | | | |
| Approval by Academic council on | | | | | | | | | | |
| Compiled a | Compiled and designed by | | | | | | | | | |
| Subject handled by department Civil Engineering | | | | | | | | | | |

| SNOK TECHNOLOGI | CH AN | SAMR | AT AS | SHOK | TECH | NOLO | GICAL | INS | TITU | TE | |
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| VIDISHA M.S. | and the second s | - | | CIVIL | _ ENG | INEE | RING | | | | |
| Semester/Y | ear | V/III | | Program | n | | | B.Te | ch | | |
| Subject | DC | Subject | CE-50 | 04 | Subject | | Structu | ural A | Analys | is-I | |
| Calegory | | Maximum | Marks A | llotted | iname. | | | C | Contac | t | |
| | The | ory | I | | Practical | | Total | | Hours | | Total |
| End Sem | Mid-Sem | Assignment | Quiz | End Sem | Lab- Work | Quiz | Marks | L | т | Ρ | Credits |
| 60 | 20 | 10 | 10 | - | - | - | 100 | 3 | - | - | 3 |
| | | | | | | | | | | | |
| Prerequisite | es: ef material | | | | | | | | | | |
| Mechanics | ormaterial | | | | | | | | | | |
| Course Obj | ective: | | | | | | | | | | |
| Students ar | e expected | to learn | | | | | | | | | |
| 1. To calcu | ilate loads f | or structural ar | nalysis. | blo and | unetable | otructu | roc | | | | |
| 3. To deter | mine forces | and deflection | ns in det | erminat | e trusses | s beams | s and fram | ies. | | | |
| 4. To determine force & amp; moments in indeterminate beams and small frame structures. | | | | | | | | | | | |
| 5. Study of | two and th | ree hinged ard | ches and | d suspe | nsion ca | ble, Ana | alysis of d | eterm | ninate | stru | cture for |
| Course Out | us. comes: | | | | | | | | | | |
| 1. To outlin | he the equili | brium of struct | ure. | | | | | | | | |
| 2. To identify suitable method to solve a given problem. | | | | | | | | | | | |
| 3. To analyze the results obtained by solving the given problem of arches & amp: suspension cable | | | | | | | | | | | |
| 3. To analyze the results obtained by solving the given problem of arches & amp; suspension cable, determinate and indeterminate structures. | | | | | | | | | | | |
| 4. Analysis | of determin | ate & ind | etermina | ate struc | tures for | rollina l | oad & | : influ | Jence | line | S. |
| UNITS | | | De | escriptic | ons | l'oning i | | , | H | s. | CO's |
| | Types of | structures, Dif | ferent ty | /pe of lo | oading a | nd supp | orts, Stat | ic an | d | | |
| | Kinematic | Indeterminac | y, straiı | n energ | gy and o | | nentary e | nergy | / , | | |
| | method | Di virtual work, Displacement d | Dispiac | ernenis ack of fi | t temper | is, rrus rature v | ses by un ariation is | il ioa unno | a rt . | | |
| I | movemen | ts. Method of | Consiste | ent Defo | rmation | for Bear | ms, Frame | es an | d 8 | 3 | CO1 |
| | Trusses u | p to two degree | es of ind | etermin | acy, Ene | rgy theo | rems, Max | xwell | s | | |
| | Reciproca | al theorem, Ana Is | alysis of | beams | , Pin-Joir | ited and | l rigid fram | ies fo | or | | |
| | Fixed and | I Continuous E | Beams: I | Beams | fixed at e | ends, B | eams of v | aryin | g | | |
| 1 | Cross-Sec | ction, Partially | Fixed at | Ends. | Effect of | Settlem | ent of Sup | ports | S, c | , | CO1 |
| | Three Mo | ment Theorem | for cor | ntinuous | Beams, | Beams | of Unifor | m an | d | , | 001 |
| | Varying Ci | ross-Sections. | | <u>nalvsis</u> | of beam | s and f | irames hv | slon | <u>م</u> | | |
| | Deflection | method, Mom | ent Dist | ribution | Method (| (without | sway) | 5100 | | 7 | CO2 |
| | Arches and Suspension Cables: Three hinged arches of different shapes, | | | | | | | | | | |
| IV | Eddy's Th | eorem, Suspe | ension ca | able, sti | ffening g | irders, | rwo Hinge | ed an | d S |) | CO3 |
| | Rolling lo | ads and Influ | ence Li | nes: Ma | | SF and | BM curv | es fo | or | | |
| V | various ty | pes of rolling | loads, f | focal lei | ngth, EU | DL, Infl | uence Lin | es fo | br _ | , | CO4 |
| v | Determina | ate Structures- | Beams, | Three | Hinged A | rches a | nd trusses | ; | | | 004 |
| Guest Lectures (if any) | | | | | | | | | | | |
| | | | | | | | + | | | | |
| Total Hour | S | | | | | | | | 4 | 0 | |
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| Text Book- 1. Reddy C.S., Basic Structural Analysis, Tata N 2. Norris C.H. Wilbur, J.B. and Litkys, Elements | AcGraw Hill Publishing Company, New Delhi. | | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|--|
| Tokyo. | | | | | | | | | | |
| Theory Of Structure by Dr. B.C. Punmia, Ash | ok Kumar Jain, Arun Kumar Jain | | | | | | | | | |
| Reference Books- | | | | | | | | | | |
| 1. R.C. Hibbler, Structural Analysis – Pearson (Prenti | ce Hall) | | | | | | | | | |
| 2. Wang C.K., Intermediate structural analysis, McGr | aw Hill, New York. | | | | | | | | | |
| 3. Kinney Sterling J., Indeterminate structural Analysi | 3. Kinney Sterling J., Indeterminate structural Analysis, Addison Wesley. | | | | | | | | | |
| 4. Reddy C.S., Basic Structural Analysis, Tata McGraw Hill Publishing Company, New Delhi. | | | | | | | | | | |
| 5. Norris C.H., Wilbur J.B. and Utkys, Elementary Structural Analysis, McGraw Hill International, Tokyo. | | | | | | | | | | |
| 6. Theory Of Structure by Dr. B.C. Punmia, Ashok Kumar Jain, Arun Kumar Jain | | | | | | | | | | |
| Modes of Evaluation and Rubric | | | | | | | | | | |
| Quiz, Assignment, Mid-term exam and End term exam | n. | | | | | | | | | |
| Rubric: End term exam. | | | | | | | | | | |
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| List/Links of e-learning resource | | | | | | | | | | |
| https://pytel.ac.in/courses/105101085 | | | | | | | | | | |
| https://nptel.ac.in/courses/105101005 | https://nptel.ac.in/courses/105101085 | | | | | | | | | |
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| Recommendation by Board of studies on | 13-06-2024 | | | | | | | | | |
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| Approval by Academic council on | | | | | | | | | | |
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| Subject handled by department | Civil Engineering | | | | | | | | | |
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| SAMRAT ASHOK TECHNOLOGICAL INSTITUTE | | | | | | | | | | | | |
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| GIA | | | (E | ngine | eering | Colle | ge), ∖ | /IDISH | A M.P | | | |
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| The sain abreat | 2 | | | (| CIVIL | ENG | INEE | RING | | | | |
| Semester/Y | ′ear | V/III | | Pr | ogram | | | | B.Tec | h | | |
| Subject | DE-I (A) | Subject | | E-505 | Su | bject | Tr | ansporta | tion Er | ngine | erin | g - II |
| Outegory | | Maximu | im Ma | arks Al | lotted | anno. | | | Conta | ct Hou | ire | |
| | Theo | ory | | | | Practica | | Total | Conta | | 15 | Total |
| End Sem | Mid-Sem | Assignm | ent | Quiz | Sem | Work | Quiz | Marks | L | Т | Ρ | Credits |
| 60 | 20 | 10 | | 10 | - | - | - | 100 | 3 | - | - | 3 |
| Prerequisit | ec. | | | | | | | | | | | |
| Basic knowledge about the road traffic, different pavement roads and highways. | | | | | | | | | | | | |
| Course Ob | iective: | | | | - | | | - | - | | | |
| 1. To | understand | the impo | ortand | ce of v | arious t | ranspor | tation s | system a | nd char | acteri | stics | s of road |
| transport. | | | | | | | | | | | | |
| 2. 10 roa | ads. | it the histo | ory or | road | and nig | nway u | evelopi | nent, sur | veys ar | id clas | SIII | cation of |
| 3. To | study abou | t design c | of var | ious ge | eometri | c compo | onents | of highwa | ays. | | | |
| To study about road traffic characteristics and design of intersections and signal. To know about the type of pavement, materials and pavement design. | | | | | | | | | | | | |
| 5. To know about the type of pavement, materials and pavement design. | | | | | | | | | | | | |
| Course Outcomes: After completion of the course, the student will be able to: | | | | | | | | | | | | |
| 1. Understanding the concept of Highway planning alignment, Geometric design and design of | | | | | | | | | | | | |
| flexible and rigid pavement and material used for pavement. | | | | | | | | | | | | |
| 2. Acquire the knowledge of highway constructions techniques and its maintenance and also understand the concents of traffic organoscing and planning. | | | | | | | | | | | | |
| 3. Ide | entify the k | nowledge | of p | blannin | ig a ru | nway, t | axiway | of airpo | ort and | their | geo | ometrical |
| elemer | nts. | | - | | | - | - | | | | - - | |
| UNITS | Highway | nlanning | ۸liz | De | escriptio | omotri | | nn: Drin | ciples o | Hr f | s. | CO's |
| | highway | planning, | road | planr | ning in | India a | and fina | ancing o | f roads | , | | |
| | classificat | ion patter | ns. H | ighway | y alignm | nent and | d surve | y. | | | | CO1 |
| | Cross se | ctional e | eleme | ents- | width, | camber | , supe | r-elevatio | on, sigh | t o | , | COT |
| | distances, | extra wid | ening | g at cu | rves, ho | orizontal | and ve | rtical cur | ves, and | k | | |
| | numerical Pavemen | problems | i. al ar | nd de | sian [.] | Desian | of fle | vible an | d Riai | 1 | \dashv | |
| | pavement | s using IR | | odes, c | desirable | e prope | rties an | d test of | highway | / | | |
| | materials, | design of | mixe | es and | stability | , WBM, | WMM, | BM, BC | surface | | | |
| | dressing, | interfacia | uted u | atmen | t- seal | coat, | tack c | oat, prin disadvan | tages o | , 8 f | | CO1 |
| | rigid pave | ements, g | enera | al prin | ciples | of desig | gn, typ | es, cons | struction | , | | |
| | maintenar | nce and jo | ints, | dowel | bars, tie | e bars. | 5 / 51 | | | | | |
| | Highway | mainten | failu | e: Su | rface a | and su | b-surfa | ce drair | nage o | f | | |
| | pavement | performa | ance | evalua | ation ar | nd mair | ntenanc | e. stren | athening | , 1 6 | | CO2 |
| | and overla | ay design: | Ben | kelmai | n beam | and Dy | namic | Cone Per | netration | í ľ | ' | 002 |
| | Test (DCF | PT). | | | | | | | | | | |
| | Traffic E | ngineerin | g an | id Pla | nning: | Traffic | charac | teristics | - Traffi | 2 | | |
| | studies-sp | eed, capa | acıty, Darkir | volum bas pr | ne, spee | ed and | delay, istical | peak hou analveie | of traffi | , | | |
| IV | data: micr | oscopic a | and m | acros | copic p | aramete | ers of t | raffic flow | v. Traffi | 8 8 | | CO2 |
| | operations | s regulatio | n and | d contr | ol; desi | gn of int | ersecti | ons- at gi | ade and | t l | | |
| | grade sep | parated. S | signa | I desig | in by M | vebster' | s meth | iod. Princ | ciples o | t | 1 | |

| planning, inventories, trip generation, trip distribu traffic assignment, plan preparation. | tion, model split, | | | | | | |
|---|--|----|-----|--|--|--|--|
| Airport Planning and Design: Airport site site characteristic and their effects on runway alignment runways, pattern of runway capacity. Windrose runway length and corrections, classification of regulations, approach area, approach surface-im horizontal. Rotating beacon, boundary lights, approach and taxiway lighting etc. | election, aircraft ts, taxi ways and diagrams, basic airports. Zoning naginary, conical, ach lights, runway | 10 | CO3 | | | | |
| Guest Lectures (if any) | | | | | | | |
| Total Hours | | 40 | | | | | |
| Highway Engineering by Gurucharan Singh Principles of Pavement Design by E.J. Yoder & M.W. Wi Highway Engineering by O'Fleherty Highway Engineering by S.K. Khanna& C.E.G. Justo Airport Planning & Design by S.K. Khanna& M. G. arora Foresch, Charles "Airport Planning" Horonjeff Robert "The Planning & Design of Airports" | tzech | | | | | | |
| Reference Books- | | | | | | | |
| Sharma & Sharma, Principles and Practice of Highway Engg. Haung, Analysis and Design of Pavements Relevant IRC & IS codes Laboratory Manual by Dr. S.K. Khanna Highway Engg. By Hews & Oglesby Highway Material by Walker | | | | | | | |
| Modes of Evaluation and Rubric | | | | | | | |
| Quiz, Assignment, Mid-term exam and End term exam | | | | | | | |
| List/Links of e-learning resource | | | | | | | |
| https://nptel.ac.in/courses/105/101/105101087/ https://nptel.ac.in/courses/105/101/105101008/ https://nptel.ac.in/courses/105/104/105104098/ | List/Links of e-learning resource https://nptel.ac.in/courses/105/101/105101087/ https://nptel.ac.in/courses/105/101/105101008/ https://nptel.ac.in/courses/105/104/105104098/ | | | | | | |
| Recommendation by Board of studies on 13-06-2024 | | | | | | | |
| Approval by Academic council on | | | | | | | |
| Compiled and designed by | | | | | | | |
| Subject handled by department Civil Enginee | | | | | | | |

| (Engineering College), VIDISHA M.P. (An Autonomous Institute Affiliated to RGPV Bhopal) CIVIL ENGINEERING | SAMRAT ASHOK TECHNOLOGICAL INSTITUTE | | | | | | | | | | |
|--|---|---|------------------|----------|------------|-----------------|---------------|---------|------------|-------|-------------|
| (An Autonomous Institute Affiliated to RGPV Bhopal) CIVIL ENGINEERING Semester/Year VI/III Program B.Tech Subject Code: OE-506 Nume: Cost Effective & Eco-Friendly Structures Maximum Marks Allotted Cost Effective & Eco-Friendly Theory Practical Cost Effective to Rus Individue Marks Allotted Cost Effective to a signment Quiz Cost Effective to a signment Quiz Cost Effective to a signment Quiz End Sem Mid-Sem Assignment Quiz End L T T T otal End Sem Mid-Sem Assignment Quiz End Lab- Total L T T otal End Sem Mid-Sem Assignment Quiz End Lab- Total L T otal Cortext Hours Total Cost Effective tochniques in construction 2 State the importance of cost-effective construction & evaluate the objectives of green buildings. Eco-Friendly Construction State the importance of | GIA | | (Er | ngine | ering | College) | , VIDISHA | AM.F |) . | | |
| Sumester/Year VI/III Program E.Tech Subject OE-I Subject Code: OE-3(6) Subject Cost Effective & Eco-Friendly Subject OE-I Maximum Marks Allotted Cost Effective & Eco-Friendly End Sem Mid-Sem Assignment Quiz End Marks L T P End Sem Mid-Sem Assignment Quiz End L T P End Sem Mid-Sem Assignment Quiz End Marks L T P End Sem Mid-Sem Assignment Quiz End Marks L T P 60 20 10 0 - 30 - 3 Prerequisites: 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco-Friendly construction System. 2. State the importance of cost-effective construction & evaluate the objectives & Eco-Friendly construction 3. Explain how Pre-Engineered Construction can be cost effectiv | A CREATE | (An Autonomous Institute Affiliated to RGPV Bhopal) | | | | | | | | | |
| Semester/Year VI/III Program B.Tech Subject Category OE-1 (A) Subject Code: OE-506 OE-1 (A) Subject Name: Cost Effective & Eco-Friendly Structures End Sem Mid-Sem Assignment Quiz End Lab Contact Hours Total End Sem Mid-Sem Assignment Quiz Sem Work U T P 60 20 10 10 - - 100 3 - 3 Prerequisites: - 100 - - 100 3 - 3 1. Apply cost effective techniques in construction 2. State the importance of cost-effective construction & evaluate the objectives of green buildings. State the importance of cost-effective construction can be cost effective & select alternative Construction System. 3. Explain how Pre-Engineered Construction and the cost effective & select alternative Construction State the importance of cost-effective construction 3. State the importance of cost-effective construction and evaluate the objectives of green buildings. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. 4. Explai | VIDISHA M.P. | | | С | IVIL | ENGINE | ERING- | | | | |
| Subject Category OE-I (A) Subject Code: OF-506 OE-I (A) Subject Name: Cost Effective & Eco-Friendly Structures Image: Structures Maximum Marks Allotted Contact Hours Total Image: Total Sem Contact Hours Total Image: Total Sem Contact Hours Total Image: Total Sem Contact Hours Total Credits 60 20 10 10 - - 3 Prerequisites: 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco- Friendly construction 2. State the importance of cost-effective construction & evaluate the objectives of green buildings. State the objective & Select alternative Construction System. 3. Explain how Pre-Engineered Construction State the importance of cost-effective construction Selective & Eco- Friendly construction 3. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. State the importance of cost-effective construction 3. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. State the importance of cost-effective construction are be cost effective & select alternative Construction System. 4. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction of the course, the students will be able to | Semester/Ye | ear | VI/III | | Progra | am | | B.T | ech | | |
| Category (A) Subject Code: OE-1 (A) Name: Structures Maximum Marks Allotted Practical Contact Hours Total End Sem Mid-Sem Assignment Quiz End Lab Total I Total 60 20 10 10 - 100 3 - 3 9 Prerequisites: 1 10 - - 100 3 - 3 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco-Friendly construction 2 State the importance of cost-effective construction & evaluate the objectives of green buildings. 3. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. 4 Know the concept of Integrated Life cycle design of Materials and Structures Course Objective: 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco-Friendly construction 3. State the importance of cost-effective construction & evaluate the objectives of green buildings. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. 3. Know the concept of Integrated Life cycle design of Materia | Subiect | OE-I | | OE-: | 506 | Subiect | Cost Effe | ective | & Ec | o-Fri | endly |
| Maximum Marks Allotted Contact Hours Total Credits End Sem Mid-Sem Assignment Quiz Fractical Sem Total Work Total L T P 60 20 10 10 - - 3 Prerequisites: - 100 3 - - 3 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco- Friendly construction - - 3 2. State the importance of cost-effective construction as evaluate the objectives of green buildings. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. 4. Know the concept of Integrated Life cycle design of Materials and Structures Course Objective: 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco- Friendly construction 2. Apply cost effective techniques in construction 3. State the importance of cost-effective construction as evaluate the objectives of green buildings. 4. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. 5. Know the concept of Integrated Life cycle design of Materials and Structures Course Outcomes: On completion of the course | Category | (A) | Subject Code: | OE-I | (A) | Name: | | Struc | ctures | 5 | |
| Theory Practical End Sem Control Labre Mid-Sem Assignment Assignment Quiz Quiz End Quiz End Murks Total Marks Total L L T T P 60 20 10 10 - - 100 3 - 3 9 20 10 10 - - 100 3 - 3 9 20 10 10 - - 100 3 - 3 9 20 10 10 - - 100 3 - 3 1 Understand the Definition, Concept & Objectives of the terms cost effective & Eco- Friendly construction System. - State the importance of cost-effective construction & evaluate the objectives of green buildings. 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco- Friendly construction - | I | | Maximum Ma | rks Allo | otted | | | Contr | o et l la | | I |
| End Sem Mid-Sem Assignment Quiz End Sem Work Marks L T P Credits 60 20 10 10 - - 100 3 - - 3 Prerequisites: 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco-Friendly construction 2. State the importance of cost-effective construction & evaluate the objectives of green buildings. . 3. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. . Know the concept of Integrated Life cycle design of Materials and Structures Course Objective: 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco-Friendly construction 2. Apply cost effective techniques in construction . . . 3. State the importance of cost-effective construction & evaluate the objectives of green buildings. . . . 4. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. . . . 5. Know the concept of Integrated Life cycle design of Materials and Structures . . . Course Outcomes: . . | | The | eory | 1 | P | ractical | Total | Conta | | Juis | Total |
| 60 20 10 10 - - 100 3 - - 3 Prerequisites: 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco-Friendly construction 2. State the importance of cost-effective construction & evaluate the objectives of green buildings. 3. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. 3. Explain how Pre-Engineered Construction can be cost effective & select alternative Construction System. 4. Know the concept of Integrated Life cycle design of Materials and Structures Course Objective: 1. Understand the Definition, Concept & Objectives of the terms cost effective & Eco-Friendly construction 2. Apply cost effective techniques in construction 8. evaluate the objectives of green buildings. 3. State the importance of cost-effective construction & evaluate the objectives of green buildings. 4. Know the concept of Integrated Life cycle design of Materials and Structures Course Outcomes: On completion of the course, the students will be able to 1. State the importance of cost-effective construction. 4. How Pre-Engineered Construction can be cost effective 3. Know the application of Ferro cement & Ferro concrete Structures 4. How Pre-Engineered Construction can be cost effective | End Sem | Mid-Sem | Assignment | Quiz | End Sem | Lab- Work | Marks | L | Т | Ρ | Credits |
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| Fibres, Stone Dust, Red mud, Gypsum, Alternate Wood, Polymer.8CO1 | | Cost eff | ective materi | als: - | Soil, F | - Iy ash, Fe | errocement. | , Lime |) , | | |
| I Polymer. 8 CO1 | | Fibres, | Stone Dust, | Red i | mud, | Gypsum, | Alternate | Wood | 1, | | |
| | | Polymer | • | | | ' | | | | 8 | CO1 |
| Energy Efficient & Environment friendly building material | | Energy | Efficient & E | nviron | ment | friendly I | building m | ateria | 1 | | |
| products: -Basic concepts of Energy efficient buildings, Walls - | | product | s: -Basic conc | epts of | f Ener | gy efficient | buildings, | Walls | - | | |
| Stabilised and sun dried, soil blocks & bricks, Solid & Hollow | | Stabilise | d and sun drie | ed, so | il bloc | ks & brick | s, Solid & | Hollov | N | | |
| concrete blocks, stone | | concrete | blocks, stone | | | | | | | | |

| | masonry blocks, Ferrocement partitic Plank & Joists roof, Precast channel Precast Funicular shells, Ferrocemen Fibre roof, Improved country tiles, Pavelled Blocks | ons. Roofs - Precast R.C. roof, Precast L-panel roof, t shells, Filler Slab, Seasal Thatch roof, M.C.R. tile, | | | | | | |
|--|--|---|---|-----|--|--|--|--|
| 11 | Cost effective construction techniq (a) Techniques: - Rat trap bond con roofing's, Ferrocement technique, Equipment's: - Brick moulding mach making machine and plants for the r blocks, M.C.R. tile making machine, Roofing channel making machine, R.C. | Jues and equipment's: - struction, Energy Efficient Mud Technology. (b) hine, Stabilised soil block manufacturing of concrete Ferrocement wall panel & C.C. Chaukhat making m/c. | 9 | CO2 | | | | |
| Ш | Cost effective sanitation: - (a) Waste water disposal system (b) C rural and urban areas (c) Ferrocemen | Cost effective sanitation for t Drains | 8 | CO3 | | | | |
| IV | 8 | CO4 | | | | | | |
| V | 7 | CO5 | | | | | | |
| Guest Lect | 10 | | | | | | | |
| Suggestive | 40 | | | | | | | |
| Suggestive list of experiments: | | | | | | | | |
| Text Book- 1. Alternative Building Materials and Technologies – By K S Jagadeesh, B V Venkatta Rama Reddy & K S Nanjunda Rao – New Age International Publishers 2. Integrated Life Cycle Design of Structures – By AskoSarja – SPON Press Reference Books- 1. Non-conventional Energy Resources – By D S Chauhan and S K Sreevasthava – New Age International Publishers 2. Devide Resources – By D S Chauhan and S K Sreevasthava – New Age International Publishers | | | | | | | | |
| Modes of E | Evaluation and Rubric | | | | | | | |
| Quiz, Assi Rubric: Er | ignment, Mid-term exam, End term exa nd term exam. Practical: 50% Quiz and | m and Practical Viva. 50% Viva. | | | | | | |
| List/Links c | of e-learning resource | | | | | | | |
| https://npte | el.ac.in/courses/105/102/105/102/195/ | | | | | | | |
| | | | | | | | | |
| Recommendation by Board of studies on 13.06.2024 | | | | | | | | |
| Approval b | Approval by Academic council on | | | | | | | |
| Compiled a | and designed by | | | | | | | |
| Subject handled by department Civil Engineering | | | | | | | | |

| SHOW TECHNOLOGICAL | SAMRAT ASHOK TECHNOLOGICAL INSTITUTE | | | | | | | | | | | | | | |
|---|---|---|-----------------------------|--------------------|--------------------|-----------------------|---------------------|--------------------------|--------------------|---------|-------------|-----------|--|--|--|
| GID | | (Engineering College), VIDISHA M.P. | | | | | | | | | | | | | |
| And the | and the second second | (An Autonomous Institute Affiliated to RGPV Bhopal) | | | | | | | | | | | | | |
| CIVIL ENGINEERING | | | | | | | | | | | | | | | |
| Semester/Y | ester/Year V/III Program B.Te | | | | | | Гесh | | | | | | | | |
| Subject | OE-I | OE-I Subject Code: | | OE-5 | 506 | Subject | | Road Safety E | | | Engineering | | | | |
| Outegory | (D) | | Maximum N | /arks A | (B) Ilotted | INCITIO | 0. | | | | | | | | |
| | Theory | | | | | Practica | | Total | Conta | act H | Hours | Total | | | |
| End Sem | Mid-S | em | Assignment | Quiz | End Sem | Lab- Work | Quiz | Marks | L | Т | Р | Credits | | | |
| 60 | 20 | | 10 | 10 | - | - | - | 100 | 3 | - | - | 3 | | | |
| Prerequisit | Proroquicitor | | | | | | | | | | | | | | |
| Basic know | vledge o | on R | oad safety En | gineeri | ng. | | | | | | | | | | |
| Course Ob | jective: | | | | | | | | | | | | | | |
| To provide safety haza | the ba ardous l | sic k ocat | nowledge on | road s edial ro | afety e ad safe | engineeri ety meas | ing and sures. | d acquaint | them | with | eval | uation of | | | |
| | 1000000 | | | | | | | | | | | | | | |
| Course Outcomes: After the completion of the course the student should be able to | | | | | | | | | | | | | | | |
| 1.Able to acquire knowledge methods and application of road safety engineering and accident | | | | | | | | | lent | | | | | | |
| 2.Able to remember the process of road safety audit and the measures of improving road safety | | | | | | | | | | afety. | | | | | |
| 3 Able to Qualified to evaluate the effectiveness of various management techniques adopted in | | | | | | | | | ted in | | | | | | |
| reducing road accidents | | | | | | | | | | | | | | | |
| UNITs | Descriptions | | | | | | ŀ | lrs. | CO's | | | | | | |
| | Introduction to Road safety: | | | | | | | | | | | | | | |
| I | Road accidents, Trends, causes, Collision diagrams; Highway safety; Human factors and road user limitations; Speed and its effect on road | | | | | | | | | | 9 | CO1 | | | |
| | satety; Vehicle factors, Road safety improvement strategies; Elements of a road safety plan. | | | | | | | | S | | | | | | |
| | Understanding and Analysis of road accident Data: | | | | | | | | | | | | | | |
| 11 | Before-after methods in accident analysis, Recording of accident data; Accident Investigation and Analysis; Statistical testing and the role of chance; Black Spot Identification and Investigations, Case Studies. | | | | | | | | CO1 | | | | | | |
| | Road | Safe | ety Audits: | | | | | | | | | | | | |
| | Key elements of a road safety audit, Road Safety Audits & Investigations, Work zone safety audit; Crash investigation and | | | | | | | | & d | 7 | CO2 | | | | |
| | Studies. | | | | | | | | | e | | | | | |
| | Road Accident Reconstruction: | | | | | | | | | | | | | | |
| IV | Describe the basic information that can be obtained from the roadway | | | | | | | | v | 8 | CO2 | | | | |
| | surface, Understand basic physics related to accident reconstruction, | | | | | | | | | | |), 1, | | | |
| | speed for various skid, friction, drag, and acceleration scenarios, variables involved in jump and flip crashes, variables involved in pedestrian crashes, Case Studies. | | | | | | | n | | | | | | | |
| | Remedial safety Measures: | | | | | | | + | | | | | | | |
| V | Accide design | ent p n of i | prevention by roads, Accide | better nt reme | plannir edial m | ng, Accid easures | lent pre , Highv | evention b vay operat | y bette tion an | er d | 8 | CO3 | | | |

| | accident control measures, Highw construction, Highway geometry and Public transport and safety; Road safe | ay Safety Measures during safety; Safety in urban areas; ety policy making, Stakeholders | | | | | | | |
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| | | | | | | | | | |
| Guest Lect | | | | | | | | | |
| Total Hour | 40 | | | | | | | | |
| I ext Book- C. Jotin Kishty& B. Kent Lall, Transportation Engineering-An Introduction, Thrid Edition, Prentice Hall of India Private Limited, New Delhi, 2006 Khanna and Justo, Text book of Highway Engineering, Nemchand Brothers, Roorkee. GeetamTiwari and Dinesh Mohan, Transport Planning and Traffic Safety: Making Cities, Roads, and Vehicles Safer, CRC Press, 2016.B.C. Punmia; Building Construction. nstitute of Transportation Engineers (ITE), The Traffic Safety Toolbox: A Primer on Traffic Safety, ITE, 1999. | | | | | | | | | |
| Reference Books- 10. J. Stannard Baker, Traffic Collision Investigation, Northwestern University Center for Public Safety, 2002. 11. Ezra Hauer, Observational Before-After Studies in Road Safety, Pergamon Press, 1997 (reprinted 2002). 12. AthelstanPopkess, Traffic Control and Road Accident Prevention, Chapman and Hall, 1997 (Digitized 2008) | | | | | | | | | |
| Modes of Evaluation and Rubric | | | | | | | | | |
| Quiz, Assignment, Midterm exam, End term exam and Practical Viva. Rubric: End term exam. Practical: 50% Quiz and 50% Viva. | | | | | | | | | |
| List/Links of e-learning resource | | | | | | | | | |
| https://nptel.ac.in/courses/105/105/105215/ | | | | | | | | | |
| | | | | | | | | | |
| Recommer | ndation by Board of studies on | 13-06-2024 | | | | | | | |
| Approval by | y Academic council on | | | | | | | | |
| Compiled a | and designed by | | | | | | | | |
| Subject ha | ndled by department | Civil Engineering Department | | | | | | | |