SR Engineering College

Innovation . Creativity . Entrepreneurship

II -B.TECH-CIVIL-II SEMESTER

LESSON PLANS

2018 - 19

DEPARTMENT OF CIVIL ENGINEERING

SR ENGINEERING COLLEGE *(Autonomous)*
(RA15) COURSE STRUCTURE:: B. TECH. CIVIL ENGINEERING
(Applicable from the batch admitted during 2015-16 academic year and onwards)

L: Theory, T: Tutorial, P/D: Practical / Drawing, C: Credits,
CIE: Continuous Internal Evaluation, SEE: Semester End Examination

II Year II Semester

S. No.	Course Code	Course	Hours / Week			
			L	T	P/D	C
1	ES116	Strength of Materials -II	4	1	-	4
2	CE103	Surveying-II	4	-	-	4
3	CE104	Fluid Mechanics and Hydraulic Machines	4	-	-	4
4	CE105	Reinforced Cement Concrete - I	3	-	1	3
5	CE106	Engineering Geology	3	-	-	3
6	CE108	Surveying Lab -II	-	-	3	2
7	CE109	Fluid Mechanics and Hydraulic Machines Lab	-	-	3	2
8	CE110	Engineering Geology Lab	-	-	3	2
9	MC102	Gender Sensitization	-	-	2	-
Total						**24**

(ES116) STRENGTH OF MATERIALS - II

Year	Semester	Hours / Week			C	Marks		
		L	T	P/D		CIE	SEE	Total
II	II	4	1	-	4	30	70	100

COURSE OBJECTIVES:
Students will be able to
1. Draw the SF and BM diagram of propped cantilever beam and fixed beam
2. Analyze the continuous beam using theorem of three moments
3. Apply the design principles to shaft and springs
4. Evaluate the crippling load for column with different end conditions
5. formulate the stability conditions of structural element under combined of direct and bending stress

COURSE OUTCOMES:
At the end of the course, the students will develop ability to
1. Apply the mathematics and engineering mechanics.
2. Describe static determinacy and indeterminacy.
3. Apply the method of consistent deformation to propped cantilever beam and theorem of three moments to continuous beam.
4. Distinguish between SFD and BMD of determinant beams and indeterminate beams.
5. Design shafts and springs under multiple loads.
6. Evaluate the crippling load for different columns.
7. draw the kore of the section
8. Formulate the stability conditions of structural element under direct and bending stress.

UNIT-I
Propped Cantilevers and Fixed Beams: Analysis of propped cantilevers – shear force and bending moment diagrams – Deflection of propped cantilevers. Fixed Beams – Introduction to statically indeterminate beams with uniformly distributed load, central point load, eccentric point load, number of point loads, uniformly varying load, couple and combination of loads – Shear force and bending moment diagrams – Deflection of fixed beams effect of sinking of support, effect of rotation of a support.

UNIT-II
Continuous Beams: Introduction – Clapeyron's theorem of three moments. Analysis of continuous beams with constant moment of inertia with one or both ends fixed-continuous beams with overhang, continuous beams with different moment of inertia for different spans-effects of sinking of supports – shear force and bending moment diagrams.

UNIT- III
Torsion of Circular Shafts and Springs: Theory of pure torsion – Derivation of Torsion equations: T/J=q/r=Ne/L – Assumptions made in the theory of pure torsion – Torsional moment of resistance – Polar section modulus Power transmitted by shafts – Combined bending and torsion and end thrust – Design of shafts according to the theories of failure. Springs – Introduction – Types of springs – deflection of close coiled helical spring under axial pull and axial couple – Springs in series and parallel.

UNIT- IV

Columns and Struts: Types of columns – Axially loaded compression members – Crushing load – Euler's theorem for long columns – assumptions – derivation of Euler's critical load formulae for various end conditions – Equivalent length of a column – Slenderness ratio – Euler's critical stress – Limitations of Euler's theory – Rankine – Gordon formula – Long columns subjected to eccentric loading – Secant formula- Empirical formulae.Beam Columns - Laterally loaded struts – subjected to uniformly distributed and concentrated loads – Maximum B.M. and stress due to transverse and lateral loading.

UNIT -V

Direct and Bending Stresses: Stresses under the combined action of direct loading and bending moment, core of a section- determination of stresses in the case of chimneys, retaining walls and dams – conditions for stability – stresses due to direct loading and bending moment about both axis.

TEXT BOOKS:

1. R.K.Bansal, "Strength of Materials", Laxmi Publications, 2012.
2. B. S. Basavarajaiah, "Strength of Materials", University Press, Hyderabad, 2010.

REFERENCE BOOKS:

1. Ramamrutham S, "Strength of Materials", Dhanpat Rai Publishing Company(P)Ltd.
2. R.Subramanian, "Strength of Materials", Oxford University Press, New Delhi, 2010.
3. Dr.B.C.Punmia, "Strength of Materials", Laxmi Publications, 2011.
4. R.K.Rajput, "Strength of Materials", S.Chand and Co., 2007

(CE103) SURVEYING - II

Year	Semester	Hours / Week			C	Marks		
		L	T	P/D		CIE	SEE	Total
II	II	4	-	-	4	30	70	100

COURSE OBJECTIVES:

Students will be able to

1. Recall the importance of surveying in civil engineering.
2. Discuss various modern techniques and tools used in the field of surveying.
3. Explain the principles involved in theodolite and tachometric surveying.
4. Classify and design various types of curves.
5. Critique the importance tools involving principle of ODM and EDM

COURSE OUTCOMES:

At the end of the course, the students will develop ability to

1. Recognize the importance of traditional and modern techniques involved in surveying.
2. Explain methods involved in computing bearings and distances.
3. Examine and evaluate various errors in measurement while surveying.
4. Apply different methods of measurement with respect to the tool.
5. Compute and interpret the areas and volumes using given data by various methods.
6. Decide and recommend the type of curve to be used.
7. Sketch various profiles using modern tools like total station etc.,
8. Critique global positioning system (GPS) and geographic information system (GIS).

UNIT- I

Theodolite: Types of theodolites – Temporary Adjustments, Measurement of horizontal angle – Method of repetition, Method of reiteration – Uses of theodolities – Errors in theodolite or Permanent adjustments of a theodolite – Identification – Rectifying the errors.

UNIT- II

Theodolite Traversing: Open and closed traverse – Closing errors, balancing the error – Bowditch method – Transit method, omitted measurements – Gales traverse table, Trigonometric leveling – Elevation of top of the tower - same plane - Different planes.

UNIT- III

Tachometry: Principle of tachometry – Stadia methods – Fixed hair method – Movable hair method – Tangential method – Subtanse bar – Beaman's stadia, Arc

UNIT- IV

Curves: Simple curves – Elements of simple curves – Methods of setting simple curves – Rankines method – Two theodolite method – Obstacles in curve setting – Compound curves – Elements of compound curve – Elements of reverse curve – Determination of various elements – Transition curves – Ideal shape – length of transition curve - Setting out methods.

UNIT-V

Modern Surveying Instruments: Total Station Global Positioning System (G.P.S)-G.P.S. and remote sensing-Geographical Information System-Information systems, spatial and non-spatial information, geographical concept and terminology, advantages of GIS, Basic component of GIS.

TEXT BOOKS:

1. Dr. K.R. Arora, "Surveying", Standard Book House, 2010.
2. B C Punmia, "Surveying Vol-1", Standard Book House, 2005.

REFERENCES:

1 Bhavikatti, "Surveying", Vikas Publishing House Ltd., 2008.
2 R.Subramanian, "Surveying and Leveling", Oxford University Press, New Delhi, 2012.

(CE104) FLUID MECHANICS AND HYDRAULIC MACHINES

Year	Semester	Hours / Week			C	Marks		
		L	T	P/D		CIE	SEE	Total
II	II	4	-	-	4	30	70	100

COURSE OBJECTIVES:

Students will be able to

1. Classify the different types of flows and explain the fundamentals of physical properties of fluids.
2. Apply the basic equation for fluid engineering problems.
3. Discuss the types of open channels and design the most economical sections and also apply the methods of dimensional analysis and its importance.
4. Analyze and demonstrate the closed conduit flows for the design of simple hydraulic components.
5. Explain the working principles of turbines and pumps.

COURSE OUTCOMES:

At the end of the course, the students will develop ability to

1. Define the nature of the fluid and show where fluid mechanics concepts are common with those of solid mechanics.
2. Introduce viscosity effects on floor and characteristics of newtonian and non- newtonian fluids.
3. Define the appropriate physical properties and show how these allow differentiation between solids and fluid as well as liquids and gases.
4. Analyze the uniform and non uniform flows in open channels.
5. Design open channels for most economical sections.
6. Discriminate the use of dimensional analysis in solving fluid problems.
7. Explain the basics of hydro machinery, its components and the working principles of all the turbines and pumps.
8. Compute efficient flow turbines.

UNIT I

Fluid Kinematics: Description of fluid flow, Stream line, path line and streak lines and stream tube. Classification of flows : Steady, unsteady, uniform, nonuniform, laminar, turbulent, rotational and irrotational flows – Equation of continuity for one, two , three dimensional flows – stream and velocity potential functions, flow net analysis.

UNIT – II

Fluid Dynamics and Measurement of Flow: Surface and body forces – Euler's and Bernoulli's equations for flow along a stream line for 3-D flow, (Navier – stokes equations (Explanationary) Momentum equation and its application – forces on pipe bend. Pitot tube, Venturi meter and orifice meter – classification of orifices, flow over rectangular, triangular and trapezoidal and stepped notches - –Broad crested weirs.

UNIT – III

Open Channel Flow: Types of flows - Type of channels – Velocity distribution – Energy and momentum correction factors – Chezy's, Manning's; and Bazin formulae for uniform flow – Most Economical sections.

Critical Flow: Specific energy-critical depth – computation of critical depth – critical sub-critical and super critical flows. Non uniform flow-surface profiles-direct step method-Rapidly varied flow, hydraulic jump, energy dissipation.

Laminar Flow: Characteristics of Laminar flow, Reynold's experiment, Critical Reynold's number, Critical velocity, Steady laminar flow through a circular pipe, Hagen Poiseuille equation.

UNIT – IV

Flow Through Pipes: Energy losses in pipes - Major and Minor losses - Expression for head loss due to Friction - Darcy's Weisbach equation, Expressions for head loss due to Pipe Expansion and Pipe Contraction, Hydraulic Gradient and Total Energy Lines, Pipes in Series and parallel, Equivalent pipe, Power transmission through pipes.

Dimensional Analysis: Dimensions and Dimensional Homogeneity, Dimensional analysis by Rayleigh's method and Buckingham's π-Theorem, Dimensionless numbers and their consequences in Fluid Mechanics.

UNIT – V

Hydraulic Machines: Impact of Jets - Force exerted by a liquid jet on a Stationary, Moving flat plate and Curved vanes. Hydraulic Turbines - Heads and Efficiencies, Classification - Impulse and Reaction turbines, Pelton and Francis turbines, Specific speed, Draft tube, Cavitation phenomenon, Characteristic curves and Selection of turbines.

Pumps: Introduction, Centrifugal pump - Heads and Efficiencies, Specific sped, characteristic curves, Net positive suction head, Priming, Selection and Operational difficulties. Reciprocating Pump - Single and Double acting Reciprocating pumps, Coefficient of discharge and Slip, Use of Air vessels and Characteristic curves.

TEXT BOOKS:

1. Dr. R.K. Bansal, "A Text Book of Fluid Mechanics and Hydraulic Machines", Laxmi Publications, Pvt. Ltd., New Delhi, 2010.
2. Er.R.K.Rajput, "Fluid Mechanics and Fluid Machines", S Chand and Co., Revised Edition, 2013.

REFERENCE BOOKS:

1. Modi and Seth, "Fluid Mechanics", Standard Book House, 2009.
2. K,Subramanya "Open Channel Flow", Tata McGraw Hll Publishers.
3. S.K. Som and Gautam Biswas, "Introduction to Fluid Mechanics and Fluid Machines", Tata McGraw Hill Education, 3rd Edition, 2011.
4. Andrew Parr, "Hydraulics and Pneumatics", Jaico Publishing House.

(CE105) REINFORCED CEMENT CONCRETE- I

Year	Semester	Hours / Week			C	Marks		
		L	T	P/D		CIE	SEE	Total
II	II	3	-	1	3	30	70	100

COURSE OBJECTIVES:

Students will be able to

1. Discuss the fundamentals of reinforced concrete structural properties and behaviors.
2. State the optimum design criteria and procedures.
3. Explain the basic principles and design methods of reinforced concrete members.
4. Clarify code requirements and specifications and explain the background of code.
5. Outline professional and contemporary issues in the design and fabrication of reinforced concrete members.

COURSE OUTCOMES:

At the end of the course, the students will develop ability to

1. Describe the general mechanical behavior of reinforced concrete.
2. Understand basic principles and design methods of reinforced concrete members
3. Identify and apply the applicable industrial design codes relevant to the design of reinforced concrete members.
4. Analyze and design reinforced concrete flexural and compression members.
5. Examine and design for deflection and crack control of reinforced concrete members.
6. Design simple connections of reinforced concrete members.
7. Know professional and ethical issues and the importance of lifelong learning in structural engineering.
8. Sketch reinforcement details of reinforced concrete members.

UNIT - I

Introduction: Concept of Reinforced Cement Concrete

Reinforcement Materials: Various types of reinforcing materials, Suitability of steel as reinforcing material, Properties of different types of steel (mild steel, medium tensile steel, and deformed bars)

UNIT –II

Theory of RCC Beams: Assumption in the theory of simple bending for RCC beam, Flexural strength of a singly reinforced RCC beam: Position of the Neutral axis, concept of balanced, under reinforced and over reinforced sections moment of the section, Shear strength of singly reinforced RCC beam, Assumptions made, permissible shear stresses as per IS code of practice, actual average shear stresses in singly reinforced concrete beam, concept of diagonal stirrups and inclined bars, shear strength of RCC beam section.

Bond in RCC Beams: Concept of bond, Permissible bond stresses for plain and deformed bars as per BIS code of practice, minimum length, and standard hook

UNIT-III

Singly Reinforced Concrete Beam: Loads and loading standards as per IS:875 (Part I-V), Design of singly reinforced concrete beam as per BIS-456 code of practice from the given data such as span, load and properties of materials used.

Design of lintel with and without chajja, Design of a main/secondary beam for RCC roof and floor,Design of a cantilever beam/slab.

RCC Drawing: Details of reinforcement in a simply supported RCC beam (singly reinforced) with the given design data regarding the size and number ofbars, stirrups their size and spacing.

UNIT-IV

Doubly Reinforced Concrete Beams: Doubly reinforced concrete beam and its necessity, Design of a doubly reinforced concrete beam,

T-Beams: Structural behavior of beam and slab floor laid monolithically, Rules for the design of T-beams, Economical depth of T-beams, Design of simply supported T-beams using IS code of practice.

RCC Drawing: Details of reinforcement in a simply supported RCC beam (doubly reinforced) with the given design data regarding the size and number ofbars, stirrups their size and spacing.

UNIT-V

RCC Slabs: Structural behaviour of slabs under UDL, Type of Boundary conditions, Design of one way slab, Design of two way slab with the help of tables of IS:456.

RCC Drawing: Details of reinforcement in plan and section for a simply supported RCC one way slab with intermediate support and two-way slabs from the given data. Bar bending schedule should be prepared

TEXT BOOKS:

1. Dr. B.C. Punmia and A.K.Jain, “Limit State Design of Reinforced Concrete”, Lakshmi Publication, 2007.
2. Dr. H.J. Shah, “Reinforced Concrete (Elementary Reinforced Concrete), Charotar Publishing House Pvt. Ltd., 11th Edition.

REFERENCES BOOKS:

1. S. Unnikrishna Pillai and Devdas Menon, “Reinforced Concrete Design”, McGraw Hill Education, 3rd Edition.
2. M.L. Gambhir, “Fundamentals of Reinforced Concrete Design” PHI Learning Edition, 2012.
3. Arthus H. Nilson, David Darwin and Chorles W. Dolar, “Design of Concrete Structures”, Tata McGraw Hill, 2011.
4. S.S.Bhavikatti, “Design of RCC Structural Elements” :Vol-1, New Age Publishers, 2008.

(CE106) ENGINEERING GEOLOGY

Year	Semester	Hours / Week			C	Marks		
		L	T	P/D		CIE	SEE	Total
II	II	3	-	-	3	30	70	100

COURSE OBJECTIVES:

Students will be able to

1. Recall the basic knowledge and fundamentals of geology and its importance in the field of civil engineering.
2. Understand the importance of weathering processes and the changes that occur on the earth surface due to weathering.
3. Classifying the suitability of various rock types for construction purpose.
4. Identifying different rock types on the earth surface and the location suitability for Construction of various civil engineering structures.
5. Applying the basic knowledge of geology, especially in the field of construction of major structures like dams, reservoirs, bridges, tunnels etc.

COURSE OUTCOMES:

At the end of the course, the students will develop ability to

1. Recognizing about various types of rocks and different types of geological structures present in that area.
2. Explain about the weathering processes that take place on the earth surface naturally and its influence on the rock types.
3. Distinguish different types of minerals and rocks on the earth surface.
4. Examine the structures and textures present in different types of rocks.
5. Understand the role of various geological controls related to the occurrence and movement of groundwater.
6. Prioritizing the areas for construction in earth quake / land slide prone areas.
7. Determine the site location suitability based on the geological conditions before construction.
8. Discuss the consequences of associated geological problems for the proposed construction of major structures like dams, reservoirs, bridges, tunnels etc.

UNIT-I

Introduction: Importance of geology from Civil Engineering point of view. Importance of physical geology, Petrology and Structural geology.

Weathering of Rocks: Its effect over the properties of rocks importance of weathering with REFERENCE to dams, reservoirs and tunnels weathering of common rock like “Granite”.

UNIT-II

Mineralogy: Definition of mineral, Importance of study of minerals, different methods of study of minerals. Advantages of study of minerals by physical properties. Role of study of physical properties of minerals in the identification of minerals. Study of physical properties of following common rock forming minerals: Feldsper, Quartz, Flint, Jasper, Olivine, Augite, Hornblende, Muscovite, Biolite, Asbestos, Chlorite, Kyanite, Garnet, Talc, Calcite. Study of other common economics minerals such as Pyrite, Hematite, Magnetite, Chlorite, Galena, Pyrolusite, Graphite, Magnesite, and Bauxite.

Petrology: Definition of rock: Geological classification of rocks into igneous, Sedimentary and metamorphic rocks. Dykes and sills, common structures and textures of igneous. Sedimentary and metamorphic rocks. Their distinguishing features, Megascopic study of Granite, Dolerite, Basalt, Pegmatite, Laerite, Conglomerate, Sand Stone, Shale, Limestone, Gneiss, Schist, Quartzite, Marble and Slate.

UNIT-III

Structural Geology: Indian stratigraphy and geological time scale. Out crop, strike and dip study of common geological structures associating with the rocks such as folds, faults unconformities, and joints – their important types. Institu and drift soils, common types of soils, their origin and occurrence in India. Ground water, Water Table, common types of ground water, springs, cone of depression, geological controls of ground water movement, ground water exploration.

UNIT-IV

Earth Quakes: Causes and effects, shield areas and seismic belts. Seismic waves, Richter scale, precautions to be taken for building construction in seismic areas. Land slides, their causes and effect; measures to be taken to prevent their occurrence. Importance of study of ground water, earth quakes and landslides.

Importance of Geophysical Studies: Principles of geophysical study by Gravity methods. Magnetic methods, Electrical methods. Seismic methods, Radio metric methods and geothermal method. Special importance of Electrical resistivity methods, and seismic refraction methods. Improvement of competence of sites by grouting.

UNIT-V

Geology of Dams, Reservoirs and Tunnels: Types of dams and bearing of Geology of site in their selection, Geological considerations in the selection of a dam site. Analysis of dam failures of the past. Factor's contributing to the success of a reservoir. Geological factors influencing water tightness and life of reservoirs –Purposes of tunneling, Effects of Tunneling on the ground Role of Geological Considerations (i.e., Lithological, structural and ground water) in tunneling over break and lining in tunnels.

TEXT BOOKS:

1. K.V.G.K. Gokhale, "Principals of Engineering Geology", B.S. Publications.
2. N. Chennkesavulu, "Engineering Geology", Laxmi Publications.

REFERENCE BOOKS:

1. F.G. Bell, "Fundamental of Engineering Geology", BS Publications, New Delhi.
2. Krynine and Judd, "Principles of Engineering Geology and Geotechnics", CBS Publishers and Distribution.
3. D.Venkat Reddy, "Engineering Geology", Vikas Publications.
4. Chapman and Hall, "Engineering Geology", McGraw Hill Publication.

(CE108) SURVEYING LAB – II

Year	Semester	Hours / Week			C	Marks		
		L	T	P/D		CIE	SEE	Total
II	II	-	-	3	2	30	70	100

COURSE OBJECTIVES:

Students will be able to

1. Recall the knowledge of all the experiments and calculations for land measurements with various eequipments.
2. Determine horizontal and vertical angles by various methods.
3. Evaluate the bearings.
4. Compute the heights.
5. Calculate the various distances.

COURSE OUTCOMES:

At the end of the course, the students will develop ability to

1. Measure and evaluate the horizontal angles by repetition and reiteration methods.
2. Compute vertical angles.
3. Solve the distance between two inaccessible points by horizontal angle observation with both the faces.
4. Apply the trigonometrical leveling to the elevation of the top of the building.
5. Estimate the elevation of top of the building when the base of object inaccessible and instrument station not in the same vertical plane as the elevated object.
6. Evaluate the horizontal distance between two points, their level difference and the gradient between them.
7. Formulate the simple circular curve by linear method i.e., by ordinates from the long chord and successive bisection of chords.
8. Construct the simple circular curve by angular method i.e., by Rankin's method of deflection angle.

LIST OF EXPERIMENTS:

1. Study of theodolite in detail - practice for measurement of horizontal and vertical angles.
2. Measurement of horizontal angles by method of repetition and reiteration.
3. Trigonometric leveling - heights and distance problem (two exercises)
4. Heights and distance using Principles of tacheometric surveying (two exercises)
5. Curve setting – different methods. (two exercises)
6. Setting out works for buildings and pipe lines.
7. Determination of area using total station
8. Traversing using total station
9. Contouring using total station
10. Determination of remote height using total station
11. Stake-out using total station
12. Distance, gradient, difference in elevation between two inaccessible points using total station

List of Equipment:

1. Theodolites and leveling staffs 2. Tachometers 3. Total station

(CE109) FLUID MECHANICS AND HYDRAULIC MACHINES LAB

Year	Semester	Hours / Week			C	Marks		
		L	T	P/D		CIE	SEE	Total
II	II	-	-	3	2	30	70	100

COURSE OBJECTIVES:

Students will be able to

1. Explain all the experiments and fundamental principles of hydraulic machinery for the solution of practical civil engineering problems of water conveyance in pipes and open channels.
2. Prove Bernoulli's theorem.
3. Calculate the coefficient of discharges.
4. Execute the performance of pumps and turbines.
5. Identify the hydraulic jump in gradually varied flow channel.

COURSE OUTCOMES:

At the end of the course, the students will develop ability to

1. Know the characteristics of a single stage/multi stage centrifugal pumps.
2. Explain the performance test on pelton wheel turbines.
3. Exemplify the performance test on Francis turbine.
4. Discuss the performance test on Kaplan turbine.
5. Calculate the coefficient of discharge of orifice meter.
6. Predict the coefficient of discharge of venturi meter.
7. Illustrate the study of hydraulic jump.
8. Distinguish between centrifugal and reciprocating pump

LIST OF EXPERIMENTS:

1. Calibration of venturimeter and orifice meter
2. Determination of coefficient of discharge for a small orifice / mouthpiece by constant head method.
3. Calibration of contracted rectangular notch and triangular notch
4. Determination of friction factor of a pipe.
5. Determination of coefficient of friction for minor losses.
6. Verification of Bernoulli's equation.
7. Impact of jet on vanes
8. Study of hydraulic jump.
9. Performance test on Pelton wheel turbine
10. Performance test on Francis turbine.
11. Performance characteristics of a single stage/ multi-stage centrifugal pump.
12. Performance characteristics of a reciprocating pump.

(CE110) ENGINEERING GEOLOGY LAB

Year	Semester	Hours / Week			C	Marks		
		L	T	P/D		CIE	SEE	Total
II	II	-	-	3	2	30	70	100

COURSE OBJECTIVES:

Students will be able to

1. Recall the basic knowledge of geology to identify the different minerals based on physical properties and their importance.
2. Explain about different types of rocks by observation of colour, structure, texture etc. and their occurrences and uses.
3. Distinguish basic difference between the igneous, sedimentary and metamorphic rocks.
4. Drawing the sections for geological maps showing tilted beds, faults unconformities etc.
5. Understand the basics of simple structural geology problems.

COURSE OUTCOMES:

At the end of the course, the students will develop ability to

1. Memorize different types of minerals and their importance.
2. Explain about various minerals based on the physical properties.
3. Distinguish an economic minerals and rock forming minerals.
4. Distinguish the difference between, different types of igneous, sedimentary and metamorphic rocks.
5. Categorizing the rocks based on structures and textures.
6. Megascopically, classifying the igneous, sedimentary and metamorphic rocks
7. Illustrate to draw the sections for the given geological Maps.
8. Solve the problems related to structural geology.

LIST OF EXPERIMENTS:

1. Physical properties of minerals.
2. Physical properties of igneous rocks.
3. Physical properties of sedimentary rocks
4. Physical properties of metamorphic rocks
5. Structural Geology (maps and problems)

Lab Examination Pattern:

1. Description and identification of six minerals.
2. Description and identification of six rocks of igneous, sedimentary and metamorphic.
3. Interpretation of a Geological map along with a geological section.
4. Simple strike and Dip problems.

(MC102) GENDER SENSITIZATION

(Common to all Branches)

Year	Semester	Hours / Week			C	Marks		
		L	T	P/D		CIE	SEE	Total
II	II	-	-	2	-	-	-	-

COURSE OBJECTIVES:

Students will be able to

1. Act sensibility to issues of gender in contemporary India.
2. Develop a critical perspective on the socialization of men and women.
3. Emphasize about biological aspects of genders.
4. Judge and reflect on gender violence.
5. Expose themselves to more egalitarian interactions between men and women.

COURSE OUTCOMES:

At the end of the course, the students will develop ability to

1. Evaluate a better understanding of issues related to gender in contemporary India.
2. Sensitize to multi dimensionalities like biological, social, psychological and legal aspects of gender.
3. Attain an insight of gender discrimination in society.
4. Acquire insight into the gendered division of labour and its relation to politics and economics.
5. Ensure and equip them for professional equivalence.
6. Respond to gender violence and empower themselves with moral values.
7. Expose themselves to debates on the politics and economics of work.
8. Equip themselves with morality and ethics.

UNIT- I: Understanding Gender

Gender: Why should we study it? (Towards a World of Equals: Unit – 1)

Socialization: Making Women, Making Men (Towards a World of Equals: Unit – 2)

Introduction. Preparing for Womanhood. Growing up Male. First lessons in Caste. Different Masculinities.

Just Relationships: Being Together as Equals (Towards a World of Equals: Unit – 12)

Mary Kom and Onler. Love and Acid just do not Mix. Love letters. Mothers and Fathers. Further Reading: Rosa
Parks. The Brave Heart.

UNIT- II: Gender Biology

Missing Women: Sex selection and its consequences (Towards a World of Equals: Unit – 4)

Declining Sex Ratio. Demographic Consequences.

Gender Spectrum: Beyond the Binary (Towards a World of Equals: Unit – 10)

Two or Many? Struggles with Discrimination.

Additional Reading: Our Bodies, Our Health (Towards a World of Equals: Unit – 13)

UNIT –III: Gender of Labour
House Work: the Invisible Labour (Towards a World of Equals: Unit – 3)
"My Mother doesn't work." Share the Load."
Women's Work: Its Politics and Economics (Towards a World of Equals: Unit – 7)
Fact and Fiction. Unrecognized and Unaccounted work. Further Reading: Wages and Conditions of Work.

UNIT –IV : Issues of Violence
Sexual Harassment: Say No! (Towards a World of Equals: Unit – 6)
Sexual Harassment, not Eve-teasing – Coping with Everyday Harassment –Further Reading. "Chupulu".
Domestic Violence: Speaking out (Towards a World of Equals: Unit – 8)
Is Home a Safe Place? When Women unite (Film). Rebuilding Lives. Further Reading New Forums for Justice.
Thinking about Sexual Violence (Towards a World of Equals: Unit – 11)
Blaming the Victim-"I Fought for my Life…" – Further Reading; The Caste Face of Violence.

UNIT –V: Gender Studies
Knowledge: Through the lens of Gender (Towards a World of Equals: Unit-5)

TEXT BOOKS:
1. Sumeetha, Uma Bhrugubanda, Duggitala Vasanta, Rama Melkote, Vasudha Nagaraj, Asma Rasheed, Gogu Shyamala, Deepa Sreenivas and Susie Tharu, "Towards a World of Equals: A Bilingual Textbook on Gender".
2. Jayaprabha, A. "Chupulu (Stares)". Women Writing in India: 600BC to the Present. Volume it. The 20th Century Ed. Susie Tharu and K. Lalita. Delhi: Oxford University Press, 1995. 596-597.

REFERENCE BOOKS:
1. Sen, Amartya. "More than One Million Women are Missing." New York review of Books 37.20(20th December 1990). Print. 'We Were Making History….' Life stories of Women in the Telangana People's struggle. New Delhi: Kali for Women, 1989.
2. K. Satyanarayana and Susie Tharu (Ed.) Steel Nibs Are Sprouting: New Dalit Writing Form South India, Dossier 2: Telugu And Kannada
http://harpercollins.co.in/BookDetail.asp?Book_Code=3732

Lesson Plan

Department: Civil Engineering	**Date:**13/10/2018
Academic Year:2018-2019	**Year/Semester:** II/II
Name of the Faculty: P.Venkat Reddy	
Course Name: Strength of Materials -II	**Course Code:** ES116
Prerequisite:	

Course Outcomes:

At the end of the course, the students will develop ability to

1. Apply the mathematics and engineering mechanics.
2. Describe static determinacy and indeterminacy.
3. Apply the method of consistent deformation to propped cantilever beam and theorem of three moments to continuous beam.
4. Distinguish between SFD and BMD of determinant beams and indeterminate beams.
5. Design shafts and springs under multiple loads.
6. Evaluate the crippling load for different columns.
7. draw the kore of the section
8. Formulate the stability conditions of structural element under direct and bending stress

Lecture Schedule:

S.No	Topic of the Lecture	Name of the Activity & Instructional Aids	Tentative Date
	Unit-I **(Propped Cantilevers and Fixed Beams)**		
1	Analysis of propped cantilevers	Chalk and board	20/11/2018
2	Shear force and bending moment diagrams	Chalk and board	20/11/2018
3	Continuation of shear force and bending moment diagrams	Chalk and board	23/11/2018
4	Deflection of propped cantilevers.	Chalk and board	24/11/2018
5	Continuation of Deflection of propped cantilevers.	Chalk and board	24/11/2018
6	Fixed Beams – Introduction to statically indeterminate beams with uniformly distributed load,	Chalk and board	30/11/2018
7	Continuation of Fixed Beams – Introduction to statically indeterminate beams with uniformly distributed load,	Chalk and board	01/12/2018
8	Central point load, eccentric point load, number of point loads, uniformly varying load	Chalk and board	01/12/2018
9	Shear force and bending moment diagrams of fixed beam carrying various loads	Chalk and board	04/12/2018
10	Continuation of Shear force and bending moment diagrams of fixed beam carrying various loads	Chalk and board	04/12/2018
11	Completion of Shear force and bending moment diagrams of fixed beam carrying various loads	Chalk and board	07/12/2018
12	Deflection of fixed beams	Chalk and board	08/12/2018
13	Continuation of Deflection of fixed beams	Chalk and board	08/12/2018
14	Effect of sinking of support	Chalk and board	11/12/2018
15	Effect of rotation of a support.	Chalk and board	11/12/2018
	Unit-II **(Continuous Beams)**		
16	Introduction – Clapeyron's theorem of three moments.	Chalk and board	14/12/2018
17	Continuation of Clapeyron's theorem of three moments.	Chalk and board	15/12/2018
18	Analysis of continuous beams with constant moment of inertia with one or both ends fixed	Chalk and board	15/12/2018
19	Continuation of Analysis of continuous beams with constant moment of inertia with one or both ends fixed	Chalk and board	18/12/2018
20	Completion of Analysis of continuous beams with constant moment of inertia with one or both ends fixed	Chalk and board	18/12/2018
21	Continuous beams with overhang,	Chalk and board	21/12/2018
22	Continuous beams with different moment of inertia for different spans-	Chalk and board	22/12/2018
23	Effects of sinking of supports	Chalk and board	22/12/2018
24	Shear force and bending moment diagrams.	Chalk and board	28/12/2018
25	Continuation of shear force and bending moment diagrams.	Chalk and board	29/12/2018
	Unit-III (**Torsion of Circular Shafts and Springs)**		
26	Theory of pure torsion	Chalk and board	29/12/2018
27	Derivation of Torsion equations: $T/J=\tau/r=N\theta/L$ – Assumptions made in the theory of pure torsion	Chalk and board	04/01/2019
28	Continuation of Derivation of Torsion equations: $T/J=q/r=Ne/L$ – Assumptions made in the theory of pure torsion	Chalk and board	05/01/2019

29	Tensional moment of resistance	Chalk and board	05/01/2019
30	Polar section modulus	Chalk and board	08/01/2019
31	Power transmitted by shafts	Chalk and board	08/01/2019
32	Combined bending and torsion and end thrust	Chalk and board	11/01/2019
33	Design of shafts according to the theories of failure.	Chalk and board	12/01/2019
34	Continuation of Design of shafts according to the theories of failure.	Chalk and board	12/01/2019
35	Springs – Introduction – Types of springs	Chalk and board	19/01/2019
36	Deflection of close coiled helical spring under axial pull and axial couple	Chalk and board	19/01/2019
37	Continuation of deflection of close coiled helical spring under axial pull and axial couple	Chalk and board	22/01/2019
38	Springs in series and parallel.	Chalk and board	22/01/2019
	Unit-IV **(Columns and Struts)**		
39	Types of columns	Chalk and board	25/01/2019
40	Axially loaded compression members – Crushing load – Euler's theorem for long columns – assumptions	Chalk and board	01/02/2019
41	Continuation of Axially loaded compression members – Crushing load – Euler's theorem for long columns – assumptions	Chalk and board	02/02/2019
42	Derivation of Euler's critical load formulae for various end conditions	Chalk and board	02/02/2019
43	Continuation of derivation of Euler's critical load formulae for various end conditions	Chalk and board	05/02/2019
44	Completion of derivation of Euler's critical load formulae for various end conditions	Chalk and board	05/02/2019
45	Equivalent length of a column – Slenderness ratio – Euler's critical stress – Limitations of Euler's theory	Chalk and board	08/02/2019
46	Continuation of Equivalent length of a column – Slenderness ratio – Euler's critical stress – Limitations of Euler's theory	Chalk and board	09/02/2019
48	Rankine – Gordon formula	Chalk and board	09/02/2019
49	Long columns subjected to eccentric loading – Secant formula- Empirical formulae.	Chalk and board	12/02/2019
50	Beam Columns - Laterally loaded struts – subjected to uniformly distributed and concentrated loads	Chalk and board	12/02/2019
51	Continuation of Beam Columns - Laterally loaded struts – subjected to uniformly distributed and concentrated loads	Chalk and board	15/02/2019
52	Maximum B.M. and stress due to transverse and lateral loading.	Chalk and board	16/02/2019
	Unit-V **(Direct and Bending Stresses)**		
53	Direct and Bending Stresses: Stresses under the combined action of direct loading and bending moment	Chalk and board	16/02/2019
54	Continuation of Direct and Bending Stresses: Stresses under the combined action of direct loading and bending moment	Chalk and board	19/02/2019
55	Core of a section	Chalk and board	19/02/2019
56	Determination of stresses in the case of chimneys	Chalk and board	22/02/2019
57	Determination of stresses in the case of retaining walls	Chalk and board	23/02/2019

58	Continuation of determination of stresses in the case of chimneys	Chalk and board	23/02/2019
59	Determination of stresses in the case of dams	Chalk and board	26/02/2019
60	Continuation of determination of stresses in the case of dams	Chalk and board	26/02/2019
61	Conditions for stability	Chalk and board	01/03/2019
62	Continuation of conditions for stability	Chalk and board	02/03/2019
63	Stresses due to direct loading and bending moment about both axis	Chalk and board	02/03/2019
64	Continuation of stresses due to direct loading and bending moment about both axis	Chalk and board	05/03/2019
65	Completion of stresses due to direct loading and bending moment about both axis	Chalk and board	05/03/2019
66	Revision on Unit-I	Chalk and board	08/03/2019
67	Revision on Unit-II		09/03/2019
68	Revision on Unit-III		09/03/2019
69	Revision on Unit-IV		12/03/2019
70	Revision on Unit-V		12/03/2019

1. Topic Name:
Name of the Activity:
Description of the Activity:
2. Topic Name:
Name of the Activity:
Description of the Activity:
3. Topic Name:
Name of the Activity:
Description of the Activity:

Prepared By: P. Venkat Reddy,
Professor

Department: CIVIL ENGINEERING	**Date:**13/10/2018
Academic Year:: **2018-19**	**Year/ Semester:** II/II
Name of the Faculty: Shaik Khader Vali Baba	
Course Name : Surveying-II	**Course Code:** CE103
Prerequisite:	

COURSE OUTCOMES:

At the end of the course, the students will develop ability to

1. Recognize the importance of traditional and modern techniques involved in surveying.
2. Explain methods involved in computing bearings and distances.
3. Examine and evaluate various errors in measurement while surveying.
4. Apply different methods of measurement with respect to the tool.
5. Compute and interpret the areas and volumes using given data by various methods.
6. Decide and recommend the type of curve to be used.
7. Sketch various profiles using modern tools like total station etc.,
8. Critique global positioning system (GPS) and geographic information system (GIS).

Lecture Schedule:

S.No	Topic of the Lecture	Name of the Activity & Instructional Aids	Tentative Date/Week
	UNIT I		
1.	Introduction	Chalk and board	22-11-2018
2.	Types of theodolites and their components	Instrument demonstration	22-11-2018
3.	Continuation of components of theodolite	Instrument demonstration/ assignment	23-11-2018
4.	Temporary adjustments in the theodolite	Chalk and board/Lab practice	23-11-2018
5.	Measurement of horizontal angle	Lab practice	29-11-2018
6.	Repetition method	Lab practice	29-11-2018
7.	Reiteration method and uses of theodolite	Lab practice	30-11-2018
8.	Errors in theodolite	Chalk and board	30-11-2018
9.	Errors in theodolite	Chalk and board	06-12-2018
10.	Identification and rectifying errors	Chalk and board	06-12-2018
	UNIT II		
11.	Open and closed traverse	Open ended experiment	07-12-2018
12.	Closing errors , balancing the errors	Chalk and board	07-12-2018
13.	Problems based on closing errors	Chalk and board	13-12-2018
14.	Bowditch method	Chalk and board	13-12-2018
15.	Problems based on Bowditch method	Chalk and board	14-12-2018
16.	Transit method	Chalk and board	14-12-2018
17.	Problems based on Transit method	Chalk and board	20-12-2018
18.	Omitted measurements	Open ended experiment	20-12-2018
19.	Problems based on Omitted measurements	Chalk and board	21-12-2018
20.	Problems based on Omitted measurements	Chalk and board	21-12-2018
21.	Problems based on Omitted measurements	Chalk and board	27-12-2018
22.	Gales traverse table	Chalk and board	27-12-2018
23.	Problems based on Gales traverse table	Chalk and board	28-12-2018
24.	Problems based on Gales traverse table	Chalk and board	28-12-2018
	Unit III		
25.	Trigonometric levelling	Chalk and board	3-1-2019
26.	Different cases in trigonometric levelling	Chalk and board	3-1-2019
27.	Different cases in trigonometric levelling	Chalk and board	4-1-2019

28.	Problems based on Different cases in trigonometric levelling	Chalk and board	4-1-2019
29.	Problems based on Different cases in trigonometric levelling	Chalk and board	10-1-2019
30.	Principle of tachometry and derivation based on that	Chalk and board	10-1-2019
31.	Stadia method	Chalk and board	11-1-2019
32.	Fixed hair method	Chalk and board	11-1-2019
33.	Different cases in Fixed hair method	Chalk and board	24-1-2019
34.	Problems based on Different cases in Fixed hair method	Chalk and board	24-1-2019
35.	Movable hair method	Chalk and board	25-1-2019
36.	Tangential method	Chalk and board	25-1-2019
37.	Different cases in Tangential method	Chalk and board	31-1-2019
38.	Problems based on Different cases in Tangential method	Chalk and board	31-1-2019
39.	Substance bar	Chalk and board	1-2-2019
40.	Bemans stadia arc	Chalk and board	1-2-2019
	UNIT IV		
41.	Simple curves and its elements	Chalk and board	7-2-2019
42.	Problems based on Simple curves	Chalk and board	7-2-2019
43.	Methods of setting simple curves	Chalk and board	8-2-2019
44.	Continuation of Methods of setting simple curves	Chalk and board	8-2-2019
45.	Rankines method	Chalk and board	14-2-2019
46.	Problems based on Rankines method	Chalk and board	14-2-2019
47.	Two theodolite method	Chalk and board	15-2-2019
48.	Obstacles in curve setting	Chalk and board	15-2-2019
49.	Compound curves, elements	Chalk and board	21-2-2019
50.	Problems based on Compound curves	Chalk and board	21-2-2019
51.	Elements of reverse curve	Chalk and board	22-2-2019
52.	Problems based on reverse curve	Chalk and board	22-2-2019
53.	Transition curves ,ideal shape	Chalk and board	28-2-2019
54.	Length of transition curve	Chalk and board	28-2-2019
55.	Setting out methods.	Chalk and board	1-3-2019
	UNIT V		
56.	Total station	PowerPoint presentation/open ended experiment	1-3-2019
57.	Global positioning system	PowerPoint presentation	7-3-2019
58.	Remote sensing	PowerPoint presentation	7-3-2019
59.	Geographical information system	PowerPoint presentation	7-3-2019

60.	Spatial and nonspatial information	PowerPoint presentation	8-3-2019
61.	Geographical concept and terminology	PowerPoint presentation	8-3-2019
62.	Advantages of gis	PowerPoint presentation	8-3-2019
63.	Basic concepts of gis	PowerPoint presentation	8-3-2019
61.	Geographical concept and terminology	PowerPoint presentation	8-3-2019

Topic name	**:** Components of theodolite
Name of the activity	**:** Class Assignment
Description of activity	**:** Here students will be asked to submit the assignment of the different components of the theodolite which they have learnt from the classroom and also from the lab practice they will be asked to discuss about the same in the classroom during this activity. They will be asked to operate the instrument and measure the angles
Topic name	**:** Open and closed traverse
Name of the activity	**:** Open ended experiment
Description of activity	**:** Here the students will be asked to perform the task where they will be given an error in a closed traverse and they need to compensate that error by using the methods that they have learnt from the classroom and need to close the traverse
Topic name	**:** Omitted measurements
Name of the activity	**:** Open ended experiment
Description of activity	**:** here the students will be asked to perform the task by missing the station data and they need to bring out the missing data(either it may be length, bearing or both) by using techniques which they have learnt from the chalk and board
Topic name	Total station
Name of the activity	Open ended experiment
Description of activity	Here the students will be made into different batchesand asked to perform the task of finding the total area of a particular place which was assigned to them

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Prepared By: Shaik Khader Vali Baba

Lesson Plan

Department: Civil Engineering	**Date:**13/10/2018
Academic Year: 2018-19	**Year/ Semester :** II/II
Name of the Faculty: P. Kasaiah	
Course Name: Fluid mechanics and Hydraulic machines	**Course Code:** CE104
Prerequisite:	

Course Outcomes:

1. Define the nature of the fluid and show where fluid mechanics concepts are common with those of solid mechanics.
2. Introduce viscosity effects on floor and characteristics of newtonian and non- newtonian fluids.
3. Define the appropriate physical properties and show how these allow differentiation between solids and fluid as well as liquids and gases.
4. Analyze the uniform and non uniform flows in open channels.
5. Design open channels for most economical sections.
6. Discriminate the use of dimensional analysis in solving fluid problems.
7. Explain the basics of hydro machinery, its components and the working principles of all the turbines and pumps.
8. Compute efficient flow turbines.

Lecture Schedule:

S.No	Topic of the Lecture	Name of the Activity & Instructional Aids	Tentative Date
	UNIT-I		
	Fluid Kinematics		
1	Introduction to fluid mechanics	Chalk and board	23/11/2018 to 30/11/2018
2	Description of fluid flow, Stream line, path line and streak lines and stream tube.	Chalk and board	01/12/2018
3	Classification of flows: Steady, unsteady, uniform, nonuniform, laminar, turbulent, rotational and irrotational flows	Chalk and board	01/12/2018
4	Equation of continuity for one, two, three dimensional flows	Chalk and board	01/12/2018
5	stream and velocity potential functions	Chalk and board	07/12/2018
6	Problems on continuity equation and stream and velocity functions	Chalk and board	07/12/2018
7	flow net analysis	Chalk and board	08/12/2018
8	Activity	**Quiz**	08/12/2018
	UNIT-II		
	Fluid dynamics and measurement of flow		
9	Surface and body forces, Euler's equation for flow along al stream line for 3-D flow	Chalk and board	14/12/2018
10	Bernoulli's equations for flow along a stream line for 3-D flow	Chalk and board	14/12/2018
11	Problems on Bernoulli's equation and it's applications		15/12/2018
12	Pitot tube, Venturi meter and orifice meter	Chalk and board	21/12/2018
13	Problems on Pitot tube, Venturi meter and Orifice meter		21/12/2018
14	Momentum equation and its application – forces on pipe bend	Chalk and board	22/12/2018
15	classification of orifices	Chalk and board	22/12/2018
16	flow over rectangular, triangular and trapezoidal, stepped notches	Chalk and board	28/12/2018
17	Broad crested weirs	Chalk and board	28/12/2018
18	Activity	Open book exam	28/12/2018
	UNIT-III		
	Laminar flow		
19	Characteristics of Laminar flow, Reynold's experiment	Chalk and board	29/12/2018
20	Critical Reynold's number, Critical velocity	Chalk and board	29/12/2018
21	Steady laminar flow through a circular pipe	Chalk and board	04/01/2019
22	Hagen Poiseuille equation.	Chalk and board	04/01/2019

23	Problems on laminar flow through a circular pipe	Chalk and board	04/01/2019
	Open channel flow		
24	Types of flows, Type of channels	Chalk and board	05/01/2019
25	Velocity distribution, Energy and momentum correction factors	Chalk and board	05/01/2019
26	Chezy's, Manning's; and Bazin formulae for uniform flow	Chalk and board	05/01/2019
27	Most Economical sections.	Chalk and board	11/01/2019
28	Problems on most economical section	Chalk and board	11/01/2019
	Critical flow		
27	Specific energy-critical depth	Chalk and board	12/01/2019
28	computation of critical depth – critical sub-critical and super critical flows	Chalk and board	12/01/2019
29	Non uniform flow-surface profiles-direct step method	Chalk and board	12/01/2019
30	Rapidly varied flow	Chalk and board	19/01/2019
31	hydraulic jump, energy dissipation	Chalk and board	19/01/2019
32	Problems on hydraulic jump and energy dissipation	Chalk and board	25/01/2019
33	Activity	**Objective Exam**	25/01/2019
	UNIT-IV		
	Flow Through Pipes		
34	Energy losses in pipes , Major and Minor losses	Chalk and board	26/01/2019
35	Expression for head loss due to Friction , Darcy's Weisbach equation	Chalk and board	26/01/2019
36	Expressions for head loss due to Pipe Expansion and Pipe Contraction	Chalk and board	26/01/2019
37	Hydraulic Gradient and Total Energy Lines	Chalk and board	26/01/2019
38	Pipes in Series and parallel	Chalk and board	01/02/2019
39	Equivalent pipe, Power transmission through pipes.	Chalk and board	01/02/2019
	Dimensional Analysis		
40	Dimensions and Dimensional Homogeneity	Chalk and board	02/02/2019
41	Dimensional analysis by Rayleigh's method	Chalk and board	02/02/2019
42	Buckingham's □-Theorem	Chalk and board	08/02/2019
43	Dimensionless numbers and their consequences in Fluid Mechanics.	Chalk and board	08/02/2019
44	Activity	Assignment	08/02/2019
	UNIT-IV		
	Hydraulic Machines		
45	Impact of Jets - Force exerted by a liquid jet on a Stationary, Moving flat plate and Curved vanes	Chalk and board	15/02/2019
46	Hydraulic Turbines - Heads and Efficiencies	Chalk and board	16/02/2019
47	Classification - Impulse and Reaction turbines, Pelton and Francis turbines, Specific speed	Chalk and board	16/02/2019
48	Draft tube, Cavitation phenomenon	Chalk and board	16/02/2019

49	Characteristic curves and Selection of turbines	Chalk and board	22/02/2019
50	Problems on turbines		22/02/2019
	Pumps		
51	Introduction, Centrifugal pump - Heads and Efficiencies	Chalk and board	23/02/2019
52	Specific sped, characteristic curves	Chalk and board	23/02/2019
53	Net positive suction head, Priming, Selection and Operational difficulties.	Chalk and board	23/02/2019
54	Reciprocating Pump, Single and Double acting Reciprocating pumps	Chalk and board	01/02/2019
55	Coefficient of discharge and Slip	Chalk and board	01/02/2019
56	Use of Air vessels and Characteristic curves.	Chalk and board	02/02/2019
57	Problems on centrifugal pump	Chalk and board	02/02/2019
58	Problems on reciprocating pump	Chalk and board	08/02/2019
	Activity	Tutorial	08/02/2019

Topic Name	: Fluid kinematics
Name of the Activity	: Quiz
Description of the Activity	: Entire class will be divided into two batches and quiz competition will be conducted on the basics of fluid mechanics and fluid kinematics
Topic Name	: Fluid dynamics and Measurement of flow
Name of the Activity	: Open book exam
Description of the Activity	: Students will be given a set of questions which are prepared by concerning the senior faculty, the questions will test the subject knowledge and understanding of the students
Topic Name	: Open channel flow, Laminar flow and critical flow
Name of the Activity	: Objective Exam
Description of the Activity	: Number of objective questions will be given to the students, the objective questions will be prepared according to the Bloom's taxonamy
Topic Name	: Flow through pipes and Dimensional analysis
Name of the Activity	: Assignment
Description of the Activity	: List of questions will be given to students, they have to complete the assignment and show it in the next class
Topic Name	: Hydraulic machines and pumps
Name of the Activity	: Tutorial
Description of the Activity	: The students will be given a set of questions, the students have to refer their class notes and complete the set of questions given to them

Prepared By: P. Kasaiah

Lesson Plan

Department: Civil Engineering	**Date:**10/10/2018
Academic Year:2018-19	**Year/Semester:** II/II
Name of the Faculty: S.Haripriya Varma	
Course Name: Reinforced Cement Concrete- I	**Course Code:** CE105
Prerequisite: SM-I, BMCP	

Course Outcomes:

1. Describe the general mechanical behavior of reinforced concrete.
2. Understand basic principles and design methods of reinforced concrete members
3. Identify and apply the applicable industrial design codes relevant to the design of Reinforced concrete members.
4. Analyze and design reinforced concrete flexural and compression members.
5. Examine and design for deflection and crack control of reinforced concrete members.
6. Design simple connections of reinforced concrete members.
7. Know professional and ethical issues and the importance of lifelong learning in structural Engineering.
8. Sketch reinforcement details of reinforced concrete members.

Lecture Schedule

S.No	Topic of the Lecture	Name of the Activity & Instructional Aids	Tentative Date
	Unit-I		
	Introduction: Concept Of Reinforced Cement Concrete		
1	Introduction	Black Board/class room delivery	19/11/2018
2	Reinforcement Materials: Various types of reinforcing materials	Power Point presentation	20/11/2018
3	Suitability of steel as reinforcing material	Black Board/class room delivery	21/11/2018
4	Properties of different types of steel- mild steel	Black Board/class room delivery	23/11/2018
5	Properties of medium tensile steel	Black Board/class room delivery	26/11/2018
6	Properties of mild steel	Black Board/class room delivery	27/11/2018
7	Properties of deformed bars	Black Board/class room delivery	28/11/2018
8	Revision	Black Board/class room delivery	30/11/2018
9	Activity	Think-pair aloud share	3/12/2018
	UNIT –II		
	Theory Of Rcc Beams		
10	Assumption in the theory of simple bending for RCC beam	Black Board/class room delivery	4/12/2018
11	Flexural strength of a singly reinforced RCC beam, Position of the Neutral axis, concept of balanced, under reinforced and over reinforced sections moment of the section.	Black Board/class room delivery	5/12/2018
12	Shear strength of singly reinforced RCC beam, Assumptions made in it	Black Board/class room delivery	7/12/2018
13	permissible shear stresses as per IS code of practice, actual average shear stresses in singly reinforced concrete beam	Black Board/class room delivery	10/12/2018
14	Concept of diagonal stirrups and inclined bars, shear strength of RCC beam section	Black Board/class room delivery	11/12/2018
15	Bond in RCC Beams: Concept of bond	Black Board/class room delivery	14/12/2018

16	Permissible bond stresses for plain and deformed bars as per BIS code of practice, minimum length, and standard hook	Black Board/class room delivery	17/12/2018
17	Examples	Black Board/class room delivery	18/12/2018
18	Numerical problems	Black Board/class room delivery	19/12/2018
19	Revision	Black Board/class room delivery	21/12/2018
20	Activity	Collaborative learning, technique-JIGSAW STRATEGY	25/12/2018
	UNIT-III		
21	Singly Reinforced Concrete Beam	Black Board/class room delivery	28/12/2018
22	Loads and loading standards as per IS:875 (Part I-V)	Black Board/class room delivery	02/01/2019
23	Design of singly reinforced concrete beam as per BIS-456 code of practice from the given data such as span, load and properties of materials used.	Black Board/class room delivery	03/01/2019
24	Design of lintel with and without chajja	Black Board/class room delivery	04/01/2019
25	Design of a main/secondary beam for RCC roof and floor, Design of a cantilever beam/slab.	Black Board/class room delivery	28/12/2018
26	RCC Drawing: Details of reinforcement in a simply supported RCC beam (singly reinforced) with the given design data regarding the size and number of bars, stirrups their size and spacing.	Black Board/class room delivery	07/01/2019
27	Numerical problems	Black Board/class room delivery	10/01/2019
28	Numerical problems	Black Board/class room delivery	11/01/2019
29	Numerical problems	Black Board/class room delivery	21/01/2019
30	Revision	Black Board/class room delivery	22/01/2019
31	Activity	Collaborative learning, technique-JIGSAW STRATEGY	25/01/2019
	UNIT-IV		
32	**Doubly Reinforced Concrete Beams**		
33	Doubly reinforced concrete beam and its necessity	Black Board/class room delivery	26/01/2019

34	Design of a doubly reinforced concrete beam	Black Board/class room delivery	27/01/2019
35	T-Beams: Structural behaviour of beam and slab floor laid monolithically	Black Board/class room delivery	28/01/2019
36	Rules for the design of T-beams, Economical depth of T-beams	Black Board/class room delivery	29/01/2019
37	Design of simply supported T-beams using IS code of practice	Black Board/class room delivery	30/01/2019
38	RCC Drawing: Details of reinforcement in a simply supported RCC beam (doubly reinforced) with the given design data regarding the size and number of bars, stirrups their size and spacing.	Black Board/class room delivery	01/02/2019
39	Numerical problems	Black Board/class room delivery	4/02/2019
40	Numerical problems	Black Board/class room delivery	5/02/2019
41	Numerical problems	Black Board/class room delivery	6/02/2019
42	Numerical problems	Black Board/class delivery	6/02/2019
43	Revision	Black Board/class delivery	13/02/2019
44	Activity	Collaborative learning, technique- JIGSAW STRATEGY	15/02/2019
	UNIT-V		
45	**RCC Slabs**		
46	Structural behaviour UDL	Black Board/class room delivery	22/02/2019
47	Type of Boundary conditions, Design of one way slab	Black Board/class room delivery	22/02/2019
48	Design of two way slab with the help of tables of IS:456	Black Board/class room delivery	26/02/2019
49	Design of two way slab with the help of tables of IS:456 Contd.	Black Board/class room delivery	27/02/2019
50	RCC Drawing: Details of reinforcement in plan and section for a simply supported RCC one way slab with intermediate support and two-way slabs from the given data. Bar bending schedule should be prepared	Black Board/class room delivery	28/03/2019
51	Numerical problems	Black Board/class room delivery	5/03/2019
52	Numerical problems	Black Board/class room delivery	7/03/2019
53	Numerical problems	Black Board/classroom delivery	6/03/2019

54	Numerical problems	Black Board/class room delivery	7/03/2019
57	Numerical problems	Black Board / Class room delivery	8/03/2019
58	Revision	Black Board/ Class room delivery	11/03/2019
59	Activity	Collaborative learning, technique- JIGSAW STRATEGY	13/03/2019

Topic Name : UNIT-1
Name of the Activity : Think-pair aloud share
Description of the Activity : Think-Pair-aloud Share is a collaborative learning strategy in which students work together to solve a problem or answer a question about an assigned reading. This technique requires students to (1) think individually about a topic or answer to a question; and (2) share ideas with classmates. Discussing an answer with a partner serves to maximize participation, focus attention and engage students in comprehending the reading material

Topic Name : UNIT-II, UNIT-III, UNIT-IV, UNIT-V
Name of the Activity : JIGSAW STRATEGY
Description of the Activity : The jigsaw technique is a method of organizing classroom activity that makes students dependent on each other to succeed. It breaks classes into groups and breaks assignments into pieces that the group assembles to complete the jigsaw (assigned task)

Prepared By: S. Haripriya Varma

Lesson Plan

Department: Civil Engineering	**Date:**13/10/2018
Academic Year: 2018-19	**Year/ Semester**: II/II
Name of the Faculty: G. Sangeetha	
Course Name: Engineering Geology	**Course Code**: CE106

Course Outcomes:

1. Identify and categorize different rocks and to analyze complex civil engineering construction problems.
2. Analyze various mineral properties to examine their impacts over any Engineering applications
3. Make use of the significance of geophysical studies to address societal problems
4. Prioritize the areas for construction in earthquake / land slide prone areas by using research based tools and techniques .
5. Discuss the consequences of associated geological problems in Civil Engineering projects.

Lecture Schedule:

S.No	Topic of the Lecture	Name of the Activity &Instructional Aids	Tentative Date
	Unit-I		
	Introduction and Weathering of Rocks		
1	Importance of geology from civil engineering point of view	Presentation and Discussion	19/11/2018
2	Definition of sciences related to geology	Presentation and Discussion	20/11/2018
3	Brief study of case histories of failures of some civil engineering constructions due to geological draw backs	Presentation and Discussion	21/11/2018
4	Importance of physical geology, petrology	Presentation and Discussion	26/11/2018
5	Importance of structural geology	Presentation and Discussion	27/11/2018
6	Weathering effects over the properties of rocks.	Presentation and Discussion	28/11/2018
7	Importance of weathering with reference to dams reservoirs and tunnels	Presentation and Discussion	03/12/2018
8	Weathering of common rocks like granite	Presentation and Discussion	04/12/2018
	Unit-II		
	Mineralogy		
9	Definition of a mineral, importance of study of minerals.	Presentation and Discussion	05/12/2018
10	Study of minerals and advantages of study of minerals	Presentation and Discussion	10/12/2018
11	Role of study of physical properties of minerals in the identification of minerals	Presentation and Discussion	11/12/2018
12	Study of physical properties of minerals like feldspar, quartz, flint, jasper, olivine, augite, hornblende, muscovite, biotite, asbestos, chlorite,	Presentation and Discussion Class room activity	12/12/2018

	kyanite, garnet, talc, and calcite	for identification of rocks	
13	Study of other common minerals like pyrite, hematite, magnetite, chlorite, galena etc.	Presentation and Discussion Class room activity for identification of rocks	17/12/2018
25	Ground water, water table and common types of springs.	Class board teaching	09/01/2019
26	Geological controls of ground water movement and ground water exploration	Presentation and Discussion	14/01/2019
	Unit IV		
	Earth quakes and Importance of Geophysical Studies		
27	Causes and effects of earth quake, shielded areas, seismic belts	Presentation and Discussion	15/01/2019
28	Seismic waves , richter scale	Presentation and Discussion	16/01/2019
29	Precautions to be taken for building construction in seismic areas	Presentation and Discussion	21/01/2019

14	Definition of rock , geological classification of rocks	Presentation and Discussion	18/12/2018
15	Igneous , sedimentary rocks explanation	Presentation and Discussion	19/12/2018
16	Dykes and sills, common structures and textures of rocks	Presentation and Discussion	24/12/2018
17	distinguishing features and megascopic study of granite, dolerite, basalt, pegmatite, latterite, conglomerate, sandstone, shale, limestone, gneiss, schist, quartzite, marble and slate	Class room activity and presentation	25/12/2018
	Unit III		
	Structural Geology		
18	Indian stratigraphy and geological time scale	Presentation and Discussion	26/12/2018
19	Outcrop, strike and dip.	Class board teaching	31/12/2018
20	Study of geological structures like folds, faults and joints.	Class board teaching	01/01/2019
21	Important types of folds and faults	Class board teaching	02/01/2019
22	In situ and drift soils	Presentation and discussion	07/01/2019
23	Common types of soils , their origin and occurrence in India	Presentation and discussion	08/01/2019

30	Introduction to landslides their causes and effects	Presentation and Discussion	22/01/2019
31	Measures to be taken to prevent their occurrence	Presentation and Discussion	23/01/2019
32	Importance of study of groundwater, earthquakes and landslides	Presentation and Discussion	28/01/2019
32	Principles of geophysical study by electrical methods	Presentation and Discussion	29/01/2019
33	Principles of geophysical study by gravity methods	Presentation and Discussion	30/01/2019
34	By Magnetic methods	Presentation and Discussion	04/02/2019
35	Electrical resistivity methods, seismic refraction methods.	Presentation and Discussion	05/02/2019
36	Improvement of competence of silts by grouting etc.	Presentation and Discussion	06/02/2019
37	Fundamental aspects of rock mechanics	Presentation and Discussion	11/02/2019
38	Seismic methods, radiometric methods,	Presentation and Discussion	12/02/2019
39	Geothermal methods.	Presentation and Discussion	13/02/2019
40	Fundamental aspects of environmental geology	Presentation and Discussion	18/02/2019
	Unit V		
	Geology of Dams, Reservoirs and Tunnels		
41	Types of dams and bearing of geology of site in their selection.	Presentation and Discussion	19/02/2019
42	Geological considerations in the selection of a dam site	Presentation and Discussion	20/02/2019
43	Bearing of geology of site in their selection	Presentation and Discussion	21/02/2019
44	Analysis of a dam failures of the past	Presentation and Discussion	23/02/2019
45	Geological factors influencing with water tightness and life of reservoir	Presentation and Discussion	25/02/2019

46	Purpose of tunneling , effects of tunneling on the ground role of geological considerations like structural and ground water	Presentation and Discussion	26/02/2019
47	Over break and lining in tunnels	Class board discussion	27/02/2019
48	Effects of tunneling on the ground	Class board discussion	27/02/2019
49	Role of geological considerations in structural and ground water	Class board discussion and Presentation	28/02/2019
50	Dams case study		28/02/2019

Topic Name **:** Weathering of Rocks
Name of the Activity **:** TAPPS(Think-Aloud Pair Problem Solving)
Description of the Activity **:** A team of two members is selected from the classroom are selected in such a way that one student is from first bench and other from last bench are made into group. The activity is performed by making one student as explainer and other as questioner

Topic Name **:** Identification of Minerals
Name of the Activity **:** Think Pair Share
Description of the Activity **:** Making students into groups and encourage them to explain the mineral properties among themselves, so the students who missed the class can be benefitted

Topic Name **:** Types of soils and their origin
Name of the Activity **:** Assignment / Presentations
Description of the Activity **:** Some topics will be given to the students and ask them to write assignments and give presentations

Topic Name **:** Study on Geophysical methods
Name of the Activity **:** In class Teams
Description of the Activity **:** The principles of geophysical study by using different methods are explained and discussed with the students and ask them to choose appropriate method for better understanding of subsurface geology in different cases

Prepared By: G. Sangeetha

LESSON PLAN

(CE108) SURVEYING LAB – II

DEMO EXPERIMENTS:

1. Study of theodolite in detail
2. Handling of total station

OPEN ENDED EXPERIMENT:

1. Trigonometric leveling - heights and distance problem
2. Heights and distance using Principles of tacheometric surveying (two exercises)
3. Traversing using total station
4. Contouring using total station
5. Determination of remote height using total station
6. Stake-out using total station

EXERCISE OF EXPERIMENTS:

1. Practice for measurement of horizontal and vertical angles.
2. Measurement of horizontal angles by method of repetition and reiteration.
3. Curve setting – different methods. (two exercises)
4. Setting out works for buildings and pipe lines.
5. Determination of area using total station
6. Distance, gradient, difference in elevation between two inaccessible points using total station

For 1st 30 students:

S.NO	NAME OF THE EXPERIMENT	DATE OF EXPERIMENT				
		22/11/2018	29/11/2018	06/12/2018	13/12/2018	20/12/2018
	CYCLE-I					
1	Study of theodolite in detail - practice for measurement of horizontal and vertical angles.	BATCH 1	BATCH 2	BATCH 3	BATCH 4	BATCH 5
2	Measurement of horizontal angles by method of repetition and reiteration.	BATCH 2	BATCH 3	BATCH 4	BATCH 5	BATCH 1
3	Trigonometric leveling - heights and distance problem (two exercises)	BATCH 3	BATCH 4	BATCH 5	BATCH 1	BATCH 2
4	Heights and distance using Principles of tacheometric surveying (two exercises)	BATCH 4	BATCH 5	BATCH 1	BATCH 2	BATCH 3
5	Determination of area using total station	BATCH 5	BATCH 1	BATCH 2	BATCH 3	BATCH 1

S.NO	NAME OF THE EXPERIMENT	DATE OF EXPERIMENT				
		10/01/2019	24/01/2019	31/01/2019	07/02/2019	14/02/2019
	CYCLE-II					
6	Curve setting – different methods. (two exercises)	BATCH 1	BATCH 2	BATCH 3	BATCH 4	BATCH 5
7	Setting out works for buildings and pipe lines.	BATCH 2	BATCH 3	BATCH 4	BATCH 5	BATCH 1
8	Contouring using total station	BATCH 3	BATCH 4	BATCH 5	BATCH 1	BATCH 2
9	Determination of remote height using total station	BATCH 4	BATCH 5	BATCH 1	BATCH 2	BATCH 3
10	Stake-out using total station	BATCH 5	BATCH 1	BATCH 2	BATCH 3	BATCH 1

For 2nd 30 students:

S.NO	NAME OF THE EXPERIMENT	DATE OF EXPERIMENT				
		23/11/2018	30/11/2018	7/12/2018	14/12/2018	21/12/2018
	CYCLE-I					
1	Study of theodolite in detail - practice for measurement of horizontal and vertical angles.	BATCH 1	BATCH 2	BATCH 3	BATCH 4	BATCH 5
2	Measurement of horizontal angles by method of repetition and reiteration.	BATCH 2	BATCH 3	BATCH 4	BATCH 5	BATCH 1
3	Trigonometric leveling - heights and distance problem (two exercises)	BATCH 3	BATCH 4	BATCH 5	BATCH 1	BATCH 2
4	Heights and distance using Principles of tacheometric surveying (two exercises)	BATCH 4	BATCH 5	BATCH 1	BATCH 2	BATCH 3
5	Determination of area using total station	BATCH 5	BATCH 1	BATCH 2	BATCH 3	BATCH 1
S.NO	NAME OF THE EXPERIMENT	DATE OF EXPERIMENT				
		11/01/2019	25/01/2019	01/02/2019	08/02/2019	15/02/2019
	CYCLE-II					
6	Curve setting – different methods. (two exercises)	BATCH 1	BATCH 2	BATCH 3	BATCH 4	BATCH 5
7	Setting out works for buildings and pipe lines.	BATCH 2	BATCH 3	BATCH 4	BATCH 5	BATCH 1
8	Contouring using total station	BATCH 3	BATCH 4	BATCH 5	BATCH 1	BATCH 2
9	Determination of remote height using total station	BATCH 4	BATCH 5	BATCH 1	BATCH 2	BATCH 3
10	Stake-out using total station	BATCH 5	BATCH 1	BATCH 2	BATCH 3	BATCH 1

LESSON PLAN

(CE109) FLUID MECHANICS AND HYDRAULIC MACHINES LAB

DEMO EXPERIMENTS:

1. Calibration of venturi meter and orifice meter
2. Calibration of contracted rectangular notch and triangular notch
3. Verification of Bernoulli's equation.

OPEN ENDED EXERCISE EXPERIMENT:

1. Performance test on Pelton wheel turbine
2. Performance test on Francis turbine.
3. Performance characteristics of a single stage/ multi-stage centrifugal pump.
4. Performance characteristics of a reciprocating pump.

EXERCISE OF EXPERIMENTS:

1. Determination of coefficient of discharge for a small orifice / mouthpiece by constant head method.
2. Determination of friction factor of a pipe.
3. Determination of coefficient of friction for minor losses.
4. Impact of jet on vanes
5. Study of hydraulic jump

S.NO	NAME OF THE EXPERIMENT	DATE OF EXPERIMENT				
		20/11/2018	**27/11/2018**	**04/12/2018**	**11/12/2018**	**18/12/2018**
	CYCLE-I					
1	Calibration of Venturi meter and Orifice meter	BATCH 1	BATCH 2	BATCH 3	BATCH 4	BATCH 5
2	Determination of coefficient of discharge for a small orifice/mouth piece by constant head method	BATCH 2	BATCH 3	BATCH 4	BATCH 5	BATCH 6
3	Calibration of contracted rectangular notch and triangular notch	BATCH 3	BATCH 4	BATCH 5	BATCH 6	BATCH 1
4	Determination of friction factor of a pipe	BATCH 4	BATCH 5	BATCH 6	BATCH 1	BATCH 2
5	Determination of coefficient of friction for minor losses	BATCH 5	BATCH 6	BATCH 1	BATCH 2	BATCH 3
6	Verification of Bernoulli's Equation	BATCH 6	BATCH 1	BATCH 2	BATCH 3	BATCH 4
	CYCLE-II	DATE OF EXPERIMENT				
		08/01/2019	22/01/2019	29/01/2019	05/02/2019	12/03/2019
7	Impact of jet on vanes	BATCH 1	BATCH 2	BATCH 3	BATCH 4	BATCH 5
8	Study of hydraulic jump	BATCH 2	BATCH 3	BATCH 4	BATCH 5	BATCH 6
9	Performance test on Pelton wheel turbine	BATCH 3	BATCH 4	BATCH 5	BATCH 6	BATCH 1
10	Performance test on Francis turbine	BATCH 4	BATCH 5	BATCH 6	BATCH 1	BATCH 2
11	Performance characteristics of Single stage/Multistage centrifugal pump	BATCH 5	BATCH 6	BATCH 1	BATCH 2	BATCH 3
12	Performance characteristics of Reciprocating pump	BATCH 6	BATCH 1	BATCH 2	BATCH 3	BATCH 1

LESSON PLAN

ENGINEERING GEOLOGY LAB (CE110)

LIST OF EXPERIMENTS:

1. Examine the physical properties of minerals.
2. Examine the physical properties of igneous rocks.
3. Examine the physical properties of sedimentary rocks.
4. Examine the physical properties of metamorphic rocks.
5. Study the geological map.

DEMO EXPERIMENTS:

1. Study the geological map of India.
2. Study the geological map of Telangana state.

OPEN ENDED EXERCISE EXPERIMENT:

1. Analyse the structural characteristics of given rock.
2. Compare physical properties of igneous rocks and sedimentary rocks and give your comments.
3. Compare physical properties of metamorphic rocks and sedimentary rocks and give your comments.

EXERCISE OF EXPERIMENTS:

1. Examine the physical properties of minerals.
2. Examine the physical properties of igneous rocks.
3. Examine the physical properties of sedimentary rocks.
4. Examine the physical properties of metamorphic rocks.

S.NO	NAME OF THE EXPERIMENT	DATE OF EXPERIMENT							
		22/11/ 2018	**29/11/ 2018**	**06/12/ 2018**	**13/12/ 2018**	**20/12/ 2018**	**27/12/ 2018**	**03/01/ 2019**	
CYCLE 1									
1	Examine the physical properties of minerals	Batch 1 to 10	Batch 1 to 10	Batch 1 to 10					
2	Examine the physical properties of igneous rocks.			Batch 1 to 10	Batch 1 to 10	Batch 1 to 10			
3	Examine the physical properties of sedimentary rocks.						Batch 1 to 10	Batch 1 to 10	
CYCLE 2									
		10/01 2019	24/01 /2019	31/01/ 2019	07/02/ 2019	14/02 2019	21/02 2019	28/02/ 2019	07/03 2019
4	Examine the physical properties of Metamorphic rocks.		Batch 1 to 10	Batch 1 to 10	Batch 1 to 10				
5	Study the geological map of India and Telangana state.					Batch 1 to 10	Batch 1 to 10	Batch 1 to 10	