Vision of the Institution

To ignite the minds of the students through academic excellence so as to bring about social transformation and prosperity.

Mission of the Institution

- To expand the frontiers of knowledge through Quality Education.
- To provide valued added Research and Development.
- To embody a spirit of excellence in Teaching, Creativity, Scholarship and Outreach.
- To provide a platform for synergy of Academy, Industry and Community.
- To inculcate high standards of Ethical and Professional Behavior.

Vision of CIVIL ENGINEERING Department

To give the nation qualitative Civil Engineers, who can contribute for the construction of a better world with sophisticated infrastructural facilities, eco-friendly houses, modern transportation facilities with a pollution free environment and to protect the precious natural resources of this planet.

Mission of CIVIL ENGINEERING Department

1. To shape the students into good entrepreneurs and to promote self-confidence and all-round development of the student personality through special lectures, practical training programs, field visits and technical seminars.
2. To train the students to acquire generic knowledge in the areas of Civil Engineering
3. To continuously update the physical infrastructure through modernization, thrust area development, R & D and other schemes
4. To generate knowledge base through sustained research and developmental efforts.
5. To produce engineers with self-confidence and overall personality who can be self-employed and generate employment opportunities to fellow engineers and take active part in nation building,
6. Keeping in view the challenges of the future.

Program Educational Objectives (PEOs)

PEO:1

The main objective of the faculty is to guide them by the principles of sustainable development and global inter connectedness with the civil structures, and make them to understand the impact of civil engineering projects how they effects the society and environment in case of failures.

PEO:2

To develop their communication skills(Oral, Written, Visual, Graphic modes) which makes them to participate actively in their communities and profession when working as team leaders or members.

PEO:3

An intensive training is provided to identify, formulate and solving engineering problems in technical areas appropriate CIVIL ENGINEERING.

PEO:4

To make them competent and engaged engineering professionals applying their technical and managerial skills in planning, designing and construction.

Program Outcomes (POs) of CIVIL ENGINEERING Department

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs) of CIVIL ENGINEERING Department

PSO 1:

An ability to learn constructional concepts and to implement them in the field work and to make the structural planning in a smarter way.

PSO 2:

To encourage young energetic engineers in technical and software skills in the field of Civil Engineering with innovative thoughts along with existing and future trends in constructional field.

PSO 3 :

The capability to integrate knowledge in constructional field work and to improve skills to become an entrepreneur.

ELECTRICAL AND ELECTRONICS ENGINEERING

Prerequisites:

This course covers the topics related to analysis of various electrical circuits, operation of various electrical machines, various electronic components to perform well in their respective fields.

Course Objectives:

i) To learn the basic principles of electrical law's and analysis of networks
ii) To understand the principle of operation and construction details of DC machines.
iii) To understand the principle of operation and construction details of transformer
iv) To understand the principle of operation and construction details of alternator and three-phase induction motor.
v) To study the operation of PN junction diode, half wave, full wave rectifiers and OP-AMPS.
vi) To learn the operation of PNP AND NPN transistors and various amplifiers.

Course Outcomes:

Upon completion of this course, students should:

i) Able to analyze the various electrical networks.
ii) Able to understand the operation of DC generators, 3-point starter and conduct the swinburns test.
iii) Able to analyze the performance of transformer.
iv) Able to explain the operation of three-phase alternator and three-phase induction motors.
v) Able to analyze the operation of half wave, full wave rectifiers and OP-AMPS.
vi) Able to explain the single stage CE amplifier and concept of feedback amplifier.

UNIT – I

OBJECTVE: To learn the basic principles of electrical laws and analysis of simple electrical circuits.

ELECTRICAL CIRCUITS: Basic definitions, Types of net work elements, Ohm's Law, Resistive networks, Kirchhoff's Laws, Inductive networks, capacitive networks, Series, Parallel circuits and Star-delta and delta-star transformations.

UNIT – II

OBJECTVE: To understand the principle of operation and constuctional details of DC machines.

DC MACHINES: Principle of operation of DC Generator – emf equation - types – DC motor types –torque equation – applications – three point starter, swinburns test, speed control methods.

UNIT – III

OBJECTVE: To understand the priciple of operation of transformers and calculation of losses and efficiency.

TRANSFORMERS: Principle of operation of single phase transformers – emf equation – losses –efficiency and regulation

UNIT – IV

OBJECTVE: To understand the principle of operation and construction details of alternator and three-phase induction motor**.**

AC MACHINES: Principle of operation of alternators – regulation by synchronous impedance method –Principle of operation of three-phase induction motor – slip – torque characteristics – efficiency-applications.

UNIT V

OBJECTVE: To study the operation of PN junction diode, half wave, full wave rectifiers and OP-AMPS.

DIODE AND ITS CHARACTERISTICS: PN Junction Diodes, Diode Applications, Rectifiers (Half wave and Bridge Rectifiers). Characteristics of operation amplifiers (OP-AMP)-application of OP-AMPS (inverting, non-inverting, integrator and differentiator)

UNIT VI

OBJECTVE: To learn the operation of PNP AND NPN transistors and various amplifiers.

TRANSISTORS: PNP and NPN Junction Transistor, Transistor as an Amplifier, Single Stage CE Amplifier, Frequency Response of CE Amplifier, Concepts of Feedback Amplifier.

TEXT BOOKS:

1. Electronic Devices and Circuits, R.L. Boylestad and Louis Nashelsky, 9th edition, PEI/PHI 2006.

2. Electrical Technology by Surinder Pal Bali, Pearson Publications.3.Electrical circuit Theory and Technology by John Bird, Routledge Taylor and Francis Group

REFERENCE BOOKS:

1. Basic Electrical Engineering by M.S.Naidu and S.Kamakshiah,TMH Publications

2. Fundamentals of Electrical Engineering by Rajendra Prasad, PHI Publications,2nd edition

3. Basic Electrical Engineering by Nagsarkar,Sukhija, Oxford Publications, 2nd edition.

4. Industrial Electronics by G.K. Mittal, PHI

BUILDING MATERIALS AND CONSTRUCTION

COURSE OBJECTIVES:

1. To teach students about the physical and mechanical properties of construction materials and their respective testing procedure.
2. To teach students about the building materials available in market to be used for many Components of building industry.
3. To teach students about the principles and methods to be followed in constructing various components of a building.
4. To teach students about the deterioration and repair of buildings.

UNIT – I

STONES, BRICKS AND TILES:

Properties Of Building Stones – Relation To Their Structural Requirements. Classification Of Stones – Stone Quarrying – Precautions In Blasting, Dressing Of Stone, Composition Of Good Brick Earth, Various Methods Of Manufacturing Of Bricks. Characteristics Of Good Tile – Manufacturing Methods, Types Of Tiles. Use Of Materials Like Aluminum, Gypsum, Glass And Bituminous Materials – Their Quality.

UNIT-II

MASONARY:

Types Of Masonry, English And Flemish Bonds, Rubble And Ashlar Masonry, Cavity And Partition Walls.

WOOD: Structure – Properties – Seasoning Of Timber. Classification Of Various Types Of Woods Used In Buildings – Defects In Timber. Alternative Materials For Wood, Galvanized Iron, Fiber-Reinforced Plastics, Steel, Aluminum.

UNIT – III

LIME AND CEMENT

Lime: Various ingredients of lime – Constituents of lime stone – classification of lime – various methods of manufacture of lime.

Cement: Portland cement – Chemical Composition - hydration, Setting and Fineness of cement. Various types of cement and their properties. Various field and laboratory tests for Cement. Various ingredients of Cement concrete and their importance – various tests for concrete.

UNIT-IV

BUILDING COMPONENTS

Lintels, Arches, Vaults - stair cases – Types. Different types of floors-Concrete, Mosaic, Terrazzo floors, pitched, flat Roofs. Lean-to-Roof, Coupled Roofs, Trussed roofs- King and Queen Post Trusses. RCC Roofs, Madras Terrace and pre-fabricated roofs.

UNIT-V

FINISHINGS:

DampProofing and water proofing materials and uses- Plastering, pointing, white washing and distempering

Paints: Constituents of a paint – Types of paints – Painting of new/old Wood – Varnish

Form works and scaffoldings.

UNIT – VI

AGGREGATES:

Classification of aggregate – Coarse and fine aggregates – Particle shape and Texture – Bond and strength of Aggregate – Specific gravity – Bulk density, porosity and Absorption – Moisture content of Aggregate – Bulking of sand- Sieve analysis.

COURSE OUTCOMES

By the end of the course:

1. Student able to understand and utilize basic principles used in Building Construction
2. Learn and identify the relevant physical and mechanical properties pertaining to the construction industry.
3. Demonstrate the relevant BIS testing procedure to be carried out to ascertain the quality of building materials.
4. Develop ability to choose the modern construction material appropriate to the climate and functional aspects of the buildings.

5. Ability to supervise the construction technique to be followed in brick, stone and hollow block masonry, concreting, flooring, roofing, plastering and painting etc.
6. Learn about the causes of deterioration, crack pattern, and assessment of damages.

TEXT BOOKS:

1. "Engineering Materials", Rangawala, S.C, (36th edition), AnanadCharotar Publishing House, 2009.
2. "Building Materials", S.S. Bhavikatti, Vikas publications House private ltd.
3. "Building Construction", S.S. Bhavikatti, Vikas publications House private ltd.
4. "Building Materials", B.C. Punmia, Laxmi publications private ltd.
5. "Building Construction", (10th edition), B.C. Punmia, Laxmi publications, Bangalore, 2009

REFERENCES:

1. "Building materials" by P.C. Varghese, Prentice-Hall of India private Ltd, New Delhi.
2. "Building Construction" by P.C. Varghese, Prentice-Hall of India private Ltd, New Delhi.
3. "Building Materials",M.L.Gambhir, Tata McGraw Hill Publishing Co. Ltd. New Delhi.
4. "Building Materials", S.K. Duggal, New Age International Publications

FLUID MECHANICS

Course Objectives:

- To introduce the students basic principles of fluid mechanics
- To know various methods in hydraulics
- Enable the students a clear study on flow types .

UNIT I

INTRODUCTION: Dimensions and units-physical properties of fluids, specific gravity, viscosity, surface tension,Vapor pressure and their influences on fluid motion, pressure at a point pascals law, hydrostatic lawAtmosphere , gauge and vacuum pressure –measurement of pressure. pressure gauges, manometers:Differential manometer and micro manaometers.

UNIT II

HYDROSTATICS: hydrostatic forces on submerged plane, horizontal,vertical, inclined and curved surfaces-center of pressure.derivations and problems.

FLUID KINEMATICS: Description of fluid flow, stream line, path line and streak lines and stream tube Classification of flows; steady ,unsteady, uniform, non uniform, laminar, turbulent, rotational and Irrotational flows-equation of continuity for one, two, three dimensional flows-stream and velocity Potential functions, flow net analysis.

UNIT III

FLUID DYNAMICS: surface and body forces-Eulers and bernoullis eequations for flow along a stream line For 3-D flow, Navier-stokes equations(explanationary) momentum equation and its applications-Forces on pipe bend.

UNIT IV

BOUNDARY LAYER THEORY: boundary layer-concepts, Prandtl contribution, characteristics of boundary layer along a thin flat plate, Vonkarmen momentum integral equation , laminar and turbulent boundary layers , no derivations BL in transition , separation of BL , control of BL ,flow around submerged objects-drag and lift – Magnus effect.

UNIT V

LAMINAR FLOW: Reynolds experiment- characteristics of laminar & turbulent flows. Flow between parallel plates, flow through long tubes, flow through inclined tubes.

CLOSED CONDUIT FLOW: laws of fluid friction- darcy's equation, minor losses-pipes in series- pipes in parallel-total energy line and hydraulic gradient line. Pipe network problems, variation of friction factor with reynold's number-Moody's chart

UNIT VI

MEASUREMENT OF FLOW: pitot tube, venture meter and orfice meter- classification of orfices, small orfice and large orfice , flow over rectangular and trapezoidal and stepped notches-broad crested weirs.

TEXT BOOKS:

1. Fluid Mechanics by Modi and Seth, Standard book house.

2. Introduction to Fluid Machines by S.K.Som & G.Biswas (Tata Mc.Grawhill pub) 3. Introduction to Fluid Machines by Edward J. Shaughnessy, Jr, Ira M. Katz and James P. Schaffer , Oxford UniversityPress, New Delhi

REFERENCES:

1. Fluid Mechanics by J.F.Douglas, J.M. Gaserek and J.A.Swaffirld (Longman)

2. Fluid Mechanics by Frank.M. White (Tata Mc.Grawhill Pvt. Ltd.)

3. Fluid Mehanics by A.K. Mohanty, Prentice Hall of India Pvt. Ltd., New Delhi

4. A text of Fluid mechanics and hydraulic machines by Dr. R.K. Bansal - Laxmi Pub.)

COURSE OUTCOMES

By the end of the course:

- To demonstrate the basic fluid mechanics skills
- To use various flow types.
- To perform different methods of hydraulics
- To compute various data for various required for various methods of fluid mechanics.

PROBABILITY AND STATISTICS

PREREQUISITES:

Permutations & Combinations, Integration, Basic statistics

COURSE OBJECTIVES:

1. The objective of the course is to make the student understand the concepts of probability and probability distributions.
2. The concept of estimation explains the range in which the population parameter lies basing on sample statistic.
3. Testing of Hypothesis is a tool to accept or reject the hypothetical data referred to population using sample data.
4. The Correlation and Regression establishes the relation between the hypothetical variables.
5. The concept of control charts explains whether the process is in control or not.

UNIT- I: Random Variables and Distributions:

Introduction- Random Variables- Distribution function - Discrete distributions (Review of Binomial and Poisson distributions) –

Continuous distributions: Normal, Normal approximation to Binomial distribution, Gamma and Weibull distributions.

UNIT II Moments and Generating Functions:

Introduction- Mathematical expectation and properties - Moment generating function-Moments of standard distributions (Binomial, Poisson and Normal distributions)-Properties

UNIT III Sampling Theory:

Introduction- Population and samples – Sampling distribution of mean for large and small samples (with known and unknown variance) – Proportion, sums and differences of means- Sampling distribution of variance - Point and interval estimators for means and proportions.

UNIT IV Tests of Hypothesis:

Introduction – Type I and Type II errors – Maximum error – One tail, two tail tests – Tests concerning one mean and proportion, two means – Proportions and their differences using Z-test, Student's t-test – F-test and Chi-square test- ANOVA for one-way and two-way classified data

UNIT V Curve Fitting and Correlation:

Introduction - Fitting of a straight line – Second degree curve – exponential curve – power curve by method of least squares.

Simple Correlation and Regression – Rank correlation – Multiple regression

UNIT VI Statistical Quality Control Methods:

Introduction – Methods for preparing control charts – Problems using x-bar, p, R charts and attribute charts.

Text Books:

1. Probability and Statistics for Engineers: Miller and John E.Fruend, Prentice Hall of India

2. Probability and Statistics for Engineers and Scientists: Ronald E. Walpole, Sharon L. Mayers and Keyying Ye:Pearson

3. Probability, Statistics and Random Processes, Murugesan, Anuradha Publishers, Chennai

COURSE OUTCOMES:

CO1: Concept of Probability and interpreting the real time problems with two or more outcomes using probability distributions
CO2: Testing the validity of population results basing on sample data
CO3: To get the maximum yield from a crop by applying ANOVA techniques
CO4: Establishing relation between variables by fitting a curve and measuring the relation by correlation coefficient
CO5: Testing whether the production in an industry is in control.

STRENGTH OF MATERIALS - 1

Course Objectives:

- Familiarize students with different types of design philosophies.
- Equip student with concepts of design flexural members.
- Understand concepts of shear, bond & torsion.
- Familiarize students with different types of compression members and design.
- Understand different types of footings and there design

UNIT – I:

SIMPLE STRESSES AND STRAINS and STRAIN ENERGY :

Elasticity and plasticity – types of stresses and strains – Hookes law – stress – strain diagram for mild stel –working stress - factor of safety - lateral strain , poisions ratio and volumetric strain – elastic moduli and relationship between them – Bars of varying section – composite bars – Temperature stresses.

STRAIN ENERGY- resilience - gradual, sudden , impact and shock loadings – simple applications

UNIT – II:

SHEAR FORCE AND BENDING MOMENT :

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

UNIT III:

FLEXURAL STRESSES

Theory of simple bending – Assumptions – Derivation of bending equation ; M/I = F/Y =E/R Neutral axis – Determination bending stresses – Section modulus of rectangular and circular sections (solid and hallow) , I , T , Angle and channel sections –Design of simple beam sections.

UNIT – IV:

SHEAR STRESSES:

Derivation of formula shear stress directed across various beam sections like rectangular , circular, ttrangular sections, built up beams, shear centre

UNIT – V:

DEFLECTION OF BEAMS:

Bending into a circular arc – slope, deflection and radius of curvature – Differential equation for the elastic line of a beam – Double integration and Macaulay's methods – Determination of slope and deflection for cantilever and simply supported beams subjected to point loads, - U.D.L. Uniformly varying load.-Mohr's theorems – Moment area method – application to simple cases including overhanging beams

UNIT – VI:

THIN CYLINDERS:

Thin seamless cylindrical shells – Derivation of formula for longitudinal and circumferential stresses – hoop, longitudinal and volumetric strains – changes in diameter, and volume of thin cylinders – Thin spherical shells.

THICK CYLINDERS:

Introduction Lame's theory for thick cylinders – Derivation of Lame's formulae – distribution of hoop and radial stresses across thickness – design of thick cylinders – compound cylinders – Necessary difference of radii for shrinkage – Thick spherical shells

Text Books:

T1. Strength of materials by S.Ramamrutham

T2. Mechanics of Materials by Dr. Punmia.

T3. Strength of Materials by D.Sadhu Singh.

References:

R1.Strength of materials by R.K.Bansal.

R2. Strength of materials by R.S.Khurmi

Course Outcomes

- The students will be able to understanding the basic materials behavior under the influence of different external loading conditions and the support conditions.
- The students will be able to draw the diagrams including the variations of the key performance features like bending moment and shear forces.
- The students will have knowledge of bending concepts and calculations of section modulus and for determinations of stressed developed in the beams due to the various loading conditions.
- The students will be able to assess stresses across section of the thin and thick cylinders to arrive at optimum sections to with stand the internal pressure

SURVEYING

Course Objectives:

- To introduce the students basic principles of surveying
- To know various methods in linear and angles measuring instruments.
- Enable the students a clear study on surveying equipments.

UNIT—I

INTRODUCTION: definition-Uses of surveying- overview of planesurveying (chain, compass and plane table), Objectives, Principlesand classifications — Errors in survey measurements

UNIT —II

DISTANCES AND DIRECTION: Distance measurement conventionsand methods; use of chain and tape, Electronic distance measurements(EDM)- principles of electro optical EDM-errors and corrections tolinear measurements- compass survey- Meridians, Azimuths andBearings, declination, computation of angle. Traversing-Purpose-types of traverse-traverse computations traverft adjustments-omitted measurements

UNIT— III

LEVELINGAND CONTOURING: Concept and Terminology, Leveling Instruments and their Temporary and permanent adjustments- method of leveling. Characteristics and Uses of contours- methods of conducting contour surveys and their plotting.

UNIT — IV

THEODOLITE: The odolite, description, principles-uses and adjustments — temporary and permanent, measurement of horizontal and vertical angles. Principles of Electronic Theodolite -Trigonometrically leveling. TACHEOMETRIC SURVEYING: Stadia and tangential methods of Tacheometry. Distance and Elevation formulae for Staff vertical position.

UNIT— V

CURVES: Types of curves, design and setting out — simple and compound curves- transition curves. Introduction to geodetic surveying, Total Station and Global positioning system.

UNIT— VI

COMPUTATION OFAREAS AND VOLUMES: Area from field notes, computation of areas along irregular boundaries and area consisting of regular boundaries. Embankments and cutting for a level

section and two level sections with and without transverse slopes, determination of the capacity of reservoir, volume of barrow pits.

TEXT BOOKS:

1. Chandra A M, "Plane Surveying" and "Higher Surveying" New age International Pvt. Ltd., Publishers, New Delhi, 2002
2. Duggal S K, "Surveying (Vol – 1 & 2), Tata Mc.Graw Hill Publishing Co. Ltd. New Delhi, 2004.
3. Text book of surveying by C.Venkataramaiah, Unversiities Press

REFERENCES:

1. Surveying and Leveling by R. Subramanian, Second Edition Oxford University Press - 2012
2. Surveying Theory and Practice Seventh edition by James M. and Anderson Edward M. Mikhail TATAMcGraw Hill
3. Arthur R Benton and Philip J Taety, Elements of Plane Surying, McGraw Hill – 2000
4. "Advanced Surveying Total Station GIS and Remote Sensing by Satheesh Gopi, R. Sathi Kumar and N.Madhu.

COURSE OUTCOMES

By the end of the course:

- To demonstrate the basic surveying skills
- To use various surveying instruments.
- To perform different methods of surveying.
- To compute various data for various required for various methods of surveying.
- To integrate the knowledge and produce topographical map.

SURVEYING LAB

COURSE OBJECTIVES:

1. Aimed at acquiring practical knowledge of various components of chain Surveying.

2. To understand compass surveying, plane table surveying & levelling.

3. To understand surveying with theodolite.

4. Understand the usage and functions of Total Station & DGPS

LIST OF EXPERIMENTS:

1. Chaining across obstacles and determine its area.

2. Surveying of a given area by prismatic compass (closed traverse) and plotting after adjustment.

3. Radiation method or intersection methods by plane Table survey

4. Two point or three point problems in plane table survey

5. Levelling H.I & Rise & fall

6. Two exercises on contouring.

7. Measurement of horizontal angles by method of Repetition and Reiteration.

8. Trigonometric Levelling - Heights and distance problem.

9. Heights and distance using Principles of tachometric surveying.

10. Curve setting – different methods.

11. Total Station Surveying - Measurements of Distances and Angles, Slope distances, Height, Traversing,

12. DGPS Surveying – Coordinate Measurements.

TEXT BOOKS:

1. Arora, K.R., Surveying, Vol-I, II and III, Standard Book House, 2015.

2. Madhu, N, Sathikumar, R and Satheesh Gobi, Advanced Surveying: Total Station, GIS and Remote Sensing, Pearson India, 2006.

3. B.C.Punimia, Surveying, Vol-I, II and III, Laxmi Publications.

REFERENCES:

1. Bhavikatti, S.S., Surveying and Levelling, Vol. I and II, I.K. International, 2010

2. Anji Reddy, M., Remote sensing and Geographical information system, B.S. Publications, 2001

3. Manoj, K. Arora and Badjatia, Geomatics Engineering, Nem Chand & Bros,2011

COURSE OUTCOMES:

1. Able to Use handle Linear and angular measurements.

2. Able to draw contour maps.

3. Knowledge on calculating elevations of ground.

4. Familiar in using modern tool.

ENGINEERING GEOLOGY LAB

Prerequisite: Knowledge on physics and chemistry is necessary.

LABORATORY OBJECTIVES:

1. To identify the mega-scopic types of Ore minerals & Rock forming minerals and the megascopic types of Igneous, Sedimentary, Metamorphic rocks.

2. To identify the topography of the site & material selection

LIST OF EXPERIMENTS:

EXP1: Physical and Engineering properties of minerals: Mega-scopic identification of Rock forming minerals – Quartz group, Feldspar group, Garnet group, Mica group & Talc,

EXP2: Physical and Engineering properties of minerals: Mega-scopic identification of Rock forming minerals – Chlorite, Olivine, Kyanite, Asbestos, Tourmaline, Calcite, Gypsum.

EXP3: Physical and Engineering properties of minerals: Mega-scopic identification of Ore forming minerals – Magnetite, Hematite, Pyrite, Pyralusite, Graphite, Chromite, etc

EXP4: Megascopic description and identification of Igneous rocks – Types of Granite, Pegmatite, Gabbro, Dolerite, Syenite, Granite Poryphery, Basalt

EXP5: Megascopic description and identification of Sedimentary rocks – Sand stone, Ferrugineous sand stone, Lime stone, Shale, Laterite, Conglomerate

EXP6: Megascopic description and identification of Metamorphic rocks – Biotite – Granite Gneiss, Slate, Muscovite &Biotiteschist, Marble, Khondalite.

EXP7: Interpretation and drawing of sections for geological maps showing tilted beds, faults, unconformities.

EXP8: Simple Structural Geology Problems.

EXP9: Field work – To identify Minerals, Rocks, and Geomorphology & Structural Geology.

EXP10: To identify the minerals and rocks Augite, Hornblende, Bauxite, Galena, Soapstone

LABORATORY OUTCOMES:

CO1: Understand the physical properties of Rocks & Minerals

CO2: Know the occurrence of materials using the strike & Dip problems.

CO3: Capable to draw the sections for geological maps showing faults & unconformities.

CO4: Investigate the site for civil engineering projects