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**CMR INSTITUTE OF TECHNOLOGY**

Session wise – Course Plan

## Department of Civil Engineering

| | | |
|---|---|---|
| CMR Institute of Technology, Bangalore | | |
| Department(s): IS,CIV | | |
| Semester: 03 | | |
| Engineering Mathematics III | 15MAT31 | Lectures/week: 06 |
| Course Instructor(s): Pratap D | | |
| Course duration: 9th August to 19th November 2017 | | |

| Class | Chapter Title / Reference Literature | Topic | Percentage of portion covered | |
|---|---|---|---|---|
| | | | Reference | Cumulative |
| 01-13 | **Module 1 Fourier Series** | Periodic functions, Dirichlet's conditions, Fourier series of periodic functions of period 2π and arbitrary period, half range Fourier series. practical harmonic analysis | 12.5 | 12.5 |
| 14-27 | **Module 4 Finite differences** | Forward and backward differences, Newton's forward and backward interpolation formulae, divided differences-Newton's divided difference formula, Lagrange's interpolation formula and inverse interpolation formula. Numerical integration Simpson' s 1/3,3/8 rule ,Weddle's rule (only problems) | 12.5 | 25.0 |
| 28-39 | **Module 3 Numerical methods Statiscal methods** | Numerical solution of algebraic and transcendental equations, Regula-Falsi method Secent method, Newton Raphson method, and Grapfical method, Correlation , Regression Coefficients, lines of Regression. Curve fitting by the method of least squares, Fitting of curves of the form $y=a+bx$, $y=ax^2+bx+c$, $y=ae^{bx}$, $y=ax^b$ | 12.5 | 50.0 |

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|---|---|---|---|---|
| 40-56 | **Module 2**<br>**Fourier Transforms**<br>**Z transforms** | Infinite Fourier transform, Fourier sine and cosine transforms, inverse transforms. Z transform: difference equations,Basic definition, standard z transforms, Damping rule, shifting rule,Initial and final value theorem(without proof)and problems ,Inverse Z-Transform. Application: to solve difference equations | 12.5 | 62.5 |
| 57-67 | **Module 5**<br>**Vector integration** | Line integral_defnition and problems,surface and volume integrals-defnition,Green' s theorem in a plane,Stokes and Gaus-divergence theorem(without proof)and problems. Calculus of variations:variation of function and functional,variational problems,Eulers equation,Geodesics, minimal surface of revolution, hanging chain ,problems. | 12.5 | 75.0 |

| **Sessional** | **Syllabus** |
|---|---|
| T1 | Class 01-31 |
| T2 | Class 32-56 |
| T3 | Class 57-64 |

Literature:

| **Book Type** | **Code** | **Author & Title** | **Publication information** | |
|---|---|---|---|---|
| | | | **Edition & Publisher** | **ISBN** |
| Text Book | TB1 | B.S. Grewal, Higher Engineering Mathematics, Latest Edition, Khanna publishers | Latest edition, Khanna publications | 8174091955 |
| Text Book | TB2 | Erwin Kreyszig, Advanced Engineering Mathematics | Latest Edition Wiley India publishers | 978812653135 |
| References | RB1 | B.V Ramana, Higher Engineering Mathematics,. | Latest Edition, Tata Mc. Graw Hill Publications | --- |
| References | RB2 | Peter V . O'Neil, Engineering Mathematics. | Cengage Learning India Pvt. Ltd. Publishers | --- |
| References | RB3 | Dr. D.S.C , Engineering Mathematics III | $5^{th}$ Edition 2011<br>$6^{th}$ edition 2016 | 978-81-7686-675-4 |
| References | RB4 | Dr. K.S.C , Engineering Mathematics III | 2011-2012<br>2016 edition | --- |

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**CMR INSTITUTE**
**OF TECHNOLOGY**

Session wise – Course Plan

## Department of Civil Engineering

SEMESTER : III B
BRANCH : CIV
SUBJECT : Strength of materials
SUBJECT CODE : 15CV32
NO OF HRS/WK : 5

NAME OF THE FACULTY : Mr. Dr.Giridhar
DATE OF COMMENCEMENT : 07.08.2017
DATE OF CLOSING 25..11.2017
CLASS STRENGTH : 63
TOTAL HRS :

| S. No | Date | Topics planned for the session | Teaching Aids | Assignments/ Tests planned for the chapter | Topics covered As per plan |
|---|---|---|---|---|---|
| 1 | 07/08/17 | Introduction | | | |
| 2 | 08/08/17 | Definition and concept and of stress | | | |
| 3 | 09/08/17 | Definition and concept and of stain | Board, chalk, duster | | |
| 4 | 10/08/17 | Hooke's law | | | |
| 5 | 11/08/17 | Stress-Strain diagrams for ferrous and non ferrosus | ,, | | |
| 6 | 12/08/17 | Elongation of tapering bars of circular cross section | ,, | | |
| 7 | 14/08/17 | Numericals on tapering bars | ,, | | |

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|---|---|---|---|---|---|
| 8 | 16/08/17 | Elongation due to selfweight. Numericals | ,, | | |
| 9 | 17/08/17 | Elongation due to selfweight. Numericals | ,, | | |
| 10 | 18/08/17 | Saint Venant's principle, Numericals | ,, | Assignment- I | |
| 11 | 19/08/17 | Compound bars, Temperature stresses, Compound section subjected to temperature stresses, state of simple shear, Elastic constants and their relationship. | Board, chalk, duster | | |
| 12 | 21/08/17 | Compound section subjected, Elastic constants and their relationship. | ,, | | |
| 13 | 22/08/17 | Compound section subjected to temperature stresses, Elastic constants and their relationship. | ,, | | |
| 14 | 23/08/17 | Module -2: Compound Stresses: Introduction, state of stress at a point, Numericals | ,, | | |
| 15 | 24/08/17 | General two dimensional stress system, Principal stresses and principal planes. Numericals | ,, | | |
| 16 | 28/08/17 | Mohr's circle of stresses, Numericals | | | |
| 17 | 29/08/17 | Mohr's circle of stresses, Numericals | ,, | Assignment -II | |
| 18 | 30/08/17 | Thin and Thick Cylinders: Introduction, Thin cylinders subjected to internal pressure; Numericals | ,, | | |
| 19 | 31/08/17 | Hoop stresses, Longitudinal stress and change in volume. Numericals | | | |
| 20 | 01/09/17 | Hoop stresses, Longitudinal stress and change in volume. Numericals | | | |
| 21 | 04/09/17 | Thick cylinders subjected to both internal and external pressure; Numericals | | | |
| 22 | 05/09/17 | Thick cylinders subjected to both internal and external pressure; Numericals | ,, | | |
| 23 | 06/09/17 | Lame's equation, radial and hoop stress distribution. Numericals. | ,, | Assignment –III | |
| 24 | 07/09/17 | Lame's equation, radial and hoop stress distribution. Numericals. | ,, | | |
| 25 | 08/09/17 | Module-3:Shear Force and Bending Moment in Beams: Introduction to types of beams, supports and loadings. | ,, | | |
| 26 | 09/09/17 | Module-3:Shear Force and Bending Moment in Beams: Introduction to types of beams, supports and loadings. | ,, | Assignment –III | |
| 27 | 11/09/17 | Definition of bending moment and shear force, Sign conventions, relationship between load intensity, | | | |
| 28 | 12/09/17 | Definition of bending moment and shear force, Sign conventions, relationship between load intensity, | Board, chalk, | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | duster | | |
| 29 | 13/09/17 | Shear force and bending moment diagrams for statically determinate beams subjected to points load, Numericals. | ,, | | |
| 30 | 14/09/17 | Shear force and bending moment diagrams for statically determinate beams subjected to uniformly distributed loads. Numericals | ,, | | |
| 31 | 15/09/17 | Shear force and bending moment diagrams for statically determinate beams subjected to uniformly distributed loads. Numericals | ,, | | |
| 32 | 16/09/17 | Shear force and bending moment diagrams for statically determinate beams subjected to uniformly distributed loads. | ,, | | |
| 33 | 22/09/17 | Shear force and bending moment diagrams for statically determinate beams subjected to uniformly distributed loads. | ,, | | |
| 34 | 23/09/17 | Shear force and bending moment diagrams for statically determinate beams subjected to uniformly distributed loads.Numericals | ,, | | |
| 35 | 25/09/17 | Shear force and bending moment diagrams for statically determinate beams subjected to uniformly distributed loads.Numericals | ,, | Assignment –IV | |
| 36 | 26/09/17 | Shear force and bending moment diagrams for statically determinate beams subjected to uniformly distributed loads. | ,, | | |
| 37 | 27/09/17 | Shear force and bending moment diagrams for statically determinate beams subjected tocouple and their combinations. Numericals | Board , chalk, duster | | |
| 38 | 28/09/17 | Shear force and bending moment diagrams for statically determinate beams subjected tocouple and their combinations. Numericals | ,, | | |
| 39 | 03/10/17 | Shear force and bending moment diagrams for statically determinate beams subjected tocouple and their combinations.Numericals | ,, | | |
| 40 | 04/10/17 | Module -4:Bending and Shear Stresses in Beams: Introduction, | ,, | | |
| 41 | 06/10/17 | Pure bending theory, Assumptions, derivation of bending equation, Numericals | ,, | | |
| 42 | 07/10/17 | Pure bending theory, Assumptions, derivation of bending equation, Numericals | ,, | | |
| 43 | 09/10/17 | modulus of rupture, section modulus, flexural rigidity. | ,, | | |
| 44 | 10/10/17 | modulus of rupture, section modulus, flexural rigidity. | ,, | Assignment -V | |
| 45 | 11/10/17 | Expression for transverse shear stress in beams, | ,, | | |

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|---|---|---|---|---|---|
| 46 | 12/10/17 | Expression for transverse shear stress in beams, | ,, | | |
| 47 | 13/10/17 | Bending and shear stress distribution diagrams for circular, | ,, | | |
| 48 | 14/10/17 | Bending and shear stress distribution diagrams for circular, | ,, | | |
| 49 | 16/10/17 | Bending and shear stress distribution diagrams for rectangular, 'I', and 'T' sections. Shear centre(only concept) | ,, | | |
| 50 | 1710/17 | Bending and shear stress distribution diagrams for rectangular, 'I', and 'T' sections. Shear centre(only concept) | ,, | | |
| 51 | 23/10/17 | Bending and shear stress distribution diagrams for rectangular, 'I', and 'T' sections. Shear centre(only concept) , Numericals. | ,, | Assignment -VI | |
| 52 | 24/10/17 | Bending and shear stress distribution diagrams for rectangular, 'I', and 'T' sections. Shear centre(only concept) , Numericals. | ,, | | |
| 53 | 25/10/17 | Columns and Struts: Introduction, short and long columns. Numericals. | Board , chalk, duster | | |
| 54 | 26/10/17 | Columns and Struts: Introduction, short and long columns. Numericals. | ,, | | |
| 55 | 27/10/17 | Columns and Struts: Introduction, short and long columns. Numericals. | ,, | | |
| 56 | 28/10/17 | Euler's theory; Assumptions, Numericals | ,, | | |
| 57 | 30/10/17 | Euler's theory; Assumptions, Numericals | ,, | | |
| 58 | 31/10/17 | Derivation for Euler's Buckling load for different end conditions, Numericals | ,, | | |
| 59 | 02/11/17 | Derivation for Euler's Buckling load for different end conditions, Numericals | ,, | | |
| 60 | 03/11/17 | Limitations of Euler's theory. Rankine-Gordon's formula for columns, Numericals | ,, | | |
| 61 | 04/11/17 | Limitations of Euler's theory. Rankine-Gordon's formula for columns, Numericals | ,, | | |
| 8 | 05/11//17 | Module -5:MTorsion in Circular Shaft: Introduction, pure torsion, Assumptions, Numericals | ,, | Assignment -VII | |
| 9 | 06/11/17 | derivation of torsion equation for circular shafts, torsional rigidity and polar modulus | ,, | | |
| 10 | 07/11//17 | Power transmitted by a shaft, combined bending and torsion. | ,, | | |
| 11 | 08/11//17 | Theories of Failure: Introduction, maximum principal stress theory (Rankine's theory), Maximum shearing stress theory (Tresca's theory), S | ,, | | |
| 12 | 09/11/17 | Theories of Failure: Introduction, maximum principal stress theory (Rankine's theory), | ,, | | |

| | | | | | |
|---|---|---|---|---|---|
| | | Maximum shearing stress theory (Tresca's theory), S | | | |
| 13 | 11/11/17 | Strain energy theory (Beltrami and Haigh), and maximum strain theory (St. Venant's theory). | ,, | | |
| 14 | 12/11/17 | Strain energy theory (Beltrami and Haigh), and maximum strain theory (St. Venant's theory). | ,, | | |

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# CMR INSTITUTE OF TECHNOLOGY

Session wise – Course Plan

## Department of Civil Engineering

| | | | |
|---|---|---|---|
| SEMESTER | III-B | FACULTY | PREETI JACOB |
| BRANCH | CIVIL | DATE OF COMMENCEMENT | 8-AUG-2017 |
| SUBJECT | FLUID MECHANICS | DATE OF CLOSING | 9-NOV-2017 |
| SUBJECT CODE | 15CV33 | CLASS STRENGTH | |
| NO OF HRS/WEEK | 06 | TOTAL HRS | 60 |

| S. No | Date | Topics Planned for the Session | Teaching Aids | Assignments / Test | Topics covered as per plan |
|---|---|---|---|---|---|
| 1 | 07/08/17 | **Fluids & Their Properties-** Concept of fluid. Units. | Chalk-Power Point Presentation-Discussion | Assignment 1- Submission of class notes<br><br>Assignment 2- Types of Pressure Measuring Devices<br><br>Class Test 1 | |
| 2 | 08/08/17 | Mass density, Specific weight, Specific gravity, Specific volume | | | |
| 3 | 09/08/17 | Fluid as a continuum, Vapor pressure. | | | |
| 4 | 10/08/17 | Compressibility & Bulk Modulus | | | |
| 5 | 11/08/17 | Surface tension, Cohesion, Adhesion | | | |
| 6 | 12/08/17 | Viscosity & Capillarity. | | | |
| 7 | 14/08/17 | Newton's law of viscosity | | | |
| 8 | 16/08/17 | Numerical Problems | | | |
| 9 | 17/08/17 | Capillary rise in a vertical tube & between two plane surfaces | | | |
| 10 | 18/08/17 | Pressure inside a water droplet, Soap bubble & Liquid jet. | | | |
| 11 | 19/08/17 | Numerical problems | | | |
| 12 | 21/08/17 | Numerical problems | | | |
| 13 | 22/08/17 | **Fluid Pressure & Its Measurements** | | | |
| 14 | 23/08/17 | Definition of pressure, Pressure at a point, Pascal's law | | | |
| 15 | 24/08/17 | Variation of pressure with depth. Types of pressure. | | | |
| 16 | 28/08/17 | Simple, Differential & Inclined Manometers | | | |
| 17 | 29/08/17 | Mechanical & electronic pressure measuring devices. | | | |
| 18 | 30/08/17 | **Hydrostatic forces-** Total pressure, Centre of Pressure | Chalk-Power Point Presentation- | | |
| 19 | 31/08/17 | Total Pressure on Horizontal and Vertical surface, | | | |

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|---|---|---|---|---|---|
| 20 | 01/09/17 | Total Pressure on Inclined plane | Discussion | | |
| 21 | 04/09/17 | Total Pressure on Curved Surfaces | | | |
| 22 | 05/09/17 | Numerical Problems. | | | |
| 23 | 06/09/17 | Numerical Problems. | | | |
| 24 | 07/09/17 | **Fundamentals of Fluid Kinematics** | | | |
| 25 | 08/09/17 | Introduction. Methods of describing fluid motion. | | | |
| 26 | 09/09/17 | Velocity & Total Acceleration of a fluid particle. | | | |
| 27 | 11/09/17 | Types of fluid flow, Description of flow pattern. | | | |
| 28 | 12/09/17 | 3D Continuity Equation in Cartesian coordinate system. | | | |
| 29 | 13/09/17 | Derivation for Rotational & Irroational Motion. | | | |
| 30 | 14/09/17 | Potential function. Stream Function | | | |
| 31 | 15/09/17 | Orthogonality of Streamlines & Equipotential Lines. | | | |
| 32 | 16/09/17 | Numerical Problems | | | |
| 33 | 22/09/17 | Numerical Problems | | | |
| 34 | 23/09/17 | Introduction to flow net. | | | |
| 35 | 25/09/17 | **Fluid Dynamics-** Forces acting on fluid in motion. | Chalk-Power Point Presentation-Discussion | | |
| 36 | 26/09/17 | Euler's equation of motion along a streamline | | | |
| 37 | 27/09/17 | Bernoulli's equation. Assumptions & limitations | | | |
| 38 | 28/09/17 | Modified Bernoulli's equation. Problems | | | |
| 39 | 03/10/17 | Vortex motion. Forced Vortex. Free vortex. Problems | | | |
| 40 | 04/10/17 | Momentum equation problems on pipe bends. | | | |
| 41 | 06/10/17 | Venturimeter, Orificemeter, Pitot tube | | | |
| 42 | 07/10/17 | Numerical Problems | | | |
| 43 | 09/10/17 | **Orifice & Mouthpiece**- Classification, flow through orifice, | Chalk-Power Point Presentation-Discussion | | |
| 44 | 10/10/17 | Hydraulic coefficients, Numerical problems. . | | | |
| 45 | 11/10/17 | Mouthpiece, classification, Borda's Mouthpiece | | | |
| 46 | 12/10/17 | **Notches & Weirs-** Introduction. Classification, | | | |
| 47 | 13/10/17 | Discharge over Rectangular, Triangular, Trapezoidal Notches | | | |
| 48 | 14/10/17 | Cippoletti notch, Broad crested weirs. | | | |
| 49 | 16/10/17 | Numerical problems. Ventilation of weirs, submerged weirs | | | |

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|---|---|---|---|---|---|
| 50 | 1710/17 | **Flow through Pipes-** Darcy-Weisbach Equation | Chalk-Power Point Presentation-Discussion | | |
| 51 | 23/10/17 | Introduction. Major & minor losses in pipe flow. | | | |
| 52 | 24/10/17 | Pipes in series, pipes in parallel, equivalent pipe-problems. | | | |
| 53 | 25/10/17 | Minor losses in pipe flow. Problems | | | |
| 54 | 26/10/17 | Numerical problems. | | | |
| 55 | 27/10/17 | Hydraulic gradient line, energy gradient line. | | | |
| 56 | 28/10/17 | Pipe Networks, Hardy Cross method, Numerical problems | | | |
| 57 | 30/10/17 | **Surge Analysis in Pipes-** Water hammer in pipes, | | | |
| 58 | 31/10/17 | Pressure rise- Gradual & sudden closure for rigid & elastic pipes. | | | |
| 59 | 02/11/17 | Numerical Problems | | | |
| 60 | 03/11/17 | Numerical Problems | | | |
| 61 | 04/11/17 – 16/11/17 | Revision | | | |

## Syllabus for Sessional:

| Sessional # | Syllabus |
|---|---|
| 1 | Module 1 |
| 2 | Module 2 & 3 |
| 3 | Module 4 & 5 |

Literature/Reference Books:


1. P N Modi & S M Seth, “Hydraulics & Fluid Mechanics, including Hydraulic Machines”, 20th edition, 2015, Standard Book House, New Delhi.
2. R.K. Bansal, “A Text book of Fluid Mechanics & Hydraulic Machines”, Laxmi Publications, New Delhi.
3. S K SOM & G Biswas, “Introduction to Fluid Mechanics & Fluid Machines”, Tata McGraw Hill, New Delhi.

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**CMR INSTITUTE OF TECHNOLOGY**

Session wise – Course Plan

## Department of Civil Engineering

SEMESTER : III 'B'
BRANCH : CIV
SUBJECT : Basic Surveying
SUBJECT CODE : 15CV34
NO OF HRS/WK : 6

NAME OF THE FACULTY : Mr Karthik
DATE OF : 07.08.2017
DATE OF CLOSING : 16.11.17
CLASS STRENGTH :
TOTAL HRS : 56

| Session No | DATE | Topics planned for the session | Teaching Aids | Assignments/ Tests planned for the chapter | Topics covered As per plan |
|---|---|---|---|---|---|
| 1 | 07/08/17 | **Module -1** Introduction: Definition of surveying, Objectives and importance of surveying.Classification of surveys. Principles of surveying. | **Chalk-talk** | | |
| 2 | 08/08/17 | Units of measurements, Surveying measurements and errors, types of errors, precision and accuracy. | ,, | | |
| 3 | 09/08/17 | Classification of maps, map scale, conventional symbols, topographic maps, map layout | **Visual Aids** | | |
| 4 | 10/08/17 | Survey of India Map numbering systems | **Chalk-talk** | | |
| 5 | 11/08/17 | Measurement of Horizontal Distances: Measuring tape and types. Measurement using tapes, Taping on level ground and sloping ground. | ,, | | |
| 6 | 12/08/17 | Errors and corrections in tape measurements, ranging of lines, direct and indirect methods of ranging, Electronic distance measurement, basic principle | ,, | | |
| 7 | 14/08/17 | Numerical problems | ,, | | |
| 8 | 16/08/17 | Booking of tape survey work, Field book entries | **Visual aids** | | |

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|---|---|---|---|---|---|
| 9 | 17/08/17 | Conventional symbols with toposheets | **Chalk-talk** | | |
| 10 | 18/08/17 | Obstacles in tape survey, Numerical problems | **„** | | |
| 11 | 19/08/17 | Numerical problems | **„** | | |
| 12 | 21/08/17 | Numerical problems | **„** | | |
| 13 | 22/08/17 | Numerical problems | **„** | **Assignment 1** | |
| 14 | 23/08/17 | **Module -2**<br>Measurement of Directions and Angles:<br>Compass survey- Introduction | **„** | | |
| 15 | 24/08/17 | Basic definitions; meridians, bearings, magnetic and<br>True bearings | **„** | | |
| 16 | 28/08/17 | Prismatic and surveyor's compasses,<br>temporary adjustments, declination | **„** | | |
| 17 | 29/08/17 | Quadrantal bearings, whole circle bearings-<br>Numericals | **PPT** | | |
| 18 | 30/08/17 | Local attraction and<br>related problems | **Chalk-talk** | | |
| 19 | 31/08/17 | Numerical problems | **„** | | |
| 20 | 01/09/17 | Numerical problems | **„** | **Assignment 2** | |
| 21 | 04/09/17 | **Module -3**<br>Traversing: Introduction | **„** | | |
| 22 | 05/09/17 | Traverse Survey and Computations: Latitudes and departures, rectangular coordinates | **„** | | |
| 23 | 06/09/17 | Traverse adjustments, Bowditch rule and transit rule | **„** | | |
| 24 | 07/09/17 | Numerical problems | **„** | | |
| 25 | 08/09/17 | Numerical problems | **„** | **Assignment 3** | |
| 26 | 09/09/17 | **Module-2 Cont**. Theodolite Survey and<br>Instrument Adjustment: Introduction | **„** | | |
| 27 | 11/09/17 | Theodolite and types, Fundamental axes and<br>parts of Transit theodolite, uses of theodolite | **„** | | |
| 28 | 12/09/17 | Temporary adjustments of transit theodolite,<br>measurement of horizontal and vertical angles | **„** | | |
| 29 | 13/09/17 | Step by step procedure<br>for obtaining permanent adjustment of Transit theodolite | **„** | **Assignment 4** | |

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|---|---|---|---|---|---|
| 30 | 14/09/17 | **Module -3 Cont**. Tacheometry: basic principle | „ | | |
| 31 | 15/09/17 | Types of tacheometry, distance equation for horizontal and inclined line of sight in fixed hair method | „ | | |
| 32 | 16/09/17 | Numerical problems | „ | | |
| 33 | 22/09/17 | Numerical problems | „ | **Assignment 5** | |
| 34 | 23/09/17 | **Module -4** Leveling: Basic terms and definitions | **PPT** | | |
| 35 | 25/09/17 | Methods of leveling, Dumpy level, auto level, digital and laser levels | „ | | |
| 36 | 26/09/17 | Curvature and refraction corrections. Booking and reduction of levels | „ | | |
| 37 | 27/09/17 | Differential leveling, profile leveling, fly leveling | **Chalk-talk** | | |
| 38 | 28/09/17 | Check leveling, reciprocal leveling | „ | | |
| 39 | 03/10/17 | Numerical problems | „ | | |
| 40 | 04/10/17 | Numerical problems | „ | | |
| 41 | 06/10/17 | Trigonometric leveling (heights and distances-single plane and double plane methods) | „ | | |
| 42 | 07/10/17 | Numerical problems | „ | | |
| 43 | 09/10/17 | Numerical problems | „ | **Assignment 6** | |
| 44 | 10/10/17 | **Module -5:** Areas and Volumes: Introduction | „ | | |
| 45 | 11/10/17 | Measurement of area – by dividing the area into geometrical figures | „ | | |
| 46 | 12/10/17 | Area from offsets, mid ordinate rule, trapezoidal rule | „ | | |
| 47 | 13/10/17 | Numerical problems | „ | | |
| 48 | 14/10/17 | Simpson's one third rule, area from co-ordinates | „ | | |
| 57 | 30/10/17 | Numerical problems | „ | | |
| 58 | 31/10/17 | Introduction to planimeter, digital planimeter | „ | | |

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|---|---|---|---|---|---|
| 59 | 02/11/17 | Measurement of volumes-trapezoidal and prismoidal formula | ” | | |
| 60 | 03/11/17 | Contouring<br>Contours, Methods of contouring, Interpolation of<br>contours | ” | | |
| 61 | 04/11/17 – 16/11/17 | Contour gradient, characteristics of contours and uses Revision | ” | **Assignment 7** | |
| | | | ” | | |
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**CMR INSTITUTE OF TECHNOLOGY**

Session wise – Course Plan

## Lesson Plan for the odd sem – 2016 (For B Section)

## Semester – 3

**Subject Code: 15CV035 Subject Name: ENGINEERING GEOLOGY**

**SEMESTER : III B**
**BRANCH : CIVIL**
**SUBJECT : ENGINEERING GEOLOGY**
**SUBJECT CODE: 15CV54**
**NO OF HRS/ WEEK: 5**

**NAME OF THE FACULTY : Mr. Karthik M**
**DATE OF COMMENCEMENT : 07-08-2017**
**DATE OF CLOSING : 09-11-2017**
**CLASS STRENGTH :**
**TOTAL HRS :**

| Session No | Chapter no (No of hrs planned for the chapter) | Topics planned for the session | Teaching Aids | Assignments/ Tests planned for the chapter | Topics covered As per plan |
|---|---|---|---|---|---|
| 1 | 07/08/17 | Application of Earth Science in Civil Engineering | Board, chalk | | |
| 2 | 08/08/17 | Internal<br>Structure and composition of the Earth. | " | | |
| 3 | 09/08/17 | Internal<br>Structure and composition of the Earth | " | | |
| 4 | 10/08/17 | Mineral properties, composition and their use | " | | |
| 5 | 11/08/17 | Mineral properties, composition and their use | ,, | | |

| | | | | | |
|---|---|---|---|---|---|
| 6 | 12/08/17 | Physical properties and uses of Quartz<br>Group (Glass); | “ | | |
| 7 | 14/08/17 | Properties and uses Carbonate Group ( Cement) ;<br>Gypsum (POP, gypsum sheets, cement); | ,, | | |
| 8 | 16/08/17 | Mica Group<br>(Electrical industries | “ | | |
| 9 | 17/08/17 | Kaolin (Paper, paint and textile);<br>Asbestos (AC sheets) | “ | | |
| 10 | 18/08/17 | Uses and Identification Ore minerals - Iron ores<br>(Steel); Chromite (Alloy); | “ | | |
| 11 | 19/08/17 | Feldspar Group (Ceramic wares and Flooring tiles); | “ | | |
| 12 | 21/08/17 | Bauxite (aluminum);<br>Chalcopyrite (copper) | “ | | |
| 13 | 22/08/17 | Formation and Classification of Rocks. | “ | | |
| 14 | 23/08/17 | Formation and Classification of Rocks. | ” | | |
| 15 | 24/08/17 | Engineering<br>Properties of rocks | “ | | |
| 16 | 28/08/17 | Rock as construction material, concrete<br>Aggregate and railway ballast | ,, | | |
| 17 | 29/08/17 | Rock as roofing, flooring, cladding and foundation material | ,, | | |
| 18 | 30/08/17 | Deformation of rocks and structural features | ” | | |
| 19 | 31/08/17 | Development of Joints, Folds, Faults and Unconformities. | ’’ | | |
| 20 | 01/09/17 | Development of Joints, Folds, Faults and Unconformities. | “ | | |
| 21 | 04/09/17 | Development of Joints, Folds, Faults and Unconformities. | “ | | |

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| 22 | 05/09/17 | Selection of sites for Dams, Reservoirs, Tunnels, Highways and Bridges. | Board, chalk | | |
| 23 | 06/09/17 | Selection of sites for Dams, Reservoirs, Tunnels, Highways and Bridges. | ,, | | |
| 24 | 07/09/17 | Determination of Rock Quality Designation (RQD) and Rock Structure Rating (RSR). | ,, | | |
| 25 | 08/09/17 | Properties of Igneous Rocks - Granite, Gabbro, Dolerite and Basalt | ,, | | |
| 26 | 09/09/17 | Properties of Sedimentary rocks - Sandstone, Shale, Limestone and Laterite | ,, | | |
| 27 | 11/09/17 | Properties of Metamorphic rocks - Gneiss, Quartzite, Slate and Charnockite. Decorative stones - Porphyries, Marble and Quartzite | ppt and video | | |
| 28 | 12/09/17 | Introduction to Geomorphology and Various Landforms. | ppt and video | | |
| 29 | 13/09/17 | Rock weathering, types and its effects on Civil Engineering Projects | Board, chalk | | |
| 30 | 14/09/17 | Study of Geo-morphological aspects in the selection of sites for Dams and Reservoirs | Board, chalk | | |
| 31 | 15/09/17 | Study of Geo-morphological aspects in the selection of sites for Tunnels, Highways and Bridges. | Board, chalk | | |
| 32 | 16/09/17 | Watershed management. Floods and their control. | Board, chalk | | |
| 33 | 22/09/17 | Drainage pattern – parameters and | Board, | | |

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| | | development | chalk | | |
| 34 | 23/09/17 | Coastlines and their engineering considerations. | Board, chalk | | |
| 35 | 25/09/17 | Seismic waves and their types | ,, | | |
| 36 | 26/09/17 | Earthquake - Causes and Effects. | ,, | | |
| 37 | 27/09/17 | Problems related to Earthquakes, Earthquake intensity, Richter Scale and Seismograph. | ppt and video | | |
| 38 | 28/09/17 | Seismic zones- World and India. | Board, chalk | | |
| 39 | 03/10/17 | Tsunami – causes and effects. Early warning system. | ,, | | |
| 40 | 04/10/17 | Reservoir Induced Seismicity; Landslides – causes and their control. | ,, | | |
| 41 | 06/10/17 | Hydrological cycle, Occurrence of Groundwater in different terrains - Weathered, Hard and Stratified rocks. | ,, | | |
| 42 | 07/10/17 | Hydrological cycle, Occurrence of Groundwater in different terrains - Weathered, Hard and Stratified rocks. | ppt and video | | |
| 43 | 09/10/17 | Determination of Quality aspects - SAR, RSC and TH of Groundwater. | ,, | | |
| 44 | 10/10/17 | Determination of Quality aspects - SAR, RSC and TH of Groundwater. | ,, | | |
| 45 | 11/10/17 | Groundwater Pollution, | ,, | | |

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| | | Groundwater Exploration | | | |
| 46 | 12/10/17 | Electrical Resistivity and Seismic methods and Resistivity curves | | | |
| 47 | 13/10/17 | Groundwater Pollution, Groundwater Exploration- Electrical Resistivity and Seismic methods and Resistivity curves | ,, | | |
| 48 | 14/10/17 | Water Bearing Formations, Aquifer types. | Board, chalk | | |
| 49 | 30/10/17 | Porosity, Specific yield and retention, Permeability, Transmissibility and Storage Coefficient | | | |
| 50 | 31/10/17 | Methods of Artificial Recharging of Groundwater. | ,, | | |
| 51 | 02/11/17 | Sea water intrusion and remedies. | ppt and video | | |
| 52 | 03/11/17 | Study of Topographic maps and Contour maps; | Board, chalk | | |
| 53 | 04/11/17 – | Remote Sensing – Concept, Application and its Limitations; | ,, | | |
| 54 | 05/11/17 | Geographic Information System (GIS) and Global Positioning System (GPS) – Concept and their use resource mapping. | ,, | | |
| 55 | 06/11/17 | Geographic Information System (GIS) and Global Positioning System (GPS) | ,, | | |
| 56 | 07/11/17 | LANDSAT Imagery – Definition and its use. | ,, | | |
| 57 | 08/11/17 | Impact of Mining, Quarrying and Reservoirs on Environment. | ,, | | |
| 58 | 09/11/17 | Impact of Mining, Quarrying and | ,, | | |

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| | | Reservoirs on Environment. | | | |
| 58 | 10/11/17 | Natural Disasters and their mitigation. | ,, | | |
| 59 | 11/11/17 | Concept and their use resource mapping. | ,, | | |
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**Syllabus for Internals:**

| Internal Test # | Syllabus |
|---|---|
| T1 | Module 1 and 2 |
| T2 | Module 2, 3 and 4 |
| Improvement Test | Module 4and 5 |

Literature:

| Book Type | Code | Author & Title | Publication info | |
|---|---|---|---|---|
| | | | Edition & Publisher | ISBN # |
| Text book | | "Text Book of Engineering and General Geology" by Parbin Singh | S.K. Kataria and Sons. | |
| Text book | | "A Text Book of Geology" by P K Mukerjee | World Press Pvt., Ltd | |
| Reference book | | "Groundwater Hydrology" by David K Todd | TATA Macgraw Hill | |

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**CMR INSTITUTE OF TECHNOLOGY**

Session wise – Course Plan

## Department of Civil Engineering

SEMESTER : III A
BRANCH : CIV
SUBJECT : BMC
SUBJECT CODE : 15CV36
NO OF HRS/WK : 5

NAME OF THE FACULTY : Mrs. SREELAKSHMI.G
DATE OF COMMENCEMENT : 07.08.2017
DATE OF CLOSING : 20.11.2017
CLASS STRENGTH :
TOTAL HRS : 50

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|---|---|---|---|---|
| 1 | 07/08/17 | Topics planned for the session | Teaching Aids | Assignments/ Tests planned for the chapter |
| 2 | 08/08/17 | **MODULE - 2**<br>Masonry:<br>Definition and terms used in masonry. | Board, chalk, duster | |
| 3 | 09/08/17 | Brick masonry, characteristics and requirements of good brick masonry | Board, chalk, duster | |
| 4 | 10/08/17 | Bonds in brick work, Header, Stretcher | Models | |
| 5 | 11/08/17 | English bond, Flemish Bond | Models | |
| 6 | 12/08/17 | Stone masonry, Requirements of good stone masonry. Classification of different stone masonry | Board, chalk, duster | |
| 7 | 14/08/17 | characteristics<br>Joints in stone | | |

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| | | masonry | | |
| 8 | 16/08/17 | Preliminary investigation of soil, safe bearing capacity of soil | ,, | |
| 9 | 17/08/17 | Function and requirements of good foundation , types of foundation , introduction to spread, combined , strap, mat and pile foundation | | |
| 10 | 18/08/17 | **MODULE - 1** Stone as building material; | ,, | |
| 11 | 19/08/17 | Requirement of good building stones | ,, | Assignment- I |
| 12 | 21/08/17 | Dressing of stones, | Board, chalk, duster | |
| 13 | 22/08/17 | Deterioration of stone work, Preservation of stone work. | ,, | |
| 14 | 23/08/17 | Bricks; Classification, Manufacturing of clay bricks | ,, | |

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| 15 | 24/08/17 | Requirement of good bricks, Field and laboratory tests on bricks; compressive strength , water absorption, efflorescence, dimension and warpage. | ,, | |
| 16 | 28/08/17 | Fine aggregate: Natural and manufactured: Sieve analysis, zoning, specify gravity, bulking, moisture content, deleterious materials. | ,, | |
| 17 | 29/08/17 | Coarse aggregate: Natural and manufactured: Importance of size, shape and texture. Grading of Aggregates Sieve analysis, specific gravity | Videos on tests | |
| 18 | 30/08/17 | Flakiness and elongation index, crushing, impact and abrasion tests , Cement Concrete blocks, Stabilized Mud Blocks, Sizes, requirement of good blocks. | ,, | Assignment -II |
| 19 | 31/08/17 | Mortar: types and requirements. Timber as construction material | ,, | |
| 20 | 01/09/17 | **MODULE 4** Doors, Windows and Ventilators: Location of doors and windows, technical terms, | ,, | |
| 21 | 04/09/17 | Materials for doors and windows, Paneled door, Flush door, Collapsible door, Rolling shutter, PVC | ,, | |

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| 22 | 05/09/17 | Door, Paneled and glazed Window, Bay Window, French window. Ventilators. Sizes as per IS recommendations | ,, | |
| 23 | 06/09/17 | Stairs: Definitions, technical terms and types of stairs, | ,, | |
| 24 | 07/09/17 | Requirements of good stairs | ,, | |
| 25 | 08/09/17 | Geometrical Design of RCC doglegged and open-well stairs. | ,, | |
| 26 | 09/09/17 | Formwork: Introduction to form work, | ,, | Assignment –III |
| 27 | 11/09/17 | scaffolding | ,, | |
| 28 | 12/09/17 | shoring | Board, chalk, duster | |
| 29 | 13/09/17 | under pinning | ,, | |
| 30 | 14/09/17 | **MODULE -5** Plastering and Pointing : purpose | ,, | |
| 31 | 15/09/17 | materials and methods of plastering and pointing, | ,, | |
| 32 | 16/09/17 | defects in plastering-Stucco plastering, lathe plastering | ,, | |
| 33 | 22/09/17 | Damp proofing- causes, effects and methods. | ,, | |
| 34 | 23/09/17 | Paints- Purpose, types, ingredients and defects | ,, | |

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| 35 | 25/09/17 | Preparation and applications of paints to new and old plastered surfaces, | PPT | Assignment –IV |
| 36 | 26/09/17 | applications of paints to new plastered surfaces | ,, | |
| 37 | 27/09/17 | applications of paints to old plastered surfaces | Board, chalk, | |
| 38 | 28/09/17 | Applications of paints to wooden and steel surfaces. | ,, | |
| 39 | 03/10/17 | applications of paints to steel surfaces | ,, | |
| 40 | 04/10/17 | **Module -3** Lintels and Arches: Definition, function and classification of lintels, | ,, | |
| 41 | 06/10/17 | Balconies, chejja and canopy | ,, | |
| 42 | 07/10/17 | Arches; Elements and Stability of an Arch. | ,, | |
| 43 | 09/10/17 | Floors and roofs: Floors; Requirement of good floor, | ,, | |
| 44 | 10/10/17 | Components of ground floor, | ,, | Assignment -V |
| 45 | 11/10/17 | Selection of flooring material, | ,, | |
| 46 | 12/10/17 | Laying of Concrete, Mosaic, Marble, Granite flooring | ,, | |

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| 47 | 13/10/17 | Tile flooring,<br>Cladding of tiles. | ,, | |
| 48 | 14/10/17 | Roof;-Requirement of good roof, Types of roof and roof materials | ,, | |
| 49 | 16/10/17 | Elements of a pitched roof, Trussed roof, King and Queen post truss | ,, | Assignment -VI |
| 50 | 1710/17 | Revision on Module 1 | ,, | |
| 51 | 23/10/17 | Revision on Module 1&2 | ,, | |
| 52 | 24/10/17 | Revision on Module 1&2 | ,, | |
| 53 | 25/10/17 | Revision on Module 1&2 | | |
| 54 | 26/10/17 | Revision on Module 3&4 | | |
| 55 | 27/10/17 | Revision on Module 3&4 | | |
| 56 | 28/10/17 | Revision on Module 3&4 | | |
| 57 | 30/10/17 | Revision on Module 3&4 | | |
| 58 | 31/10/17 | Revision on Module 4&5 | | |
| 59 | 02/11/17 | Revision on Module 4&5 | | |
| 60 | 03/11/17 | Revision on Module 4&5 | | |
| 61 | 04/11/17 – 16/11/17 | Revision on Module 4&5 | | |

| Book Type | Code | Author & Title | Publication info | |
|---|---|---|---|---|
| | | | Edition & Publisher | ISBN # |

| | | | | |
|---|---|---|---|---|
| Text book | | Sushil Kumar “Building Materials and construction”, 20th edition, reprint 2015 | Standard Publishers | |
| Text book | | Dr. B.C.Punmia, Ashok kumar Jain, Arun Kumar Jain, “Building Construction, | Laxmi Publications (P) ltd., New Delhi. | |
| Reference book | | S.K.Duggal, “Building Materials”, (Fourth Edition) | New Age International (P) Limited, 2016 | |