KARANATAKA STATE OPEN UNIVERSITY

DIPLOMA IN CIVIL ENGINEERING

SEMESTER SYSTEM

SYLLABUS

I YEAR SYALLBUS

(Basic Engineering)
(Common to all Branches)

Subject Code	Subject Title	Max marks	Max Credits
Semester-I			
BE101	Communication English	100	4
BE102	Applied Mathematics-1	100	4
BE103	Engineering Physics-I	100	4
BE104	Engineering Chemistry-I	100	4
BE105	Computer Application Lab	100	2
BE106	Workshop Practice Lab	100	2
Semester -II			
BE201	Applied Mathematics-1I	100	4
BE202	Engineering Physics-II	100	4
BE203	Engineering Chemistry-II	100	4
BE204	Engineering Graphics	100	4
BE205	Physics Lab	100	2
BE206	Chemistry Lab	100	2

Civil Engineering
III Semester

Subject Code	Subject Title	Max marks	Max Credits
CE 301	Engineering Mechanics	100	4
CE 302	Construction Materials	100	4
CE 303	Surveying	100	4
CE 304	Civil Engineering Drawing	100	4
CE 305	Surveying Lab -I	100	2
CE 306	Engineering Mechanics Lab	100	2

IV Semester

Subject Code	Subject Title	Max marks	Max Credits
CE 401	Theory of Structures	100	4
CE 402	Transportation Engineering	100	4
CE 403	Interior Design	100	4
CE 404	Water Resources Management	100	4
CE 405	CAD in Civil Engineering Lab -I	100	2
CE 406	Surveying Lab -II	100	2

V Semester

Subject Code	Subject Title	Max marks	Max Credits
CE 501	Structural Engineering	100	4
CE 502	Quantity Surveying	100	4
CE 503	Concrete Technology and Construction	100	4
CE 504	Environmental Engineering	100	4
CE 505	CAD in Civil Engineering Lab -II	100	2
CE 506	Construction Lab	100	2

VI Semester

Subject Code	Subject Title	Max marks	Max Credits
CE 601	Construction Management	100	4
CE 602	Hydraulics	100	4
CE 603	Town Planning	100	4
CE 604	Computer Application in Civil Engineering Lab	100	2
CE 605	Project	400	8

Total Marks = 3800
Total Credits = 122

SEMESTER   : I
Subject Code   : BE 101
Subject Title   : Communication English
Structure of the Course Content
BLOCK 1   Grammar (Non-Textual)
      Unit 1: Functional Analysis
      Unit 2: Voice and parts of speech
      Unit 3: Direct and indirect speech
      Unit 4: Preposition
BLOCK 2   Grammars
      Unit 1: One word substitute
      Unit 2: Articles and question tags
      Unit 3: Prefixes and suffixes
      Unit 4: Tenses
BLOCK 3   Compositions
      Unit 1: Comprehension
      Unit 2: Simple passage
      Unit 3: Moral story
      Unit 4: Science and technology
BLOCK 4   Letter and dialogue Writing
      Unit 1: Letter writing - personal
      Unit 2: Letter writing - official
      Unit 3: Dialogue writing
      Unit 4: Hints development
BLOCK 5   Proses
      Unit 1: An Astrloger's day – R.K. Narayanan
      Unit 2: The sun, the planets and the stars – C.Jones
      Unit 3: The continuing spell of Ramanujam
      Unit 4: On saying 'please' – A.G.Gardiner
Books:
1. Orient Longman, Anna Salai, Chennai-600002.
2. The Advanced Learners Dictionary of Current English by A.S.Hornby, Oxford
   University Press. 1973
3. High School English Grammar and Composition by Wren & Martin, S.Chand & Co
       Ltd., 2005
4. Vocabulary in Practice - Part 1 to 4 by Glennis Pye, Cambridge University Press,
5. Learn Correct English by Shiv K. Kumar & Hemalatha Nagarajan, Pearson
   Longman, 2005
6. Essential English Grammar by Raymond Murphy, Cambridge University Press,
7. Common Errors in English by M.Thomas, Lotus Press, New Delhi, 2006
8. Basic English Usage by Michael Swan, ELBS/OUP, 1989
9. Communication Skills for Engineers by Mishra, Ist Edition, Pearson Longman
10. Basic English Dictionary by Longman Longman Ist Edition, Pearson Longman

SEMESTER   : I
Subject Code   : BE 102
Subject Title   : Applied Mathematics - I
Structure of the Course Content
BLOCK 1   Algebra
    Unit 1: Determinants
    Unit 2: Matrices
    Unit 3: Permutation and combination
    Unit 4: Binomial Theorem
BLOCK 2   Complex numbers
    Unit 1: Real and imaginary parts
    Unit 2: Demoivre's Theorem
    Unit 3: Finding the nth roots of unity
    Unit 4: Solving equations
BLOCK 3   Analytical geometry
    Unit 1: Pair of straight lines
    Unit 2: Circles
    Unit 3: Family of circles
    Unit 4: Concentric circles
BLOCK 4   Trigonometry
    Unit 1: Compound angles
    Unit 2: Multiple angles
    Unit 3: Sub multiple angles
    Unit 4: Sum and product formulae
BLOCK 5   Differential calculus
    Unit 1: Limits
    Unit 2: Differentiation
    Unit 3: Differentiation methods
    Unit 4: Successive differentiation
Books :
    1. Engineering Mathematics by Dr M.K.Venkatraman, National Publishing Co.
    2. Engineering Mathematics by Dr P.Kandasamy, S.Chand & Co, New Delhi
    3. Higher Engineering Mathematics by Ramana, Tata McGraw Hill, New Delhi
    4. Engineering Mathematics by Singh, Tata McGraw Hill, New Delhi
    5. Advanced Engineering Mathematics by N.Bali,M.Goyal,C.Watkins,Lakshmi Publications (Pvt) Ltd, New Delhi
    6. Engineering Maths by T.Veerarajan, Tata McGraw Hill, New Delhi
    7. Schaum's Outline of Technical Mathematics by Paul Calter, Tata McGraw Hill, New Delhi
    8. Engineering Mathematics Vol-III by Dr. B. Krishna Gandhi , Dr. T.K.V Iyengar, S.Ranganatham, , S.Chand & Co, New Delhi
    9. Introduction to Engineering Mathematics by H.K. Dass, Dr.Rama Verma, S.Chand & Co, New Delhi
    10. Applied Engineering Mathematics Vol-II by H.K.Dass, S.Chand & Co

SEMESTER   **: I**
Subject Code   **: BE 103**
Subject Title   **: Engineering Physics - I**
Structure of the Course Content
BLOCK 1   S I units and Statics
     Unit 1: Fundamental quantities
     Unit 2: Derived quantities
     Unit 3: Concurrent forces
     Unit 4: parallelogram Law of forces
BLOCK 2   Properties of matter
     Unit 1: Stress and strain
     Unit 2: Young's modulus
     Unit 3: Viscosity
     Unit 4: Surface Tension
BLOCK 3   Dynamics
     Unit 1: Projectile Motion
     Unit 2: Angle of projection
     Unit 3: Circular Motion
     Unit 4: Application of circular motion
BLOCK 4   Rotational motions of rigidity bodies
     Unit 1: Moment of Inertia
     Unit 2: Kinetic energy
     Unit 3: Angular Momentum
     Unit 4: Kepler's Law
BLOCK 5   Remote sensing and sound
     Unit 1: Active and Passive remote sensing
     Unit 2: Microwave remote sensing
     Unit 3: Types of sound waves
     Unit 4: Acoustics

Books :
     1. Physics by Resnick and Hoilday ,Wisley Toppan Publishers – England
     2. Mechanics by Narayana Kurup , S. Chand Publishers – New Delhi
     3. Engineering Physics by B.L. Theraja , S. Chand Publishers – New Delhi
     4. Remote sensing by Dr.M.Anji Reddy, Jawaharlal Nehru Technological University –Hyderabad.
     5. Engineering Physics by V.Rajendran, Tata McGraw Hill, New Delhi
     6. Engineering Physics by Vikram Yadav, Tata McGraw Hill, New Delhi
     7. Schaum's Outline of Physics for Engineering and Science by Michael Browne, Tata McGraw Hill, New Delhi
     8. Modern Engineering Physics by A.S.Vasudeva, S. Chand Publishers, New Delhi
     9.Engineering Physics Fundamentals & Modern Applications by P.Khare and A.Swarup, Lakshmi Publications (Pvt) Ltd, New Delhi
     10. Engineering Physics by Dipak Chandra Ghosh,Nipesh Chandra Ghosh,Prabir Kumar Haldar, Lakshmi Publications (Pvt) Ltd, New Delhi

SEMESTER   : I
Subject Code   : BE 104
Subject Title   : Applied Chemistry - I
Structure of the Course Content
BLOCK 1   Acids – Bases, Catalysis
>   Unit 1: Theories of Acids and Bases
>   Unit 2: Industrial application
>   Unit 3: Positive and Negative catalyst
>   Unit 4: Characteristics of Catalyst

BLOCK 2   Pollution
>   Unit 1: Air Pollution
>   Unit 2: Global warming
>   Unit 3: Water Pollution
>   Unit 4: Green Chemistry

BLOCK 3   Electro chemistry and corrosion
>   Unit 1: Types of conductors
>   Unit 2: Industrial applications of Electrochemistry
>   Unit 3: Electrochemical theory
>   Unit 4: Electroplating

BLOCK 4   Organic coatings
>   Unit 1: Paint
>   Unit 2: Varnish
>   Unit 3: Adhesives
>   Unit 4: Lubricants

BLOCK 5   Colloids and Ceramics
>   Unit 1: Colloidal solution
>   Unit 2: Brownian movement
>   Unit 3: Water purification
>   Unit 4: Ceramics

Books :
>   1. Inorganic chemistry by Soni PL, Sultan Chand &sons.
>   2. Organic chemistry by Soni PL, Sultan Chand & sons.
>   3. Engineering chemistry by Jain & Jain, Dhanpat rai &co
>   4. Engineering chemistry by Uppal , Khanna publishers
>   5. Environmental chemistry &Pollution control by Dara .SS, S. Chand&co
>   6. Environmental Pollution by . Tripathy .SN , Sunakar panda - Vrinda publication
>   7. Rain water Harvesting-hand book by Chennai Metro Water
>   8. Introduction to Engineering Chemistry by Minaxi B Lohani, Upma Misra, S.Chand & Co, New Delhi
>   9. Engineering Chemistry by Dr.A.K.Pahari,Dr.B.S.Chauhan, Lakshmi Publications (Pvt) Ltd, New Delhi
>   10. Advanced Engineering Chemistry by M.Senapati, Lakshmi Publications (Pvt) Ltd, New Delhi

SEMESTER   **: I**
Subject Code   **: BE 105**
Subject Title   **: Computer Application Lab**

Practicals
Windows

1.a. Starting a program, running a program.

  b. Starting the Windows in safe mode

  c. Running multiple Programs and switching between windows.

  d. Moving the windows, and the task bar.

  e. Startup to MS-DOS prompts.

2.a. Creating and removing a folder.

  b. Making the taskbar wider, arranging icons on the Desktop.

  c. Displaying and hiding the taskbar clock.

  d. Controlling the size of start menu options.

  e. Creating shortcuts.

3.a. Installing a screen saver.

  b. Assigning Wallpaper to Desktop.

  c. Adding a program to the start menu.

  d. Recovering files and folders from Recycle bin.

  e. Customizing the mouse settings.

4 a. Expanding and collapsing a folder.

  b. Recognizing file types using icons.

  c. Running a program from explorer.

  d. Renaming a file or folder.

  e. Selecting two or more files for an operation.

5.a. Displaying the properties for a file or folder.

  b. Using cut and paste operations to copy a file.

  c. Using copy and paste operations to copy a file.

  d. Moving and copying files with mouse.

  e. Sorting a folder.

6.a. Finding a file or folder, by name.

  b. Defragmenting the disk using disk defragmenter.

c. Compressing a file using WinZip.

d. Controlling the speaker volume.

e. Recording and saving an audio file.

MS Word

a. Prepare a newsletter with borders, two columns text, header and footer and a graphic

   image and spell check the document.

b. Create a table to show the paradigm of the verb "eat" in all 12 tenses

Tense		Present	Past	Future
Simple	He	Eats	Ate	Will eat
	I	Eat	Ate	Will eat
	You/They	Eat	Ate	Will eat
Continuous	He	Is eating	Was eating	Will be eating
	I	Am eating	Was eating	Will be eating
	You/They	Are eating	Was eating	Will be eating
Perfect	He	Has eaten	Had eaten	Will have eaten
	I	Have eaten	Had eaten	Will have eaten
	You/They	Have eaten	Had eaten	Will have eaten
Perfect continuous	He	Has been eating	Had been eating	Will have been eating
	I	Have been eating	Had been eating	Will have been eating
	You/They	Have been eating	Had been eating	Will have been eating

c. Prepare your Bio-data/Resume

d. Do the mail merge operation for sending applications to many companies with your resume

MS EXCEL

1.Create a worksheet in Excel for a company:

a. Copy, Move and Merge the cells

b. Adding Comments

c.Adding, Deleting the cells, Rows and Columns

d. Hiding and Unhiding the columns, Rows and gridlines.

2.Using formula and functions prepare worksheet for storing subject marks of ten

students and perform the following:

a. Calculate the student wise total and average

b. Calculate the subject wise total and average

c. Calculate the overall percentage and also individual percentage of the student.

3. Create Bar Graph and Pie Chart for various data

MS Power Point

a. Create a simple presentation with atleast 5 slides to introduce your friend and include sounds in slides.

b. Create a presentation with 5 slides for the essay Astrologer's Day by R.K Narayanan

Internet

a. Creating an E-Mail account.

b. Sending an E-Mail to a known Address

c. Viewing an E-Mail received from your friend/relative.

d. Printing an E-Mail received

e. Use of Attachment Facility

f. Use of Address Book Facility

g. Use of Sent Folder

h. Use of Save Draft Folder

i. Use of Trash Folder

j. Browse a given web-site address.

k. Search a Particular topic through a Search engine.

SEMESTER   **: I**
Subject Code   **: BE 106**
Subject Title   **: Workshop Practice**

Fitting

1. Fitting
2. V - Joint
3. L - Joint
4. T - Joint
5. Half round joint
6. Dovetail Joint
7. U – Joint
8. Hexagonal – Joint
9. Step - Joint
10. Drilling and Tapping M8
11. Drilling and Tapping M10

Wiring

1. Single lamp controlled by single switch.
2. Two Lamps controlled by Two independent switches.
3. Stair case Wiring
4. Fluorescent lamp circuit.
5. Circuit diagram of a fan
6. Circuit diagram of an iron box
7. Circuit diagram of a mixie
8. Soldering practice

Sheet Metal

1. Hemming
2. Seaming
3. Tray
4. Cylinder
5. Cone
6. Hopper
7. Dust Pan
8. Funnel

SEMESTER   : II
Subject Code   : BE 201
Subject Title   : Applied Mathematics - II
Structure of the Course Content
BLOCK 1   Vector Algebra
    Unit 1: Introduction
    Unit 2: Vector Properties
    Unit 3: Product of Vectors
    Unit 4: Application of Vectors
BLOCK 2   Integral Calculus
    Unit 1: Integration
    Unit 2: Standard Integrals
    Unit 3: Integration by parts
    Unit 4: Bernoulli's Theorem and Applications
BLOCK 3   Differentiation
    Unit 1: Velocity and Acceleration
    Unit 2: Tangents and Normals
    Unit 3: Maxima and Minima
    Unit 4: Partial differentiation
BLOCK 4   Application of Integration
    Unit 1: Definite Integral.
    Unit 2: Area and Volume
    Unit 3: Solution of differential equations
    Unit 4: Second order differential equation with constant coefficients
BLOCK 5   Probability Distributions
    Unit 1: Continuous random variable
    Unit 2: Discrete random variable
    Unit 3: Discrete Distributions (Binomial, Poisson)
    Unit 4: Continuous Distribution
Books :
    1. Engineering Mathematics by Dr M.K.Venkatraman, National Publishing Co.
    2. Engineering Mathematics by Dr P.Kandasamy, S.Chand & Co, New Delhi
    3. Higher Engineering Mathematics by Ramana, Tata McGraw Hill, New Delhi
    4. Engineering Mathematics by Singh, Tata McGraw Hill, New Delhi
    5. Advanced Engineering Mathematics by N.Bali,M.Goyal,C.Watkins,Lakshmi Publications (Pvt) Ltd, New Delhi
    6. Engineering Maths by T.Veerarajan, Tata McGraw Hill, New Delhi
    7. Schaum's Outline of Technical Mathematics by Paul Calter, Tata McGraw Hill, New Delhi
    8. Engineering Mathematics Vol-III by Dr. B. Krishna Gandhi , Dr. T.K.V Iyengar, S.Ranganatham, , S.Chand & Co, New Delhi
    9. Introduction to Engineering Mathematics by H.K. Dass, Dr.Rama Verma, S.Chand & Co, New Delhi
    10. Applied Engineering Mathematics Vol-II by H.K.Dass, S.Chand & Co

SEMESTER   : II
Subject Code   : BE 202
Subject Title   : Engineering Physics - II
Structure of the Course Content
BLOCK 1   Heat
     Unit 1: Heat - Kinetic Theory of Gases:
     Unit 2: Specific Heat
     Unit 3: Isothermal Changes
     Unit 4: Adiabatic Changes
BLOCK 2   Gases & Non Conversional Energy
     Unit 1: Liquefaction of Gases
     Unit 2: Joule Thomson Effect & Linde's process
     Unit 3: Renewable and Non-renewable sources
     Unit 4: Alternate sources of Energy-
BLOCK 3   Light & Magnetism
     Unit 1: Optical Instruments
     Unit 2: Lasers
     Unit 3: Basic definitions of Magnetism
     Unit 4: Hysteresis Loop
BLOCK 4   Electricity
     Unit 1: Basic laws
     Unit 2: Force on a moving charge
     Unit 3: Measuring Instruments
     Unit 4: Heating Effect of Electric Current
BLOCK 5   Dielectric effect & Electronics
     Unit 1: Chemical Effect of Electric Current
     Unit 2: Capacitor
     Unit 3: Semiconductors , PN Junction & Transistors
     Unit 4: Logic Gates
Books :
     1. Physics by Resnick and Hoilday ,Wisley Toppan Publishers – England
     2. Mechanics by Narayana Kurup , S. Chand Publishers – New Delhi
     3. Engineering Physics by B.L. Theraja , S. Chand Publishers – New Delhi
     4. Remote sensing by Dr.M.Anji Reddy, Jawaharlal Nehru Technological University –Hyderabad.
     5. Engineering Physics by V.Rajendran, Tata McGraw Hill, New Delhi
     6. Engineering Physics by Vikram Yadav, Tata McGraw Hill, New Delhi
     7. Schaum's Outline of Physics for Engineering and Science by Michael Browne, Tata McGraw Hill, New Delhi
     8. Modern Engineering Physics by A.S.Vasudeva, S. Chand Publishers, New Delhi
     9.Engineering Physics Fundamentals & Modern Applications by P.Khare and A.Swarup, Lakshmi Publications (Pvt) Ltd, New Delhi
     10. Engineering Physics by Dipak Chandra Ghosh,Nipesh Chandra Ghosh,Prabir Kumar Haldar, Lakshmi Publications (Pvt) Ltd, New Delhi

SEMESTER : II
Subject Code : BE 203
Subject Title : Applied Chemistry - II
Structure of the Course Content
BLOCK 1   Nuclear Chemistry
      Unit 1: Radio activity and definitions
      Unit 2: Half life period & Nuclear fission & fusion
      Unit 3: Applications of radioactive isotopes
      Unit 4: Abrasives
BLOCK 2   Fuels and Refractory's
      Unit 1: Fuels - classification
      Unit 2: Solid and Liquid Fuels
      Unit 3: Gas Fuels
      Unit 4: Refractory's
BLOCK 3   Water Treatment
      Unit 1: Water Treatment Methods
      Unit 2: EDTA Method
      Unit 3: Water -purification
      Unit 4: Lime and manufacturing process
BLOCK 4   Plastics and Rubber
      Unit 1: Thermoplastics,
      Unit 2: Thermo set plastics
      Unit 3: Natural rubber-
      Unit 4: Synthetic rubber
BLOCK 5   Metallurgy
      Unit 1: Tungsten &Titanium
      Unit 2: Powder metallurgy
      Unit 3: Purpose of alloying
      Unit 4: Non ferrous alloys
Books :
      1. Inorganic chemistry by Soni PL, Sultan Chand &sons.
      2. Organic chemistry by Soni PL, Sultan Chand & sons.
      3. Engineering chemistry by Jain & Jain, Dhanpat rai &co
      4. Engineering chemistry by Uppal , Khanna publishers
      5. Environmental chemistry &Pollution control by Dara .SS, S. Chand&co
      6. Environmental Pollution by . Tripathy .SN , Sunakar panda - Vrinda publication
      7. Rain water Harvesting-hand book by Chennai Metro Water
      8. Introduction to Engineering Chemistry by Minaxi B Lohani, Upma Misra, S.Chand & Co, New Delhi
      9. Engineering Chemistry by Dr.A.K.Pahari,Dr.B.S.Chauhan, Lakshmi Publications (Pvt) Ltd, New Delhi
      10. Advanced Engineering Chemistry by M.Senapati, Lakshmi Publications (Pvt) Ltd, New Delhi

SEMESTER   : II
Subject Code   : BE 204
Subject Title   : Engineering Graphics
Structure of the Course Content
BLOCK 1   Drawing Office Practice
    Unit 1: Basics of Engg Drawing
    Unit 2: Dimensioning
    Unit 3: Scales
    Unit 4: Geometrical Constructions, conics and geometrical curves
BLOCK 2   Projection
    Unit 1: Orthographic Projection
    Unit 2: Projection of simple solids
    Unit 3: Section of Solids
    Unit 4: Half & Full Sectioning
BLOCK 3   Pictorial drawings
    Unit 1: Introduction
    Unit 2: Isometric Drawings
    Unit 3: Conversion of orthographic views
BLOCK 4   Development of Surfaces:
    Unit 1: Cube, Cylinder
    Unit 2: Prism
    Unit 3: Pyramids
    Unit 4: Tee and Elbow
BLOCK 5   AutoCAD
    Unit 1: Introduction
    Unit 2: AutoCAD commands
    Unit 3: Drawing -line, circle, arc, polygon,
    Unit 4: Drawing - ellipse, rectangle
Books :
    1. Engineering Drawing by Gopalakrishnan.K.R., (Vol.I and Vol.II),
    Dhanalakshmi publishers, Edition 2, 1970
    2. First Year Engineering Drawing by Barkinson & Sinha, Pitman Publishers,
    London, Edition 3, 1961
    3. A Book on AutoCAD Release 2007.
    4. Engineering Drawing by Shah/Rana,Ist Edition Pearson Longman
    5. Machine Drawing with AutoCAD by Pohit/Ghosh, Ist Edition Pearson
    Longman
    6. Engineering Graphics by Prof.P.J.Shah, S.Chand & Co, New Delhi
    7. Computer Graphics including CAD,AUTOCAD &C by A.M.Kuthe,
    S.Chand & Co, New Delhi
    8. Engineering Graphics by Dhawan R.K, S.Chand & Co, New Delhi
    9. Auto CAD 2005 for Engineers by Ionel Simon, Lakshmi Publications (Pvt)
    Ltd, New Delhi
    10. Engineering Drawing by Agrawal, Tata McGraw Hill, New Delhi
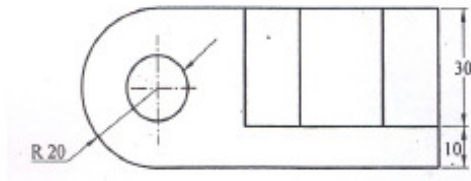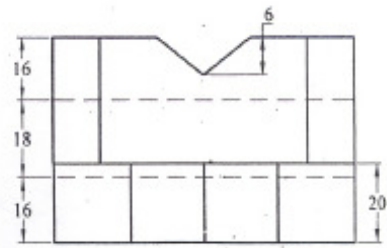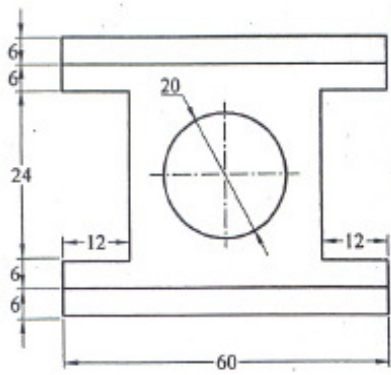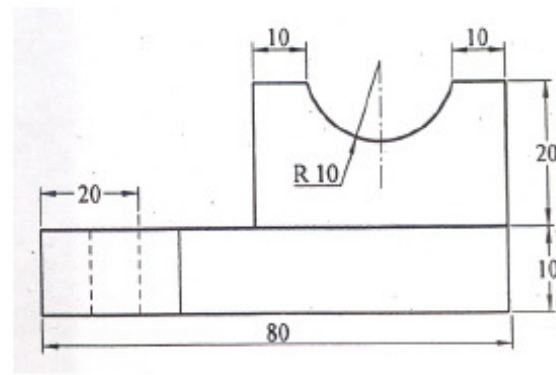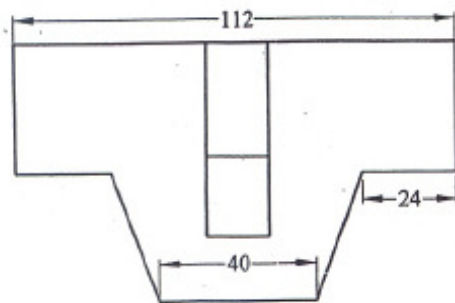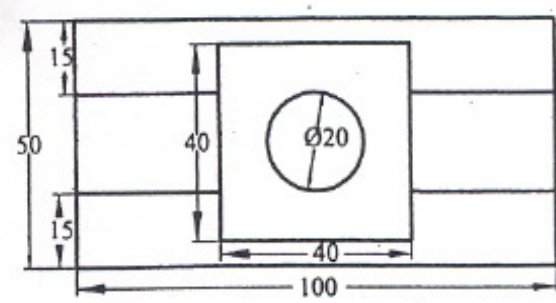
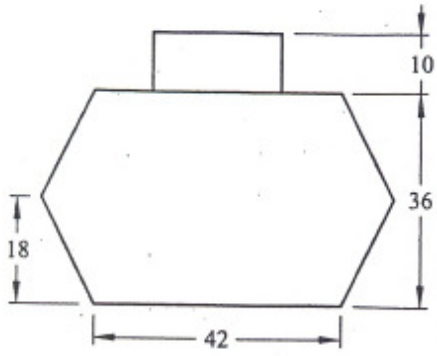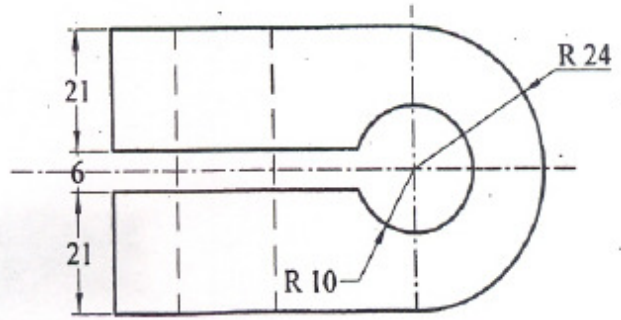## Drawing Practices

Fig – 1

Fig- 2

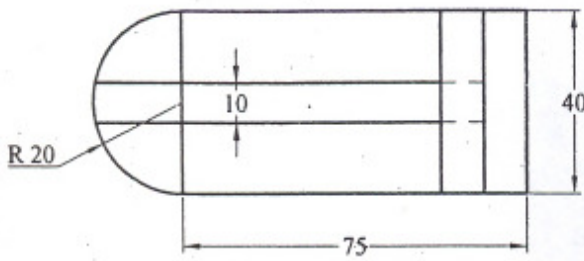
Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

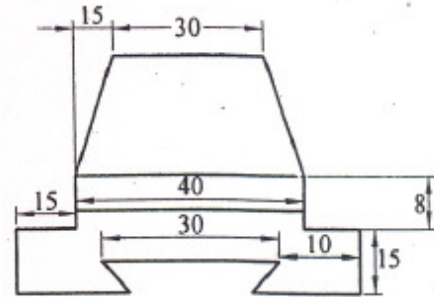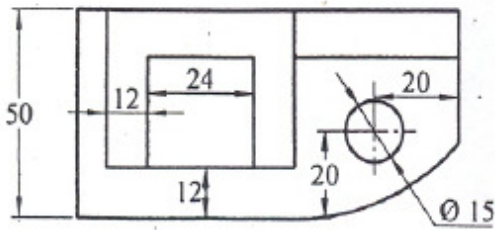Fig. 9

Fig. 10

Fig.11

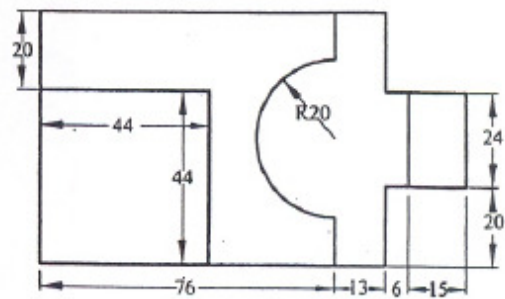Fig. 12

SEMESTER   : II

Subject Code   : BE 205

Subject Title   : Engineering Physics Lab

List of Experiments

1 VERNIER CALIPERS - To find the volumes of the solid cylinder and hollow cylinder using vernier callipers.

2 SCREW GAUGE – To find the thickness of (a) glass plate (b) given sphere using screw gauge. Hence calculate the volume of the glass plate and the sphere.

3 SIMPLE PENDULUM – To find the acceleration due to gravity in the laboratory, using simple pendulum. Calculate the acceleration due to gravity, by L–T^2 graph.

4 CONCURRENT FORCES -To verify the parallelogram law of forces and Lami's theorem.

5 COPLANAR – PARALLEL FORCES – To verify the conditions of the Co-planar parallel forces.

6 TORSION PENDULUM – To find the rigidity modulus of the thin wire and moment of inertia of the disc by using symmetric masses.

7 COMPARISON OF VISCOSITIES – To compare the coefficient of viscosities of two liquids by capillary flow method.

8 VISCOSITY OF A HIGHLY VISCOUS LIQUID – To find the coefficient of viscosity of a highly viscous liquid.

9 SURFACE TENSION: To find the surface tension of the given liquid by capillary

rise method

10 YOUNG'S MODULUS – To find the young's modulus of the material of the given metre scale.

11 SPECTROMETER – 1. To find the angle of the prism.

12 SPECTROMETER – 2. To find the refractive index of the material of the prism.

13 DEFLECTION MAGNETOMETER – To compare the magnetic moments of two given magnets by (a) Equal distance method and (b) Null method.

14 SONO METER – To find the frequency of the given tuning fork.

15 JOULE'S CALORIMETER – To determine the specific heat capacity of the given liquid.

16 COPPER VOLTAMETER – To determine electro – chemical – equivalent of copper.

17 OHM'S LAW – To determine the resistance of two given coils of wire using Ohm's law. Also verify the laws of resistances.

18 POTENTIO METER – To compare the e.m.fs of two given cells.

19 PN JUNCTION DIODE – For the given semiconductor diode draw (a) Forward bias (b) Reverse bias characteristic curves.

20 SOLAR CELLS – V. I. Characteristics.

SEMESTER   : II

Subject Code   : BE 206

Subject Title   : Applied Chemistry Lab

List of Experiments

1.Qualitative Analysis

Acid radicals : Chloride, Carbonate, Sulphate, Nitrate

Basic radicals: Lead, Cadmium, Copper, Aluminium, Zinc, Calcium, Magnesium, Ammonium

Identification of acid and basic radicals in

1. Lime Stone (Calcium Carbonate)

2. Pollutant (Lead nitrate or Cadmium Carbonate)

3. Fertilizer(Ammonium sulphate)

4. Electrolyte(Ammonium Chloride)

5. Fungicide(Copper sulphate)

6. Coagulant(Aluminium Sulphate)

7. Mordant(Zinc Sulphate)

8. Gypsum(Calcium Sulphate)

9. Epsum(Magnesium Sulphate)

10. Analysis of an Effluent (containing pollutants like Lead, Cadmium, Zinc, and Copper).Students may be given above four pollutants , in four separate test tubes in solution form and asked to report metallic pollutants with procedure (Basic Radical Analysis Procedure) and their harmful effects.

2. VOLUMETRIC ANALYSIS (DOUBLE TITRATIONS)

ACIDIMETRYAND ALKALIMETRY

1. Estimation of Hydrochloric acid

2. Estimation of Sodium Hydroxide

3. Estimation of Sodium Carbonate

4. Comparison of Strengths of two bases

PERMANGANIMETRY

5. Estimation of Ferrous Ammonium Sulphate

6. Estimation of Ferrous Sulphate

7. Comparison of Potassium Permanganate.

WATER ANALYSIS

8. Estimation of Total Hardness by EDTA method.

9. Calculation of pH of four sample solutions and calculation of H+ Ion

concentration for a particular sample solution.

Subject Code   : CE301
Subject Title   : Engineering Mechanics
Structure of the Course Content
BLOCK 1   Mechanical Properties of Materials
      Unit 1: Basic Definitions
      Unit 2: Stress
      Unit 3: Strain
      Unit 4: Stress-Strain Calculations
BLOCK 2   Geometrical Properties of Sections
      Unit 1: Basic Definitions
      Unit 2: Moment of Inertia
      Unit 3: Thin cylinders
      Unit 4: Thin Spherical Shells
BLOCK 3   Theory of Simple Bending
      Unit 1: Shear Force
      Unit 2: Bending Moment
      Unit 3: Cantilever
      Unit 4: Simple Bending
BLOCK 4   Torsion and Springs
      Unit 1: Theory of Torsion
      Unit 2: Tortional Rigidity
      Unit 3: Hollow Shaft
      Unit 4: Springs
BLOCK 5   Deflection
      Unit 1: Beams
      Unit 2: Friction
      Unit 3: Gear Drives
      Unit 4: Belt Drives

Books :
1.Applied Mechanics by A.K.Upadhyay, Charotar Publishers
2.Strength of Materials by R.S.Khurmi, S.Chand & Co
3.Applied Mechanics by SB Junnarkar, Dr. HJ Shara, Charator publishing house, Anand 388001
4. Strength of Materials by S. Ramamrutham Dhanpat Rai Pub. Co, New Delhi.
5. Strength of Materials by L.Negi, Tata McGraw Hill, New Delhi
6. Schaum's Outline Of Statics and Mechanics of Materials by William Nash, Tata McGraw Hill, New Delhi
7. Mechanics of Materials by Ferdinand Beer.E, Russell Johnson, Jr John DeWolf.David Mazurek, Tata McGraw Hill, New Delhi
8. Strength of Materials by S.Rattan, Tata McGraw Hill, New Delhi
9. Strength of Materials by B.Sarkar, Tata McGraw Hill, New Delhi
10. Mechanics of Materials by Ansel Ugural, Tata McGraw Hill, New Delhi

Subject Code   **: CE302**
Subject Title   **: CONSTRUCTION MATERIALS AND PRACTICE**
Structure of the Course Content
BLOCK 1   Construction Materials - I
     Unit 1: Physical properties of materials
     Unit 2: Rocks and Stones
     Unit 3: Bricks
     Unit 4: Lime and Pozzolanas
     Unit 5: Cement
BLOCK 2   Construction Materials - II
     Unit 1: Ceramic Products
     Unit 2: Timber and Timber Products
     Unit 3: Concrete
     Unit 4: Paints and Varnishes
     Unit 5: Glass, Metals and Plastics
BLOCK 3   Construction Practice - I
     Unit 1: Foundation
     Unit 2: Stone masonry
     Unit 3: Brick masonry
     Unit 4: Partition
     Unit 5: Water Proofing and Damp Proofing Material
BLOCK 4   Construction Practice - II
     Unit 1: Doors, Windows and ventilators
     Unit 2: Hollow Block and Ferro Cement Constructions
     Unit 3: Stairs
     Unit 4: Floors and flooring
     Unit 5: Roof
BLOCK 5   Construction Practice - III
     Unit 1: Pointing
     Unit 2: Plastering
     Unit 3: External & Internal finishes
     Unit 4: White washing, Colour washing & distempering
     Unit 5: Form work

Books :
1. Building Materials by P.C.Varghese, Prentice-Hall of India (P) Ltd
2. Building Materials by S.K.Duggal, New Age International (P) Ltd
3. Building Materials by S.C.Rangwala, Charotar Publishing House
4. Engineering Materials by R.K.Rajput, S.Chand &Company Ltd
5. Building Construction by Dr. B.C. Punmia, Laxmi publications (p)Ltd New Delhi
6. Building Construction by Gurucharan singh, Standard book house
7. Building Construction by S.P. Arora & S. P. Bindra, Dhanpat rai publications
8. Building Construction by S.C.Rangwala,,Charotar Publishing House
9. Civil Engineering Materials by TTTI Chandigarh, TMH
10. Corrosion Engineering by Fontana, TMH

Subject Code   : CE303
Subject Title   : SURVEYING
Structure of the Course Content
BLOCK 1   Principle of surveying
     Unit 1: Definition, Object and Division of Surveying
     Unit 2: Chain Surveying
     Unit 3: Compass Surveying
     Unit 4: Levelling
BLOCK 2   Theodolite & Trignomertical Levelling
     Unit 1: Technical terms used in Theodolite survey
     Unit 2: Computation of Area of closed traverse problems
     Unit 3: Finding elevation of objects and Base accessible
     Unit 4: Single plane & Double plane methods
BLOCK 3   Tacheometry and Total Station
     Unit 1: System of Tacheometry
     Unit 2: Distomats
     Unit 3: Features of total station
     Unit 4: characteristics of total station
BLOCK 4   Contour Surveying and Curves
     Unit 1: Computation of areas and Volumes with simple problem
     Unit 2: Definition and Characteristics of Contours
     Unit 3: Methods and Uses of Contouring
     Unit 4: Types of Curves & Designation of curves
BLOCK 5   MODERN SURVEYING
     Unit 1: Global position system (GPS)
     Unit 2: Observation and data processing application
     Unit 3: MAP – Types of Maps
     Unit 4: Components of GIS
     Unit 5 : Comparison of GIS with CAD and other system

Books :
1. Surveying & Field work part I & II by Punmia.B.C., Laxmi Publications(p)Ltd.
2. A Text Book of Surveying Levelling by Agor, Khanna publishers
3. Surveying and levelling part I & II by Kanetkar.T.P. & S.V.Kulkarni, Puna vidyarthi girha, Prakashan
4. Surveying Volume-1 & Volume-2 by Punmia.B.C, Laxmi Publications(p)Ltd
5. Surveying volume I & II by Duggal .S.K, Tata Mc Graw hill New Delhi
6. Surveying & Levelling by Rangwala.S.C, Charotar Publishing House
7. Advanced Surveying by Sathesh Gopi, R.Sathikumar & N.Madhu, Pearson Education
8. Principles of GIS for Land Resources Assessment by Burrough P A, Oxford Publication
9. Fundamentals of Geographical Information Systems by Michael N Demers, John Wiley Publications
10. Geographical Information Systems by Paul A Longley, Michael F Goodchild etal, John Wiley Publications

Subject Code   **: CE304**
Subject Title   **: CIVIL ENGINEERING DRAWING**
Structure of the Course Content
BLOCK 1   Terms used in drawing as per NBC
     Unit 1: Open space, Building requirements and Minimum dimensions
     Unit 2: FAR and Floor space Index
     Unit 3: List of documents to be submitted for building plan approval
     Unit 4: Drawing instruments and their uses
BLOCK 2   PLANNING
     Unit 1: Principle of Planning
     Unit 2: Planning of residential building
     Unit 3: Standard sizes of Door, Windows and ventilators
     Unit 4: Planning of rooms
     Unit 5: Preparation of line sketch for a single & Double bed room residential
          Building
BLOCK 3   DRAFTING AND DETAILING
     Unit 1: Standard symbols used in Civil Engineering Drawing
     Unit 2: Elevation of Flush Door & Steel Roof Truss
     Unit 3: Prepare the Plan
     Unit 4: Rain Water Harvesting Methods
BLOCK 4   BUILDING DRAWINGS - I
     Unit 1: A Residential building with single bed room and attached bathroom
     Unit 2: A residential building with two bed rooms
     Unit 3: A single roomed house with fully tiled roof with gable ends
     Unit 4: Single storied Residential Building
BLOCK 5   BUILDING DRAWINGS - II
     Unit 1: A Restaurant building in R.C.C. flat roof
     Unit 2: Single storied school building with R.C.C.
     Unit 3: Small workshop with north light steel roof truss up to 10m span over
          R.C.C.
     Unit 4: Hospital Building of 300 m2 Plinth area.
     Unit 5: A Prayer/Meditation Hall with tubular Truss and Metal Sheet Roofing.
Books :
1. Civil Engineering Drawing and house planning by B.P. Verma ,
2. Building Planning and Drawing by Dr. N. Kumaraswamy and A. Kameswara Rao
3. National Building Code
4. TamilNadu District Municipal building rules and by-laws
5. Building Planning and Construction Companion by G. Vaidhyanathan, I.
Kulasekaran, G. sathish Kumar
6. Civil Engineering Drawing by S.C.Rangwala
7. A Guide to Civil Engg Drawing by V.R.Thothathri

Subject Code : CE305
Subject Title : SURVEYING PRACTICE - I

Structure of the Course Content

1. Chain Survey

1.1 Chaining and ranging a line.

1.2 Chaining and taking offsets

1.3 Determination of area of a plot. (One chain line and at least two offsets on either side

   of chain line)

2. Compass Survey

2.1 Setting up Prismatic compass over a station and observing bearing of a line

2.2 Closed traverse and finding the included angles – Minimum 5 Points

3. Levelling

3.1 Temporary adjustment of Dumpy level taking readings and booking

3.2 Fly levelling – Reduction by Height of Collimation – Minimum 6 Points with two
   change points (Minimum Four Exercises)

3.3 Fly levelling – Reduction by Rise and fall – Minimum 6 Points with two change
   points.

3.4 Check levelling and reduction of levels a. By Height of Collimation Method b. By
   Rise and fall Method.

4. GPS

4.1 Reading of various map like a. District Map b. Taluk Map

4.2 Study of handled GPS

4.3 Measurement of latitude and longitude using handled GPS

4.4 Selection of routing (Points) using handled GPS

Subject Code   : CE306
Subject Title   : Engineering Mechanics Lab

Structure of the Course Content

Laboratory Experiments :

1. Test on Ductile Materials

2. Hardness Test

3. Torsion test

4. Bending and deflection tests

5. Impact test

6. Tests on springs of circular section

7. Shear test

8. Verifying the Bernoulli's Theorem

9. Determination of Coefficient of discharge of a Venturimeter

10. Determination of Coefficient of discharge of a Orificemeter

11. Performance test on a reciprocating pump

12. Performance test on a centrifugal pump

13. Performance test on an impulse turbine

14. Performance test on a reaction turbine

Subject Code : CE401
Subject Title : Theory of Structures
Structure of the Course Content
BLOCK 1   Slope and Deflection of beams
    Unit 1: Analysis of supports
    Unit 2: Derivation of differential equation of flexure, Area Moment method and Slope
    Unit 3: Beam action and Beam analysis
    Unit 4: cantilever and Simple support
    Unit 5: SF & BM diagrams by area moment method
BLOCK 2   Fixed beams and Arches
    Unit 1: Determination of fixing moments by area moment method
    Unit 2: Fixed beams subjected to symmetrical & unsymmetrical concentrated loads and UDL
    Unit 3: slope and deflection of fixed beams
    Unit 4: Comparison of Arch and Beam Action
    Unit 5: Actual & theoretical arches – Different types of arches
BLOCK 3   Continuous beams
    Unit 1: Definition and General methods of analysis of Indeterminate structures
    Unit 2: Clapeyron's theorem of three moments
    Unit 3: Problems on two span – simply supported ends
    Unit 4: sign conventions – stiffness factor – carry over factor – Distribution factor
    Unit 5: Application to continuous beams up to three spans & propped cantilever
BLOCK 4   Columns and struts
    Unit 1: Definition – short and long columns
    Unit 2: Euler's theory of long columns
    Unit 3: Eccentric loading
    Unit 4: combined direct and bending stresses
    Unit 5: Limit of eccentricity
BLOCK 5   Masonry dams, Earth pressure and retaining walls
    Unit 1: derivation for maximum and minimum stresses
    Unit 2: factor of safety problems on stability
    Unit 3: Elementary profile of a dam
    Unit 4: Angle of repose – state of equilibrium of soil
    Unit 5: maximum and minimum stresses – stress distribution diagrams

Books :
1.Theory of structures by S. Ramamrutham
2.Elementary Theory of Structures by R.L. Jindal
3.Strength of materials by FV. Warnock
4.Theory of structures by B.C. Punmia, Ashok Jain & Arun Jain, Laxmi Publications
5.Mechanics of structures (Vol.I) by S.B. Junnarkar, Charator Publishing
6.Analysis of structures by V.N. Vazirani & M.M. Ratwani
7.Structural Analysis : A Matrix Approach by Pandit, TMH

Subject Code : CE402
Subject Title : TRANSPORTATION ENGINEERING
Structure of the Course Content
BLOCK 1 Principles of Highway Engineering
        Unit 1: Role of Road Transportation
        Unit 2: classification of Roads and Requirements of an ideal road
        Unit 3: Traffic Engineering
        Unit 4: Highway Pavements
        Unit 5: Sub grade Soil
BLOCK 2 Highway Construction
        Unit 1: Highway Alignment and Survey
        Unit 2: Road Machineries
        Unit 3: Low cost Roads
        Unit 4: Water bound Macadam Road
        Unit 5: Bituminous Roads & Concrete Roads
BLOCK 3 Principle of Railway Engineering
        Unit 1: Definition – Classification of Indian Railways
        Unit 2: Rails
        Unit 3: Sleepers and ballast
        Unit 4: Track fixtures, fastenings and plate laying
        Unit 5: Maintenance of track
BLOCK 4 Railway Constructions
        Unit 1: Points and Crossings
        Unit 2: Stations and yards
        Unit 3: Station equipments
        Unit 4: Signaling & Interlocking
BLOCK 5 BRIDGES
        Unit 1: Bridge definition – Components and Classification of a bridge
        Unit 2: Site selection and alignment
        Unit 3: Foundation
        Unit 4: Substructure & Superstructure

Books :
1. Principles and Practice of Highway Engineering by Kadiyali L R, , Khanna Technical Publications, Delhi
2. Highway Engineering by Khanna K and Justo C E G, Khanna Publishers, Roorkee,
3. Introduction to Transportation Engineering by Banks, TMH
4. IRC Standards (IRC 37 - 2001 & IRC 58 -1998)
5. Highway Materials by Bureau of Indian Standards (BIS) Publications
6. A Course in Railway Engineering by Saxena Subhash C and Satyapal Arora, Dhanpat Rai and Sons, New Delhi
7.Highways Engg by P.A. Krishnamoorthy
8. Railway Engineering by Rangwala, Charotar Publishing House
9. A course in Railway Track Engineering by J.S. Mundrey
10. Roads, Railways & Bridges by T.D. Ahuja & G.S.Birdi

Subject Code   : CE403
Subject Title   : Interior Design
Structure of the Course Content
BLOCK 1   Introduction to interior design
     Unit 1: Definition of interior design &   Elements and Principles
     Unit 2: Interior design typologies
     Unit 3: Themes and Concepts
     Unit 4: Colors
BLOCK 2   Elements of interior design
     Unit 1: Ceiling – Walls, flooring – Fenestrations
     Unit 2: character aesthetic and psychological.
     Unit 3: method of treatment in terms of material
     Unit 4: construction to express functional aesthetics
BLOCK 3   Lighting
     Unit 1: Artificial and natural lighting
     Unit 2: Different types of lighting and their effects
     Unit 3: Requirement of light for specific purpose
     Unit 4: Locating lighting points in interiors and planning electrical layouts
BLOCK 4   Finishes and decorative accessories
     Unit 1: Carpets & Rugs
     Unit 2: Wall papers, Valances & Painting
     Unit 3: Murals & Sculpture
     Unit 4: Plants, Fountains & Wall hanging
BLOCK 5   Furniture
     Unit 1: Furniture design as related to human comfort, functions
     Unit 2: Methods of construction
     Unit 3: Materials
     Unit 4: Innovations and design ideas
Books :
1. Designing and decorating interiors by David Van Dommalan
2. National Building code of India - B.I.S
3. Time-saver standard building types – Callendar
4. Architectural graphic standards by Ramsey & Sleeper
5. Human Dimension & Interior space by Julius Panero
6. Interior Design Illustrated by Frank D.K. Ching

Subject Code : CE404
Subject Title : Water resource management
Structure of the Course Content
BLOCK 1 Water resources
     Unit 1: Importance of water resources
     Unit 2: purpose water budget
     Unit 3: India's water resources
     Unit 4: factors involved in water resources management
     Unit 5: Hydralogy
BLOCK 2 Ground water
     Unit 1: Ground water resources- Factor affecting resources
     Unit 2: Darcy's law
     Unit 3: Evaluating ground water resources
     Unit 4: Flood risk zone mapping - identification of ground water potential zones
     Unit 5: Applications of gis
BLOCK 3 River
     Unit 1: River basin management
     Unit 2: River training works
     Unit 3: Storages works
     Unit 4: gates
BLOCK 4 Irrigation water management
     Unit 1: components of water management
     Unit 2: cropping pattern
     Unit 3: types of canals - distribution system of canals
     Unit 4: Necessity -types of lining
BLOCK 5 Water shed management
     Unit 1: Soil and water conservation
     Unit 2: conservation technology
     Unit 3: definition-purpose control of gullies.
     Unit 4: Water harvesting and recycling
Books :
1. Hydrology and water resources engineering by Santhosh Kumar, Garg
2. Irrigation Engineering by R.K.Sharma, T.K.Sharma
3. Water Resources Engineering by Ralph A.Warbs, Wesley P.James
4. Ground water Hydrology by Raghunath H.M
5. Irrigation water management by Dilip Kumar Majumdar, Prentice hall of India
6. Water shed Management by V.Vdhruva Narayana, C.Sastry, V.S.Patnaik
7. Principles of GIS for land resources assessment by P.A.Burrougu, Oxford publications
8. Remote sensing method and applications by Michael Hord R,John Wey and sons

Subject Code   **: CE405**
Subject Title   **: CAD IN CIVIL ENGINEERING DRAWING LAB - I**

Structure of the Course Content

Preparation of drawing using available Software Packages (AUTOCAD, Pro.E etc.)

1. Introduction of Software Packages available for Preparation of Drawings Definition of

various commands used in Software package. Simple Exercises for familiarizing the

drawing commands in software Package (AUTOCAD, Pro-E etc.)

2. Draw the Given drawings in Computer and take print out of all drawings in A4

sheet using INKJET/LASER PRINTER or PLOTTER and produced in file forms as

regard.

2.1 Section of semicircular Arch

2.2 Elevation of door partly paneled and partly glazed

2.3 Preparation of Plan showing arrangement of furnishers/fixtures and other futures

with standard sizes for the followings (Each room to be drawn separately-futures and

furniture's may be pasted from the Blocks available in the packages)

(i) Living (ii) Bed Room (iii) Kitchen (iv) Toilet

2.4 Steel Structures : Cross section of, I , Channel, T , Angle and Tubular section,

Compound Beam and Plate Girder

2.5 Section of Load bearing wall from parapet to foundation Partly showing all the

details across the section.(Single storey)

2.6 Plan, Section and Elevation of single bed roomed building (R.C.C. Roof)

2.7 Plan, Section and Elevation of Double bed roomed building (R.C.C. Roof)

2.7 Plan, Section and Elevation of a Primary School Building

2.8 Plan, Section and Elevation of a Hospital Building

2.9 Small Workshop with steel column, Steel roof truss and Metal sheet Roofing

2.10 Preparation of approval drawing to be submitted to Corporation or Municipality

Subject Code   : CE406

Subject Title   : SURVEY Lab II

Structure of the Course Content

1. Theodolite

1.1 Setting up of Theodolite – Temporary Adjustment – Reading horizontal angles
1.2 Measurement of horizontal angle:
a. By reiteration method (not for Exam)   b. By repetition method (not for Exam)
1.3 Determination of distance between two points when their base accessible using Theodolite by measuring Horizontal angles by repetition method and distances from a Thedolite Station.
1.4 Determination of distance between two points when their base inaccessible using Theodolite by measuring Horizontal angles by reiteration from a baseline.
1.5 Closed Theodolite Traverse measuring included angles.
1.6 Measurements of vertical angles Height of the object when the base is accessible
1.7 Reduced Level of Top of an object when the base is inaccessible
a) Single plane method   b) Double plane method

2. Tacheometry

2.1 Determination of constants of a tacheometer
2.2 Determination of distance and elevation of a point by Tacheometric observations
2.3 Determination of gradient between two points of different elevations by stadia tacheometry
2.4 Tangential tacheometric observation

3. Total Station
3.1 Study of Total Station
3.2 Measurement of distance and co-ordinates of given points minimum 6 points
3.3 Measurement of altitude of given elevated points
3.4 Traverse and plotting using Total Station (Local Points)

Subject Code   **: CE501**
Subject Title   **: STRUCTURAL ENGINEERING**
Structure of the Course Content
BLOCK 1   REINFORCED CONCRETE
Unit 1: Concept of Composite material
Unit 2: Introduction to working stress method
Unit 3: Introduction to limit state method
Unit 4: Design of beams for flexure by l.s.m
BLOCK 2   Designs of Beams
Unit 1: Design of t-beams
Unit 2: Continuous Beams by L.S.M
Unit 3: Design of beams for shear by L.S.M
Unit 4: simple problems- use of design aids
BLOCK 3   Design of Slab
Unit 1: Design of one way slabs by L.S.M
Unit 2: Design of two way slabs by l.s.m
Unit 3: Design of staircases by l.s.m
Unit 4: Problems
BLOCK 4   Columns
Unit 1: Design of columns by l.s.m
Unit 2: Design of axially loaded short columns with lateral ties / helical reinforcement
Unit 3: Design of column footings.
Unit 4: Problems on Design of Size of Footing and area of steel only
BLOCK 5   STEEL STRUCTURES
Unit 1: Design of Simple Beams
Unit 2: Design of Tension Members
Unit 3: Design of Compression Members
Unit 4: Design of Welded Connections

Books :
1. Limit state Theory and Design of Reinforced Concrete by S.R.Karve and V.L.Shah, Pune Vidya Griha Prakashan
2. Limit state Design of Reinforced Concrete by P C Varghese,Prentice-Hall of India Pvt Ltd
3. Limit State Design of Concrete Structures by Dr.S.Ramachandra, Scientific publishers
4.Railway Track Engineering by Mundrey, Tata McGraw Hill
5. Structural Analysis: A Matrix Approach by Pandit, TMH
6. Basic Structural Engineering by Ponnusamy, Tata McGraw Hill
7. Earth Quake Analysis & Design of Structure by Rajasekaran, TMH
8. Basic Structural Analysis by Reddy, Tata McGraw Hill

Subject Code   **: CE502**
Subject Title   **: QUANTITY SURVEYING**
Structure of the Course Content
BLOCK 1   Estimate
       Unit 1: Terms & Definition
       Unit 2: Approximate Estimates
       Unit 3: Measurements & Material Requirement
       Unit 4: Specification & Report Writing
BLOCK 2   Data Preparation & Analysis
       Unit 1: Main & Sub data – Observed data
       Unit 2: Preparation of data using standard data and schedule of rates
       Unit 3: Rate Analysis Brick, stone masonry and Lime concrete
       Unit 4: Plumbing and sanitary works in buildings.
BLOCK 3   Estimation
       Unit 1: Stages Of Detailed Estimate
       Unit 2: Group System
       Unit 3: Process Of Writing
       Unit 4: Abstracting And Billing
       Unit 5: Taking Off Quantities
BLOCK 4 Preparation of Estimation
       Unit 1: A small residential building with two / three rooms with RCC roof.
       Unit 2: Two Storied building (framed structure) with RCC roof
       Unit 3: Industrial buildings with AC/GI sheet roof with steel trusses.
       Unit 4: Septic tanks with dispersion trench / soak pit
       Unit 5: R.C.C slab culvert
BLOCK 5   Valuation & Rate Calculation
       Unit 1: Types and Purpose of Valuation
       Unit 2: Problems on valuation
       Unit 3: Fixation of Rent
       Unit 4: Problem of rent calculation

Books :
1. Civil Estimating, Casting and Valuation by Kalson Publication Ludhiuyana.
2. Estimating & Casting by Rangawala, Charotor Publishing
3. Quantity surveying & Valuation by N.A.Shaw, Khana Publishers
4. IS Code of Practice – IS 1200
5. Quantity Surveying by PL Bhasin, S. Chand & Co
6. Estimating and Costing by L.N.Dutta, Dhanpat Rai & sons
7. Estimating and Costing by Bridie
8. Estimating and Costing by Vazirani & Chandolu
9. Surveying and Levelling by Basak, TMH

Subject Code   : CE503
Subject Title   : CONCRETE TECHNOLOGY & CONSTRUCTION
Structure of the Course Content
BLOCK 1   Concrete Material
      Unit 1: Composition and properties of cement
      Unit 2: Fresh Concrete
      Unit 3: Admixtures
      Unit 4: Special concrete
BLOCK 2   Design of Concrete
      Unit 1: concept of Mix design
      Unit 2: procedure I.S.Code method
      Unit 3: principle of pre stressing
      Unit 4: system of pre stressing
BLOCK 3   Building Safety
      Unit 1: Causes of fire in buildings
      Unit 2: Safety regulations
      Unit 3: Fire Safety Installation
      Unit 4: Earth Quake
      Unit 5: Proof Construction
BLOCK 4   Piles Foundation
      Unit 1: Definition-Problems encountered in deep excavations
      Unit 2: Pumping, Provision of sumps
      Unit 3: types of piles
      Unit 4: load bearing piles
      Unit 5: causes of failure of piles
BLOCK 5   Defects and Rehabilitation in Buildings
      Unit 1: Major causes of defects in buildings
      Unit 2: Weathering course
      Unit 3: Cracks in Buildings
      Unit 4: Repair techniques
Books :
1. Concrete Technology by M.S. Shetty , S.Chand & Co,New Delhi
2. Fire Resistant Construction by S.P.Arora and S.P.Bindra, Dhanpat Rai & sons
3. Concrete by Gambhir, TMH
4. Prestressed Concrete by Krishna Raju, Tata McGraw Hill
5. Reinforced Concrete Design by Pillai, TMH
6. Construction Project Management Plan by Chitkara, Tata McGraw Hill
7. National Building Code of India, Part-IV and VII
8. Advances in Building Materials and Construction by Rai Mohan and Jai Singh.M.P, CBRI Roorkee
9. Hand Book on concrete Mixes based on Indian standards
10. Earth quake Proof Building Construction by Dr.Janardhanjha and Prof.Suresh kunar Sinha

Subject Code : CE504
Subject Title : Environmental Engineering
Structure of the Course Content
BLOCK 1   Water
       Unit 1: Water Supply
       Unit 2: Quantity of water
       Unit 3: Collections and conveyance of water
       Unit 4: Quality of water
BLOCK 2   Water Treatments
       Unit 1: Layout of treatment plants
       Unit 2: Filtration
       Unit 3: Treatment processes
       Unit 4: Distribution system
BLOCK 3   Collections and conveyance of sewage
       Unit 1: Definition of terms
       Unit 2: physical and chemical bacteriological BOD, COD
       Unit 3: Estimation of quantity of sewage – problems
       Unit 4: Laying of sewers lines & Sewage pumps
BLOCK 4   Treatments and disposal
       Unit 1: Treatment of sewage
       Unit 2: sedimentation
       Unit 3: Septic tanks
       Unit 4: Disposal of Septic Tank effluent
BLOCK 5   Environmental pollution and control
       Unit 1: Industrial waste
       Unit 2: Treatment Processes
       Unit 3: Water pollution
       Unit 4: Land Pollution
       Unit 5: Control of Air Pollution

Books:
1. Water supply and Sanitary Engineering by S.K. Garg, Kanna publishers, Delhi
2. Water supply and Sanitary Engineering by K.S. Rangwala
3. Water supply and Sanitary Engineering by G.S. Birdie and JS. Birdie, Dhanpat rai Publishers
4. Environmental Studies by Suresh K.Dhamija, S.K.Katarial Sons Delhi
5. Industrial waste water treatment by Rao & Dutta
6. Air pollution by M.N. Rao & H.V. Rao, Tata Mcgrawhill Publishing Company
7. Environmental Engineering by Basak, TMH
8. Principle of Environmental Science by Cunningham, Tata Mcgrawhill Publishing Company
9. Introduction to Environmental Engineering by Davis, TMH
10. Environmental Engineering –I: Water supply Engineering by Dr.B.C.Punmia, Ashok Kumar Jain & Arun Kumar Jain

Subject Code   : CE505
Subject Title   : CAD IN CIVIL ENGINEERING DRAWING LAB –II

Structure of the Course Content

Preparation of drawing using available Software Packages (AUTOCAD, Pro.E etc.)

Group 'A' (Ph Engineering Drawing)

1. Infiltration gallery (with one infiltration well, one straight gallery pipe, one inspection well and one jack well).{Practice Only}
2. Rapid Sand Filter.
3. Septic Tank with dispersion Trench/ Soak pit.
4 Bio gas plant. (Floating type)
5 R.C.C square overhead tank supported by four columns.

Group 'B' (Bridge Drawing)

1. R.C.C Slab Culvert with splayed wing walls.
2. Two span Pipe Culvert.
3. Two span Tee Beam Bridge with square returns.(Practice Only)
4. Road Over Bridge(Pile foundation, Pile Gap ,Column,
5. Pre cast Beams & Deck slab) – {Practice Only}

Group 'C' (Structural Engineering Drawings With Bar Bending Schedule)

Standards as per IS 456 – 2000 – Reinforcement requirement – Curtailment – Anchorage-
Cover - Development length – Minimum depth required – Joints – Slab to Beam – Beam to Column.
1 Simply supported one-way slab.
2 Simply supported two-way slab.
3 Restrained two-way slab.
4 Singly reinforced beam./ Doubly reinforced beam.
5 Tee Beams supporting continuous slab (practice only).
6 Dog-legged staircase.
7 Lintel and Sunshade (practice only)\

Subject Code : CE506
Subject Title : CONSTRUCTION LAB

Structure of the Course Content
1. Prepare and developing a centre line plan and foundation plan for a given line plan of a building.
2. Setting out spread footing foundation in the field for a given line plan of a building.
3. Setting out column and footing foundation in the field for a given line plan of a building (Framed structure)
4. Arrangement of bricks using English bond in one brick thick wall and one and half brick thick for right angled corner junction.
5. Arrangement of bricks using English bond in one brick thick wall and one and half brick thick wall for Tee-junction
6. Arrangement bricks using English bond in one brick thick, one and half and two brick thick square pillars.
7. Practice on measuring every day temperature in the Laboratory by setting standard Temperature measuring Devices in the Laboratory and separate register to be maintained in the Laboratory for temperature records for future reference. (For Demonstration purpose but it is Compulsory).
8. Setting of seismograph in the Laboratory and demo on measuring methods of Earthquake. (For Demonstration purpose but it is Compulsory)
9. Demonstration and practice in painting, varnishing and polishing.
10. Determination of workability of concrete by Slump cone test.
11. Determination of workability of concrete by Compaction factor test.
12. Casting of concrete cube and compression test on concrete cube.
13. Determination of Fineness Modulus of fine aggregate sample and plot a particle size distribution curve and also find the effective size and uniformity co-efficient
14. Determination of Fineness Modulus of coarse aggregate sample and plot a particle size distribution curve and also find the effective size and uniformity co-efficient
15. Determination of bulking characteristics of the given sand sample.
16. Cutting, Hooking, cranking and arrangement of reinforcement
a) Beam   b) Lintel and Sunshade   c) Column and footing.
17. Calculation of areas centering of the following: (Given sketch)
a) Roof slab with Beam   b) Column
18. Measurement Book – Procedure for entering in measurement book
19. Entering measurement for building works All the students should enter directly on measurement book and they should keep the entry for the following works independently in the measurement book including schedule rates for the respective work for the current year. Exercise from existing buildings inside the campus and only single room for each student.
a) Measurement and abstract for flooring work
b) Measurement and abstract for Brick work
c) Measurement and abstract for colour washing

Subject Code   **: CE601**
Subject Title   **: CONSTRUCTION MANAGEMENT**
Structure of the Course Content
BLOCK 1   Construction sector
      Unit 1: Construction sector in India
      Unit 2: Project feasibility report
      Unit 3: Planning for civil engineering project
      Unit 4: Contract management
BLOCK 2   Construction Organisations
      Unit 1: construction supervision and superintendence
      Unit 2: insurance
      Unit 3: Human factors in construction
      Unit 4: Departmental procedure and accounting
BLOCK 3   Scheduling & Resource management
      Unit 1: Scheduling
      Unit 2: time management
      Unit 3: Resource management
      Unit 4: Simple problem
BLOCK 4   Quality management and safety
      Unit 1: quality assurance techniques
      Unit 2: Construction distibutes and thier settlement
      Unit 3: Construction labour and legistation
      Unit 4: Entrepreneurship
BLOCK 5   Information and Financial management
      Unit 1: MIS
      Unit 2: Project management
      Unit 3: Elements of cash flow
      Unit 4: Global banking culture - types of banks
Books :
1. Construction Management and Planning by Sengupta.B, & H.Guha, Tata McGraw Hill Publishing Company Ltd., New Delhi.
2. Construction Engineering & Management by Seetharaman. S, Umesh Publications, Nai Sarak, New Delhi.
3. Computer Applications in Construction by Boyd.C. & Paulson Jr, Tata McGraw Hill Publishing Company Ltd., New Delhi
4. Construction Management by Sanga Reddy. S, Kumaran Publications, Coimbatore
5. Construction of Structures and Management of Works by Rangwala.S.C, Charotar Publishing House,Anand-388001
6.Construction Planning, Equipment and Methods by Peurifoy, TMH
7. Management Concepts for Civil Engineers by K.Anbuvelan, Lakshmi Publication Pvt Ltd
8. Project Planning and Control with PERT & CPM by Dr.B.C.Punmia and K.K.Khandelvel, Lakshmi Publication Pvt Ltd

Subject Code   : CE602
Subject Title   : HYDRAULICS
Structure of the Course Content
BLOCK 1   Property of Fluids
      Unit 1: Introduction
      Unit 2: Measurement of Pressure
      Unit 3: Hydrostatic Pressure on Surfaces
      Unit 4: Simple problems
BLOCK 2   Flow of Fluids
      Unit 1: Types of flow
      Unit 2: Flow through orifices and mouthpieces
      Unit 3: Flow through pipes
      Unit 4: Simple problems
BLOCK 3   Flow through Notches & Weirs
      Unit 1: Types of Notches
      Unit 2: Comparison of V-Notch and Rectangular Notch
      Unit 3: Classifications of weirs
      Unit 4: Franci's and Bazin's formula – Cippoletti weir
BLOCK 4   Flow through open channels
      Unit 1: Definition - Classification
      Unit 2: Chezy's formula, Bazin's formula and Manning's formula
      Unit 3: Flow in a venturiflume
      Unit 4: channels & Canals
BLOCK 5   Water Pump
      Unit 1: availability of ground water
      Unit 2: Classification of pumps
      Unit 3: Reciprocating pump & Centrifugal pump
      Unit 4: Priming of centrifugal pump , Jet pump & Deep well pump

Books :
1. Hydraulics, Fluid Mechanics and Hydraulic Machines by Dr. Jagadish Lal, Metropolitan Book Company, New Delhi
2. Hydraulics , Fluid Mechanics and Hydraulics Machines by P.N. Modi & S.M. Sethi , Standard Publishers , New Delhi
3. Hydraulics, Fluid Mechanics and Hydraulics Machines by S. Ramamirtham, Dhanpat Rai & Sons, New Delhi
4.Hydraulics & Hydraulic Machines by P. Sankaran
5. Hydraulics, Fluid Mechanics and Hydraulics Machines by R.S. Khurmi, S. Chand & Co, New Delhi
6. Fluid Mechanics by K.L.Kumar, Eurasa Publshing House , New Delhi
7. Fluid Mechanics by R.K. Bansal, Lakshmi Publications
8. Fluid Mechanics by Prof. S. Nagarathinam, Khanna Publishers, New Delhi
9. Hydraulics, Fluid Mechanics and Hydraulics Machines by K.R. Arora, Standard Publishers & Distributors , New Delhi
10. Hydraulics Vol. I & II by V.B. Priyani, Charotar Publishers, New Delhi

Subject Code   : CE603
Subject Title   : TOWN PLANNING
Structure of the Course Content
BLOCK 1   Town planning principles
>   Unit 1: Introduction
>   Unit 2: objects of town planning
>   Unit 3: Surveys
>   Unit 4: Zoning

BLOCK 2   Housing & Slums
>   Unit 1: Importance of housing-Demand for houses
>   Unit 2: Classification of residential buildings
>   Unit 3: Characteristics & Effects of slums
>   Unit 4: Resources for slum clearance programmes

BLOCK 3   Public buildings
>   Unit 1: Classification of public Buildings
>   Unit 2: Parks and play grounds
>   Unit 3: Master plan
>   Unit 4: Re-planning existing towns

BLOCK 4   Road & Traffic Management
>   Unit 1: Urban roads
>   Unit 2: Types of street systems
>   Unit 3: Traffic survey
>   Unit 4: Traffic control & Signal

BLOCK 5   Building bye-laws
>   Unit 1: Basic laws and its Functions -importance of bye-laws
>   Unit 2: laws for residential area of a typical town planning scheme
>   Unit 3: Airports
>   Unit 4: Remote sensing application

Books :
1. Town Planning by K.S.Rangwala and P.S.Rangwala, Charotar Publishing House
2. Remote sensing methods and application by Michael Hord, R., John Wiley and Sons, New York
3. National Building Code of India- Part-III
4. Municipal and Panchayat bye-laws, CMDA Rules and Corporation bye-laws
5. Urban and regional planning by KA. Ramegowda, University of Mysore
6. The urban pattern, city planning and design by M/s DVan
7. Time saver standards for site planning, Mc Graw Hill Book company
8. An Introduction to town and country planning by John Rate life, London
9. The art of home landscaping , Mc Graw Hill Book company
10. A Guide to site and Environmental planning by Harvey M. Rubenstain, Newyork

Subject Code : CE604
Subject Title : COMPUTER APPLICATION IN CIVIL
ENGINEERINGLAB

Structure of the Course Content

1. Using MS Excel carryout typical problems involving estimation, analysis and design
problems.
a. Prepare the Estimate sheet with Given data (provide all the measurement details) and calculate the Quantity using formula bar.
b. Prepare the Abstract Sheet for the given data and Calculate Amount and Total Amount using Formula bar.(use separate column for rates and units)
c. Design and Analysis problems in Excel
d. For Given Dimension of Masonry/R.C.C Dam ie. top width, bottom width, height of Dam , height of water, Sp.wt of masonry/R.C.C. , Sp.wt of Water etc,. Find the Base pressure and check the stability of the Dam.

2. Detailed drawing generation for given specification and Bar Bending Schedule using available R.C.C Detailing Package Only,for the following works.
.
Students should not draw drawings directly using AutoCad package they should use only available R.C.C Detailing packages.(Example: CADS RC: Reinforced Concrete Detailing Software with AutoCAD Environment, etc.,)
a. Cross section of a Lintel cum Sun Shade.
b. Plan and section of a column and Footing (square footing)
c. Plan and sectional view of One-Way slab.
d. Longitudinal Section and cross section of Singly Reinforced Beam.

3. Carry out the analysis and design of RCC structures (single storey buildings, school etc) using available Software Packages.(Struds on Windows, STADD PRO, CADS A3D.,etc)

4 Develop the CPM/PERT Network for the Proposed simple Building Project using MSProject.

Subject Code   **: CE605**
Subject Title   **: Project**