

Course Name : Diploma in Civil Engineering
 Course Code : DCE
 Semester : First
 Subject Title : Mathematics - I
 Subject Code : 131MA11a

Teaching & Examination Scheme

| Teaching Scheme | | | Paper Hours | Examination Scheme | | | | | | | | | | Total Marks | |
|-----------------|---|---|-------------|--------------------|-----|------|-------|-----|-------|-----|------|-----|----------|-------------|-----|
| L | T | P | | Theory | | Test | Total | | Pract | | Oral | | Termwork | | |
| | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | | Min |
| 3 | 2 | - | 3 | 80 | 32 | 20 | 100 | 40 | - | - | - | - | 25 | 10 | 125 |

Rationale:

Mathematics is the foundation stone for studies in all branches of Engineering. This subject helps students to develop logical thinking which in turn is useful in understanding the principles of all other subjects. Analytical and systematic approach towards any problem is developed by learning mathematics.

Objective:

1. To teach students basic facts, concepts and principles of mathematics as a tool to analyze engineering problems.
2. To make students well versed in the prerequisites for further studies in mathematics and engineering.

| Sr.No | Contents | L | M |
|-------------------|--|----|----|
| Section- I | | | |
| 1 | Binomial Theorem: 1.1 Concepts of Permutations and Combinations and problems based on ${}^n P_r, {}^n C_r$ 1.2 Binomial Theorem with positive integral index, general term, Binomial expansion for negative integral and fractional index. . | 08 | 10 |
| 2 | Determinants: 2.1 Determinant of order three. 2.2 Cramer's rule. 2.3 Properties of determinants. | 06 | 12 |
| 3 | Straight lines : 3.1 Equations of straight lines in different forms. 3.2 Angle between two straight lines, conditions for two parallel and perpendicular straight lines. | 05 | 08 |

| | | | |
|-------------------|--|-----------|-----------|
| 4 | Complex Numbers : 4.1 Definition of complex number, Elementary operations. 4.2 Argand's Diagram, Modulus, Amplitude, Polar form of a complex number. | 05 | 10 |
| Section-II | | | |
| 5 | Trigonometry : 5.1 Circular measure of an angle, Conversion from degrees to radians and radians to degrees. 5.2 Trigonometric ratios of angle in four quadrants. 5.3 Compound angle formulae. 5.4 Allied angle formulae. 5.5 Product formulae, Sum or difference formulae. 5.6 Multiple, submultiples angle formulae. 5.7 Inverse trigonometric functions. 5.8 Properties of triangle: sine rule, cosine rule. (without proof) | 16 | 28 |
| 6 | Matrices: 6.1 Matrices of order $m \times n$, types of matrices, equality of matrices, 6.2 Addition and subtraction of matrices, multiplication of matrices. 6.3 Transpose of matrix, adjoint of matrix, inverse of matrix, 6.4 Solution of simultaneous linear equations by adjoint method. | 08 | 12 |
| Total | | 48 | 80 |

Term Work:

Students shall submit at least ten assignments based on the above topics.

Reference Books:

- 1) Basic Mathematics - B.M.Patel, J.M.Rawal and others - Nirali Prakashan.
- 2) Mathematics for Polytechnic - S. P. Deshpande- Pune Vidyarthi Griha Prakashan.

Course Name : Diploma in Civil Engineering
 Course Code : DCE
 Semester : First
 Subject Title : Physics
 Subject Code : 131PH12

Teaching & Examination Schemes

| Teaching Scheme | | | Paper Hours | Examination Scheme | | | | | | | | | | | Total Marks |
|-----------------|---|---|-------------|--------------------|-----|------|-------|-----|-------|-----|------|-----|----------|-----|-------------|
| L | T | P | | Theory | | Test | Total | | Pract | | Oral | | Termwork | | |
| | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 4 | - | 2 | 3 | 80 | 32 | 20 | 100 | 40 | 25@ | 10 | - | - | 25 | 10 | 150 |

Practical Examination will be assessed by internal examiner. External examiner not required.

Rationale:

Various phenomena, principles, laws, rules discovered and invented by physics are used for industrial, engineering and technological applications. The overall growth of various engineering disciplines, namely, mechanical, electrical, electronics, civil and environmental and so on depends upon the development of physics and its detail understanding.

For sustainable socio-economic development of country research techniques in engineering are required. While identifying and solving any field problem, scientific facts and results should be considered; and in this process physics plays a pivotal role. Different branches and sub-branches of physics, viz, optics, properties of matter, heat & thermodynamics, electricity & electromagnetism and modern physics provide fundamental facts, laws and logical sequencing to streamline Civil engineering and technological problems related to Civil engineering applications.

Objectives:

Students should be able to;

- identify different systems of units and convert units from one system to other as well as conversant with practical units.
- estimate and minimize the errors.
- select proper measuring instrument considering least count, range and precision required.
- select appropriate materials required for a specific purpose by studying properties of materials.
- analyze the relation between pressure, volume and temperature of gas and the behavior of gas.
- identify good and bad conductors of heat needed for a given task.
- identify the phenomena of interference, diffraction and polarization of light and its industrial applications.
- use the properties of laser, x-rays and photoelectric effect for various engineering applications.
- identify, analyze, discriminate and interpret logical sequence of field problems with the study of physics.

Syllabus

Part I:- Theory

| No | Contents | L | M |
|----|---|----|----|
| | Section-I | | |
| 1 | <p>1. Measurements</p> <p>1.1 Units Necessity of measurement, concept of unit of a physical quantity, requirements of standard unit, Various system of units (CGS, MKS, SI, FPS), conversions, practical units, fundamental and derived physical quantities and their units.</p> <p>1.2 Errors Accuracy, precision of instruments, errors, types of errors, minimization of errors, significant figures, problems</p> <p>1.3 Measuring instruments vernier caliper, dial caliper, micrometer screw gauge, spherometer, thermometer, galvanometer, voltmeter, ammeter with least count and range, errors in them and correction to it.</p> | 10 | 12 |
| 2 | <p>2. Properties of matter</p> <p>2.1 Elasticity Deformation, restoring force, stress, strain, Hooke's law, Moduli of elasticity (Young, bulk and rigidity), relation between them, problems, stress-strain diagram for some materials (steel, aluminium, cast iron, concrete), breaking stress, factor of safety.</p> <p>2.2 Viscosity Newton's law of viscosity, coefficient of viscosity, unit, streamline and turbulent flow, critical velocity, Reynold's number, problems, Stokes' law, determination of viscosity, factors affecting viscosity.</p> <p>2.3 Surface tension Cohesive and adhesive forces, angle of contact, surface tension, capillary action, problems, factors affecting surface tension.</p> | 10 | 12 |

| | | | |
|-------------------|--|-----------|-----------|
| 3 | <p>Optics</p> <p>3.1 Wave theory of light Huygen's theory, wavefronts, wavenormals, laws of reflection and refraction, total internal reflection, dispersion, angle of deviation, problems</p> <p>3.2 Interference and diffraction Principle of superposition, constructive and destructive interference, conditions to obtain steady interference pattern, Young's double slit experiment, diffraction, single slit and many slits diffraction, grating, applications, problems.</p> <p>3.3 Polarization Polarized and unpolarized light, qualitative treatment of polarizer and analyzer, polarimeter, applications</p> | 12 | 16 |
| Total | | 32 | 40 |
| Section II | | | |
| 4 | <p>4.1. Gas laws and specific heats Boyle's law, Charle's law, Gay-Lussac's law, Kelvin scale of temperature, general gas equation, universal gas constant, N.T.P., principal specific heats and relation between them, problems.</p> <p>4.2 Heat transmission Expansion, heat transmission and laws of thermodynamics Expansions of solids—linear, aerial and cubical, relation between them, modes of transmission of heat, coefficient of thermal conductivity, good and bad conductors and applications, Searle's and Lee's method, laws of thermodynamics, isothermal, isobaric, isochoric and adiabatic processes, problems</p> | 10 | 12 |
| 5 | <p>5. Electricity and Electromagnetism</p> <p>5.1 Coulomb's Law, Electric Field and Electric Potential. Ohm's law, resistance, conductance, resistivity, conductivity, series and parallel combination of resistors, problems, Wheatstone's bridge, meter bridge, potentiometer, comparison of emf of cells, internal resistance of cell, heating effect of electric current.</p> <p>5.2 Oersted experiment, magnetic field, magnetic flux, magnetic flux density, Biot-Savart law, magnetic field near straight conductor, at the centre of current carrying coil, problems, force experienced by current carrying conductor, force between two current carrying conductors</p> | 12 | 16 |
| 6 | <p>6. Modern Physics</p> <p>6.1 X-rays Production of x-rays, continuous and characteristic x-rays, properties and applications of x-rays, problems, Moseley's law and its importance.</p> <p>6.2 Photoelectric effect Photoelectric effect, laws and characteristics of photoelectric effect, Einstein's photoelectric equation, problems, construction, working and applications of photocells</p> | 10 | 12 |

| | | | |
|--|--|-----------|-----------|
| | 6.3 Laser Spontaneous and stimulated emission, population inversion, pumping, lasing, properties and applications of laser, helium-neon laser and its applications, holography and its applications | | |
| | Total of Section II | 32 | 40 |
| | Total of Section I & II | 64 | 80 |

List of Laboratory experiments (10 experiments should be performed)

1. Use of vernier caliper and screw gauge.
2. Specific resistance using Ohm's law
3. Use of meter bridge
4. Use of potentiometer
5. Determination of Surface Tension
6. Viscosity by Stokes' method
7. Determination of wavelength of laser using diffraction grating.
8. Determination of thermal conductivity of bad conductor with Lee's method
9. Determination of thermal conductivity of good conductor with Searle's method
10. Determination of refractive index of glass with Snell's law

Term Work:

Students shall submit the journal for above listed experiments explaining procedure, observations, calculations, result & conclusions.

Text Book: -

Engineering Physics by Gaur R. K. and Gupta S. L., Dhanpat Rai Publications, New Delhi, Eighth Edition, 2001.

References:-

1. Fundamentals of Physics Extended, By Halliday D., Resnik R. and Walker, Wiley – India, New Delhi, Eighth Edition, 2008.
2. Physics for scientists and Engineers by Serway R. A. and Jewett, Jr. J. W., Thomson Learning (Indian reprint), New Delhi, Sixth Edition, 2007.

Course Name : Diploma in Civil Engineering
 Course Code : DCE
 Semester : First
 Subject Title : Communication Skills- I
 Subject Code : 131HM13x

Teaching & Examination Scheme

| Teaching Scheme | | | Paper Hours | Examination Scheme | | | | | | | | | | | Total Marks |
|-----------------|---|---|-------------|--------------------|-----|------|-------|-----|-------|-----|------|-----|-----------|-----|-------------|
| L | T | P | | Theory | | Test | Total | | Pract | | Oral | | Term work | | |
| | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 3 | 2 | - | 3 | 80 | 32 | 20 | 100 | 40 | - | - | - | - | 25 | 10 | 125 |

Rationale:

Technicians in industry require in grammatically correct written and oral communication. In order to develop the abilities in students a text has been introduced. The tutorials have been incorporated to provide practice to the students to develop writing skills. Further exercises have been included for improving written and oral communication, apart from the basic grammar topics.

Objectives:

Developing the skills of comprehension of passages, building vocabulary and ability to express through oral and written communication, improving skills of composition, and helping them formulate grammatically correct sentences and express ideas effectively.

Learning Structure

Application:

To enable students to comprehend the meaning of new words, use grammar to write correct answer to the questions and develop paragraphs

Procedure:

1. Technique of providing responses to short and long questions
2. Technique of application of grammar
3. Procedure for writing paragraphs
4. Technique of referring to dictionary and thesaurus

Principles:

1. Principles of formation of sentences
2. Principles of identification of various aspects of grammar
3. Principles to develop the theme of paragraph

Concepts:

1. Concept of comprehending the text
2. Concept of Time
3. Concept of classifying types of paragraphs

Facts:

1. Content of the text
2. Part of speech: Tenses, Verbs etc.
3. Topic sentences

Cotents: Theory

| Name of Topic | Hours | Marks |
|--|-------|--|
| Section I | 48 | |
| Part I: Text - Communication Skills-I compiled by Mrs. R. Thomas *Vocabulary-Understanding meaning of contextual words - Understanding the passage, discussing the theme and expressing it appropriately Answering short questions Descriptive answers to judge comprehension as well as the ability to express * Identifying parts of speech to improve day to day oral communication Paragraph Writing/ Short composition- How to write a paragraph /short composition (Exercises given in assignment 4) | | 15 10 |
| Total of section I | | 40 |

Section II

| Name of topic | L | M |
|--|---|-----------|
| Part II: Application of Grammar <ul style="list-style-type: none"> • Verbs: Subject –verb- agreement • Using appropriate Tenses according to the suitability and time elements(correction of tenses in paragraphs written by students) • Correction of commonly misspelled words • Identifying Common errors in English language | | 15 |
| Part III: Comprehension | | 10 |
| Part IV: Vocabulary Building <ul style="list-style-type: none"> • Use of synonyms/ antonyms/ homonyms /homophones/ One word substitute • Idioms /phrasal verbs Technical vocabulary (usage of appropriate technical words in a passage) | | 15 |
| Total of section II | | 40 |
| Total of Section I & Section II | | 80 |

Term work will consist of 16 assignments.

Skills to be developed

Intellectual Skills:

1. Skills of Speaking correct English
2. Exploring details and its application.
3. Reporting Skills and expressing effectively

Motor Skills:

1. Use of appropriate body language
2. Diction and Enunciation

Listening Skills:

1. Skills of listening and Comprehension

List of Assignments:

1. Building Vocabulary – (14 hrs – 7 assignments)
 - 20 words for each assignment of synonyms/ antonyms/ homonyms /homophones/ One word substitute
 - 20 idioms /phrasal verbs
2. Grammar – (10 hrs – 5 assignments)
 - Subject –verb agreement
 - Tenses
 - Correction of tenses in the passages written by students.
 - Usage of appropriate spellings
 - Errors in English
Find out the errors and rewrite the sentences given by the teacher. (20 sentences)
3. Write paragraphs/ short composition on given topics (4 hrs)
 - Engineers – Nation Builders
 - An unforgettable incident
 - Narrate your long term goal in life.
 - Biography of a person who inspired you.
4. 2 Passages for comprehension (4hrs)

Learning Resources:

Text Book: Communication Skills I- Compiled by Mrs. Thomas, H&M Dept

Reference Books:

1. Contemporary English grammar, structure and composition, Green David, Macmillan, India, 1st edition, 2000.
2. English grammar and composition, R. C. Jain, Macmillan, India, 1st edition, 2005.
3. Thesaurus, Rodgers, Oriental Longman
4. Dictionary, Oxford, Oxford University
5. Dictionary, Longman, Oriental Longman
6. English for Practical purposes, Patil Z. N. et al, Macmillan, India, 2004
7. English at Workplace, Sanyal Mukti, Macmillan, India

Course Name : Diploma in Civil Engineering
 Course Code : DCE
 Semester : First
 Subject Title : Construction Materials
 Subject Code : 131CE14

Teaching & Examination Scheme

| Teaching Scheme | | | Paper Hours | Examination Scheme | | | | | | | | | | | Total Marks |
|-----------------|---|---|-------------|--------------------|-----|------|-------|-----|-----------|-----|------|-----|-----------|-----|-------------|
| L | T | P | | Theory | | Test | Total | | Practical | | Oral | | Term work | | |
| | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 4 | 2 | - | 3 | 80 | 32 | 20 | 100 | 40 | - | - | - | - | 50 | 20 | 150 |

Rationale: Knowledge of basic construction materials is essential for Civil engineering students. Hence main objective of this subject is to highlight the uses, properties & tests on various materials.

Objective: At the end of this course students will be able to

- Sources, Composition and properties of construction materials
- Manufacturing methods and testing of construction materials
- Utility in various fields of engineering and its applications.

| Sr.No. | Contents | L | M |
|---------------------------|---|-----------|-----------|
| Section - I | | | |
| 1 | Introduction: Physical and mechanical properties of Building Materials | 03 | 04 |
| 2 | Building Stones: Origin, Uses of stones, Characteristics of good building stone, Testing of stone, Dressing of stones, Selection of stones, Common building stones, Application of stones. | 07 | 07 |
| 3 | Bricks: Manufacturing, Classification, Characteristics of good brick, Testing of Bricks, Defects of brick. | 07 | 05 |
| 4 | Aggregate: Classification of Aggregates, Properties and Uses | 02 | 04 |
| 5 | Lime: Sources, Properties, Classification, Slacking of Lime, Storage of Lime. | 03 | 04 |
| 6 | Cement : Manufacturing, Chemical constituent of cement, Properties, Field Testing of cement, Storage of cement | 05 | 08 |
| 7 | Wood and Wood based products: 7.1 Classification of Timber, Characteristics of good timber, Seasoning of timber, Defects in Timber, Suitability of Timber for specific uses. 7.2 Wood based products: Veeners, Plywood, Fibre Board, Particle board, and Block board, Batten Board and Lamin Board, Application of wood based products. | 05 | 08 |
| Total of Section I | | 32 | 40 |
| Section II | | | |

| | | | |
|----|---|-----------|-----------|
| 8 | Glass and Plastics: 8.1 Glass: Constituents, Classification of glass and its commercial forms. 8.2 Plastics:Types of plastics,Application of plastics | 05 | 08 |
| 9 | Tar, Bitumen and Asphalt: 9.1 Introduction to Tar, Bitumen and Asphalt and their properties,Uses. 9.2 Comparison of Tar, Bitumen and Asphalt. | 04 | 05 |
| 10 | Pozzolanas: 10.1 Introduction, Classification, Activity of Pozzolana. 10.2 Intoduction to various pozzolanas such as Flyash, Ground blast furnace slag, Silica Fume, Rice Husk ash. | 05 | 05 |
| 11 | Water: Introduction, Quality of mixing water, Effect of mixing water from different sources, Water for washing aggregates. | 03 | 05 |
| 12 | Ferrous and Non Ferrous Metals: 12.1 Ferrous Metal: Introduction to Iron,Pig iron,Wrought Iron,Cast Iron. Reinforcing steel bars: HYSD and TMT bars, Rusting and Corrosion. 12.2 Non Ferrous metals: Brief overview of non ferrous metals such as Alluminium,Copper,Zinc,Lead,Nickel,Tin | 06 | 07 |
| 13 | Paints,Enamels and Varnishes: 13.1 Paint: Definition, Characteristics of an ideal paint, Preparation. 13.2 Distemper: Definition and characteristics 13.3 Varnishes: Definition and types 13.4 Enamel | 05 | 06 |
| 14 | Smart and Composite materials: Manufacturing, Properties, and uses. | 04 | 04 |
| | Total of Section II | 32 | 40 |
| | Total of Section I & II | 64 | 80 |

Tutorials:

1. Describe with sketches different stages of brick manufacture.
2. Describe with sketches the process of manufacture of good Portland cement.
3. Explain the term “bulking of Sand”
4. Describe IS sieves.
5. Assignments (8) on above topics.

Termwork:

Students shall submit at least ten assignments based on the above topics & tutorial work.

Learning Resources:

Text Books:

Engineering Materials by R.K. Rajput. Edition: 3rd Revised, Publisher: S Chand & Company Ltd, New delhi-110055

Reference Books:

Building Materials by S.K.Duggal. Edition: 3rd Revised, Publisher: New Age International (P) Ltd, New Delhi 110002.

Course Name : Diploma in Civil Engineering
 Course Code : DCE
 Semester : First
 Subject Title : Basic Workshop Practice- I
 Subject Code : 131ME15

Teaching & Examination Scheme

| Teaching Scheme | | | Paper Hours | Examination Scheme | | | | | | | | | | | Total Marks |
|-----------------|---|---|-------------|--------------------|-----|------|-------|-----|-------|-----|------|-----|----------|-----|-------------|
| L | T | P | | Theory | | Test | Total | | Pract | | Oral | | Termwork | | |
| | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | 50 | 20 | 50 |

Rationale:

Mechanical / Electrical / Electronics / Civil / Textile Manufacturing / Technical Chemistry Engineering Diploma student is expected to know basic workshop practice like Wood working and hot working processes. The students are required to identify, operate and control various machines. The students are required to select and use various tools and equipments related to Wood working and smithy processes.

Objectives:

The student will be able to

- Know basic workshop processes.
- Read and interpret job drawing.
- Identify, select and use various marking, measuring, holding, striking and cutting tools & equipments.
- Operate, control different machines and equipments.
- Inspect the job for specified dimensions.
- Produce jobs as per specified dimensions.
- Adopt safety practices while working on various machines.

| Sr.No. | Contents | L |
|--------|--|---|
| 01 | Engineering Materials: Introduction. Different types of ferrous and non-ferrous materials. Properties of Engineering materials. Lathe Machine: Introduction. Various operations performed on Lathe machine. Main parts of Lathe machine | 5 |
| 02 | Carpentry Shop: Introduction. Various types of woods. Different types of tools, machines and accessories. | 2 |
| 03 | Fitting Shop: Introduction Various marking, measuring, cutting, holding and striking tools. Different fitting operation like chipping, filing, right angle, marking, drilling, tapping etc. | 3 |

| | | |
|----|---|---|
| | Working Principle of Drilling machine, Tapping dies, its use. Safety precautions and safety equipments. | |
| 04 | Welding shop: Introduction. Types of welding, ARC welding, Gas welding, Gas Cutting. Welding of dissimilar materials, Selection of welding rod Material, Size of welding rod and work piece | 3 |
| 05 | Smithy Shop: Introduction. Different forging processes like shaping, caulking, fullering, setting down operations etc. Safety precautions and safety equipments. | 3 |

| Sr.No. | List of Practicals |
|--------|--|
| 01 | Carpentry Shop: Demonstration of different wood working tools / machines One simple job involving any one joint like mortise and tenon, dovetail, bridle, half lap etc. |
| 02 | Welding Shop: Demonstration of different welding tools / machines. Demonstration of Arc Welding, Gas Welding, Gas Cutting an One simple job involving on welding |
| 03 | Smithy Shop: Demonstration of different forging tools and Power Hammer. One job like hook peg, flat chisel or any hardware item. |
| 04 | Fitting Shop: Demonstration of different fitting tools and drilling machines and power tools. One simple fitting job involving practice of chipping, filing, drilling, tapping, cutting etc. |

Text Books:

1. Mechanical Workshop Practice-K.C.John-PHI Learning Pvt Ltd. EEE 2010.

Reference Books:

1. B.S. Raghuwanshi- Workshop Technology – Dhanpat Rai and sons, New Delhi, Ninth Edition 2002
2. S.K. Hajra Chaudhary- Workshop Technology Vol I & II – Media Promoters and Publisher, New Delhi. Eighth Edition 1986

Course Name : Diploma in Civil Engineering
 Course Code : DCE
 Semester : First
 Subject Title : Engineering Graphics- I
 Subject Code : 131ME16

Teaching & Examination Scheme

| Teaching Scheme | | | Paper Hours | Examination Scheme | | | | | | | | | | | Total Marks |
|-----------------|---|---|-------------|--------------------|-----|------|-------|-----|-------|-----|------|-----|----------|-----|-------------|
| L | T | P | | Theory | | Test | Total | | Pract | | Oral | | Termwork | | |
| | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 2 | - | 3 | - | - | - | - | - | - | 50 | 20 | - | - | 50 | 20 | 100 |

Practical Examination will be assessed by internal & external examiner.

Rationale:

This subject aims at making the students understand the fundamentals of Engineering Graphics which is a language used by Engineers for developing & expressing ideas & conveying the instructions which will be used to carry out jobs in the field of engineering.

At the first semester level the subject deals with drawing instruments & it's use, geometrical constructions, engineering curves, & orthographic projections, will be helpful in understanding the application of the subject in the industry. This subject will play very important role in designing, operation and maintenance areas of the existing and changing technological requirements of the modern world.

This course aims at building the foundation for further courses in drawing and other allied subjects.

Objectives:

The student will able to

- Understand the fundamentals of Engineering Graphics
- Read and interpret object drawings.

| Sr. No | Contents | L |
|--------|---|---|
| 1 | Drawing Instruments & their uses: 1.1 Letters & Numbers (Single stroke Vertical) 1.2 Convention of Lines & it's applications 1.3 Geometrical Constructions involving construction of tangential arcs | 4 |

| | | |
|---|--|----|
| 2 | <p>Engineering Curves</p> <p>2.1 Ellipse by following Methods</p> <ol style="list-style-type: none"> 1. Arcs of Circles Method 2. Concentric Circles method 3. Rectangle/Oblong Method 4. Eccentricity Method <p>2.3 Parabola by following Methods</p> <ol style="list-style-type: none"> 1. Eccentricity Method 2. Rectangle Method <p>2.4 Hyperbola by Eccentricity Method Rectangular Hyperbola</p> <p>2.5 Cycloid (Starting Point of the curve to be the point of contact at the beginning)</p> <p>2.6 Involute of a circle (Full Involute only) Involute of a regular polygon</p> <p>2.8 Helix on a cylinder</p> | 6 |
| 3 | <p>Projections of points & straight Lines: Reference Planes of projections – HP, VP & PP Orthographic projections of points, Projections of Straight Lines with lines inclined to both the reference planes.(Lines to be considered in first quadrant only. Simple problems excluding HT & VT of a line)</p> | 6 |
| 4 | <p>Projections of Planes : Projections of circular, square, rhombus, triangular, regular pentagonal & hexagonal plane surfaces with surfaces inclined to one reference plane & perpendicular to other. (excluding side view)</p> | 5 |
| 5 | <p>Orthographic Projections: Simple Orthographic and Sectional Orthographic Projections of simple machine parts .(Full Section in one view)</p> | 11 |

Practicals

The students should workout the problems on the following topics preferably on quarter imperial drawing sheets during the practicals.

1. Two sheets on problems from geometrical constructions, lettering & types of lines
2. Three Sheets on the topic of Engineering Curves.
3. Two Sheets on Projections of Points & Projections of Straight Lines.
4. Two Sheets on Projections of Planes.
5. Three Sheets on the topic of Orthographic Projections.

Term Work:

Students shall submit drawing sheets drawn during the practicals as a term work as mentioned above.

Text Books:-

1. Engineering Drawing : N.D.Bhat , Charotar Publishers,49th Edition 2010
2. Engineering Graphics & Engineering – S.T.Ghan, M.V.Rawalani- Nirali Publications-seventh Edition -2009

References:-

1. Engineering Drawing- D.A.Jolhe - TATA McGraw Hill- 2008
2. Engineering Graphics- K.R.Mohan – Dhanpatrai publishing co.-1st edition-2009

Course Name : Diploma in Civil Engineering
 Course Code : -
 Semester : sem I to VI
 Subject Title : Student Centered Activity / Test

Teaching & Examination Scheme

| Teaching Scheme | | | Paper Hours | Examination Scheme | | | | | | | | | | Total Marks | |
|-----------------|---|---|-------------|--------------------|-----|------|-------|-----|-----|-----|-----|-----|-----|-------------|-----|
| L | T | P | | Theory | | Test | Total | | PR | | OR | | TW | | |
| | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | | Min |
| - | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | |

Rationale:--

A fresh student needs lot of help about institute and its working. During the subsequent years there is a need of general development of personality, in addition to educational progress. During later part of course, a student needs to prepare for future career. Due to globalization and competition in the industrial and service sectors; the selection for the job is based on campus interviews or competitive tests. While selecting candidates a normal practice adopted is to see general confidence, ability to communicate and attitude, in addition to basic technological concepts.

The purpose of introducing 'Student Centered Activity (SCA)' is to provide opportunity to students to undergo activities which will enable them to develop confidence on various fronts as stated above.

Following activities can be planned in the form of lectures, notes, presentations and group visits etc:

1. Introduction to institute and related activities –
 - a. Introduction to institute infrastructure and facilities
 - b. General conduct and discipline
 - c. Anti-ragging act
 - d. functions of student counseling cell
 - e. medical help center
 - f. library procedures
 - g. NCC activity
 - h. Gymkhana activities
 - i. cultural events
 - j. scholarship issues
 - k. hostel and mess functions
 - l. railway concession
 - m. academic calendar
 - n. registration process
 - o. examination rules
 - p. malpractices in exams and punishments

2. Expert lectures on
 - a. Introduction to E-learning sources
 - b. Use of E-library
 - c. Use of internet for career and personality development
 - d. Preparations for seminars on technical topics
 - e. Group discussion techniques
 - f. General mannerisms and personality development
 - g. Interview techniques
 - h. Career guidance and related counseling.
 - i. Health, yoga and mediation

These activities are planned in different semester so that there will be increased participation of students in learning process.

SCA will exist till the start of Monday Tests ie till first 8 weeks.

Objectives:

The Student will be able to:

1. Acquire information from different sources
2. Prepare notes for given topic
3. Present given topic in a seminar
4. Interact with peers to share thoughts
5. Take the advantages of E-learning sources

Procedure:

Students will be taken in groups to various places with instructors. Will be attending expert lectures as and when planned. View slide shows, get information through handout and notes, refer notices etc