**Veermata Jijabai Technological Institute (V.J.T.I)**
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**Programme: Diploma in Civil Engineering (DCE)** **Semester: II** **Implemented from: 2017**

| COURSE CODE | COURSE | GR | TEACHING SCHEME (HRS/WK) | | | | EXAMINATION SCHEME | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | L | T | P | CR | PAPER HRS | TH Max | TH Min | IST | TOTAL Max | TOTAL Min | PR Max | PR Min | OR Max | OR Min | TW Max | TW Min | TOTAL MARKS |
| 171MA21b | MATHEMATICS-II | B | 3 | 2 | 0 | 5 | 3 | 80 | 32 | 20 | 100 | 40 | | | | | 25@ | 10 | 125 |
| 171CH22 | CHEMISTRY | B | 4 | 0 | 2 | 6 | 3 | 80 | 32 | 20 | 100 | 40 | 25* | 10 | | | 25@ | 10 | 150 |
| 171SE23 | ENGINEERING MECHANICS | C | 3 | 0 | 2 | 5 | 3 | 80 | 32 | 20 | 100 | 40 | | | | | 25@ | 10 | 125 |
| 171ME24 | ENGINEERING GRAPHICS-II | C | 2 | 0 | 4 | 6 | 3 | 80 | 32 | 20 | 100 | 40 | | | | | 25@ | 10 | 125 |
| 171CE25 | BUILDING CONSTRUCTION | C | 3 | 0 | 2 | 5 | 3 | 80 | 32 | 20 | 100 | 40 | | | | | 25@ | 10 | 125 |
| 171CE26 | ENVIRONMENTAL STUDIES | B | 2 | 2 | 0 | 4 | | | | | | | | | 25** | 10 | 50@ | 20 | 75 |
| 171HM27x | TECHNICAL WRITING & PRESENTATION SKILLS | A | 0 | 0 | 2 | 2 | | | | | | | | | | | 25@ | 10 | 25 |
| 171CE28 | STRESS MANAGEMENT | M | 0 | 0 | 2 | | | | | | | | | | | | # | | |
| | TOTAL | | 17 | 4 | 14 | 33 | | 400 | | 100 | 500 | | 25 | | 25 | | 200 | | 750 |

b- Indicates Mathematics-II is common for Civil, Electrical, Electronics and Mechanical.
x- Indicates Technical writing & Presentation Skills is common for Civil, Electrical, Electronics, Textile and Chemical.
Abbreviations: B – Basic; C – Core; A – Applied; M – Management; L – Theory Lecture; T – Tutorial; P – Practical; TH – Theory Paper; IST – In-Semester Test ; PR – Practical Exam; OR – Oral Exam; TW- Term Work. @: assessment by Internal Examiner, * : Indicates assessment by Internal Examiner, ** :assessment by External And Internal Examiner
**#- For Non Credit course grades ( A-D) to be mentioned in the mark sheet based on the continuous assessment.**

**Curriculum Coordinator**

**Head**
**Diploma in Civil Engineering**

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE MUMBAI-400 019 Civil & Env. Engg. Dept.

**Dean - Diploma**

| | |
|---|---|
| DIPLOMA PROGRAMME | : DIPLOMA IN CIVIL ENGINEERING |
| PROGRAMME CODE | : DCE |
| SEMESTER | : SECOND |
| COURSE TITLE | : MATHEMATICS II |
| COURSE CODE | : 171MA21b |

**TEACHING AND EXAMINATION SCHEME:**

| TEACHING SCHEME | | | | EXAMINATION SCHEME | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P | CR | PAPER HRS | TH | | IST | TOTAL | | PR | | OR | | TW | | TOTAL MARKS |
| | | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 3 | 2 | - | 5 | 3 | 80 | 32 | 20 | 100 | 40 | - | - | - | - | 25 | 10 | 125 |

**Course Objectives:**

1. To lay a strong foundation in study of calculus, which is the backbone for study in Engineering.
2. To make students well versed in the prerequisites for further studies in Mathematics and Engineering.

**Course Outcomes:**

Student should be able to

| | |
|---|---|
| CO1 | Apply elementary operations and properties of vectors in engineering problems. |
| CO2 | Use definition and formulae of function, limit, derivative and partial derivatives to solve the problems. |
| CO3 | Use derivatives in applications. |

**Course Content:**

| SECTION-I | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Unit & Sub-Unit | | Topics/Sub-topics | Hours | Marks | CO | R Level | U Level | A Level |
| 1 | | Function | 5 | 10 | 2 | 40% | 40% | 20% |
| | 1.1 | Definition of function. | | | | | | |
| | 1.2 | Types of Functions: Polynomial, constant, explicit function, implicit function, periodic function, even and odd functions, inverse function, exponential function, logarithmic function, composite function | | | | | | |
| | 1.3 | Simple problems based on function. | | | | | | |
| 2 | | Limit | 10 | 12 | 2 | 40% | 40% | 20% |
| | 2.1 | Concept of limit of a function. | | | | | | |
| | 2.2 | Theorems on limits (Without proof) | | | | | | |
| | 2.3 | Limits of algebraic, trigonometric functions. | | | | | | |
| | 2.4 | Standard limits | | | | | | |
| 3 | | Derivatives | 11 | 18 | 2 | 40% | 40% | 20% |
| | 3.1 | Derivatives of standard functions by first principle. | | | | | | |
| | 3.2 | Rules of differentiation. | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 3.3 | Derivative of composite function. (Chain rule). | | | | | | |
| | 3.4 | Derivative of implicit function, parametric function. | | | | | | |
| | 3.5 | Logarithmic differentiation. | | | | | | |

**SECTION-II**

| Unit & Sub-Unit | | Topics/Sub-topics | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 4 | | Second ordered derivative. | 2 | 6 | 2 | 40% | 40% | 20% |
| 5 | | Applications of derivatives | 10 | 16 | 3 | 30% | 30% | 40% |
| | 5.1 | Equation of tangent and normal to the given curve. | | | | | | |
| | 5.2 | Maxima and minima of function. | | | | | | |
| | 5.3 | Rate problems | | | | | | |
| 6 | | Partial derivatives of first order of functions of two variables. | 2 | 6 | 2 | 40% | 40% | 20% |
| 7 | | Vector Algebra | 8 | 12 | 1 | 40% | 40% | 20% |
| | 7.1 | Definition of vector, types of vector, vector addition, subtraction, multiplication by scalar. | | | | | | |
| | 7.2 | Dot product, cross product and their properties. | | | | | | |
| | | TOTAL | 48 | 80 | | | | |

**Legends:** R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxanomy).

**List of Practicals/Assignments/Tutorials:**

| Sr. No. | Unit | Practical/Assignment | Approx. Hours | CO |
|---|---|---|---|---|
| 1 | 7 | Vector | 2 | 1 |
| 2 | 1 | Function | 2 | 2 |
| 3 | 2 | Limits of algebraic functions. | 2 | 2 |
| 4 | 2 | Limits of trigonometric functions. | 2 | 2 |
| 5 | 3 | Derivative of composite function. | 2 | 2 |
| 6 | 3 | Derivative of implicit and parametric function. | 2 | 2 |
| 7 | 4 | Second ordered derivative. Equation of tangent | 2 | 3 |
| 8 | 5 | Maxima and minima of function. Rate problems | 2 | 3 |
| 9 | 6 | Partial derivatives | 2 | 2 |

**Reference books:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1 | S. P. Deshpande | Mathematics for Polytechnic | Pune Vidyarthi Griha Prakashan, |
| 2 | H.K.Dass | Advanced Engineering Mathematics | S.Chand & Company Ltd. Delhi |
| 3 | Dr.B.S.Grewal | Higher Engineering Mathematics | Khanna Publishers Delhi. |

**Curriculum Coordinator** **Head** **Dean - Diploma**

**Diploma in Civil Engineering**

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE MUMBAI-400 019 Civil & Env. Engg. Dept.

| | |
|---|---|
| DIPLOMA PROGRAMME | : DIPLOMA IN CIVIL ENGINEERING |
| PROGRAMME CODE | : DCE |
| SEMESTER | : SECOND |
| COURSE TITLE | : CHEMISTRY |
| COURSE CODE | : 171CH22 |

**TEACHING AND EXAMINATION SCHEME:**

| TEACHING SCHEME | | | | EXAMINATION SCHEME | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P | CR | PAPER HRS | TH | | IST | TOTAL | | PR | | OR | | TW | | TOTAL MARKS |
| | | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 4 | 0 | 2 | 6 | 3 | 80 | 32 | 20 | 100 | 40 | 25* | 10 | | | 25@ | 10 | 150 |

**Course Objectives:**

1 To understand mole concept and volumetric analysis.
2. To represent the formation of bonds in molecules.
3. Able to select appropriate materials used in construction.
4. Apply knowledge to enhance operative life span of engineering material & structure by various protective methods.

**Course Outcomes:**

Student should be able to

| | |
|---|---|
| CO1 | Solve the quantitative problems involving moles and concentrations of solution. |
| CO2 | Define and explain various concepts of acids and bases, define pH and correlate it with the nature of aqueous solutions- neutral, acidic or basic. |
| CO3 | Use the basic principles of chemistry to predict the electronic configuration, chemical reactions and describe the chemical bonding in molecules. |
| CO4 | Identify the properties of metals and alloys related to engineering applications. |
| CO5 | Apply knowledge to enhance operative life span of engineering material & structure by various corrosion protective methods. |
| CO6 | Compare properties of organic compounds and inorganic compounds. Use the polymeric materials in engineering applications. |
| CO7 | Perform laboratory experiment demonstrating safe and proper use of standard chemistry glass ware and equipments |
| CO8 | Record and interpret the data obtained from experimentation |

**Course Content:**

| SECTION-I | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Unit & Sub-Unit | | Topics/Sub-topics | Hours | Marks | CO | R Level | U Level | A Level |
| 1 | | **Solution** | 12 | 15 | 1 | 40% | 40% | 20% |
| | 1.1 | Solution, Concentrations of solution: Grams per litre, Percentage by weight or volume, Normality, Morality, Molality, Numericals, | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1.2 | Volumetric analysis, Titrations, Acid base titration, Acidimetry, Akalimetry, Redox titration, Iodometric titrations, Complexometric titration, Precipitation titration, Numericals | | | | | | |
| 2 | | **Ionic Equilibrium:** | 10 | 10 | 2 | **40%** | **40%** | **20%** |
| | 2.1 | Definitions & theories of acids & bases:Classical theory, Arrhenius theory, Lowry-Bronsted theory,Lewis theory,, | | | | | | |
| | 2.2 | pH, pOH, pH scale,Numericals, Basicity of an acid and acidity of a base, Numericals of Equivalent weight of acids, bases, Definition of salts & types of salts: Normal, Acidic, Basic, Mixed, Double salts, complex salts | | | | | | |
| 3 | | **Atomic Structure and Chemical Bonding** | 12 | 15 | 3 | **40%** | **40%** | **20%** |
| | 3.1 | Definitions of Elements, atoms, Molecules, Fundamental particles of atom, their mass, charge, location, Definition of atomic number, atomic mass number, Isotopes and Isobars, Electronic configuration based on Hunds Rule, Aufbau's principle, Pauli's exclusion principle (till Atomic no. 30), | | | | | | |
| | 3.2 | Definitions: atomic weight, equivalent weights of an element, Molecular weight, Mole in terms of number, mass, volume, Definitions of equivalent weight and, Molecular weight of molecule, | | | | | | |
| | 3.3 | Chemical bond, octet rule, formation of various types of chemical bonds: Covalent, Ionic, Coordinate covalent bonds along with examples $CH_4$, $H_2$, $O_2$, $N_2$, NaCl, $MgCl_2$, $H_3O^+$, $NH_4^+$, $BF_3$-$NH_3$ | | | | | | |

**SECTION-II**

| Unit & Sub-Unit | | Topics/Sub-topics | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 4 | | **Alloys** | 08 | 10 | 4 | **40%** | **40%** | **20%** |
| | 4.1 | Defination, purpose of alloy, Preparation methods, types: Ferrous & Non Ferrous alloy, Ferrous alloy: Steel, Alloy steel, Composition, Properties and uses | | | | | | |
| | 4.2 | Non Ferrous alloy: Alloy of Cu, Zn, Al, Sn, Pb Composition, Properties and uses | | | | | | |
| 5 | | **Corrosion** | **12** | **15** | **5** | **40%** | **40%** | **20%** |
| | 5.1 | Introduction, Types of corrosion (dry and wet corrosion), factors affecting the corrosion, types and mechanism of Atmospheric corrosion, oxide films, | | | | | | |
| | 5.2 | electrochemical corrosion, mechanism of electrochemical corrosion, types of electrochemical corrosion: galvanic corrosion and concentration cell corrosion, | | | | | | |
| | 5.3 | Protective measures against corrosion: coatings | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | (galvanic and zinc, organic coating agents. Electroplating, metal cladding,). | | | | | | |
| 6 | | **Organic Chemistry and introduction to polymers** | 10 | 15 | 5 | **40%** | **40%** | **20%** |
| | **6.1** | Introduction: Types of chemistry, Catenation property of Carbon element, Organic compounds, its properties and applications, Classification: by structure and functional group, | | | | | | |
| | **6.2** | Homologous series, Alkanes, alkenes and alkyenes: Definition, General formula, Names and structure of first five members, Isomerism, Properties and Uses. | | | | | | |
| | **6.3** | Polymer, Monomer, classification of polymers, Polymerisation, Addition and condensation polymerisation | | | | | | |
| | | TOTAL | 64 | 80 | | | | |
| **Legends:** R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxanomy). | | | | | | | | |

*Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.*

**List of Practicals/Assignments/Tutorials:**

| Sr. No. | Practical/Assignment | Approx. Hours | CO |
|---|---|---|---|
| 1 | To study the use of indicators, for identification of acid, base and neutral solutions from the given set of solutions. | 2 | 7,8 |
| 2 | To standardize HCl solution using N/10 $Na_2CO_3$. | 2 | 7,8 |
| 3 | To standardize $KMnO_4$ solution using N/10 $C_2H_2O_4$ solution. | 2 | 7,8 |
| 4 | To standardize $Na_2S_2O_3$ solution using N/10 $K_2Cr_2O_7$ solution. | 2 | 7,8 |
| 5 | To standardize EDTA solution using N/10 $ZnSO_4$ solution. | 2 | 7,8 |
| 6 | To standardize $AgNO_3$ solution using NaCl solution. | 2 | 7,8 |
| 7 | To determine strength of the mixture of $H_2SO_4$ + $C_2H_2O_4$ using NaOH and $KMnO_4$ solution. | 2 | 7,8 |
| 8 | To estimate amount of Iron in plain carbon steel | 2 | 7,8 |
| 9 | To estimate amount of copper in brass | 2 | 7,8 |
| 10 | To estimate amount of Zinc in brass | 2 | 7,8 |
| * Minimum 8 and maximum 12 practicals/experiment sessions to be included in a course in a term | | | |

**Text Books:**

| Sr. No. | Title | Publisher and Edition |
|---|---|---|
| 1 | XI$^{th}$ standard Chemistry book | HSC Board, M.S. / NCERT |
| 2 | XII$^{th}$ standard Chemistry book | HSC Board, M.S. / NCERT |

**Reference books and Websites:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1 | Jain & Jain | Engineering Chemistry | Dhanpat Rai & Co. (Pvt.) Delhi – 110006 Ltd Edition: Fifteenth (2008) |

| | | | |
|---|---|---|---|
| 2 | Shashi Chawla | A Text Book of Engineering Chemistry | Educational & Technical Publishers Dhanpat Rai & Co. (Pvt.) Ltd,<br>Edition: Third (2005) |
| 3 | S. S. Dara & S. S. Umare | A Text Book of Engineering Chemistry | S. Chand & Company Ltd. Ram nagar, New Delhi - 110 055<br>Edition: Twelfth (2010) |

**Curriculum Coordinator** **Head** **Dean - Diploma**

**Diploma in Civil Engineering**

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE, MUMBAI-400 019.
Civil & Env. Engg. Dept.

| | |
|---|---|
| DIPLOMA PROGRAMME | : Diploma in Civil Engineering |
| PROGRAMME CODE | : DCE |
| SEMESTER | : Second. |
| COURSE TITLE | : Engineering Mechanics |
| COURSE CODE | : 171SE23 (Revised) |

**Teaching & Examination Scheme**

| Teaching Scheme | | | | Paper Hours | Examination Scheme | | | | | | | | | | | Total Marks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P | CR | | Theory | | Test | Total | | Pract | | Oral | | Termwork | | |
| | | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 3 | - | 2 | 5 | 3 | 80 | 32 | 20 | 100 | 40 | - | - | - | - | 25 | 10 | 125 |

**Course Objectives:**

This course in Engineering Mechanics is designed to cover the applications of the principles of Mechanics to Civil engineering. This deals with static forces on the structures and principles of equilibrium along with theory of simple machines.

The laboratory work covered under this course will provide suitable learning experiences to develop the desired abilities, skills and attitude to analyze and solve the problems encountered in Civil Engineering.

**COURSE OUTCOMES:**

Student should be able to

| | |
|---|---|
| CO1 | Explain the fundamental concepts of Engineering Mechanics, Define important terms and Apply the concepts of resolution, composition and equilibrium of forces to simple structures, analytically and graphically. |
| CO2 | Compute position of centroid and centre of gravity of composites and apply concept of equilibrium to centroid and centre of gravity. |

| | |
|---|---|
| CO3 | Explain existence of friction, Define important terms related to friction and solve problems on limiting frictional force, angle of repose etc. |
| CO4 | Explain principles of simple machines, Define important terms related to it and to Draw Graphs for law of machines, maximum efficiency etc. |

**Course Content:**

| | Topics/Sub-topics | Hours | Marks | CO | R Level | U Level | A Level |
|---|---|---|---|---|---|---|---|
| | **SECTION I** | | | | | | |
| 1 | Fundamental concepts: Statics, Dynamics, Kinematics, Kinetics, Concept of force, its SI unit, system of forces: Co-planar, Noncoplaner Concurrent, Nonconcurrent, Parallel, Nonparallel, Collinear, Noncollinear Like and Unlike. Principle of transmissibility of a force | 02 | 04 | 1 | 28.57 | 42.86 | 28.57 |
| 2 | Resolution and Composition of forces: Resolution of a force, concept of a moment of a force, laws of moments and couples, Composition of co-planar, concurrent, non-concurrent, parallel forces, Resultant of a general system of co-planar forces. | 12 | 20 | 1 | 17.39 | 34.78 | 47.83 |
| 3 | Equilibrium: Definition, Relation between resultant & equilibrant, condition of equilibrium, Types of supports simple and special - conditions, roller, hinge & fixed. Free body diagram, simply supported & over hanging beams | 10 | 16 | 1 | 21.21 | 33.33 | 45.46 |
| | **Total** | **24** | **40** | | | | |

| SECTION II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Topics/Sub-topics** | | | | | | |
| **4** | Center of Gravity and Centroid: Definitions, Centroid of regular plane areas and their combinations, Center of gravity of simple solids: Cube, Cylinder, Prism, Sphere, Cone and their combinations | 8 | 13 | 2 | 20 | 26.67 | 53.33 |
| **5** | Friction: Laws of friction, terms used: Co-efficient of friction, angle of friction, repose, equilibrium of bodies on level and inclined planes. | 8 | 14 | 3 | 31.82 | 31.82 | 36.36 |
| **6** | Simple Mechanics: Definition of terms used: mechanical advantage, velocity ratio, efficiency, friction in the machine, law of machine, conditions of the reversibility, study of simple machines : simple screw jack, axle and wheel, differential axle and wheel, single purchase crab. | 8 | 13 | 4 | 28 | 32 | 40 |
| | **Total** | **24** | **40** | | | | |

***Notes:*** *This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.*

| Unit | Hours | Marks | CO | R Level | U Level | A Level |
|---|---|---|---|---|---|---|
| 1 | 2 | 4 | 1 | 28.57 | 42.86 | 28.57 |
| 2 | 12 | 20 | 1 | 17.39 | 34.78 | 47.83 |
| 3 | 10 | 16 | 1 | 21.21 | 33.33 | 45.46 |
| 4 | 8 | 13 | 2 | 20 | 26.67 | 53.33 |
| 5 | 8 | 14 | 3 | 31.82 | 31.82 | 36.36 |
| 6 | 8 | 13 | 4 | 28 | 32 | 40 |

**List of Practicals/Assignments/Tutorials:**

| Sr. | Unit | Practical/Assignment | Approx. | CO |
|---|---|---|---|---|

| No. | | | Hours | |
|---|---|---|---|---|
| 1 | 1 | Law of polygon of forces | 2 | 1 |
| 2 | 2 | Reaction of Simply supported Beams. | 2 | 1 |
| 3 | 3 | Forces in jib crane. | 2 | 1 |
| 4 | 4 | Simple screw jack. | 2 | 4 |
| 5 | 5 | Differential axle and wheel | 2 | 4 |
| | | Two half-imperial size drawing sheets in the graphic static with minimum five problems out of the following: | | |
| 6 | 6.1 | Resultant of concurrent forces. | 1 | 1 |
| | 6.2 | Resultant of parallel forces | 2 | 1 |
| 7 | 7.1 | Resultant of non-concurrent, non-parallel forces. | 2 | 1 |
| | 7.2 | Reactions of a simply supported beam. | 2 | 1 |
| 8 | 8.1 | Equilibrium of bodies. | 2 | 1 |
| 9 | 9.1 | Centroids of plane composite areas | 2 | 2 |
| | 9.2 | Center Of gravity Of composite solids | 2 | 2 |
| * Minimum 8 and maximum 12 Practical /Experiment sessions to be included in a course in a term | | | | |

**Text Books:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| | | | |

| | | | |
|---|---|---|---|
| 01 | S. B. Junnarkar, | Applied mechanics | 17th edition ,Revised, 2010, Publisher- Charotar Publishing House Pvt. Ltd. |
| 02 | R. K. BANSAL | Engineering mechanics | 3rd Revised Edition 2015, Laxmi Publications Pvt. Ltd. |

**Reference books and Websites:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 01 | Dadhe, Jamdar and Walawalkar | Fundamentals of Applied Mechanics | Second edition 2006, Publisher-Sarita Prakashan. |
| 02 | Websites | www.nptel.ac.in | IITs. |

**Curriculum Coordinator** **Head** **Dean - Diploma**

**Diploma in** Civil Engg.

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE, MUMBAI-400 019. Civil & Env. Engg. Dept.

| | |
|---|---|
| DIPLOMA PROGRAMME | : DIPLOMA IN CIVIL ENGINEERING |
| PROGRAMME CODE | : DCE |
| SEMESTER | : SECOND |
| COURSE TITLE | : ENGINEERING GRAPHICS-II |
| COURSE CODE | : 171ME24 |

**TEACHING AND EXAMINATION SCHEME:**

| TEACHING SCHEME | | | | EXAMINATION SCHEME | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P | CR | PAPER HRS | TH | | IST | TOTAL | | PR | | OR | | TW | | TOTAL MARKS |
| | | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 2 | - | 4 | 6 | 3 | 80 | 32 | 20 | 100 | 40 | - | - | - | - | 25 | 10 | 125 |

**Course Objectives:**

The student will able to

- Understand the fundamentals of Engineering Graphics
- Read and interpret object drawings.
- To develop ability to handle and use drafting software

**Course Outcomes:**

Student should be able to

| | |
|---|---|
| CO1 | To understand geometry of shapes, drawing conventions, definitions and drawing procedures. |
| CO2 | To imagine shapes of solid objects in three dimensions and draw their different views. |
| CO3 | To imagine internal details of solid objects from given views and use of drawing conventions. |

**Course Content:**

| SECTION-I | | | | | | | |
|---|---|---|---|---|---|---|---|
| Unit & Sub-Unit | Topics/Sub-topics | Hours | Marks | CO | R Level | U Level | A Level |
| 1 | **Projections of Solids**<br>Projections of solids with axis inclined to one reference plane & parallel to other reference plane.<br>(Solids – prisms, pyramids, cylinder, cone & cube) | 8 | 16 | 2,3 | 40 | 30 | 30 |
| 2 | **Sections of solids**<br>Sections of solids by different auxiliary (Straight) cutting planes perpendicular to one reference plane, True shape of section.<br>(Solids with axis perpendicular to one reference plane) | 6 | 16 | 2,3 | 40 | 30 | 30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | (No problems with given true shape of section) | | | | | | |
| 3 | **Development of lateral surfaces of cut solids** | 4 | 8 | 2,3 | | **30** | **30** |
| | Development of lateral surfaces of solids cut with straight cutting plane only (No problems on reverse development). | | | | 40 | | |
| | **SECTION-II** | | | | | | |
| **Unit & Sub-Unit** | **Topics/Sub-topics** | | | | | | |
| **4** | **Pictorial Views**<br>Isometric Views.<br>(No problems with circular slots on inclined surfaces) | 6 | 15 | 2 | **40** | **30** | **30** |
| **5** | **Reading of Simple Orthographic Projections**<br>Missing Views including Sectional Views of simple machine parts (Full Section in one view) | 6 | 20 | 3 | 40 | **30** | **30** |
| **6** | **Machine Elements- Free hand sketching.**<br>I.S. Convention for internal & external threads, single start threads, hexagonal & square-nuts, bolts & washers; Set screws, conventions for drilled through & blind holes, tapped holes. | 1 | 5 | 1 | **40** | **30** | **30** |
| **8** | **Introduction to Computer Aided Drafting**<br>Solving problems each on multi view orthographic projection including sectional orthographic projections, reading orthographic Projections & Isometric Views with the help of computer aided drafting. | 1 | - | 2,3 | **40** | **30** | **30** |
| | TOTAL | 32 | 80 | | | | |

**Legends:** R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxanomy).

*Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.*

**List of Practicals/Assignments/Tutorials:**

| Sr. No. | Unit | Practical/Assignment | Approx. Hours | CO |
|---|---|---|---|---|
| 1 | A | Eight sheets on projections of solids | 16 | 1,2,3 |
| | B | Five sheets on problems sections of solids | 12 | 1,2,3 |
| | C | Five sheet on problems on development of surfaces. | 10 | 1,2,3 |
| | D | Five sheets on isometric projections. | 10 | 1,2,3 |
| | E | Six sheets on problems from reading orthographic projections. | 14 | 1,2,3 |
| | F | One sheet on free hand sketches. | 2 | 1 |

*Note - The students should workout the problems on the following topics preferably on quarter imperial drawing sheets during the practical.*

**Text Books:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1 | N.D.Bhat | Engineering Drawing | Charotar Publishers<br>53rd Edition 2010 |
| 2 | S.T.Ghan, M.V.Rawalani | Engineering Drawing | Nirali Publications<br>Edition -2014/1 |

**Reference books and Websites:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1 | D.A.Jolhe | Engineering Drawing | TATA McGraw Hill- 2008 |
| 2 | K.R.Mohan | Engineering Graphics | Dhanpatrai publishing co. Ist edition-2009 |

**Curriculum Coordinator** **Head** **Dean - Diploma**
**Diploma in Civil Engineering**

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE, MUMBAI-400 019. Civil & Env. Engg. Dept.

| | |
|---|---|
| DIPLOMA PROGRAMME | : DIPLOMA IN CIVIL ENGINEERING |
| PROGRAMME CODE | : DCE |
| SEMESTER | : SECOND |
| COURSE TITLE | : BUILDING CONSTRUCTION |
| COURSE CODE | : 171CE25 |

**TEACHING AND EXAMINATION SCHEME:**

| TEACHING SCHEME | | | | EXAMINATION SCHEME | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P | CR | PAPER HRS | TH | | IST | TOTAL | | PR | | OR | | TW | | TOTAL MARKS |
| | | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 3 | 0 | 2 | 5 | 3 | 80 | 32 | 20 | 100 | 40 | | | | | 25@ | 10 | 125 |

@: assessment by Internal Examiner

**Course Objectives:**

This course essentially imparts the knowledge of construction technology for construction of buildings and related components; at an introductory level. This course further introduces the student to interpret the drawings and get familiar with the functions and requirements of building components.

**Course Outcomes:**

Student should be able to

| | |
|---|---|
| CO1 | Define the component of building as per Indian Standard Code of Practices |
| CO2 | Draw the elements of building component |
| C03 | Identify, select and use the different elements of building component for the construction of building |
| CO4 | Apply building construction principles and practices on construction work and observe safety precautions and safe practices on the construction site |
| CO5 | Identify the advancement in building materials effectively for the sustainable development |

**Course Content:**

| SECTION I | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Unit & Sub-Unit | | Topics/Sub-topics | Hours | Marks | CO | R Level | U Level | A Level |
| 1. | Building as Structure | | 10 | 12 | 1, 2 & 3 | 40% | 40% | 20% |
| | 1.1 | Definition of Building(NBC:SP:7-2005) | | | | | | |
| | 1.2 | Purpose of a building | | | | | | |
| | 1.3 | Types of building based on Occupancy(NBC of India-2005): Residential, Educational, Institutional, Assembly, Business, Mercantile, Industrial, Storage, Hazardous | | | | | | |
| | 1.4 | Load Bearing structure and framed structure. Comparison, Materials to be recommended for framed structure. | | | | | | |
| | 1.5 | Component of structure: Substructure (Foundation, Plinth & DPC) and | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Superstructure (Wall, Piers, Floor, Lintel, Sill, Opening in Walls, Chajjas, Ceiling, Beams, Roof, Staircase, Wall finishes, Skirting, Dado) neat sketch, its functions and requirement. | | | | | | |
| | 1.6 | Types of Loads acting on structure: Dead load, Live Load, Wind Load, Seismic Load | | | | | | |
| 2. | Foundation: | | 10 | 16 | 1, 2, 3 & 4 | 20% | 40% | 40% |
| | 2.1 | Definition of foundation | | | | | | |
| | 2.2 | Purpose and function of foundation | | | | | | |
| | 2.3 | Essential Requirement of Good Foundation | | | | | | |
| | 2.4 | Bearing Capacity of soil and its relevance to foundation, Safe Bearing Capacity of different soil | | | | | | |
| | 2.5 | Shallow Foundation<br>Spread footing, Combined Footings, Strap footings, Mat foundation | | | | | | |
| | 2.6 | Deep Foundation: Pile Foundation (Types of piles based on Function only)<br>Cast In Situ Pile, Well Foundation | | | | | | |
| | 2.7 | NBC of India Recommendation for Depth of footing. | | | | | | |
| | 2.8 | Suitability and Sketches of Strip Footing, Isolated footing, Eccentrically loaded footings, Grillage foundation | | | | | | |
| | 2.9 | Foundation in Black Cotton Soils | | | | | | |
| 3. | Door, Window, Staircase | | 4 | 12 | 2, 3 & 4 | 40% | 30% | 30% |
| | 3.1 | Purpose and Requirement of Door, Window, Staircase | | | | | | |
| | 3.2 | Different Technical term related to Door, Window, Staircase. | | | | | | |
| | 3.3 | Suitability of different types of Door and window. Latest types of Door and windows suitably used in Construction Practices.<br>Ventilators: combined with doors or windows | | | | | | |
| | 3.4 | Classification of Stairs, Construction of R.C.C staircase | | | | | | |
| | | **Total** | **24** | **40** | | **100** | **110** | **90** |

**SECTION-II**

| **Unit & Sub-Unit** | | **Topics/Sub-topics** | **Hours** | **Marks** | **CO** | **R Level** | **U Level** | **A Level** |
|---|---|---|---|---|---|---|---|---|
| 4 | Masonary Construction | | 10 | 18 | 1, 2, 3 & 4 | 20% | 30% | 50% |
| | 4.1 | Different terms related to masonry | | | | | | |
| | 4.2 | Principles of masonry construction | | | | | | |
| | 4.3 | Types of wall and function at substructure level.<br>- foundation wall<br>- cavity wall<br>- honey-comb wall | | | | | | |
| | 4.4 | Types of wall and function at superstructure | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | level.<br>- partition wall<br>- load bearing wall | | | | | | |
| | **4.5** | Protection of wall surface against weather degradation. | | | | | | |
| | **4.6** | Supervision of brick masonry construction | | | | | | |
| | **4.7** | Rules for bonds in brick work, Different types of bond, Stretcher, Header, English and Flemish bond. | | | | | | |
| | **4.8** | Tools for Laying of Brick masonry | | | | | | |
| **5** | Floors & Roof | | 08 | 14 | 1, 2, 3 & 4 | 20% | 30% | 50% |
| | **5.1** | Definition of a floor.<br>Types of floor: Ground floor & suspended floor etc. | | | | | | |
| | **5.2** | Purpose and Requirement of Floor | | | | | | |
| | **5.3** | Component of floor | | | | | | |
| | **5.4** | Selection criteria of different types of Flooring material | | | | | | |
| | **5.5** | Types of flooring and its suitability | | | | | | |
| | **5.6** | Method of Construction of Cement concrete flooring | | | | | | |
| | **5.7** | Method of Construction of R.C.C Slab floor | | | | | | |
| | **5.8** | Definition, Requirement of ideal roof, | | | | | | |
| | **5.9** | Different technical terms related to roof. | | | | | | |
| | **5.10** | Suitability of different types of Pitched roof ,Selection of roof covering for Pitched Roof | | | | | | |
| | **5.11** | Significance of Flat roof | | | | | | |
| **6** | Finishes: Plastering , Pointing : | | 06 | 8 | 1, 2, 3 & 4 | 40% | 30% | 30% |
| | **6.1** | Plastering: Definition, Object & requirement of good plaster | | | | | | |
| | **6.2** | Types of mortar for plastering, Number of coats of plaster. | | | | | | |
| | **6.3** | Different terminologies related to plastering work. | | | | | | |
| | **6.4** | Tools for plastering special materials used in plastering. | | | | | | |
| | **6.5** | Preparation of Background & Methods of cement plastering | | | | | | |
| | **6.6** | Plaster on Lath | | | | | | |
| | **6.7** | Types of Plaster Finishes | | | | | | |
| | **6.8** | Pointing : Definition, mortar used in pointing, preparation of surface, methods of pointing & types of pointing. | | | | | | |
| | | **Total** | **24** | **40** | | **80** | **90** | **130** |

**Legends:** R- Remember, U – Understand, A – Apply and above levels (Blooms's ReviseTaxanomy).

SUGGESTED SPECIFICATION TABLE WITH HOURS (Theory)

| Unit No. | Unit Title | Teaching Hours | Distribution of Theory Marks | | | |
|---|---|---|---|---|---|---|
| | | | R Level | U Level | A Level | Total Marks |
| I | Building as Structure | 10 | 40% | 40% | 20% | 12 |
| II | Foundation | 10 | 20% | 40% | 40% | 16 |
| III | Door, Window, Staircase | 4 | 40% | 30% | 30% | 12 |
| IV | Masonary Construction | 10 | 20% | 30% | 50% | 18 |
| V | Floors & Roof | 8 | 20% | 30% | 50% | 14 |
| VI | Finishes: Plastering , Pointing | 06 | 40% | 30% | 30% | 8 |
| **Total** | | 48 | 180 | 200 | **220** | **80** |

**Legends:** R = Remember; U = Understand; A = Apply and above levels (Bloom's revised taxonomy)

*Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.*

**List of Practicals:**

The practical/exercises should be properly designed and implemented with an attempt to develop different types of practical skills (**Course Outcomes in psychomotor and affective domain)** so that students are able to acquire the competencies (Programme Outcomes).

| Sr. No. | Unit | Practical/Assignment | Approx. Hours | CO |
|---|---|---|---|---|
| 1 | | **Making of quarter imperial sheet of at least 15 sketches** | | CO2 |
| | 1.1 | One sheet on Building Components | 2 | |
| | 1.2 | Two sheet on Any four sketches of Shallow foundation | 2 | |
| | 1.3 | One sheet on Deep foundation: Under reamed Pile foundation, Precast Concrete pile | 2 | |
| | 1.4 | Four sheet on Brick masonry and one sheet on Stone Masonary<br>i) Elevation of Brick wall<br>ii) Plan showing alternate courses of brick walls in different thickness as 1BT, 1 ½ BT, 2 BT in English bond<br>iii) Plan showing alternate courses of brick walls in different thickness as 1BT, 1 ½ BT, 2 BT in Single or Double Flemish bond<br>iv) Brick laying tools | 10 | |

| | | | | |
|---|---|---|---|---|
| | **1.5** | Three sheets on Plan, elevation and sectional elevation of any three types of Doors and Windows. (Latest used in Construction Practices)<br>King Post Roof Truss with purlins and common rafter<br>Queen Post Roof truss, Forms of Pitched Roof | **6** | |
| | **1.6** | Two sheet on types of Staircases and Dog legged stair case with quarter space landing and mid landing | **4** | |
| **2** | | **Report on Accident on Site** | **2** | **CO4** |
| | **2.1** | Causes of accidents at building site<br>e.g. fire, fall, defective tools, horse-play,carelessness etc. | | |
| | **2.2** | First Aid equipment e.g.<br>- Sand bucket.<br>- Asbestos cloth/blanket.<br>- Fire distinguishers and types.<br>- Wet and dry pipe fire fighting systems.<br>Procedure for treatment<br>- first aid<br>- permanent treatment | | |
| 3 | | **Power point presentation on Non Conventional materials and low cost housing materials** | 4 | **C05** |
| | 3.1 | Non Conventional materials: Plastics, fiberglass etc. Corrugated sheets, prefabricated brick panel, mud mortar. Ecofriendly materials. | | |
| | 3.2 | Low cost housing materials: Clay waste from Granite industry, Hollow concrete blocks. | | |
| * Minimum 8 and maximum 10 practical's/experiment sessions to be included in a course term | | | | |

**Text Books:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1 | Sushil Kumar | Building Construction | Standard Publication, Edition 20th 2010 |
| 2 | B. C. Punmia | Building Construction | Laxmi Publication, Edition 11th 2015 |

**Reference books and Websites:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1 | S. C. Rangawala | Building Construction | Charotar Publication, Edition 26th 2015 |
| 2 | S. P. Arora and Bindra | Building Construction | Dhanpat Rai Publication<br>Edition 5th Latest Reprint 2010 |
| **3** | **List of Software/Learning Websites**<br>**a. http://www.constructionknowledge.net/**<br>**b. http://houseconstructiontips.com/** | | |
| **4** | Models for following : For various foundations, bonds in brickwork, different types of stairs, Trussees | | |

**Curriculum Coordinator** **Head** **Dean – Diploma**

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE, MUMBAI-400 019. Civil & Env. Engg. Dept.

| | |
|---|---|
| DIPLOMA PROGRAMME | : DIPLOMA IN CIVIL ENGINEERING |
| PROGRAMME CODE | : DCE |
| SEMESTER | : SECOND |
| COURSE TITLE | : ENVIRONMENTAL STUDIES |
| COURSE CODE | : 171CE26 |

**TEACHING AND EXAMINATION SCHEME:**

| TEACHING SCHEME | | | | EXAMINATION SCHEME | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P | CR | PAPER HRS | TH | | IST | TOTAL | | PR | | OR | | TW | | TOTAL MARKS |
| | | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 2 | 2 | - | 4 | | | | | | | | | 25** | 10 | 50@ | 20 | 75 |

**Course Objectives:** At the end of this course students will be able to

- Know multidisciplinary nature of environmental studies.
- Know various types of environmental pollution, its causes, effects & control measures.
- Know about solid wastes management.
- Know social issues such as human population, human rights & health.

**Course Outcomes:**

Student should be able to

| | |
|---|---|
| CO1 | Define & explain multi-disciplinary nature of Environmental studies & basics of solid waste management |
| CO2 | Explain different types of natural sources and their effects on environment. |
| CO3 | Explain various types of pollutions, its causes , controls etc. |
| CO4 | State eco system, bio diversity and their conservation for human society. |
| CO5 | Define and explain the ethical values for environment. |

**Course Content:**

| Unit & Sub-Unit | | Topics/Sub-topics | Hours | CO | R Level | U Level | A Level |
|---|---|---|---|---|---|---|---|
| 1 | | The Multidisciplinary nature of environmental studies : | 02 | 1 & 5 | 40% | 40% | 20% |
| | 1.1 | Definition of Environment, Components and types, Need for public awareness, Environmental Ethics. | | | | | |
| | 1.2 | Social Issues- Strategies for Sustainable development, urban problems related to energy, water conservation, global environmental | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | changes.<br>Human Population- Population growth, environment and human health, value education | | | | | |
| 2 | | Natural Resources: | 06 | 2 | 30% | 30% | 40% |
| | 2.1 | Renewable and non renewable resources: | | | | | |
| | 2.2 | Natural resources and associated problems | | | | | |
| | | 2.2.1 Forest resources: Use and over-exploitation, deforestation, mining, dams and their effects on forests and tribal people. | | | | | |
| | | 2.2.2 Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems. | | | | | |
| | | 2.2.3 Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources. | | | | | |
| | | 2.2.4 Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity, case studies. | | | | | |
| | | 2.2.5 Energy Resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies. | | | | | |
| | | 2.2.6 Land Resources: Land as a resource, land degradation, man induces landslides, soil erosion, and desertification. | | | | | |
| 3 | | Eco Systems: | 06 | 3 | 25% | 45% | 30% |
| | 3.1 | Concept of an eco system | | | | | |
| | 3.2 | Structure and function of an eco system. | | | | | |
| | 3.3 | Energy flow in the eco systems. | | | | | |
| | 3.4 | Introduction, types, characteristic features, structure and function of the following eco systems<br>• Forest ecosystem<br>• Grass land ecosystem<br>• Desert ecosystem<br>• Aquatic eco systems(ponds, streams, lakes, rivers, oceans, estuaries) | | | | | |
| 4 | | Biodiversity and it's Conservation : | 04 | 3 | 20% | 40% | 40% |
| | 4.1 | Introduction-Definition: genetics, species and | | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | ecosystem diversity. | | | | | |
| | 4.2 | Biogeographically classification of India. | | | | | |
| | 4.3<br>4.4 | Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. | | | | | |
| | 4.5 | Biodiversity at global, national and local level. | | | | | |
| | 4.6 | India as a mega diversity nation. | | | | | |
| | | Hot-spots of biodiversity. | | | | | |
| 5 | | Environmental Pollution :<br>Definition Causes, effects and control measures of:-<br>1 Air pollution<br>2 Water pollution<br>3 Soil pollution<br>4 Marine pollution<br>5 Noise pollution<br>6 Thermal pollution<br>7 Nuclear hazards | 12 | 4 | 30% | 30% | 40% |
| 6 | 6.1 | Solid Waste Management :<br>Functional elements of solid waste management, methods of solid waste disposal. | 04 | 1 | 20% | 40% | 40% |

*Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.*

**List of Practicals/Assignments/Tutorials:**

| Sr. No. | Unit | Practical/Assignment | Approx. Hours | CO |
|---|---|---|---|---|
| 1 | 1 | Role of Information Technology in Environment and Human health | 2 | 1 & 5 |
| 2 | 2. | Various Natural resources and associated problems. Role of individual in conservation of natural resources. | 4 | 2 |
| 3 | 3. | Equitable use of resources for sustainable life styles | 2 | 2 |
| 4 | 4. | Types and characteristics of different types of ecosystems.<br>Ecological succession and its characteristics. | 5 | 3 |
| 5 | 5. | Threats to biodiversity: habitats loss, poaching of wild life, man wildlife conflicts.<br>Endangered and endemic spaces of India.<br>Conservation of biodiversity: in-situ and ex-situ conservation of biodiversity. | 6 | 3 |
| 6 | 6. | Causes, effects and control measures of environmental pollution. | 3 | 4 |

| | | | | |
|---|---|---|---|---|
| 7 | 7. | Role of an individual in prevention of pollution. | 2 | 1 |
| 8 | 8. | Students (in a group of 7-8 students) shall give seminar on a current topic related to environmental issues. | 8 | 1, 2, 3, 4 & 5 |
| * Minimum 8 and maximum 12 practicals/experiment sessions to be included in a course in a term | | | | |

**Text Books:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1. | Anindita Basak | Environmental Studies | Pearson Publication, 1st Edition, 2009. |
| 2. | Dr. J. P. Sharma | Environmental Studies | Laxmi Publications (P) Ltd; 3rd edition , 2009 |
| 3. | Erach Bharucha | Textbook of Environmental studies | UGC, 1st Edition, 2011 |
| 4. | D D Mishra | Fundamental concepts in Environmental Studies | S Chand & Co Ltd, 1st Revised edition 2009 |

**Reference books and Websites:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1. | Dr. H.S. Bhatia. | Environmental Pollution and Control | Galgotia Publications (p) LTd. 1st edition, 1998. |
| 2. | Anubha Kaushik and C.P. Kaushik | Environmental Studies | New Age International (P) Ltd. 1st Edition, 2007. |

**Curriculum Coordinator** **Head** **Dean - Diploma**
**Diploma in Civil Engineering**

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE, MUMBAI 400 019
Civil & Env. Engg. Dept.

| | |
|---|---|
| DIPLOMA PROGRAMME | : DIPLOMA CIVIL ENGINEERING |
| PROGRAMME CODE | : DCE |
| SEMESTER | : SECOND |
| COURSE TITLE | : TECHNICAL WRITINGAND PRESENTATION SKILLS |
| COURSE CODE | : 171HM27x |

**TEACHING AND EXAMINATION SCHEME:**

| TEACHING SCHEME | | | | EXAMINATION SCHEME | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P | CR | PAPER HRS | TH | | IST | TOTAL | | PR | | OR | | TW | | TOTAL MARKS |
| | | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| - | - | 2 | 2 | - | | | | | | | | | | 25 | 10 | 25 |

**Course Objectives:**

Making students proficient in oral skills through various activities that will enable them to perform efficiently during interviews, meetings, seminars, conferences, group discussions and in negotiations and conflict resolutions. Improving the technical communication through critical analysis of a situation, drawing appropriate conclusions, presenting them precisely. Developing the personality of the future technologists by inculcating proper interactive skills in them and improving their power of expression required for efficacious communication in verbal and non-verbal form to achieve success in professional world.

**Course Outcomes:**

Student should be able to

| | |
|---|---|
| CO1 | To develop oral skills and self confidence |
| CO2 | To develop analytical ability and technical communication skills |
| CO3 | To develop interactive skills and power of expression |

**Course Content:**

| | Topics/Sub-topics | | Hours | Marks | CO | R Level | U Level | A Level |
|---|---|---|---|---|---|---|---|---|
| 1 | **I. ORAL SKILLS**<br>a)Dialogue And Role Play<br>b) Group Discussion<br>c) Elocution<br>d) Extempore | • To improve interactive skills & conversational skills<br>• Leadership qualities and Team spirit<br>• To boost self-confidence, Power | 12 | 09 | 1 | 30% | 30% | 40% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | of expression, | | | | | | |
| 2 | **II.TECHNICAL COMMUNICATION**<br>a) Editing<br>b) Critical-Analysis of articles /write up.<br>c) Report Writing /Drafting proposals | • Writing Sills<br>• To develop critical thinking and analytical ability.<br>• Developing technical communication and conciseness in writing | 10 | 07 | CO 2 | 20% | 20% | 60% |
| 3 | **III. GROOMING AND INTERACTIVE SKILLS**<br>a)Audio-visual Communication<br>➢ Language Laboratory<br>➢ Power Point Presentation<br>➢ Videos<br>b) Communication and Body language<br>➢ Kinesics<br>➢ Haptics<br>➢ Proxemics<br>➢ Vocalics<br>➢ Chronemics<br>c) Manners and Etiquette<br>➢ Table Manners<br>➢ Telephone Etiquettes<br>➢ Personal Grooming<br>➢ Voice Culture | • Acquiring refined language and self-learning techniques.<br>• Using technologies to collect, compile, analyze and present data precisely in an appealing manner.<br>• Developing ability to communicate efficiently and effectively.<br>• Moulding and enhancing one's personality. | 10 | 09 | CO 3 | 20% | 30% | 50% |
| | | TOTAL | 32 | 25 | | | | |

**Legends:** R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxanomy).

*Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.*

**List of Practicals/Assignments:**

1. Writing a dialogue based on the given situation.
2. Dialogue delivery through Role Play
3. Conducting group discussion on a given topic
4. Writing critical analysis of an article
5. Writing short reports pertaining to industry
6. Drafting applications as per industry situations
7. Drafting proposals
8. Delivering a speech in public
9. Presentation skills through power point presentation on a given topic
10. Phonetics exercises in language laboratory

**Text Books:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1. | Board of Editors<br>L.V Shende, T.K Tytus, N.S Pathan, R.G Munghate, Azizul Hugue, Sambhaji Warkad | The Communicator | Orient Blackswan,2008 |
| 2. | L.V Shende, T.K Tytus, N.S Pathan, R.G Munghate, Azizul Hugue, Sambhaji Warkad | Vibrant English | Orient Blackswan,2013 |

**Reference books and Websites:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1. | Gupta C. B. | Contemporary Management | APH, New Delhi, First edition, 1992 |
| 2. | Sekaran Uma | Organisational Behaviour | Tata Mcgraw Hill, New Delhi, Second edition,2008 |
| 3. | Raman Meenakshi, Sharma Sangeeta | Technical Communication | OUP, India, Second impression, 2004 |
| 4. | K. Purushotham | English for Fluency | Orient Blackswan,2013 |

**Curriculum Coordinator** **Head** **Dean - Diploma**

**Diploma in Civil Engineering**

| | |
|---|---|
| DIPLOMA PROGRAMME | : DIPLOMA IN CIVIL ENGINEERING |
| PROGRAMME CODE | : DCE |
| SEMESTER | : SECOND |
| COURSE TITLE | : STRESS MANAGEMENT |
| COURSE CODE | : 171CE28 |

**TEACHING AND EXAMINATION SCHEME:**

| TEACHING SCHEME | | | | EXAMINATION SCHEME | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P | CR | PAPER HRS | TH | | IST | TOTAL | | PR | | OR | | TW | | TOTAL MARKS |
| | | | | | Max | Min | | Max | Min | Max | Min | Max | Min | Max | Min | |
| 0 | 0 | 2 | - | - | - | - | - | - | - | -- | -- | -- | -- | - | - | -- |

**Course Objectives:** Students should be able to

- Understand the basic methods to manage the stress.
- Develop positive attitude towards society.
- Reduce psychological mental and emotional stress.

**Course Outcomes:**

After completion of the course the student will be able to

| | |
|---|---|
| CO1 | Gain knowledge about stress & stress management tools. |
| CO2 | Gain knowledge about stress management techniques. |

**Course Content:**

| Unit & Sub-Unit | | Topics/Sub-topics | Hours | Marks | CO | R Level | U Level | A Level |
|---|---|---|---|---|---|---|---|---|
| I | | Types of Stress | 3 | | 1 | 40% | 40% | 20% |
| 1 | 1.1 | Positive Stress: | | | | | | |
| | 1.2 | Negative Stress: | | | | | | |
| | 1.3 | Causes of Stress | | | | | | |
| | 1.4 | Effects of Stress | | | | | | |
| | 1.5 | Health & Stress | | | | | | |
| 2 | | Types of Stress Management Tools | 8 | | 1 | 40% | 40% | 20% |
| 2 | 2.1 | Behavioral | | | | | | |
| | 2.2 | Physical | | | | | | |
| | 2.3 | Perception | | | | | | |
| | 2.4 | Interpersonal | | | | | | |
| | 2.5 | Relaxation | | | | | | |
| 3 | | Stress Management Techniques | 21 | | 2 | 30% | 30% | 40% |
| 3 | 3.1 | Time Management Techniques | | | | | | |
| | 3.2 | Organization Techniques | | | | | | |
| | 3.3 | Create a Study Environment | | | | | | |
| | 3.4 | Memorization Techniques | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 3.5 | Be an Optimist | | — | | | | |
| | 3.6 | Proper and Adequate Sleep | | | | | | |
| | 3.7 | Study Techniques | | | | | | |
| **Legends:** R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxanomy). | | | | | | | | |

**List of Practicals/Assignments/Tutorials:**

Stress Management course will be taken by concerned expert in the field relevant to performance / performing practices.

Following listed sessions need to be organized for the students delivered by an expert in the field.

| Sr. No. | Unit | Practicals / Assignments / Tutorials | Approx. Hours | CO |
|---|---|---|---|---|
| 1 | | Types of stress | 2 | 1 |
| 2 | | Various Stress Management Tools. | 4 | 1 |
| 3. | 3.1 | Time Management Techniques: | 2 | 2 |
| 3. | 3.2 | Organization Techniques:. | 2 | 2 |
| 3. | 3.3 | Create a Study Environment: | 2 | 2 |
| 3. | 3.4 | Memorization Techniques: | 2 | 2 |
| 3. | 3.5 | Be an Optimist: | 2 | 2 |
| 3. | 3.6 | Proper and Adequate Sleep | 2 | 2 |
| 3. | 3.7 | Study Techniques: | 4 | 2 |

**Text Books:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1. | Charrerjee & Dutta | Introduction to Indian Philosophy | |
| 2. | Subhodh Gupta | Stress Management a Holistic Approach | April 2008, Google Book |

**Reference books and Websites:**

| Sr. No. | Author | Title | Publisher and Edition |
|---|---|---|---|
| 1. | Ajay Shukla | The 4 lane Expressway to Stress Management | 2003 |

http://www.managingstress.com

**Curriculum Coordinator** **Head** **Dean - Diploma**

**Diploma in Civil Engineering**