Syllabus for the subject

**of**

**ENGINEERING DRAWING**

(For 1st & 2nd semester)

**Under**

**CRAFTSMAN TRAINING SCHEME (CTS)**

(For all Engineering Trades duration)

**Re-Designed in**

**– 2014 -**

**By**

**Government of India**

**Ministry of Labour & Employment**

**Directorate General of Employment & Training**

**CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE**

**Block - EN - 81 SECTOR – V, SALT LAKE CITY,**

**KOLKATA – 700 091**

1. **DETAILS OF SYLLABUS**

**SYLLABUS OF ENGINEERING DRAWING FOR 1ST SEMESTER– 44 hrs. Duration**

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| **Sl. No.** | **Topics** | **Duration** |
| 1. | Engineering Drawing: Introduction and its importance | 2 hrs. |
|  | -Relationship to other technical drawing types |  |
|  | - | Conventions |  |
|  | - Viewing of engineering drawing sheets. |  |
|  | - Method of Folding of printed Drawing Sheet as per BIS SP:46-2003 |  |
| 2. | Drawing Instruments : their Standard and uses |  |
|  | - Drawing board, T-Square, Drafter (Drafting M/c), Set Squares, | 2 hrs. |
|  |  | Protractor, Drawing Instrument Box (Compass, Dividers, Scale, Diagonal |
|  |  |  |
|  |  | Scales etc.), Pencils of different Grades, Drawing pins / Clips. |  |
| 3. | Lines : |  |
|  | - Definition, types and applications in Drawing as per BIS SP:46-2003 |  |
|  | - | Classification of lines (Hidden, centre, construction, Extension, |  |
|  |  | Dimension, Section) | 3 hrs. |
|  | - | Drawing lines of given length (Straight, curved) |  |
|  | - | Drawing of parallel lines, perpendicular line |  |
|  | - Methods of Division of line segment |  |
| 4. | Drawing of Geometrical Figures: Definition, nomenclature and practice of |  |
|  | - Angle: Measurement and its types, method of bisecting. |  |
|  | - | Triangle -different types | 8 hrs. |
|  | - Rectangle, Square, Rhombus, Parallelogram. |  |
|  | - Circle and its elements. |  |
| 5. | Lettering and Numbering as per BIS SP46-2003: | 8 hrs. |
|  | - Single Stroke, Double Stroke, inclined, Upper case and Lower case. |  |
| 6. | Dimensioning: | 3 hrs. |
|  | - Definition, types and methods of dimensioning (functional, non- |  |
|  |  | functional and auxiliary) |  |
|  | - | Types of arrowhead |  |
|  | - Leader Line with text |  |
| 7. | Free hand drawing of | 6 hrs. |
|  | - | Lines, polygons, ellipse, etc. |  |
|  | - | geometrical figures and blocks with dimension |  |
|  | - | Transferring measurement from the given object to the free hand sketches. |  |
| 8 | Sizes and Layout of Drawing Sheets | 6 hrs. |
|  | - Basic principle of Sheet Size |  |
|  | - | Designation of sizes |  |
|  | - | Selection of sizes |  |
|  | - Title Block, its position and content |  |
|  | - Borders and Frames (Orientation marks and graduations) |  |
|  | - | Grid Reference |  |
|  | - Item Reference on Drawing Sheet (Item List) |  |
| 9. | Method of presentation of Engineering Drawing |  |
|  | - | Pictorial View | 3 hrs. |
|  | - | Orthogonal View |
|  |  |
|  | - | Isometric view |  |
| 10. | Symbolic Representation (as per BIS SP:46-2003) of : | 3 hrs. |
|  | - | Fastener (Rivets, Bolts and Nuts) |  |
|  |  |  |  |

* Bars and profile sections
* Weld, brazed and soldered joints.
* Electrical and electronics element
* Piping joints and fittings

**SYLLABUS OF ENGINEERING DRAWING FOR 2nd SEMESTER– 42 hrs. Duration**

|  |  |  |
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| **Sl. No.** | **Topics** | **Duration** |
|  |  |  |
| 1. | Construction of Scales and diagonal scale | 3 hrs. |
| 2. | Practice of Lettering and Title Block | 3 hrs. |
| 3. | Dimensioning practice: | 3 hrs. |
|  |  | - Position of dimensioning (unidirectional, aligned, oblique as per BIS |  |
|  |  | SP:46-2003) |  |
|  |  | - Symbols preceding the value of dimension and dimensional tolerance. |  |
|  |  | - Text of dimension of repeated features, equidistance elements, |  |
|  |  | circumferential objects. |  |
| 4. | Construction of Geometrical Drawing Figures: |  |
|  |  | - Different Polygons and their values of included angles. Inscribed and | 6 hrs. |
|  |  | Circumscribed polygons. |
|  |  |  |
|  |  | - Conic Sections (Ellipse & Parabola) |  |
| 5. | Drawing of Solid figures (Cube, Cuboids, Cone, Prism, Pyramid, Frustum of | 6 hrs. |
|  | Cone and Pyramid.) with dimensions. |  |
| 6. | Free Hand sketch of hand tools and measuring tools used in respective trades. | 6 hrs. |
| 7. | Projections: | 3 hrs. |
|  | - | Concept of axes plane and quadrant. |  |
|  | - | Orthographic projections |  |
|  | - | Method of first angle and third angle projections (definition and difference) |  |
|  | - | Symbol of 1st angle and 3rd angle projection as per IS specification. |  |
| 8. | Drawing of Orthographic projection from isometric/3D view of blocks | 6 hrs. |
| 9. | Orthographic Drawing of simple fastener (Rivet, Bolts, Nuts & Screw) | 3 hrs. |
| 10. | Drawing details of two simple mating blocks and assembled view. | 3hrs. |