**GURU TEGH BAHADUR INSTITUTE OF TECHNOLOGY**

**G-8 AREA, RAJOURI GARDEN, NEW DELHI**

**B.Tech. (Common to all Branches) Semester: IInd**

**Course: Workshop Technology Subject Code: ES164**

**Credit: 1, Period: 2**

**Course Outcomes (CO):**

CO1: Ability to safely work in a lab/workshop.

CO2: Ability to use machines (Lathe, mill, shaper, planer, grinder, drill).

CO3: Ability to weld.

CO4: Ability to use sheet metal tools and fitting shop tools.

**Programme outcomes (level)**

PO1: Engineering Knowledge

PO2: Problem Analysis

PO3: Design/Development of solutions

PO4: Conduct Investigations of complex problems

PO5: Modern Tool Usage

PO6: The Engineer and society

PO12: Lifelong learning

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Course outcomes to Programme outcomes mapping:**  **Scale1: Low, Scale2: medium, Scale3: High.** | | | | | | | |
| **CO/PO** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO12** |
| **CO1** | 2 | 1 | 2 | 2 | 3 | 3 | 2 |
| **CO2** | 2 | 1 | 2 | 2 | 3 | 1 | 2 |
| **CO3** | 2 | 1 | 2 | 2 | 3 | 1 | 2 |
| **CO4** | 2 | 1 | 2 | 2 | 3 | 1 | 2 |

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**Lab Plan**

**Course: Workshop Technology**

**B.Tech. (Common to all Branches)**

**Semester: IInd Subject Code: ES158**

**Credit: 1, Period: 2**

|  |  |  |
| --- | --- | --- |
| **Unit** | **Topic** | **No of labs( Hrs)** |
| **1** | **Safety, precautions and maintenance:**  **Safety in shop,**  **safety devices,**  **safety and precautions - moving machine and equipment parts, electrical parts and connections, fire, various driving systems like chain, belt and ropes, electrical accidents,**  **an overview of predictive, preventive and scheduled maintenance,**  **standard guidelines to be followed in shop.** | **02(04)** |
| **2** | **Introduction to machine shop: Introduction to Lathe, Milling, shaper, Planer, grinder, drilling and overview of operations performed on these machines by making some jobs.** | **03(06)** |
| **3** | **Introduction to welding shop: Welding, types of welding, tools and applications, gas welding and arc welding, edge preparation, various joints formation by gas welding and electric arc welding.** | **03(06)** |
| **4** | **Introduction to sheet metal shop: Sheet metal tools and operations, formation of a box using sheet.**  **Introduction to fitting shop: Introduction to fitting, tools and applications, some jobs in fitting shop.** | **02(04)** |

**Textbooks:**

1. Workshop Technology Vol. 1 and Vol. 2, Hajra Choudhary and Roy, Media Promoters and Publishers, 2018.

**References:**

1. A course in Workshop Technology Vol.1 and Vol. 2, B. S. Raghuvanshi, Dhanpat Rai and Compnay, 2015.

2. Workshop Technology (Manufacturing Processes), Khurmi and Gupta, S. Chand Publication, 2010.