

Lesson Plan

Name of the Faculty : Mr. Sandeep Chhillar (Theory & Practical)

Discipline : Mechanical Engineering

Semester : 1st

Subject : Workshop Technology & Manufacturing Process lab
(ESC-ME-102G & ESC-ME-103G)

Lesson Plan Duration : 15 Weeks (Nov. 2020 onwards)

** Work Load (Lecture/Practical) per week (in hours): Lectures-02, Practicals-02

| Week | Theory | | Practical | |
|-----------------|-----------------|--|-----------------|--|
| | Lecture Day | Topic (including assignment/test) | Practical day | Topic |
| 1 st | 1 st | Introduction to Manufacturing Processes and their Classification, additive manufacturing | 1 st | To study different types of measuring tools used in metrology and determine least counts of Vernier calipers, micrometers and vernier height gauges. |
| | 2 nd | Industrial Safety; Introduction, Types of Accidents, Causes and Common Sources of Accident | | |
| 2 nd | 3 rd | Methods of Safety, First Aid | | |
| | 4 th | Objectives of Layout, Types of Plant Layout and their Advantages. | | |
| 3 rd | 5 th | Basic Principle of Hot & Cold Working, Hot & Cold Working Processes, Rolling, Extrusion | 2 nd | To study different types of machine tools (lathe, shaper, planer, milling, drilling machines) |
| | 6 th | Forging, Drawing, Wire Drawing and Spinning | | |
| 4 th | 7 th | Sheet Metal Operations: Measuring Layout marking, Shearing, Punching, Blanking, Piercing, Forming, Bending and Joining | 3 rd | To prepare a job on a lathe |
| | 8 th | Advantages of timber, types of timber, defects in timber | | |
| 5 th | 9 th | carpentry tools, classification of metals, fitting tools, fitting | | |

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| | | operations, glass cutting. | | involving facing, outside turning, taper turning, step turning, radius making and parting-off |
| | 10 th | Introduction to Casting Processes, Basic Steps in Casting Processes, Pattern: Types of Pattern and Allowances | | |
| 6 th | 11 th | Sand Casting: Sand Properties, Constituents and Preparation. Gating System | | |
| | 12 th | Melting of Metal, Cupola Furnace, Casting Defects & Remedies, plastic moulding | | |
| 7 th | 13 th | lathe machine, lathe operations | 4 th | To study different types of fitting tools and marking tools used in fitting practice. |
| | 14 th | Shaper and planner machine | | |
| 8 th | 15 th | CNC machining | 5 th | To prepare lay out on a metal sheet by making and prepare rectangular tray pipe shaped components e.g. funnel. |
| | 16 th | Introduction to welding, Classification of Welding Processes, | | |
| 9 th | 17 th | GAS Welding : Oxy-Acetylene Welding | 6 th | To prepare joints for welding suitable for butt welding and lap welding. |
| | 18 th | Resistance Welding : Spot and Seam Welding | | |
| 10 th | 19 th | Arc Welding : Metal Arc, TIG & MIG | | |
| | 20 th | Welding Defects and Remedies, Soldering & Brazing | | |
| 11 th | 21 st | Revision of syllabus | 7 th | To study various types of carpentry tools and prepare simple types of at least two wooden joints |
| | 22 nd | Revision of syllabus | | |
| 12 th | 23 rd | Revision of syllabus | 8 th | To prepare simple engineering components/shapes by forging. |
| | 24 th | Revision of syllabus | | |
| 13 th | 25 th | | 9 th | To prepare mold and core assembly. |
| | 26 th | | | |
| 15 th | 28 th | | 10 th | To prepare horizontal surface/vertical surface/curved surface/slats or V-grooves on a shaper/planner. |
| | 29 th | | | |
| 16 th | 30 th | | | |
| | 32 nd | | | |