

# MECHANICAL ENGINEERING DEPARTMENT

Session 2024-2025(4<sup>th</sup> semester)

Subject:-Workshop Technology-III

Load:-3 hrs Theory

## LESSON PLAN

| Week | THEORY         |                                                                                                                                                                |
|------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | Day<br>Lecture | Topic (Including Assignment/Test)                                                                                                                              |
| 1    | 1              | <b>Gear Manufacturing:</b> Gear Manufacturing by casting, Moulding, Stamping, Machining                                                                        |
|      | 2              | Gear Generating Methods- Gear shaping with pinion and rack cutter, Gear Hobbing                                                                                |
|      | 3              | Gear Finishing Methods                                                                                                                                         |
| 2    | 1              | <b>Grinding:</b> Principle of metal removal by grinding                                                                                                        |
|      | 2              | Factors affecting the selection of grind wheels, size and shape of wheel Kind of abrasive, grain size, grade and strength of bond, structure of grinding wheel |
|      | 3              | Kind of bind material standard marking system s: meaning of letters and number sequence of marking                                                             |
| 3    | 1              | Grades of letters : Truing, dressing, balancing and mounting of wheel selection of grinding wheel                                                              |
|      | 2              | Grinding machines classification: Cylindrical, surface, tool and cutter                                                                                        |
|      | 3              | Revision                                                                                                                                                       |
| 4    | 1              | Test                                                                                                                                                           |
|      | 2              | <b>Modern machining process :</b> Introduction comparison with traditional                                                                                     |
|      | 3              | Ultrasonic machining, Electric Discharge machining, Wire cut EDM                                                                                               |
| 5    | 1              | Abrasive jet Machining, Electric chemical Machining                                                                                                            |
|      | 2              | Class Test                                                                                                                                                     |
|      | 3              | <b>1<sup>st</sup> Sessional test</b>                                                                                                                           |
|      | 4              | <b>Metal Forming Process</b> Shearing, piercing, trimming, punching, Notching, shaving, gearing, embossing, stamping                                           |
| 6    | 1              | Forging : open die and closed die forging                                                                                                                      |
|      | 2              | Press forging- hot and closed forging                                                                                                                          |
|      | 3              | Rolling - elemental theory of rolling                                                                                                                          |
| 7    | 1              | Types of rolling mills                                                                                                                                         |
|      | 2              | Thread rolling, roll passes, Rolling Defects & remedies                                                                                                        |
|      | 3              | Revision                                                                                                                                                       |
| 8    | 1              | Class Test                                                                                                                                                     |
|      | 2              | Doubt clearing Session                                                                                                                                         |
|      | 3              | Extrusion and drawing- Introduction                                                                                                                            |
| 9    | 1              | Types, Hot and cold extrusion                                                                                                                                  |
|      | 2              | Direct and Indirect pipe drawing and wire drawing                                                                                                              |
|      | 3              | Class Test                                                                                                                                                     |

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|----|---|---------------------------------------------------------------------------------------------------------|
| 10 | 1 | Revision                                                                                                |
|    | 2 | <b>2<sup>nd</sup> Sessional test</b>                                                                    |
|    | 3 | <b>Metal finishing processes:</b> Purpose of finishing surface, Surface roughness -definition and units |
| 11 | 1 | Honing Process ,its application, Description of hones                                                   |
|    | 2 | Brief idea of honing machines, Lapping process and its application                                      |
|    | 3 | Polishing Buffing Burnishing & Super finishing                                                          |
| 12 | 1 | <b>Metallic Coating Process:</b> Metal spraying-wire process, powder coating process application        |
|    | 2 | Electroplating ,Basic principles ,Plating metals application                                            |
|    | 3 | Hot dipping Galvanizing .Tin coating                                                                    |
| 13 | 1 | Parkerising Anodizing                                                                                   |
|    | 2 | Organic dipping /Coating- Oil base paint. Enamels, Bituminous paints                                    |
|    | 3 | Rubber base coating, Finishing Impressions                                                              |
| 14 | 1 | Revision                                                                                                |
|    | 2 | Test                                                                                                    |
|    | 3 | <b>3<sup>rd</sup> Sessional test</b>                                                                    |
| 15 | 1 | Revision                                                                                                |
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**Subject Incharge-Ms Jyoti**

**O/I Department-Mr Amit Attri**

