**LESSON PLAN**

**NAME OF THE FACULTY: - Sh. Vipin Kumar**

**DISIPLANE: - ME**

**SAMESTER:- 4th**

**SUBJECT—WT 3**

**Lesson Plan Duration:- 16 weeks**

**Work Load (Lecture/Practical) per week (In hours): Lecture 03**

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| Week | Theory |
|  | **Lecture Day** | **Topic (Including assignment/test)**  |
|  |  |
| 1st | 1st | Gear materials and specifications, Gear manufacturing by Casting,  |
| 2nd | Moulding, Stamping, Machining; |
| 3rd | Gear generating methods: Gear Shaping with pinion cutter & rack cutter; Gear hobbing; |
|  2nd | 4th | Description of gear hob; Operation of gear hobbing machine; Gear finishing processes; |
| 5th | Principles of metal removal by Grinding; Abrasives – Natural & Artificial; Bonds and binding processes: Vitrified,  |
| 6th | silicate, shellac, rubber, bakelite; Factors affecting the selection of grind wheels: size and shape of wheel, |
| 3rd | 7th | kind of abrasive, grain size, grade and strength of bond,  |
| 8th | structure of grain, spacing, kinds of bind material; |
| 9th | Standard marking systems: Meaning of letters & numbers sequence of marking, Grades of letters; |
| 4th | 10th | Truing, dressing, balancing and mounting of wheel. Selection of grinding wheel. |
| 11th | Grinding machines classification: Cylindrical, Surface, Tool & Cutter grinding machines; Construction details; |
| 12th | Principle of centreless grinding; Advantages & limitations of centreless grinding; |
| 5th | 13th | Introduction – comparison with traditional machining;  |
| 14th | Ultrasonic Machining: principle, Description of equipment, applications; |
| 15th | Electric Discharge Machining (EDM): Principle, Description of equipment, Dielectric fluid, |
| 6th | 16th | tools (electrodes), Process parameters, Output characteristics, applications. |
| 17th | Wire cut EDM: Principle, Description of equipment, Controlling parameters; applications; |
| 18th | Abrasive Jet Machining: principle, description of equipment, application; |
| 7th | 19th | Laser Beam Machining: principle, description of equipment, application; |
| 20th | Electro Chemical Machining: description of equipment, application. |
| 21 | Press Working - Types of presses, type of dies and punches, selection of press die, die material.  |
| 8th | 22 | Press Operations-Shearing, piercing, trimming, punching, notching, shaving,  |
| 23 | gearing, embossing, stamping. |
| 24 | Forging - Open die forging, |
| 9th | 25 | closed die forging, |
| 26 | Press forging, upset forging, |
| 27 | swaging, up setters, roll forging, |
| 10th | 28 | Cold and hot forging. |
| 29 | Rolling - Elementary theory of rolling, |
| 30 | Types of rolling mills, |
| 11th | 31 | Thread rolling, roll passes, |
| 32 | Rolling defects and remedies. |
| 33 | Extrusion and Drawing |
| 12th | 34 | Type of extrusion- Hot and Cold, Direct and indirect.,Pipe drawing, |
| 35 | tube drawing, wire drawing |
| 36 | Purpose of finishing surfaces. Surface roughness-Definition and units, |
| 13th | 37 | Honing Process, its applications,  |
| 38 | Description of hones. Brief idea of honing machines. |
| 39 | Lapping process, its applications. |
| 14th | 40 | Description of lapping compounds and tools. |
| 41 | Brief idea of lapping machines. Polishing, Buffing, |
| 42 | Burnishing and super finishing |
| 15th  | 43 | Metal spraying – Wire process, powder coating process, applications, Electroplating:  |
| 44 | Basic principles, Plating metals, applications; |
| 45 | Hot dipping: Galvanizing, Tin coating, |
| 16th  | 46 | Parkerising, Anodizing. Organic coatings: Oil base Paint, |
| 47 | Lacquer base, Enamels, Bituminous paints, |
| 48 | rubber base coating; Finishing specifications. |