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| **LessonPlan** | | |
| Nameof Faculty : Manish Bansal | | |
| Discipline : Automobile | | |
| Semester : 2nd (SECTIONA+B) | | |
| Subject : WORKSHOPTECHNOLOGY-I | | |
| LessonPlanDuration: 15Weeks | | |
| **Week** | **Theory** | |
| **Lecture Day** | **Topic** |
| 1st | 1st | UNIT -1 Hand tools. Chisels – Types and uses of chisels, wood working chisels, metal working chisels – cold chisel, hard chisels. |
| 2nd | Hammers – Types, Basic design and variations, Physics of hammering, Hammer as force multiplier, effect of head’s mass, effect of handle |
| 3rd | Saw – Saw terminology, types of saws, types of saw blades, material used for saw, Hacksaw frame and its types. Pliers – Function and types. Wrenches/ Spanners – Common General wrenches/spanners, |
| 4th | Specialized wrenches/spanners, Surface plate, V block, files, Surface Gauge. |
| 2nd | 5th | Revision |
| 6th | 2. Measuring Instruments. Calipers – Types – Inside, outside, divider, Odd leg caliper. |
| 7th | Vernier Caliper- Parts, uses, checking error, least count, working principle. |
| 8th | Outside micrometer - Introduction, parts, Principle, Least count, Checking zero error. |
| 3rd | 9th | Revision |
| 10th | Unit 2 **Cutting Tools and Cutting Materials.**  Cutting Tools - Various types of single point cutting tools and their uses, Single point cutting tool |
| 11th | geometry, tool signature and its effect, Heat produced during cutting and its effect, Cutting speed, feed and depth of cut and their effect. |
| 12th | Cutting Tool Materials - Properties of cutting tool material, Study of various cutting tool materials viz. High-speed steel, tungsten carbide, cobalt steel cemented carbides, stellite, ceramics and diamond. |

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| 4th | 13th | Revision |
| 14th | 1. Unit 3 **Welding**   Welding Process - Principle of welding, Classification of welding processes, Advantages and limitations of welding, Industrial applications of welding, Welding positions and techniques, symbols. Safety precautions in welding. |
| 15th | SESSIONALTEST-I |
| 16th | Gas Welding - Principle of operation, Types of gas welding flames and their applications, Gas welding equipment - Gas welding torch, Oxygen cylinder, acetylene cylinder, cutting torch, Blow pipe |
| 5th | 17th | Pressure regulators, Filler rods and fluxes and personal safety equipment for welding. |
| 18th | Arc Welding - Principle of operation, Arc welding machines and equipment. |
| 19th | A.C. and D.C. arc welding, Effect of polarity, current regulation and voltage regulation, Electrodes: |
| 20th | Classification,  B.I.S. specification and selection, Flux for arc welding. Requirements of pre heating. |
| 6th | 21st | post heating of electrodes and work piece. Welding defects and their testing methods. |
| 22nd | **Unit 4 Lathe** Principle of turning, Description and function of various parts of a lathe. Classification and specification of various types of lathe, Drives and transmission, Work holding devices. Lathe tools: |
| 23rd | Parameters/Nomenclature and applications. Lathe operations - Plain and step turning, facing, parting off, taper turning, eccentric turning, drilling, reaming, boring, threading and knurling, form turning, |
| 24th | Cutting parameters – Speed, feed and depth of cut for various materials and for various operations, machining time. Speed ratio, preferred numbers of speed selection. Lathe accessories:- Centers, dogs, different types of chucks, collets, face plate, angle plate, mandrel, steady rest. |
| 7th | 25th | taper turning attachment, tool post grinder, milling attachment, Quick change device for tools. Brief description of capstan and turret lathe, comparison of capstan/turret lathe, work holding and tool guiding devices in capstan and turret lathe. |
| 26th | **Unit 5 Drilling**  Principle of drilling. Classification of drilling machines and their description. Various operation performed on drilling machine – drilling, spot facing, reaming, boring, counter boring, counter sinking, |
| 27th | milling, tapping. Speeds and feeds during drilling, impact of these parameters on drilling, |
| 28th | machining time. Types of drills and their features, nomenclature of a drill. Drill holding devices. Types of reamers |
| 8th | 29th | Revision unit 4 |
| 30th | Revision Unit 5 |

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|  | 31st | SESSIONALTEST-II |
| 32nd | Boring Principle of boring, Classification of boring machines and their brief description. |
| 9th | 33rd | Specification of boring machines. Boring tools, boring bars and boring heads. Description ofjig boring machine. |
| 34th | Revision. |
| 35th | Revision. |
| 36th | Cutting Fluids and Lubricants Introduction |
| 10th | 37th | Function of cutting fluid, Types of cutting fluids, Difference between cutting fluid and lubricant, |
| 38th | Selection of cutting fluids for different materials and operations, Common methods of lubrication of machine tools. |
| 39th | Certifying Organizations (such as SAE, ASTM) forrating standards of lubricants. |
| 40th | Revision |
| 11th | 41st | SESSIONALTEST-II |
| 42nd | Revision |
| 43 | Revision |
| 44 | Revision |
| 12th | 45 | Revision |
| 46 | Revision |