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| Discipline – **MECHANICAL ENGG.** | Semester – **4th** | Name of Teacher – **BISWAJIT MISHRA** |
| **Subject – MANUFACTURING TECHNOLOGY** | No. of days/week class allotted --- **4** | Semester from date **02.01.2019** to date  **15.04.2019**  No. of weeks - **15** |
| **Week** | **Class Day** | **Theory/Practical Topics** |
| 1st | 1st | 1. Tool Materials |
| 2nd | Composition of various tool materials |
| 3rd | Physical properties |
| 4th | Uses of such tool materials |
| 2nd | 1st | 2. Cutting Tools |
| 2nd | Cutting action of various hand tools such as Chisel, hack saw blade, dies and reamer |
| 3rd | Turning tool geometry and purpose of tool angle |
| 4th | Machining process parameters (Speed, feed and depth of cut) |
| 3rd | 1st | Coolants and lubricants in machining |
| 2nd | Purpose of coolants and lubricants in machining |
| 3rd | 3. Lathe Machine: Construction and working of lathe |
| 4th | Operations carried out in a lathe (Turning, thread cutting, taper turning, internal machining, parting off, facing, knurling) |
| 4th | 1st | Safety measures during machining |
| 2nd | Capstan lathe: Difference with respect to engine lathe |
| 3rd | Major components and their function Define multiple tool holders |
| 4th | Turret Lathe: Difference with respect to capstan lathe |
| 5th | 1st | Major components and their function |
| 2nd | Draw the tooling lay out for preparation of a hexagonal bolt & bush |
| 3rd | 4. Shaper: Potential application areas of a shaper machine |
| 4th | Major components and their function |
| 6th | 1st | Explain the automatic table feed mechanism |
| 2nd | Explain the construction & working of tool head |
| 3rd | Explain the quick return mechanism through sketch |
| 4th | State the specification of a shaping machine. |
| 7th | 1st | 5. Planning Machine |
| 2nd | Application area of a planar and its difference with respect to shaper |
| 3rd | Major components and their functions |
| 4th | The table drive mechanism |
| 8th | 1st | Working of tool and tool support |
| 2nd | Clamping of work through sketch. |
| 3rd | 6. Milling Machine |
| 4th | Types of milling machine and operations performed by them |
| 9th | 1st | Explain work holding attachment |
| 2nd | Construction & working of simple dividing head, universal dividing head |
| 3rd | Procedure of simple and compound indexing |
| 4th | Illustration of different indexing methods |
| 10th | 1th | 7. Slotter: major components |
| 2nd | Their function |
| 3rd | Construction of slotter machine |
| 4th | Working of slotter machine |
| 11th | 1st | Tools used in slotter |
| 2nd | Tools used in slotter |
| 3rd | 8. Grinding: Significance of grinding operations |
| 4th | Manufacturing of grinding wheels |
| 12th | 1st | Criteria for selecting of grinding wheels |
| 2nd | Specification of grinding wheels with example |
| 3rd | Working of Cylindrical Grinder, Surface Grinder |
| 4th | Working of Centre less Grinder |
| 13th | 1st | 9. Internal Machining operations:  Classification of drilling machines |
| 2nd | Working of Bench drilling machine, Pillar drilling machine |
| 3rd | Working of Radial drilling machine |
| 4th | Boring: Basic Principle of Boring |
| 14th | 1st | Different between Boring and drilling |
| 2nd | Broaching: Types of Broaching (pull type, push type),Advantages of Broaching and applications |
| 3rd | 10. Surface finish, lapping: Definition of Surface finish, Define super finishing |
| 4th | Description of lapping & explain their specific cutting. |
| 15th | 1st | Revision and previous year questions |
| 2nd | Revision and previous year questions |
| 3rd | Revision and previous year questions |
| 4th | Revision and previous year questions |

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| **Learning Resources:** |
| **Text Books:**  1. Work shop Technology by Hazra Choudhary Vol.-I,Vol.-II  2. Manufacturing Technology by P. N. Rao, Vol.- I, Vol.- II |