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| **Discipline: Mechanical Engineering** | **Semester :**  **4th Semester-2022-23** | **Name of the Teaching Faculty: Miss,Shradha Suman Adabar Lect. In Mechanical**  **Engineering** |
| **Subject: FLUID MECHANICS** | **No. of Days/week Class Allotted: 60** | **Semester from date: 14/02/ 2023 to date:**  **27/05/2023 No of weeks: 18** |
| **week** | **Class Day** | **Theory Topics** |
| 1st | 1st | Define fluid |
| 2nd | Description of fluid properties like Density, Specific weight, specific gravity, specificvolume and solve simple problems.. |
| 3rd | Description of fluid properties like Density, Specific weight, specific gravity, specificvolume and solve simple problems |
| 4th | Description of fluid properties like Density, Specific weight, specific gravity, specificvolume and solve simple problems |
| 2nd | 1st | Definitions and Units of Dynamic viscosity, kinematic viscosity,surface tension  Capillary phenomenon |
| 2nd | Definitions and Units of Dynamic viscosity, kinematic viscosity,surface tension  Capillary phenomenon |
| 3rd | Definitions and units of fluid pressure, pressure intensity and pressur  head. |
| 4th | Definitions and units of fluid pressure, pressure intensity and pressure head. |
| 3rd | 1st | Statement of Pascal’s Law |
| 2nd | Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolutepressure |
| 3rd | Pressure measuring instruments |
| 4th | Manometers (Simple and Differential) |
| 4th | 1st | Bourdon tube pressure gauge(Simple Numerical) |
| 2nd | Solve simple problems on Manometer |
| 3rd | Solve simple problems on Manometer |
| 4th | Solve simple problems on Manometer. |
|  | 1st | Solve simple problems on Manometer |

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| 5th | 2nd | Definition of hydrostatic pressure |
| 3rd | Total pressure and centre of pressure on immersed bodies(Horizontal and Vertical Bodies) |
| 4th | Total pressure and centre of pressure on immersed bodies(Horizontal and Vertical Bodies) |
| 6th | 1st | Total pressure and centre of pressure on immersed bodies(Horizontal and Vertical Bodies) |
| 2nd | Solve Simple problems |
| 3rd | Solve Simple problems |
| 4th | Solve Simple problems |
| 7th | 1st | Archimedes ‘principle, concept of buoyancy, meta center and meta centric height(Definition only) |
|  | 2nd | Archimedes ‘principle, concept of buoyancy, meta center and meta centric height(Definition only) |
| 3rd | Concept of floatation |
| 4th | Types of fluid flow |
| 8th | 1st | Continuity equation(Statement and proof for one dimensional flow) |
| 2nd | Continuity equation(Statement and proof for one dimensional flow)  . |
| 3rd | Bernoulli’s theorem(Statement and proof)  Applications and limitations of Bernoulli’s theorem (Venturimeter, pitot tube) |
| 4th | Bernoulli’s theorem(Statement and proof)  Applications and limitations of Bernoulli’s theorem (Venturimeter, pitot tube) |
| 9th | 1st | Bernoulli’s theorem(Statement and proof)  Applications and limitations of Bernoulli’s theorem (Venturimeter, |

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|  |  | pitot tube) |
| 2nd | Bernoulli’s theorem(Statement and proof)  Applications and limitations of Bernoulli’s theorem (Venturimeter, pitot tube) |
| 3rd | Define orifice |
| 4th | Flow through orifice |
| 10th | 1st | Orifices coefficient & the relation between the orifice coefficients  . |
| 2nd | Classifications of notches & weirs |
| 3rd | Discharge over a rectangular notch or weir  . |
| 4th | Discharge over a triangular notch or weir |
| 11th | 1st | Simple problems on above |
| 2nd | Simple problems on above |
| 3rd | Simple problems on above |
| 4th | Definition of pipe. |
| 12th | 1st | Loss of energy in pipes. |
| 2nd | Head loss due to friction: Darcy’s and Chezy’s formula (Expression only) |
| 3rd | Solve Problems using Darcy’s and Chezy’s formula. |
| 4th | Solve Problems using Darcy’s and Chezy’s formula. |
| 13th | 1st | Hydraulic gradient and total gradient line |
| 2nd | Impact of jet on fixed and moving vertical flat plates |

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|  | 3rd | Derivation of work done on series of vanes and condition for maximumefficiency. |
| 4th | Derivation of work done on series of vanes and condition for maximumefficiency. |
| 14th | 1st | Impact of jet on moving curved vanes, illustration using velocity triangles,derivation of work done, efficiency. |
| 2nd | Impact of jet on moving curved vanes, illustration using velocity triangles,derivation of work done, efficiency. |
| 3rd | Revision of Chapter – 1 |
| 4th | Revision of Chapter – 2 |
| 15th | 1st | Revision of Chapter – 2 |
| 2nd | Revision of Chapter – 3 |
| 3rd | Revision of Chapter – 3 |
| 4th | Revision of Chapter – 4 |
| 16th | 1st | Revision of Chapter – 4 |
| 2nd | Revision of Chapter – 5 |
| 3rd | Revision of Chapter – 5 |
| 4th | Revision of Chapter – 6 |
| 17th | 1st | Revision of Chapter – 6 |
| 2nd | Revision of Chapter – 7 |
| 3rd | Discussion of Probable Questions and Answers (1) |
| 4th | Discussion of Probable Questions and Answers(2) |
| 18th | 1st | Discussion of Probable Questions and Answers (3) |
| 2nd | Discussion of Probable Questions and Answers(4) |
| 3rd | Discussion of Probable Questions and Answers (5) |
| 4th | Discussion of Probable Questions and Answers (6) |