**19CE22P1 - FLUID MECHANICS & HYDRAULIC MACHINERY LABORATORY**

**(Civil Engineering)**

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| **Course Category**  | Professional Core | **Credits** | 1.5 |
| **Course Type** | Laboratory | **Lecture - Tutorial - Practical** | 0-0-3 |
| **Prerequisite**  | Fluid Mechanics | **Sessional Evaluation**  | 40 |
| **Semester End Exam. Evaluation** | 60 |
| **Total Marks** | 100 |

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| **Course Objective(s)** | To impart knowledge of evaluating various flow measuring devices and hydraulic machines. |
| **Course Outcomes** | CO1 | Calibration of orifice and mouthpiece. |
| CO2 | Determination of efficiency of notches, venturimeter and orifice meter. |
| CO3 | Evaluate the major and minor losses in pipe network. |
| CO4 | Evaluate the performance characteristics of pump. |
| CO5 | Evaluate the performance characteristics of turbine. |
| CO6 | Evaluate the Chezy’s and Manning’s coefficient in open channel flow. |
| **Course Content** | **LIST OF EXPERIMENTS****I. EXPERIMENTS ON CALIBRATION OF** 1. Orifice
2. Mouth piece
3. Notch
4. Venturimeter
5. Orifice meter
6. Bend meter
7. Friction loss through a pipe
8. Gate valve
9. Bend loss
10. Sudden contraction
11. Sudden Expansion
12. Open channel

**II. EXPERIMENTS ON PERFORMANCE CHARACTERISTICS OF** 1. Turbines
2. Pumps
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**CO-PO Mapping:**3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - -Not Mapping

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|   | **a** | **b** | **c** | **d** | **e** | **f** | **g** | **h** | **i** | **j** | **k** | **l** |
| **CO1** | 3 | 2 | 1 | 2 | 2 | - | - | - | 1 | 2 | 1 | 1 |
| **CO2** | 3 | 3 | 2 | 2 | 1 | - | - | - | 1 | 3 | 1 | 2 |
| **CO3** | 3 | 3 | 1 | 1 | 1 | - | - | - | 1 | 2 | 2 | 1 |
| **CO4** | 3 | 2 | 1 | 2 | 2 | 2 | - | - | 1 | 2 | 2 | 1 |
| **CO5** | 3 | 3 | 2 | 2 | 1 | 2 | - | - | 1 | 3 | 1 | 2 |
| **CO6** | 3 | 2 | 1 | 2 | 2 | - | - | - | 1 | 2 | 1 | 1 |