

**IIT Mandi**  
**Proposal for a New Course**

**Course number** : ME210P  
**Course Name** : Thermo-Fluids Lab  
**Credit** : 1  
**Distribution** : 0-0-2-1  
**Intended for** : UG  
**Prerequisite** : ME210 – Fluid Mechanics  
**Mutual Exclusion**: NA

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**1. Preamble:**

To introduce students to different fluid systems and their evaluation.

**2. Course Modules with quantitative lecture hours:**

NA

**Laboratory/practical/tutorial Modules:**

- 1) **Flow Visualization**
- 2) **Validation of Bernoulli's Theorem**
- 3) **Application of Flow Measuring Devices**
- 4) **Major & Minor Losses in Pipes**
- 5) **Measurement of Pipe Friction Factor**
- 6) **Identifying Losses in Pipe Fittings**
- 7) **Static Pressure Measurement in a Wind Tunnel**
- 8) **Performance Analysis of Francis & Pelton Turbine**
- 9) **Determination of Metacentric Height**
- 10) **Measurement of Lift & Drag on an Aero-foil**
- 11) **Calibration of Various Notches**
- 12) **Momentum Eqn. Verification Using Jet Impaction**
- 13) **Vortex Flow Measurement**
- 14) **Pitot Static Tube Calibration**

**3. Text books:**

- J. P. Holman, Experimental Methods for Engineers, 7th edition, Tata McGraw-Hill 2001.
- T.G. Beckwith, J.H. Lienhard V, R. D. Marngoni, Mechanical Measurements, 5th edition, Pearson Education, 2010.
- E.O. Doebelin, Measurement systems, Application and Design, 5th edition, Tata McGraw-Hill, 2008
- Fox and Mc Donald, Introduction to Fluid Mechanics, 7th Edition, John Wiley, 2009

**4. References:**

NA

**5. Similarity with the existing courses:**

**(Similarity content is declared as per the number of lecture hours on similar topics)**

NA

S. No.		Course Code	Similarity Content	Approx. % of Content	
1.					

**6. Justification of new course proposal if cumulative similarity content is >30%:**

NA