Approval: 8th Senate Meeting

Course Name: Thermo – Fluids laboratory

Course Number: ME 310P

Credit: 0-0-3-2

Prerequisites: ME 303 Heat Transfer and ME 210 Fluid Mechanics

Students intended for: UG

Elective or Core: Core for ME

Semester: Odd

Course Preamble: To introduce students to different thermal and fluid systems and their evaluation.

Course Outline:

The course introduces various thermal and fluid systems and their analysis.

Modules:

1. Uncertainty in measurements, curve fitting, introduction to the use of temperature measuring devices – thermometers, RTD, Thermocouples
2. Determination of the calorific values of unknown fuels using the Bomb Calorimeter
3. Evaluation of Energy efficiency of different stoves
4. Parallel and series pump characteristics
5. Finding the minor and major losses in pipes
6. Flow visualization
7. Determination of heat transfer coefficient during the natural convection
8. Determination of heat transfer coefficient during the forced convection
9. Shell and tube heat exchanger analysis under parallel and counter flow conditions
10. Static pressure measurement on an aerofoil in wind tunnel
11. Energy balance of 4 – S engine and exhaust gas analysis of the engine
12. Vapour compression refrigeration test rig
13. Determination of critical heat flux in pool boiling