Course Type	Course Code	Name of Course	L	Т	Р	Credit
DP	NPEC104	Process Engineering Lab	0	0	3	1.5

**Course Objectives:** To provide on-hand training of different control process required in oil and gas filed operations.

## Learning Outcomes:

Exposure of different equipment.

## **COURSE CONTENT:**

Exp. No.	Name of the Experiment	Contact Hrs
1.	Determination of Power Input, Heat Output and Coefficient of Performance of Mechanical Heat Pump.	
2.	To investigate and measure the Heat Flux and Surface Heat Transfer coefficient during Film wise and Drop wise Condensation at atmospheric pressure.	2
3.	To investigate the stability limit of gaseous fuel and compare the limits of stable operation of various burners operating on gaseous fuel by plotting test results on a 'Fuidge' diagram. Measure the Flame speed of air/gas mixture	2
4.	To show that ON/OFF control produces oscillations of the controlled variable at the set point, and the magnitude and period of such oscillations are related to the process delay time.	
5.	Determine the Surface Heat Transfer Coefficient inside & outside the tube, overall heat transfer coefficient and the effect of fluid velocity on these and show it graphically.	2
6.	Study of Centrifugal pump Characteristics and to determine; Power Input, Shaft Output, Discharge, Total Head, Pump Output, Overall Efficiency and Pump Efficiency	2
7.	Study of heat transfer in natural convection process, and determination of the Heat transfer coefficient of heated vertical cylinder, which is exposed to atmosphere.	2
8.	To investigate the flow round a 90° bend in a duct of rectangular section using pressure tapings along the walls to establish pressure Co-efficient.	2
9.	To investigate- Fourier's law for linear conduction of heat along a simple bar. Effect of Surface contact on thermal conduction. The rate of heat transfer from radial steady conduction through a wall of cylinder.	2
10.	Inverse Square Law: To Show that the luminance of a surface is inversely proportional to the square of the distance of the surface from the light source.	2
11.	Lambert's Cosine Law: To show that the energy radiated in any direction at an angle with a surface is equal to the normal radiation multiplied by the cosine of the angle between the direction of the radiation and the normal to the surface.	2

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