



## Thermodynamics

SWAYAM Prabha Course Code – M08

<b>PROFESSOR'S NAME</b>	Prof. Amit Agrawal
<b>DEPARTMENT</b>	Mechanical Department
<b>INSTITUTE</b>	Indian Institute of Technology, Bombay
<b>COURSE OUTLINE</b>	Besides course outline, it should also indicate if there are any pre-requisites (i.e, prior knowledge) required .
	<p>Introduction to thermodynamics. System, surroundings, boundaries, classification of systems.</p> <p>Properties of systems. Equilibrium, processes, interactions. Work interaction. Adiabatic systems.</p> <p>The First Law. Energy of a system. Heat interaction. Zeroth law. Isothermal states. Empirical temperature. Principles of thermometry. Gas thermometer.</p> <p>Ideal gas temperature scale. The state principle. Equations of state. Introduction to steam tables. Other equations of state. Critical state. Reduced equation of state.</p> <p>First law for open systems. Derivation of the general form. Special cases.</p> <p>The Second Law. Carnot theorem. Thermodynamic temperature. Carnot engine. Clausius inequality. Definition of entropy. Evaluation of entropy. Formulation of second law for closed and open systems. Combined first and second laws. Availability and Exergy. Lost work.</p>

### COURSE DETAILS

S. No	Module ID/ Lecture ID	Lecture Title/Topic
1	L1	Introduction to Thermodynamics
2	L2	Introduction to Thermodynamics (contd)
3	L3	Introduction to Thermodynamics (contd)

<b>4</b>	<b>L4</b>	Properties of a Pure Substance
<b>5</b>		
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**References if**

**Any:**