



DEPARTMENT OF SCIENCE & HUMANITIES

Online Course Title	Understanding Thermodynamics for Science and Engineering
Faculty attended	Dr. SU. Narmatha
Learning Outcome	To know the concepts of Thermodynamics and its applications in Engineering field.
Summary / Content of the programme	<ul style="list-style-type: none">➤ This course deals about the basics of thermodynamics. Thermodynamics is the branch of physics that deals with the relationships between heat and other forms of energy. It describes how thermal energy is converted to and from other forms of energy and how it affects matter. Thermal energy is the energy a substance or system has due to its temperature, i.e., the energy of moving or vibrating molecules. The concepts of pressure, volume and temperature are explained and the relationships between each are outlined. It also deals about how to convert between different scales of temperature and breaks down how to use physics formulas to solve real world problems.The following are the laws of thermodynamics➤ The Zeroth Law states that if two bodies are in thermal equilibrium with some third body, then they are also in equilibrium with each other. This establishes temperature as a fundamental and measurable property of matter.➤ The First Law states that the total increase in the energy of a system is equal to the increase in thermal energy plus the work done on the system. This states that heat is a form of energy and is therefore subject to the principle of conservation.➤ The Second Law states that heat energy cannot be transferred from a body at a lower temperature to a body at a higher temperature without the addition of energy. This is why it costs money to run an air conditioner.➤ The Third Law states that the entropy of a pure crystal at absolute zero is zero. Entropy is also called "waste energy," i.e., energy that is unable to do work, and since there is no heat energy whatsoever at absolute zero, there can be no waste energy.➤ Entropy is also a measure of the disorder in a system, and a perfect crystal means perfectly ordered, any positive value of temperature means there is motion within the crystal, which causes disorder. For these reasons, there can be no physical system with lower entropy, so entropy always has a positive value.

**Suggestions /
comments of
Faculty**

Organising committee and content of presentation is excellent.