MECHANICAL ENGINEERING SCIENCE (UE25ME141A/B)

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Macroscopic study

- This is the study and analysis of systems taking the entire mass of the system as a whole.
- The branch of thermodynamics that deals with such a study is called **classical thermodynamics**.

Microscopic study

- In this, the study and analysis of systems is made at a molecular level taking into consideration the effect of individual molecules on the behaviour of the system.
- The branch of thermodynamics that deals with such a study is called **statistical thermodynamics.**

State and Properties of a system

State of a system

- It refers to the condition of the system at any given instant of time.

Properties of a system

- These are the observable characteristics of a system that can be used to define the state of the system.

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Intensive and Extensive Properties

Intensive properties

- These are the properties that are independent of the mass of a system. E.g. temperature, pressure

Extensive properties

- These are the properties that are dependent on the mass of a system. E.g. volume, mass

Important Observations

- Value of intensive properties is the same at all points in a system.
- Value of an extensive property for a system is the sum of the values of the property at different points.

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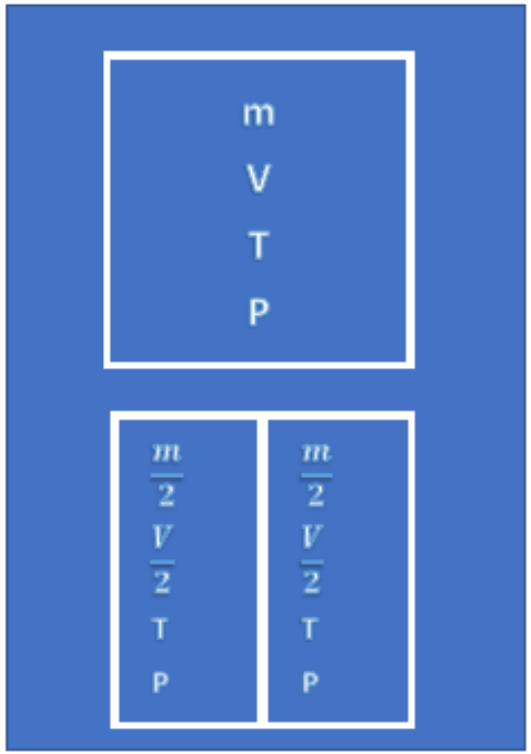
Intensive and Extensive Properties

When a system is divided into two equal parts its extensive properties in each part will be one half of the value for the undivided part, where as the value of intensive properties remain unchanged



THANK YOU

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