MECHANICAL ENGINEERING SCIENCE (UE25ME141A/B)

Dr. Mantesh B Khot

Department of Mechanical Engineering

MECHANICAL ENGINEERING SCIENCE

Unit 1- Principles of Thermodynamics, Fluid Energy, IC Engines and HEVs

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Courtesy: Dr. V Krishna, Department of Mechanical Engineering

MECHANICAL ENGINEERING SCIENCE

System, Boundary and Surroundings

- Engineering thermodynamics is the branch of science that deals with the study of energy, its transformations, and its relation to matter. It focuses on the principles governing the conversion of energy—particularly heat and work—into useful forms.

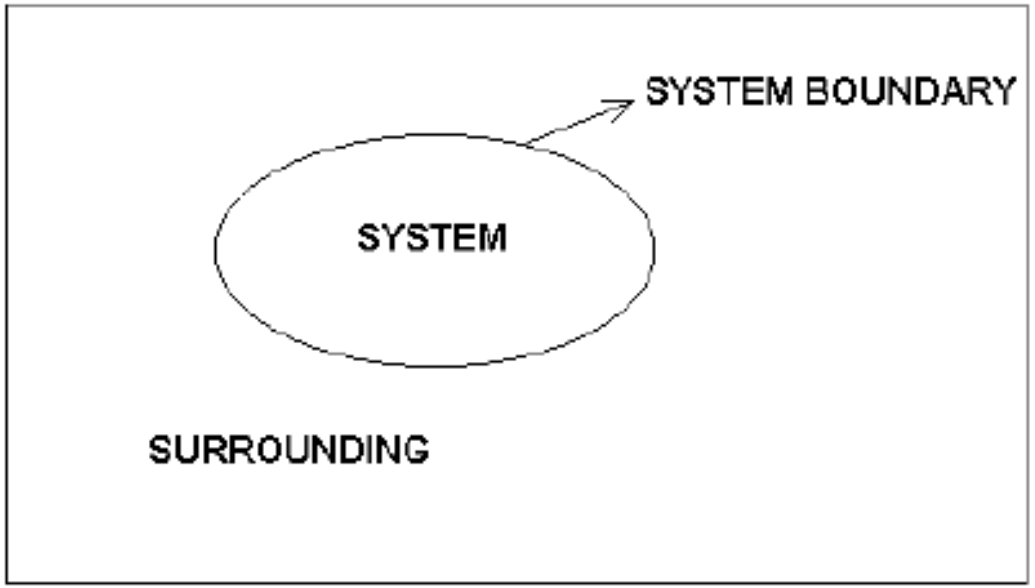
- And is fundamental to the analysis and design of engines, power plants, refrigeration systems, and other engineering systems.

- In essence, engineering thermodynamics applies the laws of thermodynamics to practical problems in mechanical, chemical, and other engineering fields to understand how energy systems perform and how they can be optimized.

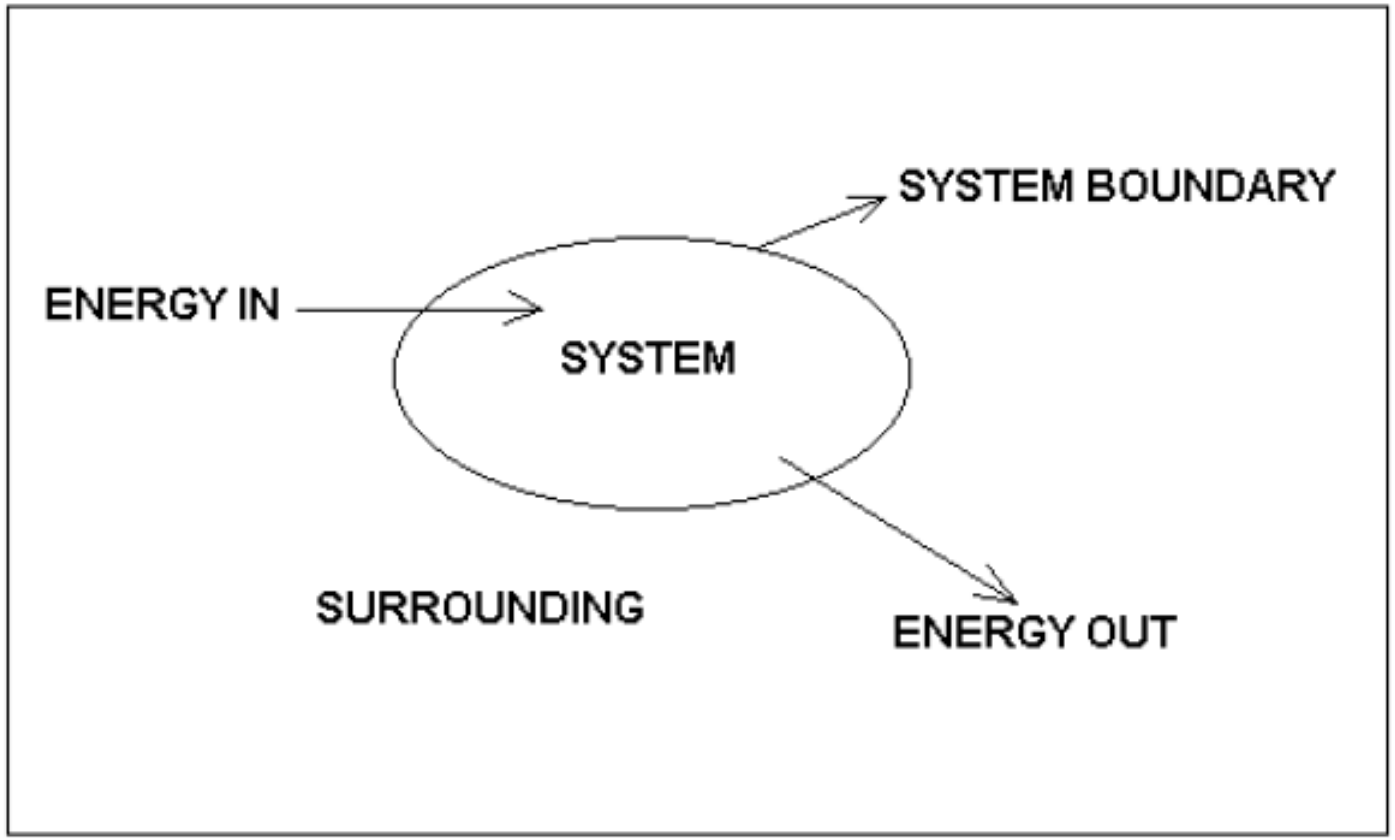
MECHANICAL ENGINEERING SCIENCE

System, Boundary and Surroundings

1. Thermodynamic System
2. Surroundings
3. Boundary
4. Universe



Closed System



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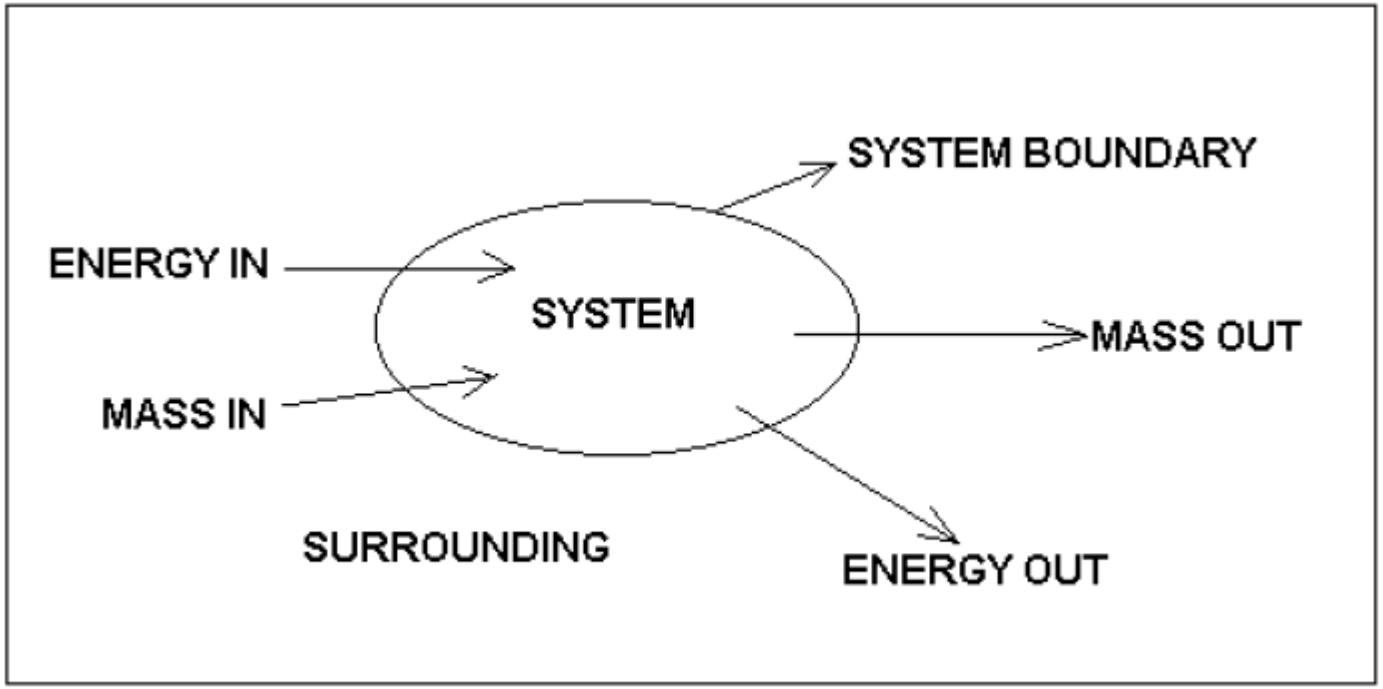
Open System



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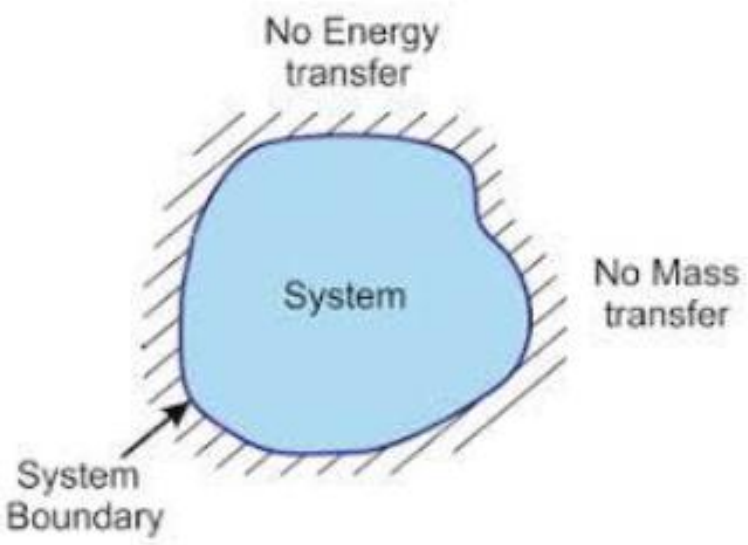
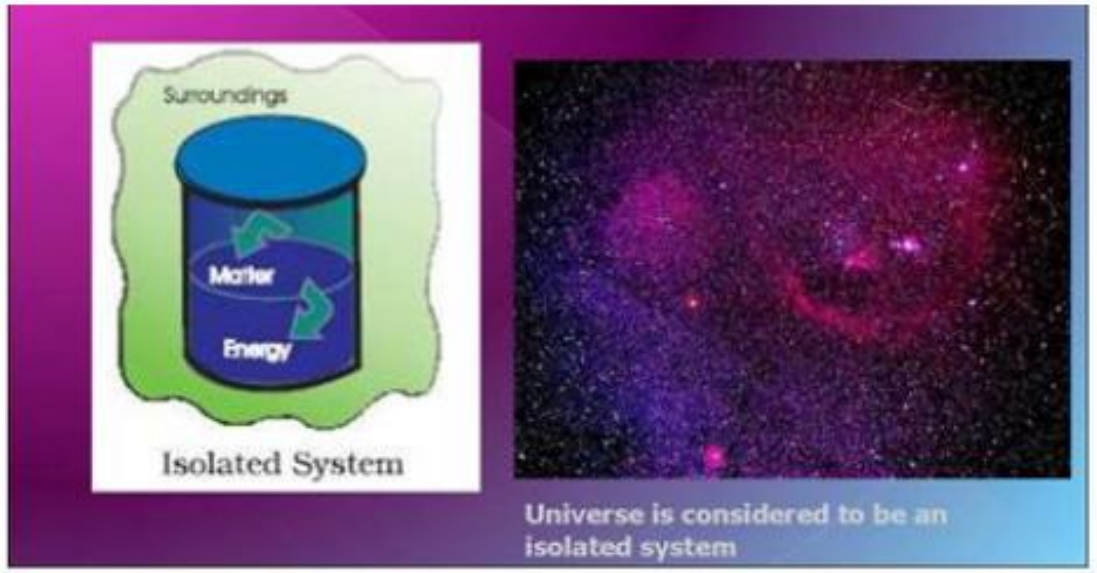
Isolated System



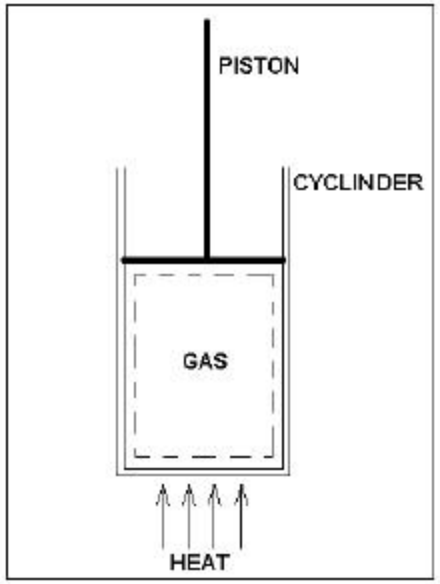


Can you recognize and classify the following as closed, open and isolated systems?

Electric Bulb

Centrifugal Pump

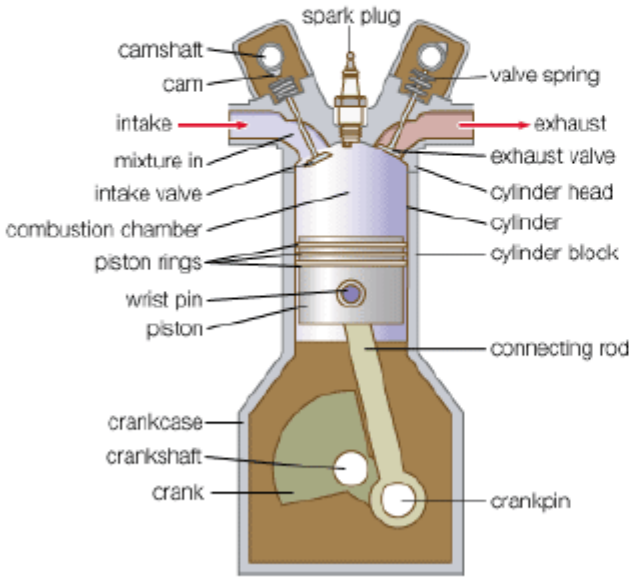
Can you recognize and classify the following as closed, open and isolated systems?



Gas in a piston-cylinder enclosure

Thermos Flask

Can you recognize and classify the following as closed, open and isolated systems?



IC Engine

Electric Stove

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Can you recognize and classify the following as closed, open and isolated systems?

Air Compressor

Refrigerator

THANK YOU

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