ECE 309 M.M. Yovanovich

Thermodynamic Systems

Definition

A thermodynamic system is a definite quantity of matter occupying a volume which is bounded by a closed surface which is impervious to the flow of matter. The surface is called the boundary of the system. The boundary may be real or imaginary. The boundary may be fixed or deformable. Everything outside the boundary of the system is called its surroundings.

Depending on the nature of the system boundary the thermodynamic system is classified as:

- **Closed System** - allows only exchange of energy
- **Open System** - allows exchange of both matter and energy
- **Isolated System** - heat and work cannot cross the system boundary