Thermodynamic Terms:

Types of Energy
potential: energy due to relative position.
kinetic: energy due to relative velocity.
internal: the sum of all potential and kinetic energies.
heat: energy transferred between system and surroundings due to temperature difference.
work: energy transferred between system and surroundings due to pressure difference.

Heat Units
Calorie: energy required to raise one gram of water by 1°C.
BTU: energy required to raise one pound of water by 1°F.

Thermodynamic Systems
closed: energy can cross system boundaries, but mass cannot.
open: both energy and mass can cross system boundaries.
isolated: neither energy nor mass can cross system boundaries.

States
saturation pressure (vapor pressure): pressure at which a phase change will take place at a given temperature.
saturation temperature: temperature at which a phase change will take place at a given pressure.
subcooled liquid: liquid at a temperature below its saturation temperature.
superheated vapor: vapor at a temperature above its saturation temperature.
critical point: saturated state where the liquid and vapor phases become indistinguishable.
triple point: saturated state where the solid, liquid and vapor states coexist.

Thermodynamic Properties
mass: the property of a body that is a measure of its inertia, and causes it to have weight in a gravitational field.
temperature: a measure of the relative hotness or coldness of a substance.
pressure: force per unit area.
density: mass per unit volume.
specific volume: the amount of space occupied by a unit mass of a substance.
internal energy: sum of all potential and kinetic energies in a substance.
enthalpy: the total useful energy in a substance.
entropy: a measure of energy which is no longer available to perform useful work.
specific heat: the amount of energy necessary to raise the temperature of a substance under constant pressure (c_p) or constant volume (c_v).
latent heat: energy necessary to produce a change in phase without causing a temperature change.
sensible heat: energy that changes temperature.

Thermodynamic Processes
adiabatic: no heat crosses the system boundary

isenthalpic (throttling): constant enthalpy
isentropic: constant entropy
isobaric: constant pressure
isochoric (isometric): constant volume
isothermal: constant temperature

Idealized Thermodynamic Cycles

Vapor Cycles:
Carnot: Isentropic compression; isobaric/isothermal heat addition (vaporization); isentropic expansion; isobaric/isothermal heat rejection (condensation). This cycle, though not practical to implement, represents the maximum efficiency attainable from any heat engine.
Rankine: Isentropic compression; isobaric heat addition; isobaric/isothermal heat addition (vaporization); isentropic expansion; isobaric/isothermal heat rejection (condensation). This cycle is closely approximated in actual steam turbine plants.

Combustion Cycles:
Otto: Isentropic compression; isochoric heat addition; isentropic expansion; isochoric heat rejection.
Diesel: Isentropic compression; isobaric heat addition; isentropic expansion; isochoric heat rejection.
Brayton: Isentropic compression; isobaric heat addition; isentropic expansion; isobaric heat rejection.
Ericcson: Isothermal compression; isobaric heat addition; isothermal expansion; isobaric heat rejection.
Stirling: Isothermal compression with heat rejection; isochoric heat addition; isothermal expansion with heat addition; isochoric heat rejection.

Refrigeration Cycles:
Reversed Carnot: Isentropic compression; isobaric/isothermal heat rejection (condensation); isentropic expansion; isobaric/isothermal heat addition (evaporation).
Vapor Compression: Isentropic compression; isobaric heat rejection; isobaric/isothermal heat rejection (condensation); isenthalpic expansion; isobaric/isothermal heat addition (evaporation). This is the idealized cycle for most modern air conditioning and refrigeration systems.
Reversed Brayton: Isentropic compression; isobaric heat rejection; isentropic expansion; isobaric heat addition. This cycle uses air as a refrigerant.
Reversed Stirling: Isothermal compression with heat rejection; isochoric heat rejection; isothermal expansion with heat addition; isochoric heat addition.