## **RECOMMENDED BOOK(S)**

AppliedThermodynamicsforEngineeringTechnologistsbyT.DEastopandA McConkey Thermodynamics, anEngineering Approach, By YunusA. Cengel,MichaelA.BolesMcGraw-Hill FundamentalsofEngineeringThermodynamics,ByM.J.MoranandH.O.Shapiro,JohnWiley&Sons

**REFERENCE BOOK(S)** 

Fundamentals	of	Thermodynamics,	By	Sonntang,
Borgnakke, VanWyl	enJohnWile	ey&Sons		

## **COURSE OBJECTIVES**

Togainbasic

conceptsofthermodynamicsanditslaws, conservation of energy and cycle concepts. Properties of working fluids.

S. No.	CLO/PLOS MAPPING	DOMAIN	PLO
1	<b>Apply</b> the first law of thermodynamics to closed systems, compute the thermodynamic properties of fluids and use of steam stables for phase diagrams.	C3	01
2	<b>Construct</b> thermodynamic processes on appropriate diagrams and <b>apply</b> the second law of thermodynamics in view of entropy balance.	C3, C5	02
3	<b>Apply</b> the second law of thermodynamics to refrigeration and heat pump cycles with a view to improve their performance.	C3	02
COURS	SE CONTENTS		

Basic concepts: the system, control volume, working substance, heat and work, state and properties, thermodynamic process and cycle, first law of thermodynamics, ideal gas laws, equations of state, thermodynamic temperature scaleconcept of open and closed cycles Properties of pure substances: phase diagram, use of steam tables.

Thermodynamic processes relationship: constant volume, constant pressure, constant temperature constant enthalpy and general law processes, steady state and steady flow process, uniform state and uniform flow processes, steady flow energy equation and steady

flow devices.

Second law of thermodynamics: definitions, applications, reversible and irreversible processes, Carnot cycle and concept of entropy and its application to flow and non-flow processes, enthalpy-entropy diagrams of working fluids, thermodynamic cycles, efficiencies, and their applications, Idealized P-V and T-S diagrams of cycles, Rankinecycle and its application.