Ministry of Higher Education
and Scientific Research
University of Anbar

College of Engineering
Mechanical Engineering Department
2nd Year – ME2303

THERMODYNAMICS

Instructor: *Asst. Prof. Dr. SAAD M. JALIL*

➢ Textbooks:

1. *T.D. ESTOP – A. MCCNKEY* "Applied Thermodynamics".
2. *RAYNER JOEL* "Basic Engineering Thermodynamics".

➢ Other useful books:

1. *SONNTAG, BORGNAKKE and VAN WYLEN*" Fundamental of Thermodynamics".
2. *YUNUS A. CENGEL and MICHAEL A. BOLES*" Thermodynamics an Engineering Approach".
3. *MERLE C. POTTER and CRAIG W. SOMERTON* "Engineering thermodynamics".

➢ Course Contents:

Week	Subject	Week	Subject
1	***Concepts, Definitions, And Basic Principles***	17	***The Second Law of Thermodynamics***
2	Dimensions and Units	18	Heat Engine and Its Types
3	Thermodynamic Systems	19	Refrigerators & Heat Pumps
4	Properties and State of Substance	20	***Entropy***
5	Processes and Cycles	21	Entropy of Single Phase (Ideal Gas)
6	Forms of Energy & Reversibility	22	Entropy of Tow Phase (Vapor)
7	The Zeroth & First Laws of Thermodynamics	23	***Heat Engine Cycles***
8	The Steady & Non-Flow Energy Equations	24	Carnot & Otto Cycles
9	***Ideal Gas (Single Phase System) and Its Laws***	25	Brayton & Diesel Cycles
10	Reversible & Irreversible Processes	26	Dual Cycle and Mean Effective Pressure
11	Specific Heats	27	***Steam Cycles (Carnot & Rankine Cycles)***
12	***Steam and Tow Phase System (Vapor)***	28	Superheated & Reheated Rankine Cycles
13	Important Terms for Steam	29	***Refrigeration System***
14	Reversible & Irreversible Processes	30	Carnot Cycle
15	Measurement of Quality	31	Refrigeration Cycles
16	***First Semester Exam (Fall Semester)***	32	***Second Semester Exam (Spring Semester)***