Course Description - Thermodynamics

1. Course Name:

Thermodynamics

2. Course Code:

THER376

3. Semester / Year:

First semester/ Third Class / 2023-2024

4. Description Preparation Date:

1/2/2024

5. Available Attendance Forms:

Presence

6. Number of Credit Hours (Total) / Number of Units (Total)

Theory (2 hours)- practice (3 hours) (5 hours)/3.5 units

7. Course administrator's name (mention all, if more than one name)

Name: Firas Salah Yahya

Email: firas.alkhayatt@uomosul.edu.iq

Shamil Mohammed Saleh

eng.sh.hassn@uomosul.edu.iq

Course Objectives

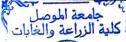
To study the relationship between heat, work, and the properties of materials, such as gases and vapors, within the boundaries of the thermal system, so that the student will later have a broad understanding of the work of thermal systems, whether thermal systems that produce or consume energy.

9. Teaching and Learning Strategies

- Interactive lecture
- Brainstorming
- Dialogue and discussion
- Practical exercises
- Self-education

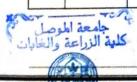
10. Course Structure

We ek	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theory	a1,a2: Remembers and understands the basics of thermodynamics	Basic concepts of thermodynamics	Interactive lecture, brainstorming, dialogue and discussion	Exams,
	3 practice	a1,a2: Remembers and understands the basics of thermodynamics	Learn about some thermal systems by watching videos	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams,
2	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Pressure and its types	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2,a3: Understands and	Solve problems	Interactive lecture,	Exams,





		solves problems related to the topic	related to the topic	brainstorming, dialogue and discussion, self-learning	homework
3	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Density, specific weight, and temperature and its types	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2,a3: Understands and solves problems related to the topic	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
4	2 Theory	a1,a2: Remembers, understands the topic	Zeroth law of thermodynamics, reversibility and pure substance	Interactive lecture, brainstorming, dialogue and discussion	Exams,
	3 Practice	a2,a3: Understands and solves problems related to the previous topic	Solve problems related to the previous topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
_	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Energy and its types	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
5	3 Practice	a2,a3: Understands and solves problems related to the topic	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
_	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Perfect gas laws	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
6	3 Practice	a2,a3: Understands and solves problems related to the topic	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
7	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Perfect gas laws	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2,a3: Understands and solves problems related to the topic	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
8	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	First law of thermodynamics and it application on closed and open systems	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2,a3: Understands and solves problems related to the topic	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
9	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	First law of thermodynamics and it application on closed and open systems	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2,a3: Understands and solves problems related to the topic	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
10	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Reversible processes of thermodynamics for closed systems	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2,a3: Understands and solves problems related to the topic	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
11	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Reversible processes of thermodynamics for closed systems	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework





	3 Practice a2,a3: Understands and solves problems related to		Solve problems related to the topic		Interactive lecture, brainstorming, dialogue and		Exams, homework	
12	2 Theory	understan	Remembers, ds and solves related to the topic	entropy	lynamics,	discussion, self-learning Interactive lecture, brainstorming, dialogue an discussion		Exams, homework
	3 Practice		derstands and oblems related to	Solve problems related to the topic		Interactive lecture, brainstorming, dialogue and discussion, self-learning		Exams, homework
13	2 Theory	understar	Remembers, ds and solves related to the topic	Second law of thermodynamics, entropy and thermal processes		Interactive lecture, brainstorming, dialogue and discussion		Exams, homework
	3 Practice	solves pro	derstands and oblems related to	Solve p		Interactive lecture, brainstorming, dialogue and discussion, self-learning		Exams, homework
14	2 Theory	understar	Remembers, and solves related to the topic	Gas mix	ktures			Exams, homework
	3 Practice	a2,a3: Ur	nderstands and oblems related to	Solve problems related to the topic		Interactive lecture, brainstorming, dialogue and discussion, self-learning		Exams, homework
15	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic		Gas mixtures		Interactive lecture, brainstorming, dialogue and discussion		Exams, homework
	3 Practice		nderstands and oblems related to		Solve problems related to the topic brainstorming, discussion, self		ialogue and	Exams, homework
11	. Cours	e Evalu	ation					
Theory practice				Final Exam		Tota	Total	
25% 15% -Exams - Exams -Presence - Homework				60%		100	100%	
12	2. Learn	ing and	Teaching Reso	ources				
Required textbooks (curricular books, if any) Main references (sources)					- Fundamentals of engineering thermodynamics, John R. Howell & Richard O. Buckius, 1st ed., McGraw-Hill, 1987. - Thermodynamics: engineering approach, Yunus A. Cengle & Michael A. Boles, 5th ed., McGraw-Hill, 2005. - Thermodynamics for engineers, Schaum's outlines, MERLE OPOTTER, Ph.D., 1993.			
Reco	mmended bo	ooks and i	references (scientific	journals,		The state of the s		

مدرس المادة العملي: م. شامل محمد صالح

reports...)

Electronic References, Websites

مدرس المادة النظري: م. فراس صلاح يحيى

رئيس اللجنة العلمية: أ.د. أركان محمد امين صديق

رئيس القسم: أ.م. نوفل عيسى محيميد

3