

			illustrated pictures, and laboratory models	discussion, self-learning	
4	2 Theory	a1,a2: Remembers and understands the topic	Basic concepts of reciprocating engines	Interactive lecture, brainstorming, dialogue and discussion	Exams,
	2 Practice	a1,a2: Remembers and understands the topic	Learn about the topic by watching videos, illustrated pictures, and laboratory models	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams
5	2 Theory	a1,a2: Remembers and understands the topic	Four-stroke and two-stroke engine cycles and its comparison	Interactive lecture, brainstorming, dialogue and discussion	Exams
	2 Practice	a1,a2: Remembers and understands the topic	Learn about the topic by watching videos, illustrated pictures, and laboratory models	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams
6	2 Theory	a1,a2: Remembers and understands the topic	Basic components of internal combustion engines	Interactive lecture, brainstorming, dialogue and discussion	Exams
	2 Practice	a1,a2: Remembers and understands the topic	Learn about the topic by watching videos, illustrated pictures, and laboratory models	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams
7	2 Theory	a1,a2: Remembers and understands the topic	Basic components of internal combustion engines	Interactive lecture, brainstorming, dialogue and discussion	Exams
	2 Practice	a1,a2: Remembers and understands the topic	Learn about the topic by watching videos, illustrated pictures, and laboratory models	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams
8	2 Theory	a1,a2: Remembers and understands the topic	Basic components of internal combustion engines	Interactive lecture, brainstorming, dialogue and discussion	Exams
	2 Practice	a1,a2: Remembers and understands the topic	Learn about the topic by watching videos, illustrated pictures, and laboratory models	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams
9	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Engine cycles (Otto cycle)	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	2 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	Engine cycles(Diesel and dual cycle)	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	2 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	Criteria of performance of I.C. engines	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	2 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
12	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Criteria of performance of I.C. engines	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	2 Practice	a2,a3: Understands and solves problems related	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and	Exams, homework

		to the topic		discussion, self-learning	
13	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Combustion and its types and chemical equations	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	2 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
14	2 Theory	a1,a2,a3: Remembers, understands and solves examples related to the topic	Combustion and its types and chemical equations	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	2 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
15	2 Theory	a1,a2: Remembers and understands the topic	Pollution by I.C. engines	Interactive lecture, brainstorming, dialogue and discussion	Exams,
	2 Practice	a2,a3: Understands and solves problems related to the combustion topic	Solve problems related to the combustion topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework

11. Course Evaluation

Theory	practice	Final Exam	Total
25% -Exams -Presence	15% - Exams - Homework	60%	100%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	محركات احتراق داخلي ، د. يوسف العاني ، الطبعة الاولى ، دار الحكمة للطباعة والنشر ، 1990
Main references (sources)	- Internal Combustion engines, John B. Heywood, McGraw-Hill, 1989 - Internal Combustion engines, Cohn R. Ferguson & Allan T. Kirkpatrick, 2 nd ed., John Wiley and Sons, 2001
Recommended books and references (scientific journals, reports...)	-----
Electronic References, Websites	-----



مدرسة السيد العسلي: م. شاميل محمد صالح حسن



يوسف يعقوب هلال





مدرس المادة النظري: م. فراس صلاح يحيى



رئيس اللجنة العلمية: أ. د. عادل احمد عبد الله