UNIVERSITY OF JORDAN FACULTY OF ENGINEERING & TECHNOLOGY DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTLINE

ABET Unit Classification:	Engineering Topic
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Compliant Catalogue:	2002/03
Course Code:	0954585
Course Title:	Internal Combustion Engines
Credit Hours:	3

Class Schedule:	Three fifty (50) minute sessions per week	
Laboratory Schedule:	None	
Tutorial Schedule:	None	
Duration:	Sixteen (16) weeks.	

Course Coordinator:	
Prepared by:	
Date of Outline Preparation:	
Date of Last Revision:	
Checked by:	
Approved by HoD:	HOD

Autotronics (I)

(Course Outline)

Course Description :

Autotronics (I)

3 Credit Hours

This course aims at introducing the students to the basics of automobile systems with main emphasis on the engne system. It teaches the student to analyse the engine performance and study its characteristics. Types of fuels, combustion and pollution. Then the design of fuel feeding systems and cooling system. The course also includes an experimental part which allows the student to estimate the performance of both spark ignition and compression ignition engines, effect of some parameters on engine performance like ignition timing, Air/Fuel ratio, Compression ratio and perform an energy balance of the compression ignition engine.

Prerequisite by course :

Thermofluid Sciencel

Prerequisite by topic :

- 1. Air-standard cycles,
- 2. Flow through orifices
- 3. Bernoulli equation
- 4. Chemical thermodynamics.

Recommended books:

- Engineering Fundamentals of the Internal Combustion Engine, by Willard Pulkrabek, 2nd Ed., Pearson PrenticeHall, 2004. [Text Book]
- Internal Combustion Engines, by V. Ganesan [Text Book]
- A course in internal combustion engines, by M. L. Mathur [Reference Book]

Course Objectives :

To provides the student with :

- 1. A good understanding of the fundamental aspects of reciprocating engines, design, operation, testing and emission formation and control.
- 2. Presents a fundamental development of thermodynamics, heat transfer and fluid mechanics underlying the operation and design of combustion engines.
- 3. Provides the background in fuel and combustion chemistry.

Course Intended Outcomes :

The student should be able to :

- 1. know the various parameters used for identifying engine performance and their measuremens.
- 2. Identify the major factors that helps improving engine performance.
- 3. Have sound fundamental knowledge about the combustion process in SI & CI engines.
- 4. Design certain components like the carburettor, injector and others.
- 5. Develop a mathematical model for the ideal and fuel-air cycle and study the effect of certain parameters on engine performance.

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3	Chapter (2) : E Chapter (3) : Fo Chapter (4) : Fo Chapter (5) : Ig	asics of Internal Combustion Engines ngine performance testing and chara uel and combustion uel feeding systems	
3	10 Marks Q 10 Marks Pr	ent method : lid-Term Exam (I + II) uizes roject (design or simulation) mal exam.	
٢		Combustion Engines First Quiz performance parameters Second Quiz on Third Quiz ms (Carburetors) Mid-Term Exam ms (Injectors) Fourth Quiz	: 2 weeks : 2 week : 1 week : 2 weeks : 1 week : 1 week : 2 weeks

The Final Exam will be held as decided by registration office

Important Instructions :

The student should notice the following :

- 1. Maximum number of missed lectures allowed is 7 only.
- 2. Entrance to lecture room is not allowed after 10 minutes.
- 3. Close your mobile before entrance to the lecture room.
- 4. Programmable calculators like Texas Instrumentation are not allowed.
- 5. All exams/tests/quizes are closed-book.
- 6. Homewroks/Projects will not be accepted after the stipulated time.