

DERS UYGULAMA BELGESİ
INTERNAL COMBUSTION ENGINES

CRN: 24006 KOD: MAK 4070E
2017 - 2018 Bahar

Öğretim Üyesi : Prof.Dr. Cem Soruşbay

Öğr. Görüşme Saatleri : Ptesi 13:30 - 15:30 , Salı 14:30 - 15:30 , Çarş 14:30 - 15:30, Perş 10:30 – 12:30

Ders Saat ve Yerleri : Ptesi 15:30 - 17:30 ve Çarş 15:30 – 16:30 (MOB 220 Ayazağa)

Ön Koşul Dersleri : Termodinamik

Ders İçeriği :

Principles of SI and CI engine operation, 4-stroke and 2-stroke engines, ideal cycles, thermal efficiency, fuels and combustion, induction, compression, combustion and expansion-exhaust processes, mixture preparation in SI and CI engines, fuel systems, engine characteristics.

Ders Kitabı :

Heywood, J.B., Internal Combustion Engine Fundamentals, McGraw Hill Book Company, New York, 1988.

Diğer Kaynaklar :

1. Soruşbay, C. et al., İçten Yanmalı Motorlar, Birsen Yayınevi, 1995.

2. Pulkrabek, W.W., Engineering Fundamentals of the Internal Combustion Engine, Prentice Hall, New Jersey, 1997.

Dersin amacı :

To provide essential knowledge on IC engine fundamentals to students in automotive option

Dersin Kazandıracığı bilgi ve beceriler :

This course will provide,

i) fundamental knowledge on the thermodynamics of internal combustion engines,

ii) ability to examine the parameters effecting engine performance and improve engine design technology.

Başarı Değerlendirme Sistemi:

Ara Sınavlar : 5 adet quiz 5 x 10 % = 50 %

Final sınavı : 50 %

Diğer Hususlar:

Vize Koşulu : En az % 70 devam

Mutlak Not Barajları: Sınıf ortalamasından bağımsız olarak, notu 35'ten düşük olanlar F dışında not alamaz; notu 80'den düşük olanlar AA alamaz.

Students are expected to follow the course web site for the additional and updated information related to the course material and all announcements.

<http://web.itu.edu.tr/sorusbay/ICE/ICE.html>

Haftalık Ders Programı:

1	5 - 7 February	Principles of SI and CI engine operation, 2-stroke engines, 4-stroke engines Lecture Notes I (Principles of engine operation)
2	12 - 14 February	Ideal standard cycles, thermal efficiencies, comparisons Lecture Notes II (Ideal standard cycles)
3	19 - 21 February	Engine characteristics and performance Lecture Notes III (Engine characteristics)
4	26 - 28 February	Classification of engine fuels Lecture Notes IV (Engine fuels)
5	5 - 7 March	Characteristics of engine fuels, knock resistance, ignition tendency, combustion chemistry Lecture Notes IV & V (Thermodynamics of combustion)
6	12 - 14 March	Real engine strokes, induction stroke, volumetric efficiency Lecture Notes VI (Gas exchange process)
7	19 - 21 March	Compression stroke, combustion in SI engines and influencing parameters Lecture Notes VII (Combustion in SI engines)
	26 – 28 March	Break
8	2 - 4 April	Abnormal combustion, parameters influencing knock and early ignition Lecture Notes VII (Combustion in SI engines)
9	9 - 11 April	Combustion in CI engines Lecture Notes VIII (Combustion in CI engines)
10	16 - 18 April	Combustion in CI engines, parameters influencing ignition delay Lecture Notes VIII (Combustion in CI engines)
	23 April	National Holiday
11	25 April	Expansion and exhaust strokes, exhaust emissions Lecture Notes IX (Exhaust process and emissions)
12	30 April - 2 May	Mixture preparation in SI engines Lecture Notes X (Mixture preparation in SI engines)
13	7 – 9 May	Mixture preparation in CI engines Lecture Notes XI (Mixture preparation in CI engines)
14	14 – 16 May	Atomization of sprays, Diesel engine combustion chambers Lecture Notes XII (Atomization and sprays)