

# INTERNAL COMBUSTION ENGINES

1	Course Title:	INTERNAL COMBUSTION ENGINES
2	Course Code:	BSM4515-S
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	4
6	Semester:	7
7	ECTS Credits Allocated:	3.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	1.00
10	Laboratory (hour/week):	0
11	Prerequisites:	No prerequisites
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. İLKNUR ALİBAŞ
15	Course Lecturers:	Yok
16	Contact information of the Course Coordinator:	e-posta : ialibas@uludag.edu.tr Telefon: 0 224 2941608 Adres: Bursa Uludağ Üniversitesi, Ziraat Fakültesi, Biyosistem Mühendisliği Bölümü, Görükle Kampüsü, 16059, Nilüfer/BURSA
17	Website:	
18	Objective of the Course:	To introduce agricultural vehicles beginning with tractor- the basic power source of agricultural vehicles- and other self-powered agricultural vehicles and thermic engines as power sources in every aspect, and to teach their operating systems. Introductory definition about Internal Combustion Engines. Thermo dynamics of internal combustion engines. Power, rotation, momentum in motors. Introduction scales of motor. Fuels of internal combustion engine, main components of internal combustion engines, fuel rigging, electricity rigging, conflagration rigging, cooling rigging, oiling rigging.
19	Contribution of the Course to Professional Development:	To have detailed information about the motors which are the main power source of power machines
20	Learning Outcomes:	
	1	To teach the types and the working principles of thermic engines
	2	To teach the engine fuels and oils, and the thermodynamic of combustion
	3	To teach the production methods and working styles of active and stable parts of the thermic engines with their control mechanisms
	4	To teach engine components -lubrication, cooling, ignition, fuel- in terms of their working principles and active parts.
	5	To teach the calculating methods of inner power and effective strength of engines
	6	To teach the possible failures that may come to occurrence in engines, and the methods of eliminating these failures
	7	How to measure piston velocity, piston acceleration, piston bearing and dynamic power of engine

		8	How to deal with some certain types of measurements like carburetor and oil pump measurements in relation to engine components the possible engine failures and to overcome some of them to the extent of possibilities provided by the workhouse		
		9			
		10			
21	Course Content:				
	Course Content:				
Week	Theoretical		Practice		
1	Combustion in spark-innition engines I. Normal Combustion		Solved problems and practise about the subject		
2	Combustion in spark-innition engines II. Detanotion and Prignitions		Solved problems and practise about the subject		
3	Combustion in Diesel Engines		Solved problems and practise about the subject		
4	Fuels for Internal Combustion Engine		Solved problems and practise about the subject		
5	Mixture Requirements		Solved problems and practise about the subject		
6	Carburetor design for spark-ignition engines		Solved problems and practise about the subject		
7	Fuel injection, engine balans and vibration		Solved problems and practise about the subject		
8	Engine Materials		Solved problems and practise about the subject		
9	Engine Materials		Solved problems and practise about the subject		
10	Engine design I: Preliminary analysis, cylinder number, size and arrangement		Solved problems and practise about the subject		
Activites			Number	Duration (hour)	Total Work Load (hour)
Theoretical			14	2.00	28.00
Practicals/Labs			14	1.00	14.00
Self study and preparation			3	4.00	12.00
Homeworks			2	2.00	4.00
Projects			0	0.00	0.00
Field Studies			0	0.00	0.00
Midterm exams			1	15.00	15.00
Others			0	0.00	0.00
Final Exams			1	15.00	15.00
Total Work Load					103.00
TERM LEARNING ACTIVITIES			NUMBER	WEIGHT	
Total work load/ 30 hr					2.93
ECTS Credit of the Course					3.00
Quiz		0	0.00		
Home work-project		0	0.00		
Final Exam		1	60.00		
Total		2	100.00		
Contribution of Term (Year) Learning Activities to Success Grade			40.00		
Contribution of Final Exam to Success Grade			60.00		
Total			100.00		
Measurement and Evaluation Techniques Used in the Course			The effect of the midterm exam on the course-passing grade is 40%, the effect of the final exam on the course-passing grade is 60%.		
24	ECTS / WORK LOAD TABLE				

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	3	2	2	2	4	1	1	5	2	2	2	0	0	0	0	0
ÖK2	3	2	2	2	4	1	1	5	2	2	2	0	0	0	0	0
ÖK3	3	2	2	2	4	1	1	5	2	2	2	0	0	0	0	0
ÖK4	4	2	2	2	4	1	1	5	2	2	2	0	0	0	0	0
ÖK5	4	2	2	2	4	1	1	5	1	2	2	0	0	0	0	0
ÖK6	4	4	3	3	4	1	1	5	3	3	2	0	0	0	0	0
ÖK7	4	4	3	3	4	1	1	5	3	3	2	0	0	0	0	0
ÖK8	4	4	3	3	4	1	1	5	3	3	2	0	0	0	0	0
LO: Learning Objectives    PQ: Program Qualifications																
Contribution Level:	1 very low		2 low			3 Medium			4 High			5 Very High				