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):	1.00	
9	Practice (hour/week):	2.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	No prerequisites	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. KAMİL ALİBAŞ	
15	Course Lecturers:	Yok	
16	Contact information of the Course Coordinator:	e-posta : alibas@uludag.edu.tr Telefon: 0 224 2941601 Adres: 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:		
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 İnternal Combustion Enginess	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	Repeating courses and midterm exam	
10	Engine design I: Preliminary analysis, cylinder number, size and arrangemen	Solved problems and practise about the subject
11	gear and auxillary system	
12	comparison with other prime movers	
13	Engine research and testing equipment.	Solved problems and practise about the subject
14		

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	1.00	14.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	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
Total work load/ 30 hr			2.93
ECTS Credit of the Course			3.00

22	Textbooks, References and/or Other	-Prof. Dr. Kamil ALİBAŞ, 2010, İçten Yanmalı Motorlar -Charles Fayette Taylor, 1982, The Internal Combustion Engine İn Theory And Practice, ISBN 0 262 70016 6, The
23	Assessment	

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
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		

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	4	0	0	0	0
ÖK2	3	2	2	2	4	1	1	5	2	2	2	4	0	0	0	0
ÖK3	3	2	2	2	4	1	1	5	2	2	2	4	0	0	0	0
ÖK4	4	2	2	2	4	1	1	5	2	2	2	4	0	0	0	0
ÖK5	4	2	2	2	4	1	1	5	1	2	2	4	0	0	0	0
ÖK6	4	4	3	3	4	1	1	5	3	3	2	4	0	0	0	0
ÖK7	4	4	3	3	4	1	1	5	3	3	2	4	0	0	0	0
ÖK8	4	4	3	3	4	1	1	5	3	3	2	4	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	**1 very low**		**2 low**			**3 Medium**			**4 High**			**5 Very High**				