Bangladesh Sweden Polytechnic Institute Kaptai, Rangamati Hill Tracts Automobile Technology 2nd Semester (2022 Probidhan)

Semester Plan

Т Ρ 3 3

С

2 Automotive Engine System-1(26231)

Theory Class Teacher's Name: - Engr. Rahamat Ullah, Chief Instructor (Tech, Power)

No. of	No. of	Theory Class Content	Remarks
Week	Class		
01	01	1.1 Define heat engine.	
		1.2 Define Automotive Engine.	
		1.3 Classify heat engine.	
		1.4 Distinguish external & internal combustion engine.	
		1.5 Explain combustion process of fuel in I.C engine.	
		1.6 Describe Hybrid, Plug-in Hybrid & Electric Vehicle.	
	02	ENGINE DIMENSION	
		2.1 Define TDC, BDC, bore, stroke, crank throw, clearance volume, swept	
		volume, compression ratio.	
		2.2 Describe the process of determining co bore stroke ratio compression	
		ratio of an engine.	
		2.3 Define square engine, over square & under square engine.	
		2.4 Mention the advantages & disadvantage of square, over square & under	
		square engine.	
		2.5 Mention the valve arrangement of V- head, I-head, L-head, F-head	
		& T-head engine.	
		2.6 Solve problems on Compression Ratio, piston displacement and	
		clearance Volume.	
02	01	SPARK IGNITION (SI) ENGINE	
		3.1 Describe 4-stroke of S.I. engine.	
		3.2 Interpret the 4-stroke events of S.I. engine with the P.V diagram.	
		3.3 Explain the 4-strokes of a petrol engine.	
	00	3.4 Describe 2-stroke cycle of S.I. engine and 1st Quiz test	
	02	3.1 Identify the stationary engine parts.	
		3.2 Describe the functions, constructions and materials of cylinder nead,	
		DIOCK & OII Pall.	
		3.5 Distiliguish mono block and maividual block.	
03	01	3.4 Describe the function, construction and types of cylinder liners.	
03	01	3.6 Distinguish between 2 stroke cycle SL angine and 4 stroke cycle SL	
		angine	
	02	Previous discussion 1st Class test	
04	01	COMPRESSION IGNITION (C) ENGINE	
01	01	4 1 Describe 4-strokes of C. Lengine	
		4.2 Interpret the 4-stroke events of diesel (C.I) engine with the P.V diagram.	
		4.3 Explain 4 strokes of diesel engine.	
	02	4.4 Describe 2-stroke cvcle C.I engine.	
	-	4.5 Explain the operating principles of 2-stroke cycle C.I. engine.	
		4.6 Distinguish between 2-stroke cycle C.I. engine and 4-stroke cycle C.I.	
		engine.	
05	01	4.4 Describe 2-stroke cycle C.I engine.	
		4.5 Explain the operating principles of 2-stroke cycle C.I. engine.	
		4.6 Distinguish between 2-stroke cycle C.I. engine and 4-stroke cycle C.I.	
		engine. 2 nd Quiz	
	02	V-TYPE & OPPOSED TYPE ENGINE	
		5.1 State V-type engine.	
		5.2 Describe the construction of V-type engine.	

		5.3 Describe the working principle of V-type engine.	
		5.4 Explain the advantages and disadvantages of V-type engine over other	
		engines.	
		5.5 Define opposed cylinder engine.	
		5.6 Mention the advantage of opposed cylinder engine over another	
		conventional engine.	
		5.7 Mention the advantage of opposed cylinder engine over another	
00		Conventional engine.	
06		Mid Term Examination	
	01	GAS TURBINE	
		6.1 Define gas turbine.	
		6.2 Describe the principles of operation of gas turbine.	
		6.3 Explain advantages and disadvantages of gas turbine with another	
		automobile engine.	-
	02	TURBOCHARGER	
		7.1 Define turbo charging.	
		7.2 Mention the Type of turbocharger.	
		7.3 Describe operation of a conventional (Vacuum) Operated turbocharger.	
		7.4 Describe operation of an electrical (Electronically) Operated	
		turbocharger.	
		7.5 Mention the advantage of using turbocharger.	
	1	7.6 Distinguish between conventional & electronic turbocharger.	
07	01	ENGINE EFFICIENCIES	
		8.1 Explain volumetric efficiency, thermal efficiency & mechanical	
		efficiency.	
		8.2 Solve problems relating to volumetric, thermal and Mechanical	
		efficency.	
	0.2	8.3 Differentiate between gasoline & diesel engine effective power.	-
00	02		
08	01	ENGINE OPERATION SISTEM	
		9.1 Define engline operation system.	
	02	9.2 Describe air initake and compression system.	-
	02	9.3 Describe luer ignition & injection system.	
		9.4 Describe rubi icating & cooling system.	
00	01		
09	01	10.1 Define outometive operation system	
		10.2 Describe transmission and steering system.	
	02		
	02	AUTOMOTIVE OPERATION SISTEM	
		10.1 Define automotive operation system.	
10	01	10.2 Describe transmission and broke eveter	
10	01	10.5 State suspension and prake system.	
		10.4 Describe electrical, lighting and charging system.	
	02	10.5 Explain air-conditioning and neating system.	4
11	02	Biral Olace Test	
11	01		
	02		

REFERENCE BOOKS

- 1) Automobile Engineering R.B Gupta . (Khanna pablisher)
- 2) Automobile Technology- N.K Giri (Khanna pablisher)
- 3) Automobile Engineering K.K Ramalingam (Sci Tech publication)
- 4) Automobile Engineering -Dr. Kripal Singh (Standers publication)
- 5) The Automobile Harbans Singh Reyat (S. Chand publication)
- 6) Auto Mechanics Fundamentals- Martin W. Stockel & Martin T.Stokel (Goodheart willcoks publisher)

Bangladesh Sweden Polytechnic Institute

Kaptai, Rangamati Hill Tracts Automobile Technology 2nd Semester(2022 Probidhan) Semester Plan T P C Automotive Engine System-1(26221) 2 3 3 Practical Class

Teacher's Name: - Engr. Rahamat Ullah, Chief Instructor (Tech, Power)

No. of	Practical Class Content	Remarks
Week		
01	IDENTIFY DIFFERENT INTERNAL AND EXTERNAL COMBUSTION	
	ENGINE	
02	MEASURE ENGINE CAPACITY & COMPRESSION RATIO OF AN	
	ENGINE	
03	IDENTIFY DIFFERENT COMPONENTS OF GASOLINE ENGINE	
04	IDENTIFY DIFFERENT COMPONENTS OF DIESEL ENGINE	
05	DEMONSTRATE AND MEASURE THE CONSTRUCTION OF	
	CYLINDER	
	HEAD, CYLINDER BLOCK AND OIL PAN	
06	Demonstrate the construction of crank shaft, camshaft, timing gar,	
	timing chain and timing belt.	
07	DEMONSTRATE THE CONSTRUCTION OF PISTON AND	
	CONNECTING ROD ASSEMBLY & ENGINE BEARING	
08	Demonstrate the operation of circular engine.	
09	Demonstrate the operation of gas turbine.	
10	Demonstrate the operation of supercharger & turbocharger.	