Program : **Diploma in Automobile Engineering**	
Course Code : **3057**	Course Title: **Petrol Engine Service Lab**
Semester : **3**	Credits: **1.5**
Course Category: **Program Core**	
Periods per week: **3 (L:0, T:0, P:3)**	Periods per semester: **45**

Course Objectives:

- To practice servicing of different types of petrol engine components and systems.
- To identify the components of petrol engines, perform servicing of engine components, fuel supply system, engine cooling system and lubricating system.
- To enhance the engine servicing skills of the students.

Course Prerequisites:

Topic	Course code	Course name	Semester
Knowledge about petrol engine components		Basic Automobile Engineering	2

Course Outcomes:

On completion of the course, the student will be able to:

COn	Description	Duration (Hours)	Cognitive level
CO1	Identify the various components in petrol engine.	4	Applying
CO2	Make use of the procedures of overhauling on 4 stroke petrol engines.	14	Applying
CO3	Apply the procedures of servicing of fuel supply system in petrol engines.	12	Applying
CO4	Make use of the procedures of servicing on lubrication system and cooling system.	12	Applying
	Lab Exam	3	

CO – PO Mapping:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2			2			
CO2	2			2		3	2
CO3	2			2			
CO4	2			2		3	2

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline:

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	**Identify the various components in petrol engine.**		
M1.01	Organize the study of petrol engine components	2	Applying
M1.02	Identify various engine components and methods of reconditioning.	2	Applying
CO2	**Make use of the procedures of overhauling on 4 stroke petrol engines.**		
M2.01	Make use of the overhauling procedure of petrol engine	4	Applying
M2.02	Utilize the inspection procedure of cylinder block.	2	Applying
M2.03	Perform overhauling and inspection of cylinder head.	2	Applying
M2.04	Experiment with valve assembly (removal, inspection and assembling) and adjust valve tappet clearance.	3	Applying
M2.05	Utilize the servicing procedure on piston, connecting rod, camshaft and crank shaft.	3	Applying
	Lab Exam – I	1.5	
CO3	**Apply the procedures of servicing of fuel supply system in petrol engines.**		
M3.01	Experiment with (overhauling, cleaning and testing) fuel feed pump.	2	Applying
M3.02	Experiment with (servicing) throttle body and air cleaner.	2	Applying

M3.03	Demonstrate various components of Petrol fuel injection systems. (Throttle body, Port, Direct)	5	Applying
M3.04	Identify various tests in petrol fuel injection systems	3	Applying
CO4	**Make use of the procedures of servicing on lubrication system and cooling system.**		
M4.01	Experiment with (servicing) cooling system components.	3	Applying
M4.02	Make use of the overhauling procedure on (removal, inspection and refitting) coolant pump and flush the cooling system.	3	Applying
M4.03	Organize dismantling and assembling the oil pumps.	3	Applying
M4.04	Experiment with oil filter. (removal and refitting)	3	Applying
	Open Ended Projects**		Applying
	Lab Exam – II	1.5	

** Suggested Open Ended Projects

(Not for End Semester Examination but compulsory to be included in Continuous Internal Evaluation. Students can do open ended experiments as a group of 2-3. There is no duplication in experiments between groups.

1) Identify the condition of a working engine. Identify and report about the defects if any. Make use of overhauling and servicing of the engine, if necessary.

2) Identify the condition of cooling system in a running condition vehicle. Identify and report about the defects. Suggest suitable remedial action.
   Perform necessary rectification works, if required.

Text / Reference:

T/R	Book Title/Author
T1	Basic automobile Engineering - C P Nakra - Dhanpat Rai publishing company
R2	Practical automobile Engineering - Malhotra - Asian Publishers
R3	Maintenance of automotive engines - Tim Gilles - CENGAGE Learning
R4	Vehicle Maintenance and Garage Practice - Jigar A. Doshi, Dhruv U. Panchal, Jayesh P. Maniar - PHI Learning Pvt. Ltd.
R5	W. H. Crouse and Anglin - Automotive mechanics - Mc Graw Hill Education

Online Resources:

Sl.No	Website Link
1	https://www.youtube.com/watch?v=_ui143hJCK4
2	https://www.youtube.com/watch?v=zA_19bHxEYg
3	https://www.engineeringchoice.com/the-car-engine-parts/