Exercises for Automobile Maintenance

Syllabus Number 1L207

Special Subjects
Elective 2 credit

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1. Course Description

The following contents are learned regarding the electronically controlled gasoline engine for automobiles.
(1)Function and structure of reciprocating engine.
(2)Function and structure of each sensor and actuator for electronic control of the engine.
(3)Engine disassembly process and assembly process.
In this lesson, knowledge, techniques, and attitudes regarding DP 2 will be acquired.
Lessons are primarily practice-style.

2. Course Objectives

Students can apply specific cases to concerning structures, functions and operations of each part of electronically controlled gasoline engines for automobiles. The engine disassembly process and assembly process can be applied to concrete cases.

3. Grading Policy

The grade evaluation is based on the final exam 100%, but it will be evaluated by deducting the attitude in the lessons. The lessons attitude is to be able to observe the "safety instructions in the first lessons, and the instructions on clothes and other matters in the practical training". The exam will be held in the 15th lessons and will be explained after the exam.

4. Textbook and Reference

Reference
Textbook editorial committee of the Japan Automobile Service Promotion Association(Supervised by the Ministry of Land, Infrastructure, Transport and Tourism Road Transport Bureau) Second grade gasoline car engine version
Japan Automobile Service Promotion Association (JASPA)
Textbook editorial committee of the Japan Automobile Service Promotion Association(Supervised by the Ministry of Land, Infrastructure, Transport and Tourism Road Transport Bureau) Third grade gasoline engine Japan Automobile Service Promotion Association (JASPA)

5. Requirements(Assignments)

(1) As preparations for next lesson, please check the meaning of the proper noun and the contents of the relationship shown in the contents of the lesson, and come to the class. (90 minutes)
(2) As a review, please prepare a report on the items instructed during the lesson, so that you can explain them in the next lesson. (90 minutes)

6. Note

◎ Students wear work clothes, working caps, safety shoes and other items instructed in advance. Please note it is necessary to purchase work clothes, working caps, safety shoes and other items at your expense.
◎ Classes are conducted intensively. All the classes must be attended. Late arrivals, early leavings, and absences are strictly checked.
◎ Guidance is opened and the following points are explained.
(1) If the number of students who wish to take the class is more than its capacity, students of the Department of Mechanical and Precision System will take priority.
(2) Bearing the cost of replacement parts for engine disassembly.
(3) Registration for a class.
The schedule of the guidance will be posted separately.

7. Schedule

[1] Safety instructions , and the instructions on clothes and other matters in the practical training. Outline, structure, and function of internal combustion engine and electronic control device.
[2] Confirming normal operation of an electronic control engine. Removing the cooling system and various electrical wiring.
[3] Removing the converter housing from engine and mounting an engine on the engine stand.
[4] Removing auxiliary devices and timing chain.
[5] Removing camshaft, intake, and exhaust valve.
[6] Removing piston and piston ring.
[7] Confirmation and inspection of each part structure of engine.
[8] Installing piston and piston ring.
[9] Installing camshaft, intake, and exhaust valve.
[10] Installing timing chain and auxiliary devices.
[11] Installing the converter housing and removing an engine from the engine stand.
[12] Installing the cooling system and various electrical wiring.
[13] Air bleeding of the cooling system etc., start-up inspection and operation confirmation.
[14] Verification, confirmation, and adjustment of the control state of an electronic control engine.
[15] Exploring the cause of failure of an electronic control engine. Final exam and summary.