

Automotive Engineering

Syllabus Number

1L101

Special Subjects

Elective 2 credit

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1. Course Description

Students learn the structure of vehicles and the structure and function of vehicle parts (engines, transmissions, tires, etc.). Students will also deepen their understanding of basic performance of vehicles such as driving stability, acceleration performance, braking performance, and riding comfort performance, mainly from a mechanical engineering point of view (Related to DP2).

2. Course Objectives

Students will be able to understand and explain the overall structure of the vehicle and the function of the components.

In addition, students will be able to explain the vehicle basic performance of "driving, turning and stopping" based on basic knowledge of mechanical engineering.

3. Grading Policy

Grades will be evaluated by intermediate assignment (60%) and final assignment (40%).

4. Textbook and Reference

Textbook

None.

5. Requirements(Assignments)

Summarize the points of each lesson in a report (One sheet of A4. about 1 hour).

Review the contents of the previous class and try to solve the problems during the class (about 30 minutes).

6. Note

Attendance of 2/3 or more is required to acquire the unit of lecture.

7. Schedule

- [1] History of automobiles, classification of cars, composition of automobiles and its structure.
- [2] Engine
- [3] Auxiliary equipment (fuel device, intake device, exhaust device, cooling device, charging / starting device)
- [4] Power transmission device : Torque and Speed change, Clutch, Manual Transmission, Automatic Transmission
- [5] Structure of the suspension/Tire/ Wheel and its dynamics
- [6] Structure of steering and its dynamics
- [7] Brake structure and its dynamics
- [8] Intermediate assignment (Load transfer and braking force distribution)
- [9] Maneuverability and stability
- [10] Intermediate assignment (Stability factor)
- [11] Human - Automotive system: Instrument panel, Seat
- [12] Intermediate assignment (Driver model)
- [13] Safety technology (collision safety, preventive safety)
- [14] Future of automobile: Hybrid car, Fuel cell car, Electric car, Hydrogen engine car, Information Technology System
- [15] Final assignment, summary