Tárgytematika / Course Description

Electrical Systems and Controllers of Internal Combustion Engines

AJNB_BMTA006

Tárgyfelelős neve /
Teacher's name: dr. Hanula Barna

Félév / Semester: 2021/22/1

Beszámolási forma /
Assesment: Vizsga

Tárgy heti óraszáma /
Teaching hours(week):   2/0/0

Tárgy féléves óraszáma /
Teaching hours(sem.):   0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

The aim of the course is to introduce the system and hardware architecture of engine controllers and their requirements for students. Describe the most frequently used bus networks in vehicles (CAN, LIN, FlexRay, MOST), their advantages and disadvantages. Describe the sensors and actuators used in modern Otto and Diesel engine powered vehicles. It also aims to introduce the concept of application, the application tools and the required software. The subject provides insight into function development, the world of Design of Experiment (DoE), and testing drivetrain elements in MiL/SiL/HiL environments.

TANTÁRGY TARTALMA / DESCRIPTION

DESCRIPTION

- Introduction, description of the semester, requirements
- Control strategies, architecture of automotive systems
- Communication systems, bus networks
- Sensors
- Actuators
- Starter and ignition
- Engine control units
- Diagnostics
- Function development, application - software and application tools
- INCA MDA as a display tool
- Design of Experiment
- System tests (MiL / SiL / HiL)
- Engine dynamometer control

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Students can pass the subject in an exam, they receive a grade based on the result of the exam. At least sufficient (2) results must be achieved to successfully pass the course.

The exam grading system is as follows:

88 – 100% = 5
76 – 87% = 4
63 – 75% = 3
50 – 62% = 2
< 50% = 1

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

OBLIGATORY MATERIAL

- Lecture materials
- Computerized Engine Controls 9th edition; Steve V. Hatch; 2012