

**COURSE TITLE:** FUEL FEEDING SYSTEMS FOR AN INTERNAL COMBUSTION ENGINES

**Institute/Division:** Institute of Automobiles and Internal Combustion Engines / Faculty of Mechanical Engineering

**Erasmus subject code:**

**Number of contact hours:** 30

**Course duration:** 1 semester

**ETCS credits:** 3

**Course description:** LECTURES: Functional analysis of the fuel feeding system in a combustion system of reciprocating engines. The process of air-fuel mixture formation. The selected issues of mass and energy exchange. Problems of charge transport in the engine inlet duct, inequality of the charge distribution in multi cylinder engine. Carburetors' feeding systems - the required characteristics. Injection fuel systems of SI engines - properties of injection systems. Control algorithms, operating characteristics. Systems of direct fuel injection of SI engines. Systems of fuel injection of CI engines - properties of injection systems. Control algorithms - the required characteristics of fuel dosage. Alternative fuel engines - flexible fuel systems. LABORATORY: Systems and devices for testing of feedings components system. Injection pump test bed characteristics of fuel dosage. The execution of the fuel injection characteristics. Operating characteristics of SI engine on a bio-fuel feeding condition. Visualization of air-fuel mixture formation process for a direct fuel injection. Test of the engine CPU to fuel dosage control.

**Literature:** H. Schwarz et al, 1999, "Gasoline-engine management", Robert Bosch GmbH, Automotive Handbook, 1986, 2<sup>nd</sup> Edition, Bosch, J.C. Guibet, 1999, "Fuels and Engines", John B. Heywood, 1988, "Internal Combustion Engine Fundamentals",

**Course type:** Lectures, classes and test bed laboratory

**Assessment method:** Final test

**Prerequisites:** Thermodynamic processes and mechanics of internal combustion engines

**Primary target group:** 3<sup>rd</sup> year Automotive Engineering (lectures only) undergraduate studies (4 years) leading to the degree of equivalent to an BSc, or 1<sup>st</sup> year Automotive Engineering (full course) of graduate studies (1,5 year) leading to the degree of equivalent to a MSc

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**Deadline for application:** June 30 or November 30