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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | Faculty of Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | Electrical Engineering and Computing |
| Study Module (if applicable) | Electronics - Embedded Systems, Multimedia Technologies, Circuits and Systems |
| Course title | Automotive Electronics |
| Level of study | X Bachelor ☐ Master’s ☐ Doctoral |
| Type of course | ☐ Obligatory X Elective |
| Semester  | x Autumn Spring |
| Year of study  | IV |
| Number of ECTS allocated | 5 |
| Name of lecturer/lecturers | Petrović D. Branislav |
| Teaching mode | X Lectures ☐Group tutorials ☐ Individual tutorialsX Laboratory work X Project work ☐ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Introduction to the general structure of the car and the electrical system in the car and the engine control principles. Introduction to modern methods of diagnostics of the vehicle. Knowledge of electrical and electronic devices in the car. Application and analysis of data of the diagnostic devices |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Automotive fundamentals: engine, drive train, suspension, steering brakes instrumentation. Electronic engine control: exhaust emission, fuel economy, engine performance terms, engine mapping, control strategy, electronic ignition. Sensors: air flow rate sensor, angular position sensor, engine speed sensor, timing sensor, throttle angle sensor, temperature sensors, exhaust gas oxygen sensor, and knock sensors. Actuators: fuel infection, exhaust gas recirculation actuator. The computer ECM: adaptive operation strategy, vehicle network systems. Diagnostic techniques: DTC, OBD. Design example: Development and using OBD diagnostic tools. Basic methods of measurement for automotive engines. Measurement of torque. Temperature measurement. Pressure measurement. Measurement of air flow. Electronic ignition. Diagnostic devices. Analysis of diagnostic protocols. PC connectivity. |
| **LANGUAGE OF INSTRUCTION** |
| X Serbian (complete course) X English (complete course) ☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)☐Serbian with English mentoring ☐Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **ASSESSMENT METHODS AND CRITERIA** |
| **Pre exam duties** | **Points** | **Final exam** | **points** |
| **Activity during lectures** | **10** | **Written examination** | **20** |
| **Practical teaching** | **30** | **Oral examination** | **20** |
| **Teaching colloquia** | **20** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |