

Discipline	Automotive Electronics code: 5517 Semester – /winter/			
Specialty	Electronics			
ECTS credits: 7	Form of assessment: Exam			
Lecturer	Senior Assist. Prof, PhD Svetlozar Zahariev Room: 609E Phone: +359 52 383 266 E-mail: szahariev @tu-varna.bg			
Department	Department of Electronics and Microelectronics			
Faculty	Faculty of Computer Sciences and Automation			
Learning objectives				
<p>The course has two main aspects. The first part introduces students to the applications of internal combustion engine (ICE) vehicles. Technological solutions used in the various electrical installations, measurement and control of classic ICE vehicles are discussed. The course allows students to develop and implement power devices and regulators, as well as systems with them. The second part of the course introduces students to the modern approaches in building modern electric cars. Traction battery systems, electronic devices for charging, protection and operation are considered. In laboratory exercises, students acquire skills in research, use, repair and maintenance of electronic systems for vehicles.</p>				
CONTENTS:				
Training Area			Hours lectures	Hours seminar exercises

General information about electric cars and vehicles with internal combustion engines (ICE)	2	1
Car batteries – types and characteristics.	3	2
Electronic devices for battery charge and protection.	3	2
Generators. Electronic generator control devices.	3	0
Ignition systems.	2	2
Electronic starting systems.	3	2
Electronic control of electric motors.	3	2
Electronic controllers for lighting and signaling systems.	3	0
Control and measuring systems in engines and electric motors	2	0
Additional electrical automotive systems.	3	2
Microprocessor control systems in electric vehicles.	3	2
TOTAL: 45 h	30	15