



<b>1. Subject name</b>	<b>Vehicle automation systems</b>				
<b>2. Subject name in Hungarian</b>	Járművek automatizálási rendszerei				
<b>3. Code</b>	<b>BMEKOGGM659</b>	<b>4. Evaluation type</b>	<b>exam grade</b>	<b>5. Credits</b>	<b>4</b>
<b>6. Weekly contact hours</b>	<b>2 (10) Lecture</b>	<b>0 (0) Practice</b>	<b>2 (11) Lab</b>		
<b>7. Curriculum</b>	<b>Vehicle Engineering MSc (J)</b>	<b>8. Role</b>	<b>Specialization (sp) at Vehicle Engineering MSc (J)</b>		
<b>9. Working hours for fulfilling the requirements of the subject</b>					<b>120</b>
<b>Contact hours</b>	56	<b>Preparation for seminars</b>	18	<b>Homework</b>	16
<b>Reading written materials</b>	20	<b>Midterm preparation</b>	0	<b>Exam preparation</b>	10
<b>10. Department</b>	<b>Department of Automotive Technologies</b>				
<b>11. Responsible lecturer</b>	Dr. Szalay Zsolt				
<b>12. Lecturers</b>	Dr. Szalay Zsolt, Dr. Török Árpád, Dr. Tihanyi Viktor				
<b>13. Prerequisites</b>					
<b>14. Description of lectures</b>					
<p>Presentation of the framework for vehicle automation, architectures built into electronic control units, sensors, actuators and communication systems, and their classification. Description of vehicle control systems. Functions and tasks of the different control layers, elements of the sensor layer, driver interface, trajectory planning, decision making, command line design, and intelligent actuators for executive systems. The need for redundancy based on functional and safety requirements. Introducing and classifying in-vehicle communications technology used in the automotive industry. Control unit communication (serial, I2C, SPI), communication between control units (CAN, LIN, MOST, FlexRay, OPEN), vehicle-vehicle connection (V2V) and vehicle-infrastructure communication (V2I), telemetry systems. Structure and operation of vehicle diagnostics protocols (K-Line, KWP, UDS).</p>					
<b>15. Description of practices</b>					
<b>16. Description of laboratory practices</b>					
The task is to work out an network and communication related topic including realization, testing and documentation					
<b>17. Learning outcomes</b>					
<p>A. Knowledge</p> <ul style="list-style-type: none"> <li>• Knowledge of network and communication systems</li> </ul> <p>B. Skills</p> <ul style="list-style-type: none"> <li>• Ability to develop network and communication systems</li> </ul> <p>C. Attitudes</p> <ul style="list-style-type: none"> <li>• Openness to new opportunities in the field</li> </ul> <p>D. Autonomy and Responsibility</p> <ul style="list-style-type: none"> <li>• Participate in solving independent task</li> </ul>					
<b>18. Requirements, way to determine a grade (obtain a signature)</b>					
Signature: Individual task fulfillment					
Final grade equals to the result of exam					
<b>19. Opportunity for repeat/retake and delayed completion</b>					
Individual tasks replacement one					
<b>20. Learning materials</b>					
Slides					
<b>Effective date</b>	10 October 2019	<b>This Subject Datasheet is valid for</b>		Inactive courses	