

Óbuda University Kandó Kálmán Faculty of Electrical Engineering		Department of Instrumentation and Automation		
<b>Subject name and code: Vehicle On-board Systems KMWJF5ABNE Credits: 3</b>				
<b>Specializations:</b> All				
<b>Subject leader:</b>	Dr. Schuster György		<b>Teachers:</b>	Dr. Schuster György
<b>Prerequisites:</b> none				
<b>Lectures:</b>	<b>Theory:</b>	<b>Seminar.:</b>	<b>Lab. Exec.:</b>	<b>Consultations:</b>
<b>full time</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>
<b>far edu</b>	<b>4</b>	<b>0</b>	<b>8</b>	<b>as required</b>
<b>demands :</b>	Exam			
<b>Education material</b>				
<i>Aim of education:</i> Students will be able to review, develop and certify state-of-the-art in-vehicle systems. They will be able to build and test communication channels between vehicles.				
<b>Topics:</b>				<b>Week:</b>
<b>Theory</b>				
Vehicle categories and safety requirements. Brief summary of SIL and ASIL categories.				<b>1.</b>
On-board systems for motor vehicles, instruments, engine controls, braking systems, comfort equipment.				<b>2.</b>
Fixed track vehicle systems, on - board and track - track systems.				<b>3.</b>
Fixed track vehicle systems, track systems.				<b>4.</b>
Aircraft on-board systems, instruments, sensors, actuators.				<b>5.</b>
Aircraft on-board systems, navigation systems.				<b>6.</b>
Satellite navigation systems.				<b>7.</b>
On-board communication, communication between vehicles.				<b>8.</b>
Self - driven vehicle systems.				<b>9.</b>
Self - driven vehicle systems.				<b>10.</b>
Self-learning systems				<b>11.</b>
<b>Laboratory</b>				
IoT measurements for WIFI, BlueTooth, IP devices.				<b>1.</b>
CAN application in on-board communication.				<b>2.</b>
RAW Ethernet socket programming on PC and Raspberry PI device.				<b>3.</b>
Development of GPS application on microcontroller device.				<b>4.</b>
<b>Demand of the semester</b>				
At the end of the semester, an exam is taken on the subject, the material of which is the material of the lectures and laboratory exercises. A prerequisite for a successful exam is at least a sufficient level of knowledge of both theoretical and practical knowledge. The exam mark is the arithmetic mean of the marks obtained for practical and theoretical knowledge.				
<b>Literature:</b>				
Materials issued by the instructor				