

## Assessment and subject description

<b>Óbuda University</b> Kandó Kálmán Faculty of Electrical Engineering		Institute of Automation		
<i>Subject name and code:</i> <b>Power electronics</b>		<b>KAKTE1ABNE, KAUTEIKAND</b>		
<b>Credits:</b> <b>Full-time, 2020/2021 academic year II. semester</b>				
Course: <b>Electrical Engineering</b>				
Responsible:		Teaching staff:	<b>Badacsonyi Ferenc</b>	
Prerequisites:				
Contact hours per week:	Lecture: <b>2</b>	Class discussion: <b>0</b>	Lab hours: <b>0</b>	Tutorial: <b>0</b>
Assessment and evaluation:	end of term mark			
<b>Subject description</b>				
<i>Aims:</i> To offer a basic knowledge of switch mode converter circuits, the operation and main calculation of them.				
<i>Topics to be covered:</i>				
<b>Topics</b>			<b>Week</b>	<b>Lessons</b>
The concept of power electronics.			1.	2
Switch mode semiconductors (thyristors, diode, BJT, MOSFET, IGBT) features, characteristics and warming.			2.	2
Single phase line commutated rectifiers.			3.	2
Three phase line commutated rectifiers.			4.	2
Single and three-phase AC regulators.			5.	2
Modelling of power electronics circuits			6.	2
One quadrant DC-DC chopper circuits (buck, boost, buck-boost).			7.	2
DC-DC bridge chopper circuits			8.	2
Single phase voltage inverters (phase shift, one-phase sinusoidal PWM).			9.	2
Six-step and three-phase sinusoidal PWM inverters.			10.	2
Grid connected photovoltaic inverter topologies			11.	2
Advanced power electronics (UPS, PFC circuits, power supplies).			12.	2
Modelling of power electronics circuits			13.	2
Test			14.	2
<b>Assessment and evaluation</b>				
Requirements of the end of term mark: Successful classroom test writing				
<b>Suggested materials</b>				
Badacsonyi Ferenc: Power electronics examples (pdf), Power electronics handbook: devices, circuits, and applications handbook/ edited by Muhammad H. Rashid. – 3rd ed. Copyrightc 2011, Elsevier Inc.;				