Discipline	Power Electronic Converters code: 5053 Semester – /summer/	
Specialty	Electronics	
ECTS credits: **7**	Form of assessment: Exam	
Lecturer	Professor, PhD Vencislav Valchev Room: 612E Phone: +359 52 383 266 E-mail: venci.valchev@tu-varna.bg	
Department	Department of Electronics and Microelectronics	
Faculty	Faculty of Computer Sciences and Automation	

Learning objectives

The discipline “Power Electronic Converters” introduces the students to the basics electronic circuits for power conversion. The courses focus on the features of contemporary electronic power switches and their use in power converter circuits and designs. The 4 main types of converter schematics are studied. The curriculum includes AC and DC converters, DC current regulators and stabilizers, inverters and others. The methods for control of inverter circuits are also examined, where a special focus on the specifics of PWM control is placed.

CONTENTS:

Training Area	Hours lectures	Hours seminar exercises
State of the art of semiconductor devices for power electronics	2	2
Controlled rectifiers. Operation under active loads.	4	4
Controlled rectifiers. Operation under inductive loads.	2	2
AC voltage regulators.	4	4
DC/DC converters.	6	6
Inverters.	6	6
SCR inverters.	2	2
Output voltage control for inverters. PWM.	2	2
Control of power converters. Specialized PWM. Intelligent power modules. Drivers for power electronic switches.	2	2
TOTAL: 60 h	**30**	**30**