

Discipline	Power Supply Devices	code: 5029	Semester – /winter/
Specialty	Electronics		
ECTS credits: 6	Form of assessment: Evaluation during semester		
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 curriculum of the discipline is designed to introduce students to the basic principles of conversion of electrical energy. Additionally block diagrams and electrical schematics of the widely used power supply devices are examined. The laboratory exercises include testing and measurements of the studied schematics.			
CONTENTS:			
Training Area			Hours lectures
			Hours seminar exercises

Introduction. Basics components of power supply devices.	2	2
Energy sources: Power supply grids, chemical sources, electrical machines (generators), renewable energy sources.	4	4
Rectifiers. Single-phase and three-phase rectifiers. Half-wave and full-wave rectification.	4	4
Rectifier operation under inductive loads.	2	2
Rectifier operation under capacitive loads.	2	2
Rectifiers with improved operational parameters.	2	2
Filters and output filtering.	2	2
Voltage and current regulators.	4	4
Non-isolated DC/DC converters.	3	3
Isolated DC/DC converters.	3	3
Examples of power supply devices. Specifics of power supply device manufacturing.	2	2
TOTAL: 60 h	30	30