



Course: *Power Supply Systems for Electronic Equipment*

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LANGUAGES OF EDUCATION: Ukrainian, Russian, English

THE SUBJECT OF EDUCATIONAL COURSE: The course considers the structure, operating principles and electrical schemes of DC and AC power supplies. Commonly used schemes for multi-output systems, implementation of soft start and overload protection are analyzed. The course contains general information about centralized and decentralized power supply systems. The calculation and analysis of operating modes for typical power supply systems (single and multi-channel power supply controller, power supply systems for personal computers and other peripheral devices, features of developed resonance converters, low and high voltage power supply systems) are given. Also taken into account are power supply systems for improvements in supply parameters (power factor correctors, active filters, reactive power compensators, active rectifiers).

THE GOAL OF THE COURSE IS ACHIEVING OF STUDENTS ABILITIES:

- ❖ obtaining knowledge about common schematic of power supply systems;
- ❖ calculation of basic units of power converters;
- ❖ power converter design, testing, and applying.

MAIN TASK OF EDUCATIONAL COURSE

In accordance with the demands of the educational-professional program, after the finishing of this course must demonstrate such learning outcomes:

Knowledges:

- ✓ principles of voltage stabilization in single and multi-channel systems;
- ✓ problems of miniaturization of power supply systems;
- ✓ methods for increasing of power supply reliability;
- ✓ new principles and components for power converters design.

Skills:

- ✓ understanding the schematics of the main types of power supply systems;
- ✓ choose appropriate power converter structure correspondingly to output and input parameters;
- ✓ soft start, overload protection, power control circuits design;
- ✓ calculation parameters and choosing components of power converters.

Experience:

- ✓ calculation and design of power converters;
- ✓ research of common power converters structure;
- ✓ analyzing of power converter operating mode.

COURSE DURATION: 36 hours of lecture; 18 hours of laboratory works.

REQUIREMENTS TO STUDENTS: knowledge about power components base, AC and DC power converters, and basic mathematical background.

