OPTIMIZATION OF DESIGN SOLUTIONS

COURSE SYLLABUS ABSTRACT

Specialty 6-05-0611-01 Information systems and technologies
Profiling Information systems and technologies in design and production

	STUDY MODE	
	full-time	part-time (shortened program)
Year	4	3
Semester	8	6
Lectures, hours	24	6
Practical classes, hours	24	6
In-class test (semester, hours)	—	6 (2 hours)
Exam, semester	8	6
Contact hours	48	14
Independent study, hours	60	94
Total course duration in hours / credit units	108 / 3	

1. Course outline.

Optimization research strategies; methods for constructing optimization models under conditions of certainty and uncertainty; methods of one-dimensional and multidimensional optimization; methods of linear and nonlinear programming; methods of discrete and dynamic programming; game theory; scheduling theory.

2. Course learning outcomes.

Upon completion of the course, students will be expected to:

know – strategy of optimization studies; methods of constructing optimization models under conditions of certainty and uncertainty; structure and capabilities of optimization modules of modern decision support systems and automation of engineering calculations;

be able to – implement solutions to multi-criteria optimization problems in design and production tasks using application software packages, including dialog ones; develop software for optimizing design solutions in various fields; solve optimization problems in one of the modern decision support systems and automation of engineering calculations;

to possess a skill – application of methods for solving optimization problems; work with optimization modules of modern decision support systems and automation of engineering calculations.

3. Competencies.

Develop optimization models to solve design and manufacturing problems.

4. Requirements and forms of midcourse evaluation and summative assessment.

Current assessment: ZPZ – practical lesson defense; TKU – current progress monitoring. Midterm assessment: exam. The assessment of the student's level of knowledge and the development of competencies in all forms of control is carried out on a ten-point scale.