DISCRETE MATHEMATICS
(name of discipline)
OUTLINE
TO THE WORKING PROGRAM OF THE DISCIPLINE
Specialty 6-05-0612-03 "Information Management Systems"

	Form of higher education		
	Full-time	Correspondence	Part-time shortened*
Course	1	2	
Semester	2	3	
Lectures, hours	16	4	
Laboratory, hours	34	8	
Test, Semester	2	3	
Classroom hours on the study course (including controlled self-study)	50	50	
Independent work, hours		58	
Total hours of the discipline / credit units	108/		

1 Summary of the content of the discipline.

Acquaintance with the basic concepts and methods of combinatorics, theory of boolean functions, sets, relations, graphs, complexity; mastering of the mathematical apparatus of discrete mathematics for the solution of discrete problems from a subject area of the engineer, and also the terminological base necessary for independent studying of the special mathematical literature; acquisition of practical skills of formalization and the solution of applied problems by means of methods of discrete mathematics; development of logical thinking.

2. Learning outcomes.

As a result of the study of the discipline the student should:

know: logical operations; basic methods of set theory and combinatorics; Boolean functions; elements of formal grammar and language theory; basic concepts and results of graph theory; basics of algorithm theory, the concept of P and NP complexity classes; elements of coding theory;

Be able to: translate sentences into the formal language of statement logic; solve the basic combinatorial problems; investigate the completeness of Boolean function systems; investigate the simplest graphs for isomorphism, determine connectedness, bipartitionality and planarity of graphs; determine code separability, build an optimal code;

Know: skills of analysis of composition and decomposition of information complexes and processes; formal language of statement logic; concepts of alphabetical and uniform coding; skills of solving one-valuedness problems of decoding; methods of defining complexity of algorithm and calculations.

3. Competencies to be formed.

Mastering this educational discipline should provide formation of the following competences: UK-12: Possess the skills of creative analytical thinking. BPC-3: Apply practical skills of formalizing and solving applied problems in the field of info-communication technologies using the methods of discrete mathematics.

4. Requirements and forms of current and intermediate attestation.

Defence of laboratory works, defence of controlled independent work, intermediate progress control, credit.