SYLLABUS OF THE DISCIPLINE
«PROBABILITY THEORY AND MATHEMATICAL STATISTICS»

Component of the educational program – *obligatory* (*5.0 credits*)

Educational and professional program	Information technology and project management
Specialty	122 – Computer science
Field of knowledge	12 – Information technology
Level of higher education	first (bachelor's)
Language of instruction	English
Teacher's profile	Vasyl Kushnirchuk, PhD in Physics and Mathematics, Associate Professor of the Department of Mathematical Modeling https://matmod.fmi.org.ua/pro-kafedru/spivrobitnyky/kushnirchuk-vasyl-yosypovych/
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Course page in Google Classroom	https://classroom.google.com/u/0/c/NzA5NTI0MzM2NTg5

SUMMARY OF THE SUBJECT

The construction of mathematical models of natural processes occurring in technological production cycles, control systems, and economic systems requires consideration of so-called random factors. The aim of the course “Probability Theory and Mathematical Statistics” is to form in the student's mind the necessary concepts (random event, random variable, random process), methods of their description and analysis, and to develop skills in the practical application of the acquired knowledge.

EDUCATIONAL CONTENT OF THE EDUCATIONAL COMPONENT

MODULE 1. RANDOM EVENTS	
Topic 1	Random events and probabilities
Topic 2	Consecutive independent tests
MODULE 2. RANDOM VARIABLES	
Topic 3	Random variables
Topic 4	Numerical characteristics of random variables
Topic 5	Limit theorems of probability theory
MODULE 3. ELEMENTS OF MATHEMATICAL STATISTICS	
Topic 6	Sample from the general population. Sample distribution. Sample characteristics
Topic 7	Point and interval estimates of parameters
Topic 8	Correlation between random variables. Regression

FORMS, METHODS AND EDUCATIONAL TECHNOLOGIES

Lectures, practical classes, testing, classroom and distance online learning using video recordings of lectures and practical classes and Google Classroom and Google Meet systems.

Teaching methods:

- verbal methods (lectures, explanations, storytelling, etc.);
- practical methods (practical classes);
- working with information resources: educational, methodological, scientific, and regulatory literature and Internet resources;
- independent work on individual assignments or according to the curriculum;
- distance learning using appropriate online platforms.

FORMS AND METHODS OF CONTROL AND EVALUATION

Types and forms of control:

1. Current (verbal questioning, problem solving).
2. Modular (tests, laboratory tasks).

Ongoing assessment: written or verbal response by the student (test, independent work, testing, individual assignments)**.**

Final control: exam.

CRITERIA FOR ASSESSING LEARNING OUTCOMES

The learning outcomes assessment system is based on ECTS principles and is cumulative. During the semester, students complete test and independent assignments, for which they can get up to 60 points. The final control in the discipline is an exam (40 points).

POLICY ON ACADEMIC INTEGRITY

Compliance with the policy on academic integrity by participants of the educational process in the study of the discipline is regulated by the following documents:

- ✓ «Ethical Code of Yuriy Fedkovych Chernivtsi National University» https://www.chnu.edu.ua/universytet/normatyvni-dokumenty/etychnyi-kodekschernivetskoho-natsionalnoho-universytetu-imeni-yuriia-fedkovycha/
- ✓ «Regulations on Detection and Prevention of Academic Plagiarism at Yuriy Fedkovych Chernivtsi National University» https://www.chnu.edu.ua/universytet/normatyvni-dokumenty/polozhennia-provyiavlennia-ta-zapobihannia-akademichnomu-plahiatu/

INFORMATION RESOURCES

https://classroom.google.com/u/0/c/NzA5NTI0MzM2NTg5

https://drive.google.com/drive/folders/17qBmRz8Fr1Szr4lvcokT2gaRyxincIOJ

https://drive.google.com/drive/folders/1huHoXmhqGjoo__NeoXNO3l-ZnWMGbU0Q