

Syllabus of the educational discipline

« FUNDAMENTALS OF DEVOPS »

Cycle of Higher Education	<i>First cycle of higher education (Bachelor's degree)</i>
Field of Study	<i>12 Information Technologies</i>
Specialty	<i>123 Computer engineering</i>
Educational program	<i>Computer systems and networks</i>
Discipline status	<i>Compulsory</i>
Teaching language	<i>English</i>
Year of studies, semester	<i>4 year (7 semester)</i>
Number of credits ECTS	<i>4 credits</i>
Distribution by types of trainings and hours of study	<i>Lectures, Laboratory studies, Independent training</i>
Form of final assessment	<i>Test</i>
Teacher	<i>Marina K. I., assistant lecturer of the department of computer systems and network</i>
Teacher's contacts	<i>katernya.marina@uzhnu.edu.ua</i>
Course Schedule	<i>According to the timetable</i>
<p><i>The purpose of the DevOps Fundamentals discipline is to familiarize students with the fundamentals of software product development and automation of tasks related to application configuration and deployment. Using configuration management systems, virtualization solution and cloud tools for resource balancing.</i></p> <p><i>As a result of studying the discipline the student must:</i></p> <p><i>know:</i></p> <ul style="list-style-type: none"> <i>- understanding of the software development process. Work with different database management systems. Knowledge of modern DevOps technologies and techniques, and their proper use. Use basic DevOps practices and activities in their work.</i> <p><i>be able to:</i></p> <ul style="list-style-type: none"> <i>- synchronize the stages of the software creation process. Automate production processes and standardize them. Develop a secure infrastructure for the implemented software</i> 	
Prerequisites for learning Programming	
Content of the educational discipline	
Topic 1. Introduction to DevOps Topic 2. Linux Administration Topic 3. Overview of Networking Topic 4. Overview of cloud providers Topic 5. Configuration Management Systems Topic 6. Containerization Topic 7. Overview of git version control system Topic 8. CI/CD Topic 9. Monitoring Tools	
Course page on the Moodle platform (personal training system)	<i>Syllabus of the educational discipline, hyperlinks to electronic publications of the discipline, recommended literature, students' attendance, lecture materials, presentations, questions for self-control, methodical materials for laboratory works, tests, tasks for checking students' knowledge. https://moodle.uzhnu.edu.ua</i>
Recommended literature	
<ol style="list-style-type: none"> <i>1. Docker in Action. Jeff Nickoloff. 2016</i> <i>2. The Science of Lean Software and DevOps: Building and Scaling High Performing Technology Organizations, NICOLE FORSGREN JEZ HUMBLE GENE KIM, Publication Date: March 27, 2018, Pages: 288</i> 	

3. *The DevOps Handbook. How to Create World-Class Agility, Reliability, & Security in Technology Organizations*, Gene Kim, Jez Humble, Patrick Debois, and John Willis. E-book
4. *Building Microservices*, Sam Newman, February 2015

Assessment system of learning outcomes

The ECTS grade that a student receives after studying a credit module of a discipline is determined according to the student's rating. A student's credit module rating consists of the points the student receives during the semester for the following types of work:

1. Modular control work (MCW) duration of 2 acad. hours each. The maximum number of points for the MCW is 60 points.

2. Performance of laboratory works.

During the semester, students perform laboratory works(maximum number of points - 30)

Scores on individual and independent work of students are awarded for: preparation of essays, modernization of tasks, creative approach to task performance, performance of tasks to improve didactic materials on the discipline: 0-10 points for each module.

Each module is assessed a maximum of 100 points. At the end of the discipline a rating score is derived as the arithmetic average of the points from the two modules.

ECTS and national grading scale

Mark scale	ECTS	Exam	Test
90 - 100	A	Excellent	Satisfied
82 - 89	B	Good	
74 - 81	C		
64 - 73	D	Satisfactory	
60 - 63	E		
35 - 59	FX	“Unsatisfactory” with possibility to pass the exam again	“Not satisfied” with possibility to pass the exam again
1 - 34	F	“Unsatisfactory” with obligatory repeated study of the discipline	“Not satisfied” with obligatory repeated study of the discipline