Ministry of Education and Science of Ukraine
Dnipro University of Technology

MINING FACULTY

DEPARTMENT OF TRANSPORT SYSTEMS AND TECHNOLOGIES

"APPROVED"
Head of Department
Shirin L.N. _____
"____" _____ 2018

WORK PROGRAM OF THE ACADEMIC DISCIPLINE

" Transport systems of mining enterprises "

Field of study…….....	18 Production and Technology
Specialty.....	185 Oil and Gas Engineering and Technology
Academic degree.....	Bachelor
Academic program.....	Oil and Gas Engineering and Technology
Language of study.....	English

Prolonged: for 20 __ / 20__ academic year _____ (_____) "__" ___ 20__.
(Signature, name, date)

for 20 __ / 20__ academic year _____ (_____) "__" ___ 20__.
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Dnipro
NTU "DP"
2018

Work program of the academic discipline “Transport systems of mining enterprises” for bachelor’s specialty 185 “Oil and Gas Engineering and Technology” / EA Korovyaka / NTU “Dnipro Polytechnic” Department of transport systems and technologies. - DA: NTU «DP» 2018 - 13 p.

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The work program regulates:

– key goals and objectives;
– the disciplinary learning outcomes generated through the transformation of the intended learning outcomes of the degree program;
– the content of the discipline formed according to the criterion “disciplinary learning outcomes”;
– the discipline program (thematic plan by different types of classes);
– distribution of the discipline workload by different types of classes;
– an algorithm for assessing the level of achievement of disciplinary learning outcomes (scales, tools, procedures and evaluation criteria);
– criteria and procedures for evaluating the academic achievements of applicants by discipline;
– the contents of the educational and methodological support of the discipline;

The work program is designed to implement a competency approach in planning an education process, delivery of the academic discipline, preparing students for control activities, controlling the implementation of educational activities, internal and external quality assurance in higher education, accreditation of degree programs within the specialty.

CONTENTS

1 DISCIPLINE OBJECTIVES

In the educational and professional programs of the Dnipro University of Technology specialty 185 “Oil and gas engineering and technology”, the distribution of program learning outcomes (NRN) for the organizational forms of the educational process is done. In particular, the following learning outcomes are attributed to the discipline V2.14 "Transport systems of mining companies ":

VR2.2	To determine the operating parameters and project managers flowsheets transport coal mines for specific mining and geological conditions

The objective of discipline - formation of learning outcomes on transport systems and technologies of coal mines.

The implementation of the objective requires transforming program learning outcomes into the disciplinary ones as well as an adequate selection of the contents of the discipline according to this criterion.

2 INTENDED DISCIPLINARY LEARNING OUTCOMES

Code NRN	**Disciplinary learning outcomes (DRN)**	
	DRN code	**content**
VR2.2	VR2.2-V2.14-1	calculate the operating parameters of transport vehicles and systems of coal mines
	VR2.2-V2.14-2	design flowsheets transport links for specific mining and geological conditions
	VR2.2-V2.14-3	create link transport of coal mines
	VR2.2-V2.14-4	providing support for the transport of coal mines for various conditions

3 BASIC DISCIPLINES

Subjects	**The acquired learning outcomes**
F20 "Transport Systems and Technologies"	To characterize the main types of transport and their performance
	Determine the scope of vehicles
	To characterize the physical and chemical properties of oil, condensate and natural gas in their production, drilling, transportation and storage
	Determine the volume of cargo oil and gas companies
	To determine the capacity of stationary and self-propelled means of transportation
	Evaluate performance vehicles to ensure certain traffic volumes in different conditions of oil and gas production
	Calculate the thrust moving
	Expect engine power
	Evaluate traction capacity self-propelled machines
	Assess the ability of traction drive units stationary
	Own calculation methods of operating vehicles

4 WORKLOAD DISTRIBUTION BY THE FORM OF EDUCATIONAL PROCESS ORGANIZATION AND TYPES OF CLASSES

Type of	**Distribution by forms of education**, *hours*

classes		Full-time		Part-time		Distance	
		Classes (C)	Individual work (IW)	Classes (C)	Individual work (IW)	Classes (C)	Individual work (IW)
Lectures	60	26	34	-	-	6	54
Practical	-	-	-	-	-	-	-
Laboratory	30	13	17	-	-	4	26
Workshops	-	-	-	-	-	-	-
Total	90	39	51	-	-	10	90

5 DISCIPLINE PROGRAM BY TYPES OF CLASSES

Ciphers DRN	Types and topics of training sessions	The volume of components, *hours*
	Lectures	**60**
VR2.2-V2.14-1 VR2.2-V2.14-2	**1 Transport systems and systems of mining enterprises**	**8**
	General information about the system, systems, management, structure, technological schemes	
	Types of mining transport, their scope and technological tasks	
	Functional block diagram transportation systems and units of mining companies	
VR2.2-V2.14-1 VR2.2-V2.14-2 VR2.2-V2.14-3 VR2.2-V2.14-4	**2 Transport systems and systems of coal mines**	**8**
	Components of technological schemes of underground transport coal mines	
	Grouping technological schemes transport	
	Factors determining circuits and underground transport facilities	
	Features of formation of technological schemes of transport at the stage of opening stocks	
	Development of technological schemes of transport in the preparation of inventories to cleaning slots	
	Traffic system in coal mines	
VR2.2-V2.14-1 VR2.2-V2.14-2 VR2.2-V2.14-3 VR2.2-V2.14-4	**3 Flow charts and processes during transportation of mining**	**8**
	Tools, processes and technologies in the construction of underground workings	
	Tasks and functions of transport during excavation	
	Transport Schemes in preparatory workings	
	Tools, processes and technology of loading and transport operations in preparatory workings	
VR2.2-V2.14-1 VR2.2-V2.14-2 VR2.2-V2.14-3 VR2.2-V2.14-4	**4 Flow charts auxiliary transport**	**8**
	Transport equipment and auxiliary traffic technology its application	
	Features basic parameters and scope of support traffic handling equipment	
	Monorail, nadrruntovi cableways and their calculation	
	Technical equipment, technology and packet-calculation of container cargo delivery	
VR2.2-V2.14-1 VR2.2-V2.14-2	**5 Transport systems main traffic coal mines**	**20**
	General information on methods and technologies transporting minerals in the ranks of coal seams depending on the inclination of the past	

Ciphers DRN	Types and topics of training sessions	The volume of components, *hours*
	Lectures	**60**
VR2.2-V2.14-3 VR2.2-V2.14-4	The structure and purpose indicators scraper conveyors	
	The method of calculating operating downhole scraper conveyors	
	The structure, vehicles and schemes of district and main transport	
	The structure and operation of the loading points	
	Conveyor systems coal mines	
	The method of calculating operational conveyor belt	
	Purpose, structure and calculation of accumulating devices transport links	
	Flow charts locomotive transport	
	The method of calculating operational locomotive haulage	
	Task transport prystovburovyh yards	
	Flow charts Transport prystovburovyh yards	
	Defining carrying capacity and tact yards	
	Production tasks and structure of the complex surface mine	
	Options for improvement of transport and technological complex	
	Special and auxiliary equipment mining transportation	
	The method of calculating operational rope haulage	
VR2.2-V2.14-1 VR2.2-V2.14-2 VR2.2-V2.14-3 VR2.2-V2.14-4	**6 Basics of transport machines and systems**	**8**
	Methodological Foundations of transportation processes in mines	
	The choice of the district and the main transport	
	Ensuring the safety of transport systems	
	Laboratory classes	**30**
VR2.2-V2.14-1	1 Planning experiment. The measurement of physical quantities, processing of research results	**6**
VR2.2-V2.14-2 VR2.2-V2.14-3 VR2.2-V2.14-4	2 Experimental determination of the coefficient of resistance elements motor transport facilities. Research coefficient of resistance movement chain scraper conveyor to sewer. Research resistance movement mine cars.	**6**
	3 Experimental determination of the coefficient of adhesion of the conveyor belt drive drum	**6**
	4 Experimental study track parameters. Investigation of operational parameters of mine cars	**6**
	5 Experimental determination of the coefficient of traction electric drive wheels on railway lines	**6**
	TOTAL	**90**

6 KNOWLEDGE PROGRESS TESTING

Certification of student achievement is accomplished through transparent procedures based on objective criteria in accordance with the University Regulations “On Evaluation of Higher Education Applicants' Learning Outcomes”.

The level of competencies achieved in relation to the expectations, identified

during the control activities, reflects the real result of the student's study of the discipline.

6.1 GRADING SCALES

Assessment of academic achievement of students of the Dnipro University of Technology is carried out based on a rating (100-point) and institutional grading scales. The latter is necessary (in the official absence of a national scale) to convert (transfer) grades for mobile students.

The scales of assessment of learning outcomes of the NTUDP students

Rating	Institutional
90 ... 100	Excellent
74 ... 89	Good
60 ... 73	Satisfactory
0 ... 59	Failed

Discipline credits are scored if the student has a final grade of at least 60 points. A lower grade is considered to be an academic debt that is subject to liquidation in accordance with the Regulations on the Organization of the Educational Process of NTUDP.

6.2 DIAGNOSTIC TOOLS AND EVALUATION PROCEDURES

The content of diagnostic tools is aimed at controlling the level of knowledge, skills, communication, autonomy, and responsibility of the student according to the requirements of the National Qualifications Framework (NQF) up to the 7th qualification level during the demonstration of the learning outcomes regulated by the work program.

During the control activities, the student should perform tasks focused solely on the demonstration of disciplinary learning outcomes (Section 2).

Diagnostic tools provided to students at the control activities in the form of tasks for the intermediate and final knowledge progress testing are formed by specifying the initial data and a way of demonstrating disciplinary learning outcomes.

Diagnostic tools (control tasks) for the intermediate and final knowledge progress testing are approved by the appropriate department.

Type of diagnostic tools and procedures for evaluating the intermediate and final knowledge progress testing are given below.

Diagnostic and assessment procedures

INTERMEDIATE CONTROL			FINAL ASSESSMENT	
training sessions	**diagnostic tools**	**procedures**	**diagnostic tools**	**procedures**
lectures	control tasks for each topic	task during lectures	comprehensive reference work	determining the average results of intermediate

practical	control tasks for each topic	tasks during practical classes	(CCW)	controls;
	or individual task	tasks during independent work		CCW performance during the examination at the request of the student

During the intermediate control, the lectures are evaluated by determining the quality of the performance of the control specific tasks. Practical classes are assessed by the quality of the control or individual task.

If the content of a particular type of teaching activity is subordinated to several descriptors, then the integral value of the assessment may be determined by the weighting coefficients set by the lecturer.

Provided that the level of results of the intermediate controls of all types of training at least 60 points, the final control can be carried out without the student's immediate participation by determining the weighted average value of the obtained grades.

Regardless of the results of the intermediate control, every student during the final knowledge progress testing has the right to perform the CDF, which contains tasks covering key disciplinary learning outcomes.

The number of specific tasks of the CDF should be consistent with the allotted time for completion. The number of CDF options should ensure that the task is individualized.

The value of the mark for the implementation of the CDF is determined by the average evaluation of the components (specific tasks) and is final.

The integral value of the CDF performance assessment can be determined by taking into account the weighting factors established by the department for each NLC descriptor.

6.3 EVALUATION CRITERIA

The actual student learning outcomes are identified and measured against what is expected during the control activities using criteria that describe the student's actions to demonstrate the achievement of the learning outcomes.

To evaluate the performance of the control tasks during the intermediate control of lectures and practicals the assimilation factor is used as a criterion, which automatically adapts the indicator to the rating scale:

$$O_i = 100\ a / m,$$

where a - number of correct answers or significant operations performed according to the solution standard; m - the total number of questions or substantial operations of the standard.

Individual tasks and complex control works are expertly evaluated using criteria that characterize the ratio of competency requirements and evaluation indicators to a rating scale.

The content of the criteria is based on the competencies identified by the NLC for the Bachelor's level of higher education (given below).

General criteria for achieving learning outcomes 7th qualification for LDCs (BA)

Integral competence is the ability to solve complex problems and specialized practical problems in a particular area of professional activities or in a learning process that involves the use of certain theories and methods of the relevant scientific areas and characterized by complexity and conditions uncertainty.

descriptors NLC	Requirements for knowledge, communication, autonomy and responsibility	Indicator evaluation
Knowledge		
♦ Conceptual knowledge acquired during the training and professional activities, including some knowledge of modern achievements; ♦ critical understanding of the main theories, principles, methods, and concepts in education and careers	- A great - proper, reasonable, sensible. Measures the presence of: - conceptual knowledge; - a high degree of state ownership issues; - critical understanding of the main theories, principles, methods and concepts in education and careers	95-100
	A non-gross contains mistakes or errors	90-94
	The answer is correct but has some inaccuracies	85-89
	A correct some inaccuracies but has also proved insufficient	80-84
	The answer is correct but has some inaccuracies, not reasonable and meaningful	74-79
	A fragmentary	70-73
	A student shows a fuzzy idea of the object of study	65-69
	Knowledge minimally satisfactory	60-64
	Knowledge unsatisfactory	<60
Ability		
♦ solving complex problems and unforeseen problems in specialized areas of professional and/or training, which involves the collection and interpretation of information (data), choice of methods and tools, the use of innovative approaches	- The answer describes the ability to: - identify the problem; - formulate hypotheses; - solve problems; - choose adequate methods and tools; - collect and interpret logical and understandable information; - use innovative approaches to solving the problem	95-100
	The answer describes the ability to apply knowledge in practice with no blunders	90-94
	The answer describes the ability to apply knowledge in practice but has some errors in the implementation of a requirement	85-89
	The answer describes the ability to apply knowledge in practice but has some errors in the implementation of the two requirements	80-84
	The answer describes the ability to apply knowledge in practice but has some errors in the implementation of the three requirements	74-79
	The answer describes the ability to apply knowledge in practice but has some errors in the implementation of the	70-73

descriptors NLC	Requirements for knowledge, communication, autonomy and responsibility	Indicator evaluation
	four requirements	
	The answer describes the ability to apply knowledge in practice while performing tasks on the model	65-69
	A characterizes the ability to apply knowledge in performing tasks on the model, but with uncertainties	60-64
	The level of skills is poor	<60
Communication		
♦ report to specialists and non-specialists of information, ideas, problems, solutions and their experience in the field of professional activity; ♦ the ability to form an effective communication strategy	- Fluent problematic area. Clarity response (report). Language - correct; - - net; - - clear; - - accurate; - - logic; - - expressive; - - concise. Communication strategy: coherent and consistent development of thought; availability of own logical reasoning; relevant arguments and its compliance with the provisions defended; the correct structure of the response (report); correct answers to questions; appropriate equipment to answer questions; the ability to draw conclusions and formulate proposals	95-100
	Adequate ownership industry issues with minor faults. Sufficient clarity response (report) with minor faults. Appropriate communication strategy with minor faults	90-94
	Good knowledge of the problems of the industry. Good clarity response (report) and relevant communication strategy (total three requirements are not implemented)	85-89
	Good knowledge of the problems of the industry. Good clarity response (report) and relevant communication strategy (a total of four requirements is not implemented)	80-84
	Good knowledge of the problems of the industry. Good clarity response (report) and relevant communication strategy (total not implemented the five requirements)	74-79
	Satisfactory ownership issues of the industry. Satisfactory clarity response (report) and relevant communication strategy (a total of seven requirements not implemented)	70-73
	Partial ownership issues of the industry. Satisfactory clarity response (report) and communication strategy of faults (total not implemented nine requirements)	65-69
	The fragmented ownership issues of the industry. Satisfactory clarity response (report) and communication strategy of faults (total not implemented 10 requirements)	60-64
	The level of poor communication	<60
Autonomy and responsibility		
♦ management actions or complex projects,	- Excellent individual ownership management competencies focused on:	95-100

descriptors NLC	Requirements for knowledge, communication, autonomy and responsibility	Indicator evaluation
responsible for decision-making in unpredictable conditions; ♦ responsible for the professional development of individuals and/or groups ♦ the ability to continue study with a high degree of autonomy	1) management of complex projects, providing: - exploratory learning activities marked the ability to independently evaluate various life situations, events, facts, detect and defend a personal position; - the ability to work in a team; - control of their own actions; 2) responsibility for decision-making in unpredictable conditions, including: - justify their decisions the provisions of the regulatory framework of sectoral and national levels; - independence while performing tasks; - lead in discussing problems; - responsibility for the relationship; 3) responsible for the professional development of individuals and/or groups that includes: - use of vocational-oriented skills; - the use of evidence from independent and correct reasoning; - possession of all kinds of learning activities; 4) the ability to further study with a high degree of autonomy, which provides: - degree possession of fundamental knowledge; - independent evaluation judgments; - high level of formation of general educational skills; - search and analysis of information resources	
	Confident personality possession competency management (not implemented two requirements)	90-94
	Good knowledge management competencies personality (not implemented three requirements)	85-89
	Good knowledge management competencies personality (not implemented the four requirements)	80-84
	Good knowledge management competencies personality (not implemented six requirements)	74-79
	Satisfactory ownership of individual competence management (not implemented seven requirements)	70-73
	Satisfactory ownership of individual competence management (not implemented eight claims)	65-69
	The level of autonomy and responsibility fragmented	60-64
	The level of autonomy and responsibility poor	<60

7 TOOLS, EQUIPMENT, AND SOFTWARE

Technical training tools via multimedia software.
Distance learning platform Moodle.

8 RECOMMENDED SOURCES

1. Transportation in mines: textbook for high schools. - 3rd ed. / Common. Changes and additions zhv prof. MJ Bilichenko - Dnipropetrovsk National Mining University, 2005. - 636 p.

2. Salov. VA Fundamentals performance calculations transport mining enterprises: Textbook. Dnipropetrovsk National hirnychyyuniversytet, 2005. - 199 p.

3. Basic Situation on designing underground of transport for novyh and deystvuyuschyh uholnыh mines. - M .: YHD them. Skochynskoho, 1985. - 356 p.

4.Grigoriev VN, VA Dyakov, down YS Machines for Transportnые UNDERGROUND developments.- M .: Nedra, 1983. - 421 p.

5. AV Evnevych Transportnые Machines and complexes.- Ed. 2nd, rev. and add. - M .: Nedra1975. - 415 p.

6. Basic theory and calculations means of transportation mines: Training. Ref.- 2nd ed. / M.Ya.Bilichenko, O.V.Denyschenko. -D .: NSU, 2008. - 103 p.

7. Calculation mine locomotive transport: Teach. guidances. / AA Renhevych, ON Koptovets, PA Diachkov and others. - D .: National Mining University, 2007. - 83 p.

8. Transport systems of mining enterprises. Guidance for laboratory works for students training direction 6.050301) / EA Korovyaka, VA Rastsvyetayev VV Jaworski. - D .: National Mining University 2013 -32 p.

Support:

1. Problems in the discipline "Basics of transport theory": Training. manual / MJ Bilichenko, EA Korovyaka, PA Diachkov, VA Rastsvyetayev. - Dnipropetrovsk National Mining University, 2007. - 151 p.

2. Directory. Podzemnыy transport of mines and mine / Pod Society. Ed. GY Peysahovycha, Y.P. Remizov. - M .: Nedra, 1985. - 565 p.

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