

**Ministry of Education and Science of Ukraine
Nationally Technical University
Kharkiv Polytechnic Institute"**

APPROVED

Rector of NTU "KPI"

_____ **Ye. Sokol**

« ___ » _____ **2019.**

**Educational and professional programs
"MOTOR TRANSPORT"
First level higher degree of education
number 274 - Motor transport
industry knowledge number 27 Transport
Qualifications: Bachelor of Motor transport**

the Scientific

COUNCIL NTU "KPI"

Chairman of the Academic Council

_____ / **L. Tovazhnyansky /**

(Protocol number from ___ " ___ " _____ 2019)

Kharkiv 2019

LIST OF CERTIFICATION
of an educational-professional program

Level of higher education	<u>The first (Bachelor)</u>
Knowledge	<u>27 Transport</u>
Specialty	<u>274 "Motor transport"</u>
Specialization	<u>274-01 " Transport and transport infrastructure"</u>
Qualification	<u>Bachelor of motor transport</u>

APPROVED

Scientific-methodical commission on the specialty "Motor transport "

Head of Commission

_____ V. Samorodov

«__» _____ 2019

APPROVED

Head of the Department of Car and Tractor Industry

_____ V. Samorodov

«__» _____ 2019

RECOMMENDED

Methodical Council of NTU "KhPI"

Deputy Chairman of the methodical council

_____ R. Mygushchenko

«__» _____ 2019

APPROVED

Director of the Educational-scientific institute of mechanical engineering and transport

_____ V. Iepifanov

«__» _____ 2019 p.

APPROVED AND PROVIDED

By order of the rector of the National Technical University "Kharkiv Polytechnic Institute" from " __ " _____ 2019. No. _____

PREFACE

Designed by the project team of the Department of Car and Tractor Industry of the Institute of Education and Science in Mechanical Engineering and Transport of the National Technical University "Kharkiv Polytechnic Institute" consisting of:

1. Doctor of Technical Sciences, Professor V. Samodorodov – Head of the Department of Car and Tractor Industry, Head of the Project Group (guarantor of the educational program);

2. Doctor of Technical Sciences, Associate Professor A. Bondarenko – Professor of the Department of Automobile and Tractor Engineering;

3. Candidate of technical sciences, associate professor M. Mittsel – Associate Professor of the Department of Car and Tractor Industry.

Reviewers

1. Honored Worker of Science and Technology of Ukraine, Doctor of Technical Sciences, Professor A. Lebedev A – Head of the Department of Tractors and Cars of the Kharkiv National Technical University of Agriculture named after. P. Vasilenko, Kharkiv.

2. Doctor of technical sciences, professor A. Bazhinov – Head of the Department of Automobile Electronics of Kharkiv National Automobile and Road University.

Reviews and comments of external stakeholders:

1. Autocentre private joint-stock company "FRUNZE ENTERPRISE".

2. Subsidiary enterprise "AVTOTREYDING - KHARKIV".

3. Private joint-stock company "KHARKIV - AUTO".

**1. Profile of the educational-professional program in the specialty
№ 274 - Motor transport
Specialization 274– 01 Transport and transport infrastructure**

1– General information	
Full name of higher educational institution and structural unit	National Technical University "Kharkiv Polytechnic Institute, Institute of Education and Science in Mechanical Engineering and Transport, Department of
Higher education and the name of the qualification in the language	Level of higher education: <u>Bachelor</u> Qualification: <u>Bachelor of motor transport</u>
The official name of the educational pro-	Motor transport
Type of diploma and volume of educational	Bachelor's degree, unitary, 240 ECTS credits, term of training 4 years
Availability of accreditation	Certificate of accreditation from 06/09/2017 ND №2192188 valid until 01/07/2022.
Cycle / Level	National qualifications framework of Ukraine –6 level, FQ-EHEA– first cycle, EQF LLL – 6 level
Prerequisites	The presence of complete general education or education in the educational program of a junior bachelor in accordance with the conditions and rules of admission
Teaching language	Ukrainian, Russian, English
The duration of the educational program	The validity of the certificate of accreditation before July 1, 2022.
Internet address of the permanent placement of the description ocbi-	http://blogs.kpi.kharkov.ua/v2/nv/

2 - The purpose of the educational program	
<p>The combination of a high level of professional training with the formation of a student's scientific outlook and broad outlook in the field of road transport as well as in social, humanitarian and fundamental. The achievement of the stated goal is based on the principles of continuity and individualization of learning, the fundamental and integrity of knowledge, practical orientation and awareness of the place of the received competencies, symbiosis of scientific and system approaches, etc.</p>	
3 - Characteristics of the educational program	
Subject area (branch of knowledge, specialty, specialization))	Branch of knowledge: 27 Transport Specialty: 274 Motor transport Specialization: 274-01 Transport and transport infrastructure
Orientation of the educational program	The educational-professional program has an applied orientation and aims at the integration of general technical and special technical training for professional activities in production, engineering, maintenance and repair services of enterprises.
The main focus of the educational program and specialization	Special education in the field of transport specializing in road transport. Keywords: car maintenance, repair, computer diagnostics, vehicle systems, the technology works, optimization of vehicles.
Features of the program	Focussed on partnership with domestic and foreign educational institutions, as well as on the basis of the private sector - organization of dual education.
4 - Eligibility of graduates for employment and further training	
Suitability for employment	Graduates can work in professions according to the National Occupational Classifier DK 003:2010: 3115 Mechanic of a car column (garage) 3115 Mechanic of production 3115 Mechanic of the district 3115 Mechanic for the repair of transport 3115 Mechanic of equipment repair 3115 Mechanic of the department 3115 Designer (mechanic)

	<p>3115 Technician-technologist (mechanics)</p> <p>3119 Technician for the preparation of technical documentation</p> <p>3119 Road Transport Manager</p> <p>3119 Dispatcher for international transport</p> <p>3119 Technician for preparation of production</p> <p>3139 Specialist in automotive expertise</p> <p>3152 Inspector for operational, production, technical and organizational matters</p> <p>3152 Inspector of product quality control</p> <p>3152 Labor Inspector</p> <p>3152 Engineer for safety</p> <p>3152 Technical Supervisor</p> <p>3152 Safety Audit</p> <p>3152 Auditor on Road Transport</p> <p>3422 Administrator of the passenger service</p> <p>3422 Forwarding agent</p> <p>3422 Another on the transport expeditionary enterprise</p>
Further education	Bachelor has the opportunity to study according to an educational professional program of the Master of Science in the second cycle FQ-EHEA, 7 level EQF-LLL and 7 level NQF of Ukraine.
5 - Teaching and evaluation	
Teaching and learning	In the process of teaching, the use of such educational technologies as: lectures, laboratory classes, group work, seminars, presentations, developing communication skills, independent work with literary sources, implementation of course projects (works) from professional educational disciplines, organization and conducting of pre-diploma practices based on leading enterprises, implementation of relevant graduation papers for business entities.
Evaluation	The control of knowledge and skills of students is carried out in the form of current and final control. Assessment of students' knowledge is carried out according to the modular rating system. Current control involves controlling knowledge, skills and abilities of students at
	The final control is carried out in the form of examinations, credits and final certification.

6 - Program competencies	
Integral competence	Ability to solve complex problems and practical problems in professional activity in the field of motor transport or in the process of further training with the application of the provisions, theories and methods of fundamental, technical, technological, informational and socio-economic sciences, characterized by complexity and uncertainty of the conditions.
General Competence	<p>GC 1 To have an active civic position based on democratic beliefs, humanistic and ethical values.</p> <p>GC 2 Ability to apply professional and fundamental knowledge in professional activities.</p> <p>GC 3 Ability to organize work in accordance with the requirements of occupational safety, safety and fire safety at the objects of road transport in the manufacture, operation, maintenance and repair</p> <p>GC 4 Ability to realize the social significance of their profession, apply the principles of deontology in the performance of their professional duties.</p> <p>GC 5 Ability to oral and written communication in national and foreign languages for communication in professional and socio-cultural spheres, knowledge of professional terminology in a foreign language. Ability to consciously replenish and expand communicative skills in the professional field throughout life.</p> <p>GC 6 Knowledge of the use of modern software, on Internet resources and work in computer networks, possession of basic methods, methods and means of receiving, storing and processing, and use of technical information in professional activities</p> <p>GC 7 Ability to effectively plan and manage Organize professional activities; use organizational skills to plan the work of the team.</p>

	<p>GC 8 Ability to communicate and collaborate with professionals from other industries, adapt to the social and professional environment.</p> <p>GC 9 Ability to realize responsibility for the results of their professional activities to the public.</p> <p>GC 10 Ability to solve problems in new and not standard professional situations, taking into account the condition and development of motor transport, social and ethical responsibility for the decisions taken.</p> <p>GC 11 Ability to apply professional and specialist qualities to ensure competitiveness in the Ukrainian and international labor market</p> <p>GC 12 Ability to use physical exercise methods and exercises</p>
<p>Professional competence of a specialty (PC)</p>	<p>PC 1 Ability to use in the professional activity the knowledge of regulatory, legal acts of Ukraine, rules of technical operation of motor transport of Ukraine, instructions and recommendations on the operation, repair and maintenance of road vehicles of motor transport and their systems.</p> <p>PC 2 Ability to use in professional activity knowledge about the structure of the infrastructure of motor transport, organization of movement and transportation, to distinguish between the objects of motor transport and their components, to determine the requirements for their design.</p> <p>PC 3 Ability to conduct a measurement process and evaluate its results on the basis of knowledge about metrology, standardization and certification methods.</p> <p>PC 4 Ability to use the basics of materials science and to choose electrical and electronic equipment as elements of vehicle equipment.</p>

PC 5 Ability to carry out activity on development, registration and introduction in production of documentation on the certainty of technological processes of production, operation, repair and maintenance of objects of automobile transport, their systems and other instructions, rules and methods.

PC 6 Ability to use methods of analysis and calculations of systems and units of cars.

PC 7 Willingness to substantiate technical solutions in the development and implementation of technological processes, technological equipment and technological equipment, automation and mechanization facilities in the production, operation, repair and maintenance of road vehicles of motor transport, their systems and elements.

PC 8 Willingness to participate in adjustment, repair and preventive work of cars at service stations and motor transport enterprises.

PC 9 Ability to organize production activities of structural subdivisions of enterprises, small teams of performers (brigades, districts), production, operation, repair and maintenance of objects of automobile transport, their systems and elements, including the substantiation of technology of production processes.

PC 10 Willingness to ensure the implementation of industrial and labor discipline, to monitor compliance with the requirements of safety of life.

PC 11 Ability to apply modern software for development of design and technological documentation for the creation, operation, repair and maintenance of road vehicles of motor transport, their systems and elements.

PC 12 Ability to organize the operation of the reporting and accounting system (administrative, statistical, technological) work of structural units of enterprises of motor transport, to carry out administrative work, documentation and quality management in accordance with normative-legal acts, instructions and methods.

	<p>PC 13 Ability to choose and apply technical means for measuring the parameters of power power plants of cars and processes in them, to analyze the results of measurements and draw conclusions.</p> <p>PC 14 Ability to work with automobile engines, fuels and lubricants.</p> <p>PC 15 Willingness and ability to ensure compliance with the specified parameters of technological processes of specialized automobile rolling stock.</p> <p>PC 16 Ability to use rules of safety, industrial sanitation, fire safety and safety standards.</p>
<p>7 - Program learning outcomes</p>	
<p>Program results of training in general preparation</p>	<p>PRT 1 To know and possess the skills and abilities of language activities in the field of domestic and professional communication.</p> <p>PRT 2 Know the basics of historical thinking, have an idea of the sources of historical knowledge and how to work with them, understand the issues of political science.</p> <p>PRT 3 Know the scientific, philosophical and religious pictures of the universe, the essence of the purpose and meaning of human life, to have an idea of the originality of philosophy, to understand the issues of sociology.</p> <p>PRT 4 Know the conditions for the formation of a person, his freedom, responsibility for preserving life, nature, culture, moral obligations of man in relation to others and himself, about spiritual values, their significance in creativity and everyday life, to navigate in legal issues.</p> <p>PRT 5 Know and use the methods of fundamental sciences to solve general engineering and professional tasks.</p> <p>PRT 6 Know the basics of building plotters, be able to solve positional, metric and spatial problems.</p>

	<p>PRT 7 Know the basics of the construction and application of modern operating systems, main office software tools, to be able to use application software packages in accordance with their professional activities.</p> <p>PRT 8 Know the essence of the main economic categories, scientific foundations and ways to increase production, resource savings.</p> <p>PRT 9 To know the legislative and normative basis of the state on the basis of occupational safety and health, as well as international standards in this area.</p> <p>PRT 10 To know the legal protection of the natural environment, to be able to carry out instrumental measurements of the numerical values of normalized indicators of the state of the environment and the production environment.</p> <p>PRT 11 To know the classification of enterprises of motor transport, structure, forms and methods of their work, the main provisions of the technical operation of rolling stock of motor transport.</p> <p>PRT 12 Know and understand the basics of physical education, be able to perform basic physical activity.</p> <p>PRN 13 Know how to design simple structures of objects and evaluate the mechanical strength of designed structures.</p> <p>PRN 14 Know how to graphically display geometric images of parts, products and objects of transport, their schemes and systems.</p> <p>PRN 15 Know how to use the basics of materials science and choose electrotechnical devices as elements of vehicle equipment.</p> <p>PRN 16 Know how to use methods and technical means to measure the basic parameters of objects and systems of cars.</p>
<p>Program results of training for profes-</p>	<p>PRN 17 Know how to use methods of analysis and calcula-</p>

<p>sional preparation</p>	<p>tions of systems and units of cars.</p> <p>PRN 18 Know how to justify technical solutions in the development of technological processes and to choose the technical means taking into account the environmental consequences of their application.</p> <p>PRN 19 Know how to use rules of safety, industrial sanitation, fire safety and safety standards.</p> <p>PRN 20 Know how to participate in adjustment, repair and preventive work of cars at service stations and motor transport enterprises.</p> <p>PRN 21 Know how to co-operate with colleagues on work and do in the team, organize the work of small teams for servicing cars, transportation of goods.</p> <p>PRN 22 Know how to ensure the implementation of industrial and labor discipline, to monitor compliance with the requirements of safety of life.</p> <p>PRN 23 Know how to develop new equipment, make applications for equipment and spare parts, prepare technical documentation for repairs.</p> <p>PRN 24 To be able to know how to design and calculate the schemes of transmission systems of different purposes, to determine the composition of their equipment and to calculate the modes of their operation.</p> <p>PRN 25 To be able to and know how to choose and apply technical means for diagnosing the parameters of cars and processes that take place in them.</p> <p>PRN 26 To be able to and know how to work with automobile engines, fuel and lubricants.</p>
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	<p>PRN 27 To be able to know how to ensure compliance with the specified parameters of technological processes of specialized automobile rolling stock.</p> <p>PRN 28. To be able to know how to compile and execute operational documentation, which is provided by the rules of technical operation of cars, to carry out maintenance of cars at service stations.</p>
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8 - Resource support for the implementation of the program

Personnel support	It meets the personnel requirements for ensuring the implementation of educational activities in the field of higher education in accordance with the current legislation of Ukraine (Resolution of the Cabinet of Ministers of Ukraine "On approval of Licensing conditions for conducting educational activities of educational institutions" dated December 30, 2015, No. 1187 as amended in accordance with the CM Decree No. 347 dated May 10, 2018)
Material and technical support	Complies with the technological requirements for material and technical provision of educational activities in the field of higher education in accordance with the current legislation of Ukraine (Resolution of the Cabinet of Ministers of Ukraine "On Approval of Licensing Conditions for Conducting Educational Activities of Educational Institutions" dated December 30, 2015, No. 1187 as amended in accordance with Decree of the Cabinet of Ministers No. 347 dated May 10, 2018)
Informational and educational - methodical software	Corresponds to the technological requirements for educational, methodological and informational provision of educational activity in the field of higher education in accordance with the current legislation of Ukraine (Resolution of the Cabinet of Ministers of Ukraine "On approval of Licensing conditions for the educational activities of educational institutions" dated December 30, 2015, No. 1187 as amended. in accordance with the CM Decree No. 347 dated May 10, 2018)

9 - Academic mobility

National credit mobility	On the basis of bilateral agreements between the National Technical University "Kharkiv Polytechnic Institute" and higher educational institutions of Ukraine.
International credit mobility	On the basis of bilateral agreements between the National Technical University "Kharkiv Polytechnic Institute" and the leading European higher education institutions of the relevant direction
Education of foreign applicants for education	Training is possible in Ukrainian, English and Russian

2. List of components of the educational and professional program and their logical consistency.

2.1 List of components of the EP

Code	Components of the educational program (educational disciplines, course projects (work), practice, qualification work)	Quantity of credits	Form of final control
1	2	3	4
Compulsory components of EP			
CC 1	History and Culture of Ukraine	4,0	Exam
CC 2	Language for Professional Training	10,0	Exam Credit
CC 3	Foreign Language	8,0	Credit
CC 4	Ukrainian as a Foreign Language	9,0	Exam Credit
CC 5	Higher Mathematics p.1	6,0	Exam
CC 6	Higher Mathematics p.2	6,0	Exam
CC 7	Higher Mathematics p.3	4,0	Exam
CC 8	Higher Mathematics p.4	3,0	Exam
CC 9	General Physics p.1	5,0	Exam

CC 10	General Physics p.2	4,0	Exam
CC 11	General Physics p.3	3,0	Exam
CC 12	General Chemistry	4,0	Exam
CC 13	Physical Culture	12,0	Credit
CC 14	Fundamentals of Occupational Safety and Health	3,0	Exam
CC 15	Enterprise Economics	3,0	Credit
CC 16	Descriptive Geometry, Engineering Graphics and Computer Graphics p.1	4,0	Exam
CC 17	Theoretical Mechanics p.1	5,0	Exam
CC 18	Theoretical Mechanics p.2	2,0	Credit
CC 19	Heat Engineering	4,0	Exam
CC 20	Theory of Mechanisms and Machines p.1	4,0	Credit
CC 21	Theory of Mechanisms and Machines p.2	3,0	Exam
CC 22	Strength of Materials p.1	5,0	Exam
CC 23	Strength of Materials p.2	3,0	Exam
CC 24	Machine Elements p.1	3,0	Credit
CC 25	Machine Elements p.2	4,0	Exam
CC 26	Interchangeability, Standardization and Technical Measurements	4,0	Exam
CC 27	Applied Materials Science	3,0	Credit
CC 28	Electrotechnics, Electronics and Microprocessor Engineering	4,0	Exam
CC 29	Technology of Construction Materials	3,0	Credit
Block courses 01 "Automobiles and Automobile Industry"			
CC 30	Introduction to Speciality	3,0	Credit
CC 31	Modern Information Technologies in Transport	5,0	Exam
CC 32	Technological Fundamentals of Machinebuilding	3,0	Credit
CC 33	Design of Cars and their Analysis p.1	6,0	Exam
CC 34	Applied Methods of Calculations on Motor Transport	5,0	Credit
CC 35	Engines, Fuel and Lubricating Materials	6,0	Exam
CC 36	Design of Cars and their Analysis	6,0	Exam

	p.2		
CC 37	Electrical and Electronic Equipment of Car and Diagnostics Basis	6,0	Exam
CC 38	Automated design systems by motor transport	4,0	Exam
CC 39	Theory and Fundamentals of Car Designing p.1	6,0	Credit
CC 40	Hydraulics, Hydro and Pneumatic Drives of by motor transport	5,0	Exam
CC 41	Production Technology and Car Repair	4,0	Exam
CC 42	Theory and Fundamentals of Car Designing p.2	6,0	Exam
CC 43	Fundamentals of Operation and Maintenance of Car at Service Stations	4,5	Exam
CC 44	Basic Theory of Optimization systems by motor transport	3,5	Exam
CC 45	Technological Processes for Road Transport	4,5	Exam
CC 46	Modern electric systems in motor transport	3,5	Exam
Block courses 02 " Transport and transport infrastructure "			
CC 30	Basics of professional activity in motor transport	3,0	Credit
CC 31	Methods of using software in solving practical tasks in motor transport	5,0	Exam
CC 32	Design and manufacture of components for car transmission	3,0	Credit
CC 33	Construction of modern cars and assessment of their technical level p.1	6,0	Exam
CC 34	Modeling and calculation of processes and systems in motor transport	5,0	Credit
CC 35	Working processes in ICE, fuel, lubricating and cooling liquids	6,0	Exam
CC 36	Construction of modern cars and assessment of their technical level p.2	6,0	Exam
CC 37	Device and diagnostics of modern electric and electronic equipment of the car	6,0	Exam
CC 38	Automatic design and modeling of units and units of the car	4,0	Exam
CC 39	Modeling of traction-speed proper-	6,0	Credit

	ties of vehicles p.1		
CC 40	Hydraulic equipment of vehicles	5,0	Exam
CC 41	Production systems for motor vehicles and repair technology	4,0	Exam
CC 42	Modeling of traction-speed properties of vehicles p.2	6,0	Exam
CC 43	Basics of car service	4,5	Exam
CC 44	Fundamentals of structural and parametric synthesis in systems of transport vehicles	3,5	Exam
CC 45	Fundamentals of automobile transportation organization	4,5	Exam
CC 46	Electric systems of modern cars	3,5	Exam
47	Practice	6	Credit
48	Attestation	6	
	Total volume of mandatory components		228
Selective components of EP			
<i>Sample block 1</i>			
SB1.1	Specialized automobile rolling stock	4	Credit
SB 1.2	Design and calculation of car systems	4	Credit
SB 1.3	Management in automotive industry	4	Credit
<i>Sample block 2</i>			
SB 2.1	Technological modular equipment of motor transport	4	Credit
SB 2.2	Construct analysis and calculation of units and units of the car	4	Credit
SB 2.3	Management at road transport enterprises	4	Credit
<i>Sample block 3</i>			
SB 3.1	Application of automobile chassis in motor vehicles	4	Credit
SB 3.2	Fundamentals of calculation and design of power car elements	4	Credit
SB 3.3	Modern methods of management at the enterprises of motor transport	4	Credit
	Total amount of sample components		12
	GENERAL SUMMARY OF THE EDUCATIONAL PROGRAM		240

Distribution of the content of the educational program

by groups of components and training cycles

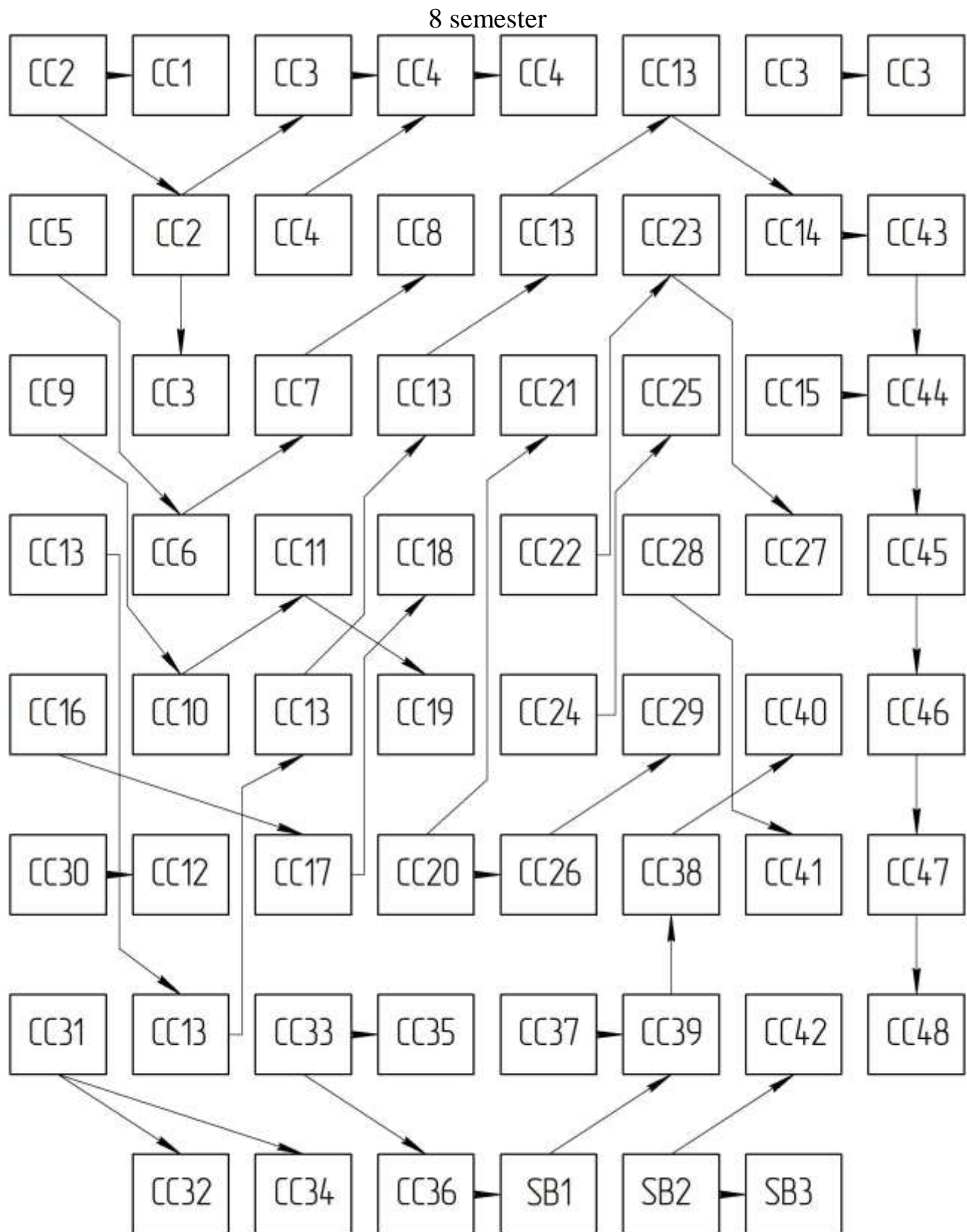
№	Training cycle	Educational load of the applicant of higher education (credits /%)		
		Compulsory components of the educational program	Elective components of the educational program	Total for the whole period of study
1	General training cycle	78/32,5	–	78/32,5
2	A cycle of professional and practical training	150/62,5	12/5	162/67,5
3	Total for the duration of training	228/95	12/5	240/100

2.2 Structural-logical scheme of the EP

Semester	Contents of the EP
1	CC 2, CC 5, CC 9, CC 13, CC 16, CC 30, CC 31
2	CC 1, CC 2, CC 3, CC 6, CC 10, CC 13, CC 14, CC 32
3	CC 3, CC 4, CC 7, CC 11, CC 13, CC 17, CC 33, CC 34
4	CC 4, CC 8, CC 13, CC 18, CC 19, CC 20, CC 35, CC 36
5	CC 4, CC 13, CC 21, CC 22, CC 24, CC 26, CC 37, SB1
6	CC 13, CC 23, CC 25, CC 28, CC 29, CC 38, CC 39, SB 2
7	CC 3, CC 14, CC 15, CC 27, CC 40, CC 41, CC 42, SB 3
8	CC 3, CC 43, CC 44, CC 45, CC 46, CC 47, CC 48

Structural-logical scheme of educational program

1 semester 2 semester 3 semester 4 semester 5 semester 6 semester 7 semester



3. Form of appraisal of applicants for higher education

Certification of graduates in the higher educational program of specialty num-

ber 274 - "Motor transport" is carried out in the form of protection of qualification bachelor's work and ends with the issuance of the document of the established sample on awarding him a bachelor's degree with qualification: a bachelor of automobile transport with a specialization " **Transport and transport infrastructure** ". The certification is carried out openly and publicly.

4. Matrix of compliance of program competencies to components educational program

	GC1	GC2	GC3	GC4	GC5	GC6	GC7	GC8	GC9	GC10	GC11	GC12	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14	PC15	PC16	
CC 1	*																												
CC 2	*			*	*	*	*																						
CC 3					*	*																							
CC 4					*	*																							
CC 5	*																												
CC 6	*																												
CC 7	*																		*										
CC 8	*																		*										
CC 9	*																		*										
CC 10	*																												
CC 11	*																												
CC 12	*																												
CC 13	*											*																	
CC 14			*				*									*					*								*
CC 15								*																					
CC 16																								*					
CC 17			*				*																	*					
CC 18			*											*															

	GC1	GC2	GC3	GC4	GC5	GC6	GC7	GC8	GC9	GC10	GC11	GC12	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14	PC15	PC16	
CC 19			*											*								*							
CC 20		*																*											
CC		*																*											

SB 2														*						*													
SB 3																						*											

5. Matrix providing program learning outcomes relevant components of the educational program

	PRT 1	PRT 2	PRT 3	PRT 4	PRT 5	PRT 6	PRT 7	PRT 8	PRT 9	PRT 10	PRT 11	PRT 12	PRT 13	PRT 14	PRT 15	PRT 16	PRT 17	PRT 18	PRT 19	PRT 20	PRT 21	PRT 22	PRT 23	PRT 24	PRT 25	PRT 26	PRT 27	PRT 28	
CC 1	*	*	*	*																									
CC 2	*	*																											
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CC 13												*																	
CC 14				*						*										*		*							
	PRT 1	PRT 2	PRT 3	PRT 4	PRT 5	PRT 6	PRT 7	PRT 8	PRT 9	PRT 10	PRT 11	PRT 12	PRT 13	PRT 14	PRT 15	PRT 16	PRT 17	PRT 18	PRT 19	PRT 20	PRT 21	PRT 22	PRT 23	PRT 24	PRT 25	PRT 26	PRT 27	PRT 28	
CC 15							*	*	*																				
CC 16					*	*	*							*															
CC 17					*	*							*	*															
CC					*	*							*	*															

