

AGREED

Deputy Head of production of the
Almaty operational locomotive
depot of the branch of LLP "KTZ-
Freight transportation" - "Almaty
branch of FT"

Iskakov M.C.

«30» 03 2023 y.

APPROVED

«Логистика» АО «Академия логистики и транспорта»
Director of the Institute
"Transport Engineering"
«Көлік инженерия» институты
Chigambayev T.O.
2023 y.
Институт «Транспортная инженерия»

CATALOG OF ELECTIVE COMPONENT DISCIPLINES

EDUCATIONAL PROGRAM

7M07145 - RAILROAD ROLLING STOCK

Level of education: master's degree profile

Time of study: 1,5 years

Year of admission: 2023 y.

Module	Cycle	Component	Name of discipline	Total labor input		Semester	Learning outcomes	Brief description of the discipline	Prerequisites	Post requisites	Department
				in academic hours	in academic credits						
1	2	3	4	5	6	7	8	9	10	11	12
Module 3 - Professional Competencies	BD	EC1	Lean manufacturing	270	9	2	ON1	Studies the basics of organization management based on the principles of lean production: minimizing all types of losses in the course of activity, achieving the maximum possible result in the shortest possible period of time, rational use of all types of resources, improving aspects of the organization's activities, involving employees in technological processes; formation of lean thinking among future managers, correlated with the ideas of concepts relevant to the modern world sustainable development and conscious consumption.	Management, Modern railway rolling stock, Resource and energy saving in transport	ERWMS, FC.	RS
		EC2	SMART technologies in transport				ON1	The intellectual technologies used in railway transport are considered and studied. The basic concepts of the current state and prospects for the development of railway transport infrastructure based on SMART technologies are described. Familiarization of students and the formation of skills for assessing the improvement of operational safety of railway infrastructure facilities, taking into account the development of computer technologies, software and artificial intelligence. Active teaching methods and brainstorming are used.	Modern railway rolling stock	ERWMS, FC.	RS

1	2	3	4	5	6	7	8	9	10	11	12
Module 3 - Professional Competencies	PD	EC1	Organization and management of carriage and locomotive farms of the enterprises	270	9	1	ON1, ON4, ON8	Analysis of forms and methods of management of a transport enterprise in market conditions; fundamentals of organization, planning and management of wagon and locomotive enterprises; production structure of enterprises; principles of organization of the production process; types and methods of planning; methods of calculating economic indicators of production and commercial activity of the enterprise. The discipline forms the ability to: calculate quantitative and qualitative indicators of the company's activity; make decisions on planning, optimization and organization of production processes; prepare technical documentation.	Undergraduate courses	ERWMS, FC.	RS
		EC2	Risk management				ON1	Learning of general issues of risk management. Various approaches to the classification of risk factors, characteristics of risk types, methods of risk management and assessment, the study of risk management programs at the enterprise and the risk management system at the enterprise are described. As part of the study of the discipline, guest lectures are given by leading top managers of transport companies, solving and analyzing situational problems.	Undergraduate courses	ERWMS, FC.	OTTOT

1	2	3	4	5	6	7	8	9	10	11	12
Module 3 - Professional Competencies	PD	EC1	Resource and energy saving in transport	180	6	1	ON6, ON7	Analysis of the types and characteristics of various energy resources; regulatory and legal support for energy saving; improving the energy efficiency of the transportation process; energy-saving technologies in the repair production and operation of railway infrastructure facilities; organization and methods of energy saving management. The discipline forms the ability to: analyze the structure of energy consumption of the object; make decisions in the field of professional activity based on the principles of resource and energy conservation.	Undergraduate courses	Technical operation and service of a rolling stock, High-Speed Railway Infrastructure, Reliability theory and quality management in transport, Lean manufacturing, ERWMS, FC.	RS
		EC2	Rolling stock life cycle cost estimation				ON6, ON8	Classification of innovative projects; methods of assessment of efficiency of investment projects on zheleznodorozhny transport; life cycle of the rolling stock and calculation of its cost; definition of technical and operational indicators of use of the rolling stock; calculation of operating costs in locomotive and carriage farms; calculation of single account rates and prime cost; payback period, net income, internal share of profitability; determination of useful effect of introduction of the new rolling stock.	Undergraduate courses	Reliability theory and quality management in transport, ERWMS, FC.	RS

1	2	3	4	5	6	7	8	9	10	11	12
Module 3 - Professional Competencies	PD	EC1	Reliability theory and quality management in transport	180	6	2	ON7, ON8	Analysis of the reliability of complex technical systems such as locomotives / wagons; calculation and evaluation of qualitative and quantitative indicators that determine the reliability of rolling stock as a system; application of structural and logical analysis and methods for improving the reliability of technical systems; application of methods for collecting and analyzing information about reliability; analysis of the content of reliability requirements; application of methodological foundations of quality management in railway transport; calculation and evaluation of production quality indicators in railway transport.	Modern railway rolling stock, Resource and energy saving in transport / Rolling stock life cycle cost estimation.	ERWMS, FC.	RS
		EC2	High speed rolling stock				ON5, ON6	The discipline allows you to study the world concepts of the development of the design of modern rolling stock, safety and environmental friendliness of the operation of high-speed railway rolling stock. Develops skills and abilities in the creation, design, operation, diagnostics, identification of reserves, identification of the causes of malfunctions and shortcomings in the work, as well as taking measures to eliminate them and improve the efficiency of using modern high-speed railway rolling stock.	Modern railway rolling stock	ERWMS, FC.	RS

1	2	3	4	5	6	7	8	9	10	11	12
Module 3 - Professional Competencies	PD	EC1	Technical operation and service of a rolling stock	180	6	2	ON4, ON7, ON8	Analysis of requirements for the organization of maintenance of railway rolling stock; formation and improvement of the system of maintenance of locomotives and wagons; information technologies, automated control systems and diagnostic systems for monitoring the technical condition used in the operation of railway rolling stock. The discipline forms the ability to: plan and organize the processes related to the technical operation and maintenance of rolling stock; prepare instructions and other technical documentation.	Modern railway rolling stock, Resource and energy saving in transport / Rolling stock life cycle cost estimation.	ERWMS, FC.	RS
		EC2	High-Speed Railway Infrastructure				ON5, ON7	The discipline allows you to gain fundamental knowledge in the design, construction, operation and repair of high-speed rail infrastructure facilities. Acquire skills in solving practical problems related to ensuring the security of infrastructure facilities. To form professional competencies in the issues of diagnostics, testing and inspection of building structures, examination of technical documentation, supervision, control of the state of infrastructure facilities of high-speed highways.	Resource and energy saving in transport.	ERWMS, FC.	RS
Total				1080	36						

Head of the Department "Rolling stock"

Ashirbayev G.K.