

**JOINT STOCK COMPANY "ALT UNIVERSITY NAMED AFTER
MUKHAMEDZHAN TINYSHPAEV"**



IAPPROVE
the solution of US ALT from
«27» 03 2025 (Protocol № 8)
President-Rector
M. S. Zharmagambetova
Zharmagambetova M.S.

A circular official stamp of ALT University. The outer ring contains text in Russian: 'Общество с ограниченной ответственностью "Алтынский университет имени Мухамеджана Тиньшпаева"'. The inner ring contains text in Kazakh: 'Алтын Орда Республикасы Алматы қ. Алматы Ақпараттық-құқықтық университеті'. The center of the stamp contains the university's name in Russian: 'МУХАМЕДЖАН ТИНЫШПАЕВ АЛТЫНСКИЙ УНИВЕРСИТЕТ' and 'ALT UNIVERSITY'. A signature is written across the stamp.

EDUCATIONAL PROGRAM

NAME:" 6B07176 - AUTOMOBILE ENGINEERING "

Level of training: bachelor's degree

Code and classification of training areas: 6B071 - Engineering and engineering

Code and group of educational programs: B065-Transport equipment and technologies

Date of registration in the Registry: 04.06.2025

Registration number: 6B07100149

Almaty, 2025

CONTENT

1. Information about the review, approval and approval of the program, developers, experts and reviewers	3
2. Regulatory references	4
3. Passport of the educational program	5
4. The graduate's competence model	6
5. Matrix of correlation of learning outcomes according to the educational program with academic disciplines/modules	10
6. Structure of the Bachelor's degree program	14
7. Working curriculum for the entire duration of training	15
8. Catalog of disciplines of the university component	18
9. Catalog of disciplines of the component by choice	24
10. Expert opinions	35
11. Reviewer's conclusion	37
12. Recommendation letters	38
13. Protocols of review and approval	39
14. Approval sheet	44
15. Change Registration Sheet	45

1. INFORMATION ABOUT THE REVIEW, APPROVAL AND APPROVAL OF THE PROGRAM, DEVELOPERS, EXPERTS AND REVIEWERS

1 DEVELOPED BY:

Head of the Department of ATS
and Life Safety, PhD

Toilybayev A.E.

Professor ALT, Candidate of
technical sciences (Coordinator)

Baubekov E.E.

Professor ALT, Candidate of
technical sciences (Coordinator)

Yesengaliev M.N.

MEGA MOTORS LLP, General
Director



Ospanov E.K.

Assistant teacher

Asylov G.

Student group US-APSM-23-1p

Shikhnazarov T.T.

2 EXPERTS:

Director of BEST-FITS LLP



Satanov M.T.

Candidate of Technical Sciences,
Associate Professor of KazNAIU

Abdildin N.K.

3 REVIEWER:

Assistant Professor of KazADI
PhD



Elemes D.E.

**4 REVIEWED AND
RECOMMENDED:**

Meeting of the AC (department) «ATS
and BZhD »

Protocol № 2, « 16 » 10 2025y.

Toilybayev A.E.

Meeting of the KOK-UMB "Transport
and Construction"

Protocol № 7, « 28 » 02 2025y.

Abdreshov Sh.A.

Meeting of the UMS

Protocol № 4, « 20 » 03 2025y.

Kodzhabergenova A.K.

5 APPROVED by the decision of the Academic Council dated « 27 » 03 2025 № 8
6 UPDATED 02.06.2025

2. REGULATORY REFERENCES

The educational program is developed on the basis of the following normative legal acts and professional standards:

1. The Law of the Republic of Kazakhstan "On Education" dated July 27, 2007 No. 319-III (with amendments and additions as of March 27, 2023).
2. The National Qualifications Framework approved by the Protocol of March 16, 2016 by the Republican Tripartite Commission on Social Partnership and Regulation of Social and Labor Relations.
3. The sectoral qualifications framework of the field of "Education", approved by the Minutes of the meeting of the sectoral Commission of the Ministry of Education and Science of the Republic of Kazakhstan on social partnership and regulation of social and labor relations in the field of education and science dated November 27, 2019 No. 3.
4. State mandatory standard of higher and postgraduate education (Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated February 20, 2023 No. 66).
5. Qualification directory of positions of managers, specialists and other employees, approved by the Order of the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan dated August 12, 2022 No. 309.
6. Rules for the organization of the educational process on credit technology of education in organizations of higher and (or) postgraduate education, approved by Order of the Minister of the Ministry of Education and Science of the Republic of Kazakhstan No. 152 dated 20.04.2011. (with additions and amendments dated April 04, 2023 No. 145).
7. Classifier of training areas with higher and postgraduate education, approved by the Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 13, 2018 No. 569 (with amendments and additions as of June 05, 2020).
8. The algorithm of inclusion and exclusion of educational programs in the Register of educational programs of higher and postgraduate education, approved by the Order of the Minister of Education and Science of the Republic of Kazakhstan dated December 4, 2018 No. 665 (with additions and amendments as of December 23, 2020 No. 536).
9. RI-ALT-33 "Regulations on the procedure for developing an educational program of higher and postgraduate education".
10. Professional standard "Control over the technical condition of motor transport" dated September 06, 2018 No. 239.

3. PASSPORT OF THE EDUCATIONAL PROGRAM

№	Field name	Note
1	Registration number	6B07100348
2	Code and classification of the field of education	6B07 – Engineering, manufacturing and construction industries
3	Code and classification of training areas	6B071- Engineering and engineering
4	Code and group of educational programs	B065- Transport equipment and technologies
5	Name of the educational program	6B07119- Cars and automotive industry
6	Type of educational program	Current
7	The purpose of the educational program	Training of personnel with professional competencies for the automotive industry, which take into account the increasing quality requirements of specialists in the field of design, production, operation and repair of cars and the automotive industry.
8	ISCED level	6
9	The level of the NRK	6
10	ORC Level	6
11	Distinctive features of the educational program	No
	Partner University (SOP)	-
	Partner University (DDOP)	-
12	Form of training	Full-time, full-time with translation DO
13	Language of instruction	Kazakh, russian
14	Volume of loans	241
15	Academic degree awarded	Bachelor of Technology and Engineering in the educational program '6B07176 – Automotive Engineering'
16	Availability of an appendix to the license for the direction of training	№ KZ87LAA00036465 dated June 28, 2024Appendix № 005 6B07176 - AI
17	Availability of educational program accreditation	not available
	Name of the accreditation body	
	Validity period of accreditation	

4. THE GRADUATE'S COMPETENCE MODEL

The purpose of the educational program: is to train personnel with professional competencies for the automotive industry, which take into account the increasing quality requirements of specialists in the field of design, production, operation and repair of cars and the automotive industry.

Objectives of the educational program:

1. Formation of a person capable of self-improvement and professional growth with diverse humanitarian and natural science knowledge and interests.
2. Formation of the ability to critically rethink the accumulated experience, change, if necessary, the profile of their professional activities, awareness of the social significance of their future profession, having a high motivation to perform professional activities.
3. Formation of the ability to find a compromise between various requirements (cost, quality, safety and deadlines) with long-term and short-term planning, to make optimal decisions in the field of operation and repair of cars, their units, systems and elements; to possess a culture of thinking.
4. Formation of the ability to generalize, analyze, perceive information, set goals and choose ways to achieve it.
5. Assistance in the formation of a graduate's readiness to: develop design documentation for the creation and modernization of cars; perform design work on the creation and modernization of cars; develop technical documentation and methodological materials, proposals and measures for the creation and modernization of cars.
6. Formation of graduates' readiness to conduct a technical and economic analysis, comprehensive justification of decisions taken and implemented in the field of operation and repair of cars, their aggregates, systems and elements; application of the results in practice, striving for self-development, improving their qualifications and skills.
7. Assistance in the formation of graduates' readiness for the economical and safe use of natural resources, energy and materials during the operation and repair of cars.

Learning outcomes:

- LO1 - To describe the basic concepts and fundamental laws of natural sciences in the processes of interaction of objects of transport equipment.
- LO2 - To choose the advanced achievements of IT technology in professional activity in the field of motor transport.
- LO3 - Use modern methods and knowledge to ensure life safety, environmental protection and labor protection based on the analysis of harmful and dangerous factors at transport enterprises.
- LO4 - To compare organizational, economic and managerial decisions based on the analysis of the market economy in the field of transport.
- LO5 - Solve the problems of strength and stability calculations based on the theories and principles of machine design.
- LO6 - Analyze practical tasks based on knowledge of electrical engineering and modern electronics on the rolling stock of motor transport.
- LO7 - To evaluate reliability indicators of parts and aggregates of rolling stock of motor transport using modern diagnostic tools based on regulatory and technical documentation in the field of motor transport.
- LO8 - To substantiate the classification, layout, technical characteristics of the car system, to solve technical problems on the basic calculations of the design of cars and on the

design of the design of cars and technological equipment.

LO9 - To develop technologies and forms of organization of diagnostics, maintenance, repair of parts, components of cars and equipment using modern automation and mechanization tools.

LO10 - Compare technical data, operating conditions, rules for the use of various materials and performance indicators of road transport enterprises in order to ensure their safe use under various road conditions.

LO11 - Apply and solve the issues of using professional vocabulary and basic grammar in the state, Russian and foreign languages for the study of special disciplines.

LO12 - To form knowledge in the field of social and spiritual processes taking place in society, interpersonal and legal issues when working in the profession.

Field of professional activity: Automobile transport, transport equipment and technologies.

Objects of professional activity:

- Local executive authorities in the field of road transport and their regional structures;
- Organizations and enterprises of the transport industry in the field of management, operation, maintenance, repair of cars;
- Organizations and enterprises of the transport industry in the field of technologies of material processing production during maintenance, repair of cars.

Types of professional activity:

- production and technological;
- organizational and managerial;
- service and operational;
- - project.

Functions of professional activity:

- 1) Organization of operation, repair, diagnostics of cars, control over safe operation;
- 2) Development and implementation of technological processes of maintenance and repair, the use of standard methods for calculating the reliability of car components.
- 3) Management of production processes, analysis of the results of production activities;
- 4) Management of work on the performance of inspection and repair of cars;
- 5) Quality control of all types of car repairs, control of the availability, condition and use of control and measuring instruments;
- 6) Analysis and evaluation of production and non-production costs or resources for high-quality maintenance and planned types of repairs.
- 7) Development of new technologies, development of design and technological documentation using computer technologies;
- 8) Calculation of strength and stability under various types of loading, development of machine designs using design methods and fundamentals, selection of materials for the manufacture of machine parts, justification of technical solutions;
- 9) Development of technical specifications and technical specifications for projects of cars or their components, technological processes, automation tools using information technologies and computer programs;
- 10) Design of new models of cars, its components, aggregates, equipment, technological processes corresponding to the latest achievements of science and technology,

safety requirements.

List of specialist positions: master of the site (workshop) ATP (SRT); engineer; repair engineer; engineer of the technical department; specialist in operational management of the car repair and maintenance team.

And also according to the approved Professional Standards:

- Head of the technical inspection center.

Professional certificates obtained at the end of training: A car repair mechanic.

Requirements for the previous level of education: secondary, post-secondary, vocational secondary.

In the course of training, students undergo various types of professional practice:

- educational;
- production;
- pre-graduation.

Educational practice

During the internship, students should get an idea of the role of transport equipment in the country's economy, the variety of vehicles, the importance of mechanization and automation in increasing labor productivity, as well as an idea of the main technological processes of operation, maintenance and repair of transport equipment and technology of transport enterprises.

Production practice - 1

During the period of practical training, the student receives certain practical knowledge, skills and abilities according to the chosen Educational program.

The objectives of the industrial practice are: deepening and consolidation of theoretical knowledge gained in the course of training; obtaining skills for the practical use of professional knowledge gained during theoretical training; training in skills for solving practical and managerial tasks; familiarity with the specifics of a bachelor's professional activity in a particular production; formation of a professional position of a specialist, style of behavior, mastering professional ethics.

The objectives of industrial practice are to consolidate, deepen and systematize the knowledge gained during the study of theoretical basic and profile disciplines at a particular enterprise or organization and to acquire initial practical experience.

Production practice – 2

The content of the production practice is determined by the topic of the thesis (project). During the practice period, the student collects factual material about the production (professional) activities of the enterprise (organization) and uses it in the development of the graduation project (work). The practice involves working out a given problem (the topic of the thesis) on the materials of the activities of a particular enterprise (organization) with the student's independent formulation of conclusions, suggestions, recommendations, etc. In the course of practice, the student must demonstrate his knowledge and skills of a specialist, organizational skills, decision-making skills, performance discipline, responsibility, initiative.

The final certification is carried out in the form of writing and defending a thesis (project) or preparing and passing a comprehensive exam. The purpose of the final certification is to evaluate the learning outcomes and the acquired competencies achieved upon completion of

the study of the educational program of higher education.

The thesis (project) aims to identify and evaluate the analytical and research abilities of the graduate and is a generalization of the results of the student's independent study of an urgent problem in the field of his chosen specialty. The comprehensive exam program reflects integrated knowledge and key competencies that meet the requirements of the labor market in accordance with the educational program of higher education.

5. CORRELATION MATRIX OF LEARNING OUTCOMES OF THE EDUCATIONAL PROGRAM WITH STUDY DISCIPLINES/MODULES

№	Name of the discipline	Number of credits	Matrix of correlation between educational program outcomes and academic disciplines											
			LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	The history of Kazakhstan	5	+											
2	Philosophy	5	+											
3	Foreign language	10	+											
4	Kazakh (Russian) language	10	+											
5	Information and communication technologies	5			+									
The socio-political knowledge module		8												
6	Sociology	2	+											
7	Cultural studies	2	+											
8	Political Science	2	+											
9	Psychology	2	+											
10	Physical Culture	8	+											
Module for selecting general education subjects		5												
11	Environmentally sustainable technologies				+				+					
12	Green economy and sustainable entrepreneurship				+								+	
13	Fundamentals of financial literacy						+						+	
14	Digital inclusion		+		+									+
15	Fundamentals of law and anti-corruption culture				+									+
16	Engineering Mathematics 1	5				+								
17	Engineering Mathematics 2	5				+								
18	Applied Physics	5		+										
19	Theoretical mechanics	4				+								
20	Structural Materials in Transport Engineering	4					+	+						

№	Name of the discipline	Number of	Matrix of correlation between educational program outcomes and academic disciplines											
			L01	L02	L03	L04	L05	L06	L07	L08	L09	L010	L011	L012
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
21	Electrical engineering and the basics of electronics	6				+	+							
22	Occupational safety and health	5			+									
23	Machine parts and design basics	5				+				+				
24	Engineering graphics and computer modeling	4				+								
25	Basics of Python Programming	3				+	+							
26	Professionally oriented foreign language	3	+									+		
27	Educational practice	2												
28	Hydraulics and hydraulic drive	4				+								
29	Tribotechnics	4				+	+							
30	Fundamentals of calculating the strength of machines and mechanisms	5				+								
31	Applied mechanics	5				+								
32	Fundamentals of car designs	6						+						
33	The design of an electric car and a hybrid car	6					+	+						
34	Car maintenance materials	5						+						
35	Car maintenance materials for a hybrid car	5						+						
36	Fundamentals of technical operation of transport equipment	4						+	+					
37	Technical operation of transport equipment	4						+	+					

№	Name of the discipline	Number of credits	Matrix of correlation between educational program outcomes and academic disciplines											
			LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
38	Information technology in road transport	6		+		+				+				
39	Fundamentals of Smart technologies in transport	6				+	+		+					
40	Electrical equipment and electronic systems of cars	6						+	+					
41	Electronic systems of electric vehicles	6						+	+					
42	Managerial economics	3									+		+	
43	Time management	3								+		+		
44	Certification and Licensing of Motor Vehicles	5						+	+					
45	Vehicle safety	5							+					
46	Energy installations of transport equipment	5		+					+	+				
47	Fundamentals of car manufacturing and repair technology	5						+	+					
48	Production practice 1	5												
49	Production practice 2/ pre-graduate practice	5												
50	Modeling of transport systems	4				+			+					
51	Introduction to the transport engineering environment	4										+		
52	Promising types of vehicles							+	+					
53	Intelligent vehicle transmission control systems					+	+		+					
54	Automotive engines	6						+	+					
55	Automotive internal combustion engines and traction electric motors	6						+	+					
56	Theory of vehicle performance properties	6					+	+	+					

57	Theory of Electric and Hybrid Vehicle Motion	6					+	+	+					
58	ATP technological equipment	6						+	+					
59	Computer diagnostics of cars and electric vehicles	6					+	+						
60	The basics of calculating car structures	6						+						
61	Electronic equipment for controlling electric vehicles, navigation systems, and autopilot systems	6				+		+		+				
62	Technical operation of cars						+	+	+					
63	Maintenance of electric vehicles						+	+	+					
64	Technological design of AT enterprises							+	+					
65	Technological design of a service station							+	+					
66	Technological design of a service station	3								+				
67	Minor program 1	3		+										
68	Resource conservation in transport	3					+							
69	Minor program 2	3									+			
70	Computer diagnostics of cars	3					+	+						
71	Minor program 3									+				

6. STRUCTURE OF THE BACHELOR'S DEGREE PROGRAM

№	The name of the cycles of disciplines	Total labor intensity	
		in academic hours	in academic credits
1	Cycle of general education disciplines (GED)	1680	56
1)	Required component	1530	51
	History of Kazakhstan	150	5
	Philosophy	150	5
	Foreign language	300	10
	Kazakh (Russian) language	300	10
	Information and communication technologies	150	5
	Module of socio-political knowledge (sociology, political science, cultural studies, psychology)	240	8
	Physical culture	240	8
2)	University component and (or) optional component	150	5
2	Cycle of basic and profile disciplines (BD, PD)	at least 5310	at least 177
1)	University component and (or) optional component		
2)	Professional practice		
3	Additional types of training		
1)	Component of choice		
4	Final certification	at least 240	at least 8
	Total	at least 7230	at least 241

УЧЕБНЫЙ ПЛАН

Форма обучения: очная

Направление подготовки:
68071 Инженерия и инженерное дело

Срок обучения: 3 года

Группа образовательных программ:
6805 Транспортная техника и технологииНаименование образовательной программы:
6807176-Автомобильная инженерия (2 траектории)

Степень: бакалавр техники и технологий

Прием: 2025 год



№	Код дисциплины	Наименование циклов и дисциплин	Общая трудоемкость		Форма контроля, семестр	Объем учебной нагрузки, часы							Распределение по триместрам									Закрепленные за кафедрой
			в академических часах	в академических кредитах		Экзамен	КТ (КР)	Всего часов	Контактные			1 курс			2 курс			3 курс				
									лекции	практические	лабораторные	СРП	СРС	10 недель	10 недель	10 недель	10 недель	10 недель	10 недель	10 недель	10 недель	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
ЦИКЛ ОБЩЕОБРАЗОВАТЕЛЬНЫХ ДИСЦИПЛИН (ООД):																						
1.1.	Обязательный компонент:		1530	51			1530	83	420	0	165	842	8	11	6	8	11	2	7	0	0	
M1	Модуль общеобразовательных компетенций																					
1.1.1.	23-0-B-OK-K	История Казахстана	150	5	5		150	20	20		8	102				5						СГДФВ
1.1.2.	23-0-B-OK-Fil	Философия	150	5	7		150	20	20		8	102						5				СГДФВ
1.1.3.	23-0-B-OK-FK	Физическая культура	240	8	1.2, 3.4		240		40		32	166	2	2	2	2						СГДФВ
M2	Модуль языковых компетенций																					
1.1.4.	23-0-B-OK-Iya	Иностранный язык	300	10	1.2, 3.4,5		300		200		40	60	2	2	2	2	2					ЛЕ
1.1.5.	23-0-B-OK-K(R)Ya	Казахский (Русский) язык	300	10	1.2, 3.4,5		300		100		40	160	2	2	2	2	2					ЛЕ
M3	Модуль социально-политических компетенций																					
1.1.6.	23-0-B-OK-Soz	Социология	240	8	4,5,6,7		240	5	10		8	37					2					СГДФВ
	23-0-B-OK-Kul	Культурология						5	10		8	37				2					СГДФВ	
	23-0-B-OK-Pol	Политология						5	10		8	37						2			СГДФВ	
	23-0-B-OK-Psy	Психология						5	10		8	37					2				СГДФВ	
M4	Модуль информационных технологий и искусственного интеллекта																					
1.1.7.	23-0-B-OK-IKT	Информационно-коммуникационные технологии	150	5	2		150	20	20		8	102		5								ИКТ
1.2.	Компонент по выбору:		150	5			150	20	20	0	8	102	0	0	0	0	0	5	0	0	0	
M5	Модуль экономическо-управленческих компетенций																					
1.2.1.	25-0-B-KV-EUT	Экологические устойчивые технологии	150	5	6		150	20	20		8	102										АТСБЖД
	25-0-B-KV-ZEUP	Зеленая экономика и устойчивое предпринимательство																				ТУиБ
	24-0-B-KV-DFG	Основы финансовой грамотности																				ТУиБ
	25-0-B-KV-CI	Цифровая инклюзия																				ИКТ
	23-0-B-KV-OPAK	Основы права и антикоррупционной культуры																				СГДФВ
ВСЕГО по циклу ООД:			1680	56			1680	103	440	0	173	844	8	11	6	8	11	7	7	0	0	
ЦИКЛ БАЗОВЫХ ДИСЦИПЛИН И ПРОФИЛИРУЮЩИХ ДИСЦИПЛИН (БД, ПД):																						
2.1	ЦИКЛ БАЗОВЫХ ДИСЦИПЛИН (БД):																					
2.1.1.	Вузовский компонент:		1530	51			1530	120	180	20	165	975	13	17	8	5	0	3	0	5	0	
M6	Модуль естественно-научных компетенций																					
2.1.1.1.	24-0-B-VK-IM1	Инженерная математика1	150	5	1		150	10	20		15	105	5									СИ
2.1.1.2.	24-0-B-VK-IM2	Инженерная математика2	150	5	2		150	10	20		15	105		5								СИ
2.1.1.3.	25-0-B-VK-PF	Прикладная физика	150	5	2		150	10	10	10	15	105		5								СИ
2.1.1.4.	25-0-B-VK-KVTM	Теоретическая механика	120	4	2		120	10	20		15	75		4								ТС
M7	Профессиональный модуль																					
2.1.1.5.	25-0-B-VK-KMTM	Конструктивные материалы в транспортном машиностроении	120	4	1		120	20	10		15	75	4									АТСБЖД
2.1.1.6.	25-0-B-VK-EOE	Электротехника и основы электроники	180	6	3		180	20	10	10	15	125			6							З
2.1.1.7.	25-0-B-VK-OTBZh	Охрана труда и безопасность жизнедеятельности	150	5	8		150	10	20		15	105							5			АТСБЖД
2.1.1.8.	25-0-B-VK-DNOK	Детали машин и основы конструирования	150	5	4		150	20	10		15	105										АТСБЖД
M4	Модуль информационных технологий и искусственного интеллекта																					
2.1.1.9.	25-0-B-VK-IGKIM	Инженерная графика и компьютерное моделирование	120	4	1		120	10	20		15	75	4									ТС
2.1.1.10.	25-0-B-VK-OPP	Основы программирования Python	90	3	2		90		10		15	65		3								ИКТ
M8	Практикоориентированный модуль																					
2.1.1.11.	25-0-B-VK-POIYa	Профессионально-ориентированный иностранный язык	90	3	6		90		40		15	35							3			ЛЕ
2.1.1.12.	23-0-B-VK-UP	Учебная практика	60	2	3		60								2							АТСБЖД

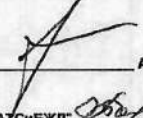
2.1.2.	Компонент по выбору:		1200	40		0	1200	130	140	0	120	810	0	0	15	12	0	3	0	10	0
M7	Профессиональный модуль																				
2.1.2.1.	25-0-B-KV-GG	Гидравлика и гидропривод	120	4	3		120	10	20		15	75			4						АТСиБЖД
	25-0-B-KV-TnB	Триботехника																			
2.1.2.2.	25-0-B-KV-ORPMM	Основы расчета прочности машин и механизмов	180	5	3		180	10	20		15	105			5						АТСиБЖД
	25-0-B-KV-PM	Прикладная механика																			ТС
2.1.2.3.	25-B-KV-OKA	Основы конструкции автомобилей	180	6	3		180	20	20		15	125			6						АТСиБЖД
	25-B-KV-UEGA	Устройство электроавтомобиля и гибридного автомобиля																			
2.1.2.4.	25-B-KV-AEM	Автоэксплуатационные материалы	180	6	4		180	20	20		15	125			6						АТСиБЖД
	25-B-KV-AEMGA	Автоэксплуатационные материалы гибридного автомобиля																			
2.1.2.5.	25-0-B-KV-TETT	Основы технической эксплуатации транспортной техники	120	4	8		120	20	10		15	75							4		АТСиБЖД
	25-0-B-KV-TETT	Техническая эксплуатация транспортной техники																			
M4	Модуль информационных технологий и искусственного интеллекта																				
2.1.2.6.	25-B-KV-ITAT	Информационные технологии на автомобильном транспорте	180	6	8		180	20	20		15	125							6		АТСиБЖД
	25-B-KV-OSTT	Основы Smart технологий на транспорте																			
2.1.2.7.	25-B-KV-EESA	Электрооборудование и электронные системы автомобилей	180	6	4		180	20	20		15	125			6						АТСиБЖД
	25-B-KV-ESE	Электронные системы электроавтомобиля																			
M5	Модуль экономическо-управленческих компетенций																				
2.1.2.8.	23-0-B-KV-UE	Управленческая экономика	90	3	6		90	10	10		15	55							3		ТУиБ
	23-0-B-KV-TM	Тайм-менеджмент																			
	ВСЕГО по циклу БД:		2730	91			2730	250	330	20	285	1785	13	17	23	17	0	6	0	15	0
2.2	ЦИКЛ ПРОФИЛИРУЮЩИХ ДИСЦИПЛИН (ПД):																				
2.2.1	Вузовский компонент:		900	30			900	40	70	10	60	420	0	0	0	15	10	0	0	5	
M7	Профессиональный модуль																				
2.2.1.1.	25-B-VK-SLAT	Сертификация и лицензирование на автотранспорте	150	5	5		150	10	20		15	105			5						АТСиБЖД
2.2.1.2.	25-B-VK-BTS	Безопасность транспортных средств	150	5	6		150	10	20		15	105					5				АТСиБЖД
2.2.1.3.	25-0-B-VK-EUTT	Энергетические установки транспортной техники	150	5	5		150	10	10	10	15	105			5						ПС
M8	Практикоориентированный модуль																				
2.2.1.4.	25-B-VK-OTPR	Основы технологии производства и ремонта автомобилей	150	5	5		150	10	20		15	105			5						АТСиБЖД
2.2.1.5.	25-0-B-VK-PPY1	Производственная практика 1	150	5	6		150										5				АТСиБЖД
2.2.1.6.	25-0-B-VK-PPY2	Производственная практика 2 / преддипломная практика	150	5	9		150													5	АТСиБЖД
2.2.2.	Компонент по выбору:		1650	55		0	1650	170	190	10	150	1130	4	0	0	0	0	6	21	9	15
M4	Модуль информационных технологий и искусственного интеллекта																				
2.2.2.1.	25-0-B-KV-MTS	Моделирование транспортных систем	120	4	1		120		30		15	75	4								АТСиБЖД
	25-0-B-KV-VTIS	Введение в транспортную инженерную среду																			
2.2.2.2.	25-B-KV-PBATS	Перспективные виды автотранспортных средств	180	6	9		180	20	20		15	125							6		АТСиБЖД
	25-B-KV-ISUTA	Интеллектуальные системы управления трансмиссией автомобилей																			
M7	Профессиональный модуль																				
2.2.2.3.	25-B-KV-AD	Автомобильные двигатели	180	6	6		180	20	10	10	15	125			6						АТСиБЖД
	25-B-KV-ADBSTD	Автомобильные двигатели внутреннего сгорания и тяговые электродвигатели																			
M8	Практикоориентированный модуль																				
2.2.2.4.	25-B-KV-TESA	Теория эксплуатационных свойств автомобиля	180	6	7		180	20	20		15	125							6		АТСиБЖД
	25-B-KV-TDEGA	Теория движения электроавтомобиля и гибридного автомобиля																			

2.2.2.5.	25-B-KV-TOATP	Технологическое оборудование АТП	180	6	7		180	20	20		15	125						6		АТСИБЖД	
	25-B-KV-KDAE	Компьютерная диагностика автомобилей и электромобилей																			
2.2.2.6.	25-B-KV-ORKA	Основы расчета конструкций автомобилей	180	6	8		180	20	20		15	125						6		АТСИБЖД	
	25-B-KV-EQUBENAP	Электронное оборудование управления электромобилем, системы навигации и автопилотирования																			
2.2.2.7.	25-B-KV-TEA	Техническая эксплуатация автомобилей	180	6	7		180	20	20		15	125						6		АТСИБЖД	
	25-B-KV-TOE	Техническое обслуживание электромобилей																			
2.2.2.8.	25-B-KV-TPPAT	Технологическое проектирование предприятий АТ	180	6	9		180	20	20		15	125						6		АТСИБЖД	
	25-B-KV-TPPSTO	Технологическое проектирование станций технического обслуживания																			
М9 Технологии и проектирование в транспортной инженерии / Модуль дополнительной образовательной программы																					
2.2.2.9.	25-B-KV-PRUDA	Проектирование и расчет узлов и деталей автомобилей	90	3	7		90	10	10		15	55						3		АТСИБЖД	
	24-B-KV-MN1	Минорная программа 1:																			
2.2.2.10.	25-B-KV-RT	Ресурсосбережение на транспорте	90	3	8		90	10	10		15	55						3		ПС	
	24-B-KV-MN2	Минорная программа 2:																			
2.2.2.11.	25-B-KV-KDA	Компьютерная диагностика автомобилей	90	3	9		90	10	10		15	55						3		АТСИБЖД	
	24-B-KV-MN3	Минорная программа 3:																			
ВСЕГО по циклу ПД:			2550	85			2550	210	260	20	225	1535	4	0	0	0	16	16	21	9	20
3 ДОПОЛНИТЕЛЬНЫЕ ВИДЫ ОБУЧЕНИЯ (ДВО):																					
М10 Модуль личностных компетенций																					
3.1.	24-B-KV-DVO-SO	Служение обществу	30	1	1		30		10		5	15	1							АТСИБЖД	
	25-B-KV-DVO-BK	Бизнес коммуникации																			
ИТОГО ПО ТЕОРЕТИЧЕСКОМУ КУРСУ ОБУЧЕНИЯ (ТКО):			6990	233			6990	563	1040	40	858	4299	24	28	29	26	26	29	28	24	20
4.	24-B-VK-IA	ИТОГОВАЯ АТТЕСТАЦИЯ	240	8															8		
ИТОГО ЗА ВСЬ ПЕРИОД ОБУЧЕНИЯ:			7230	241									24	28	29	26	26	29	28	24	28

СОГЛАСОВАНО:

И.о. Проректор по АП  Коджаберганова А.К.

РАЗРАБОТАНО:

Директор института "ТиС"  Абдрешов Ш.А.

И.О. заведующий кафедрой "АТСИБЖД"  Тойлыбаев А.Е.

AGREED
General Director
LLP «Mega motors»
_____ Ospanov E.K.
«__» _____ 2025 y.

APPROVED
Director of the Institute
"Transport and construction"
_____ Abreshov Sh.A.
«__» _____ 2025 y.

CATALOG OF DISCIPLINES OF THE UNIVERSITY COMPONENT

EDUCATIONAL PROGRAMS

6B07176- Automotive Engineering

Level of education: bachelor's degree

Training period: 3 years

Year of admission: 2025 y.

Cycle	Component	Name of the discipline	General labor intensity		Semestr	Learning Outcomes	Brief description of the discipline	Prerequisites	Postrequisites
			in academic hours	in academic credits					
1	2	3	4	5	6	7	8	9	10
BD	UC	Engineering Mathematics 1	150	5	1	LO4	The discipline "Engineering Mathematics 1" studies the basic concepts of higher mathematics and its applications. The course sections include elements of linear algebra and analytical geometry, an introduction to mathematical analysis, and differential calculus of functions of one and several variables. The purpose of the course is to master the mathematical apparatus for solving theoretical and applied problems of a specific profile, to gain an understanding of mathematical modeling, and to develop analytical and systems thinking, which makes it possible to effectively solve engineering problems. The discipline uses interactive teaching methods and performing computational and graphical work.	Basic school knowledge in mathematics	Electrical Engineering and Fundamentals of Electronics, Theoretical Mechanics
BD	UC	Engineering Mathematics 2	150	5	2	LO4	The formation of students' mathematical knowledge and skills necessary for the study of related natural science disciplines, disciplines of the professional cycle and skills of mathematical modeling and research in professional activities. The course sections include integral calculus of functions of one and	Engineering Mathematics 1	Electrical Engineering and Fundamentals of Electronics,

							several variables, ordinary differential equations, and series theory. Special attention is paid to the application of mathematical methods to solve engineering problems.	Fundamentals of Strength Calculation of Machines and Mechanisms
BD	UC	Applied Physics	150	5	2	LO2	Formation of skills using fundamental laws, theories of classical and modern physics, as well as methods of physical research, thinking, scientific worldview, in independent cognitive activity, to be able to model physical situations using computer technology and ideas about the modern natural science picture of the world.	Fundamentals of Machine and Mechanism Strength Calculation, Fundamentals of Design
BD	UC	Theoretical mechanics	120	4	2	LO4	To familiarize students with the basic concepts, laws, and theorems that allow them to formulate and investigate equations that describe the behavior of mechanical systems, to develop their logical thinking and understanding that the laws of mechanics express the laws of mechanical motion of bodies in mathematical form, to teach them how to express specific phenomena in mathematical form, and to develop their practical skills in applying the basic methods of mechanics to study the motion and equilibrium of mechanical systems in the context of professional disciplines and solving specific problems encountered in their professional activities.	Theory of mechanisms and machines, Machine parts and fundamentals of design
BD	UC	Structural Materials in Transport Engineering	120	4	1	LO5 LO6	Studying the structure, properties and marking of metals and non-metallic materials, methods of their application and the principles of processing materials by modern methods, classification of construction and raw materials, methods of testing materials, operational reliability and durability of transport equipment. Within the discipline, interactive teaching methods, the calculation-graphic method are used.	Theory of mechanisms and machines, Fundamentals of calculating mechanisms, Machine parts and fundamentals of design
BD	UC	Electrical engineering and the basics of electronics	180	6	3	LO4 LO5	Studying the electrical circuits of direct, alternating and three-phase currents, the principle of operation, purpose and rules of operation of the transformer and electric machines, methods of measuring electrical quantities, the use of semiconductor	Power units of transport equipment, Applied Physics

							diodes in rectification circuits and logic elements. As a result of studying the discipline, students should be able to apply the basic laws and relations of electrical circuits, to read electrical and electronic circuits, to understand the purpose of the main units of electrical equipment and electronic circuits, to evaluate the accuracy of means and results of measurements, to carry out the calibration of electrical measuring devices.		Electronic equipment for controlling an electric vehicle, navigation systems and autopilot
BD	UC	Occupational safety and health	150	5	8	LO3	Training of specialists on the theoretical and practical foundations of safety, harmlessness and facilitation of working conditions at maximum productivity, on the legislative and regulatory framework in the field of occupational safety. Teaching methods - analysis of specific situations (case-study), group discussions.	Ecology and Railways	Technological design of AT enterprises, Technological design of a maintenance station
BD	UC	Machine parts and design basics	150	5	4	LO4 LO8	Studying the basics of theory, calculation and design of parts and assemblies of general-purpose machines, mechanical transmissions, joints, shafts and axles, bearings and couplings, machine drives, standards and professional regulations in the design of units, features and characteristics of structural materials and technologies for manufacturing machine parts. Within the discipline, interactive teaching methods, open and closed tests are used.	Engineering Mathematics, Applied Physics, Theoretical Mechanics, Theory of Machines and Mechanisms	Auto-operating materials, Auto-operating materials of a hybrid car
BD	UC	Engineering Graphics and Computer Engineering Modeling	120	4	1	LO4	The course covers the principles of technical drawing and engineering graphics, as well as modern methods of 3D modeling using specialized software, which are aimed at developing skills in designing and visualizing technical objects, creating digital models and schemes, drawing up plans, modeling structures, and analyzing their parameters to solve engineering problems.	Basic school education	Information and communication technologies, Educational practice
BD	UC	Basics of Python Programming	90	3	2	LO4 LO5	The discipline studies the syntax and semantics of the Python language, algorithmization and program design, program structuring, and solving problems related to artificial	Information and communication	IT technologies in transport

							intelligence. Students learn machine learning methods, data processing, and the development of intelligent systems, as well as analyze the application of AI in various fields, developing their professional competencies in programming and the fundamentals of artificial intelligence.	tion technologies	
BD	UC	Professionally oriented foreign language	90	3	6	LO1 LO10	Formation and development of foreign language professional communicative competence necessary for professional activity, possession of a professional foreign language for written and oral information exchange, development of reading and understanding skills of professional literature in a foreign language, development of the ability to express one's thoughts in oral and written form in situations of professional and business communication.	Foreign language	Information and Communication Technologies, Fundamentals of Artificial Intelligence
BD	UC	Educational practice	60	2	3	LO3, LO5, LO7, LO8	The organization of training practice is aimed at providing bachelors with an introduction to the main areas, objects, fields of professional activity, and study profiles, as well as consolidating theoretical material and visiting the branch of the department for this educational program. The form of control is the defense of a report		Production practice
BD	UC	Certification and Licensing of Motor Vehicles	150	5	5	LO6 LO7	The discipline studies the legal, technical, and organizational foundations of vehicle and enterprise approval, as well as the rules for licensing transportation and certifying automotive equipment.	Vehicles	Fundamentals of calculating car structures Electronic equipment for controlling electric vehicles, navigation systems, and autopilot systems
BD	UC	Vehicle safety	150	5	6	LO7	The discipline focuses on studying the design, operational, and organizational measures that ensure traffic safety, reduce accidents, and protect passengers and drivers.	Fundamentals of car designs	Fundamentals of technical operation of transport equipment,

										Technical operation of transport equipment
BD	UC	Energy installations of transport equipment	150	5	5	LO2 LO7 LO8	Formation of knowledge about the purpose, structure, and principle of operation of various types of power plants, and the processes that occur in their systems. Acquisition of skills for effective operation and ways to improve their main technical, economic, energy, and environmental performance. Methods of calculation and experimental research of power plants are considered, taking into account the requirements for their reliability, efficiency, and environmental protection.	Vehicles	Fundamentals of calculating car structures Electronic equipment for controlling electric vehicles, navigation systems, and autopilot systems	
BD	UC	Fundamentals of car manufacturing and repair technology	150	5	5	LO6 LO7	The discipline studies the basics of designing technological processes for machining workpieces, methods of obtaining workpieces, calculation of operational dimensions and dimensions of initial workpieces, issues of technical regulation and development of operations, basing of workpieces, principles of calculation and ways of ensuring accuracy in the development of technological processes, as well as ways of ensuring the quality of machines, methods of increasing labor productivity and ways of reducing the cost of products. It also studies the issues of organizing technical control at the enterprise, the features of technical and technological preparation of production. The discipline uses interactive teaching methods.	Theoretical mechanics, Parts of machines and mechanisms	Fundamentals of calculating car structures Electronic equipment for controlling electric vehicles, navigation systems, and autopilot systems	
BD	UC	Production practice 1	150	5	6		The main objectives of the production practice are to consolidate theoretical knowledge and practical skills in the chosen educational program in production conditions, to gain experience in organizational work, to obtain a working specialty, and to develop practical skills and competencies in the process of mastering the bachelor's program. It is conducted at practice bases at enterprises according to this educational program. The form of control is the defense of a	Education practice 1	Production practice 2	

AGREED
General Director
LLP «Mega motors»
Ospanov E.K.
«__» ____ 2025 y.

APPROVED
Director of the Institute
"Transport and construction"
Abdreshov Sh.A.
«__» ____ 2025 y.

CATALOG OF DISCIPLINES OF THE COMPONENT BY CHOICE

EDUCATIONAL PROGRAMS

6B07176- Automotive Engineering

Level of education: bachelor's degree
Training period: 3 years
Year of admission: 2025 y.

Cycle	Component	Name of the discipline	General labor intensity		Semestr	Learning Outcomes	Brief description of the discipline	Prerequisites	Postrequisites
1	2	3	in academic hours	in academic credits	6	7	8	9	10
GED	EC1	Environmentally sustainable technologies	150	5	6	LO3 LO7	The discipline "Environmental Sustainable Technologies" studies modern methods and innovative solutions aimed at minimizing the negative impact of human activities on the environment. The course covers the principles of sustainable development, energy-saving technologies, renewable energy sources, waste management strategies, and environmentally friendly production processes.	Applied Physics, Engineering Mathematics 1,2	Occupational safety, Ensuring traffic safety in transport.
	EC2	Green Economy and Sustainable Entrepreneurship				LO3 LO11	The discipline "Green Economy and Sustainable Entrepreneurship" is dedicated to the study of environmentally oriented economic models and business strategies aimed at sustainable development. The course covers the concepts of the green economy, ESG (Environmental, Social, Governance) approaches, the circular economy, sustainable business models, and their impact on global markets.	Engineering Mathematics 1,2, Sociology, Cultural Studies, Political Science, Psychology, History of Kazakhstan	Managerial economics

BD	EC3	Fundamentals of Financial literacy				LO5 LO11	The discipline is aimed at developing the ability to make informed financial decisions, plan income and expenses, assess risks, and effectively manage one's resources in a market economy. It covers basic knowledge in the field of finance and rational money management, including concepts such as the financial system, budget, banking products, lending, savings, investments, insurance, taxation, and protection against financial fraud.	Engineering Mathematics 1,2, Sociology, Cultural Studies, Political Science, Psychology, History of Kazakhstan	Managerial economics
	EC4	Fundamentals of law and anti-corruption culture				LO3 LO12	Improving the public and individual legal awareness and legal culture of students, as well as forming a system of knowledge and a civic position on countering corruption as an anti-social phenomenon. As a result of studying the course, students should master the fundamental concepts of law, the constitutional structure of state power in the Republic of Kazakhstan, the rights and freedoms of citizens enshrined in the Constitution, and the mechanism for protecting people's legitimate interests in case of violation. Active learning methods include case studies, brainstorming, and	The socio-political knowledge module	Fundamentals of Management, Fundamentals of Interchangeability, Reliability of Mechanical Engineering Structures
	EC5	Digital inclusion				LO1 LO3 LO12	The discipline "Digital Inclusion" is devoted to studying the principles of ensuring equal access to digital technologies and information for all social groups, including people with disabilities. The course covers the barriers of digital inequality, strategies for overcoming them, technologies for adapting the digital environment, and government initiatives for developing an inclusive digital society.	Applied Physics, Engineering Mathematics 1,2	Methods of Non-Destructive Testing of PS, IT Technologies in Transport, Master's Disciplines
	EC6	Hydraulics and hydraulic	120	4	3	LO4	Studying the general laws and equations of fluid dynamics, modes of fluid motion and the basics of hydrodynamic similarity, laminar and turbulent fluid motion, hydraulic resistances, fluid flow through holes and nozzles, hydraulic calculation of pipelines, volumetric hydraulic machines, hydraulic drives and hydraulic automation, pneumatic drive, pneumatic engine, pumps, hydraulic engines, fans,	Engineering mechanics	Fundamentals of Strength Calculation of Machines and Mechanisms, Applied Mechanics

BD	EC7	drive						hydrodynamic transmissions, hydraulic drives of metal-cutting tools. Methods of training are: solving problems, conducting thematic surveys, open and closed tests. It studies the basic concepts of contact and friction between contacting surfaces, the basic definitions and formulation of the problem, the analysis of contact and contact area, sliding and rolling friction, hydrodynamic friction, the basic characteristics and types of wear, methods for ensuring high performance of friction units, and the specifics of designing friction units, as well as the basics of calculations for designing sliding and rolling bearings and assessing the durability of friction units. The discipline uses interactive teaching methods.			Applied Mechanics Devices for Electric and Hybrid Cars	
	EC8	Tribotechnics					LO4 LO5	Studying the basics of the theory of mechanisms and machines, resistance of materials, calculation and design of parts and assemblies of general purpose, widely used in machines to solve problems aimed at increasing the reliability, strength and durability of parts and assemblies in the design, construction and operation, using modern educational and information technologies. Methods of active learning – performance of individual calculation and graphic tasks.	Engineering mechanics		Machine parts and basic engineering, Fundamentals of automobile manufacturing and repair technology	
	EC9	Fundamentals of calculating the strength of machines and mechanisms		150	5	3	LO4	Studying the theoretical foundations and methods of conducting calculations on the strength, rigidity, durability and stability of elements of structures of transport facilities, the main types of mechanisms, parts and assemblies of machines, general principles of design and construction, which is necessary when assessing the reliability of operating equipment in operating conditions. Methods of active learning – performance of individual design and graphic tasks.	Hydraulics and hydraulic drive, Tribology		Vehicles, Fundamentals of vehicle manufacturing and repair technology	
	EC10	Applied mechanics		180	6	3	LO6	Forms knowledge about the devices, purpose, and principles of operation of the mechanisms and systems of modern cars, which are being introduced into the production process. Prepares a high-level specialist who understands the design of car components, assemblies, and mechanisms, and is able to select car parameters to achieve optimal performance, analyze, and evaluate the impact of the design on the	Applied Physics, Tribology	Structural Materials in Transport Engineering, Theoretical Mechanics	Technical operation of vehicles, Fundamentals of vehicle design calculations	
Fundamentals of car designs												

	EC11	The design of an electric car and a hybrid car					LO5 LO6	performance of internal combustion engines. The discipline studies the design of electric and hybrid vehicles. Students analyze the features of the design of power systems, transmission units, and drive wheels. They also study the design of support systems, suspension systems, steering systems, braking systems, electrical systems, lighting systems, and active and passive safety systems. Students acquire skills in handling batteries, control units, and modules.	Electrical engineering and the basics of electronics	Vehicles, Machine parts and basic engineering
	EC12	Car maintenance materials					LO6	The discipline is dedicated to the study of oils, fuels, coolants, working fluids, rubber products, and other materials used in the operation of vehicles, their properties, selection, replacement, and disposal.	Structural Materials in Transport Engineering	Technical operation of vehicles Maintenance of electric vehicles
	EC13	Car maintenance materials for a hybrid car	180	6	4		LO6	The discipline examines the features of the application and control of lubricating, cooling, electrical insulation, and battery materials used in hybrid power systems, taking into account the specifics of internal combustion engines and electric traction systems.	Devices of cars and a hybrid car Structural materials in transport engineering	Fundamentals of technical operation of transport equipment, Technical operation of vehicles
	EC14	Fundamentals of technical operation of transport equipment	120	4	8		LO6 LO7	Training of specialists who possess the skills of professional activity in the field of technical operation of transport equipment in transport, allowing the expedient and full use of machines and keeping them in a working condition in accordance with the nature of future work at a particular enterprise. The discipline covers the study of the following issues: the performance and patterns of change in the technical condition of equipment; the system of maintenance (M) and repair (R) of transport equipment; the definition of standards; the structure and resources of the engineering and technical service; methods of decision-making in the management of maintenance and repair of transport equipment.	Theory of vehicle performance properties, Technical operation of vehicles	Technological design of AT enterprises Technological design of a maintenance station
	EC15	Technical					LO6 LO7	The discipline studies the processes of using, servicing, and repairing cars, methods of increasing the reliability and	Theory of car	Technological design of a

	operation of transport equipment					durability of components and assemblies, as well as the organization of fleet operation.	movement, Technical operation of cars	service station
EC16	Information technology in road transport	180	6	8	LO2 LO4 LO8	The discipline focuses on the application of digital systems and software tools for managing transportation processes, diagnostics, navigation, monitoring, and optimization of transportation enterprises.	Devices for cars and electric vehicles, Fundamentals of artificial intelligence	Technologies for the production and repair of cars Intelligent transmission control systems for cars
EC17	Fundamentals of Smart technologies in transport				LO4 LO5 LO7	The purpose of the discipline is to introduce students to intelligent transport systems. It provides an overview of trends in the field of smart transportation and mobility. The course covers the principles of operation, types of communication, and elements of autonomous vehicle interaction systems. It also provides an overview of biometric identification technologies for personal access to vehicle control systems and online connectivity to various objects using 5G networks.	Devices for cars and electric vehicles, Fundamentals of artificial intelligence	Intelligent vehicle transmission control systems
EC18	Electrical equipment and electronic systems of cars	180	6	4	LO6 LO7	The discipline is aimed at studying the device, principles of operation, maintenance and diagnostics of electrical equipment and electronic systems of modern cars. The course covers both traditional electrical elements (batteries, generators, starters, lighting and alarm systems), and modern electronic control systems (ABS, ESP, fuel injection systems, electronic control units, comfort and safety systems).	Devices for cars and electric vehicles, Electrical engineering and electronics basics	Power Plants for Transport Equipment Fundamentals of Car Production and Repair Technology
EC19	Electronic systems of electric vehicles				LO6 LO7	The discipline is dedicated to the study of the features of electronic systems used in electric vehicles. The course covers the architecture of high-voltage systems, battery management systems (BMS), power electronics (inverters,	Electrical engineering and the basics of	Maintenance of electric vehicles, Automotive

						converters, chargers), regenerative braking systems, electronic engine control units, as well as integrated safety systems and information and communication systems.	electronics	internal combustion engines and traction electric motors
EC20	Managerial economics	90	3	6	LO9 LO11	Formation of the conceptual apparatus and development of skills of economic analysis using modern models and regularities of economic science, consideration of economic problems and tasks facing the head of the firm. Studying this discipline will allow students to obtain and develop knowledge in the field of analytical studies of economic, technological and technical parameters of the enterprise, and will also allow to master the skills of applying special methods of economic substantiation of managerial decisions and assessment of their consequences.	Engineering Mathematics 1,2, Economics and Entrepreneurship, Fundamentals of Financial Literacy, Critical Thinking	Final certification
EC21	Time management				LO8 LO10	The discipline studies a system of methods, tools, and approaches aimed at effective time management in order to achieve the set goals. The course is designed to enhance the skills of organizing and optimizing work time, increasing productivity, reducing stress, planning, delegating, using tools and technologies, and understanding one's own time and energy rhythms in order to make the most of one's time.	Engineering Mathematics 1,2, Critical Thinking	Final certification
EC22	Modeling of transport systems	120	4	1	LO4 LO7	The basics of virtual design and digital prototyping of transport systems are studied. Competencies in 3D modeling, visualization, and verification of engineering solutions are formed. Object-oriented modeling methods, AI elements for error recognition, and entry-level CAD systems are used. Attention is paid to sustainable and resource-saving technologies when creating models as the basis for further engineering design.	Basic school education in physics	Theoretical Mechanics, Rolling Stock Design, Rolling Stock and Railway Infrastructure.
EC23	Introduction to the transport environment				LO10	The course provides an understanding of the structure, tasks, and trends in the development of the transport industry in the context of digitalization and sustainable development. It covers basic engineering concepts, the logic of transport system operation, and the fundamentals of project thinking.	Basic school education in physics	Theoretical Mechanics, Rolling Stock Design, Rolling Stock

PD	EC27	Maintenance of electric vehicles						method of calculation, and case studies.	Electronic systems of an electric vehicle, Fundamentals of technical operation of transport equipment	Final certification
	EC28	Technological design of motor transport enterprises	180	6	9		LO5 LO6 LO7	The discipline is dedicated to studying the features of diagnostics, maintenance, and repair of electric power units, batteries, charging systems, and electronic components that ensure reliable and safe operation of electric vehicles.	Engineering Graphics and Computer Engineering Modeling, Time Management	Final certification
	EC29	Technological design of a service station					LO6 LO7	To form the necessary set of knowledge of modern methods of technological design of motor transport enterprises, to develop skills and necessary competencies for making and implementing decisions on the design or reconstruction of motor transport enterprises. The discipline covers the study of the following issues: calculation of the technological program of motor transport enterprises, service stations, calculation of the number of posts and flow lines for maintenance and repair of vehicles, calculation of the number of repair workers, calculation of the areas of the main production units of motor transport enterprises, service stations, selection of the necessary technological equipment.	Engineering graphics and computer engineering modeling, Technological equipment of the ATP	Final certification
	EC30		180	6	6		LO6 LO7	The discipline studies methods of planning and designing service stations, including the calculation of production programs, the selection of equipment, the organization of work areas, technological processes, and safety requirements for the efficient maintenance of vehicles.	Fundamentals of Car Construction Electric and Hybrid Car Design	Theory of car movement, Theory of car performance properties

Automotive engines						in heat engines; the study of technical, economic and thermodynamic indicators of the efficiency of cycles and engines, methods of obtaining them and methods of improvement; familiarization with the basics of engine control and automation, the principles of designing and calculating the main engine parts.			
	EC31	Automotive internal combustion engines and traction electric motors				LO6 LO7	The discipline studies the power systems of cars. It examines the types and structure of internal combustion engines (ICEs), thermodynamic cycles, and performance indicators. It presents an analysis of the external speed characteristic of ICEs. It examines traction electric motors (DC and AC machines), their structure, and principles of operation. It examines the structure of hybrid power systems. It analyzes energy management in various driving modes	Fundamentals of car manufacturing and repair technology, Electric and hybrid car devices	Theory of electric and hybrid vehicle motion, Computer diagnostics of cars and electric vehicles
	EC32	Theory of vehicle performance properties				LO5 LO6 LO7	To teach students to analyze technical and economic indicators and evaluate the effectiveness of the performance properties of motor vehicles, to develop a strategy for improving the quality of the performance properties of various motor vehicles. This discipline covers the theoretical and practical properties of: traction and speed motor vehicles, braking properties of motor vehicles, performance properties of rolling stock of road transport; calculations of the force and power balance of the car, calculations of acceleration, braking of the car, speed and braking distance; calculation of travel and operational fuel consumption; issues of turning, handling, car.	Fundamentals of vehicle design, Electrical and electronic equipment of vehicles	Technological design of AT enterprises, Fundamentals of calculating car structures
	EC33	Theory of Electric and Hybrid Vehicle Motion	180	6	7	LO5 LO6 LO7	The discipline studies the theory of motion of an electric vehicle and a hybrid car. Students analyze the modes of motion, the rolling of the wheels and their interaction with the road, and the balance of forces on the driven and driven wheels. The discipline describes the traction dynamics of a monoplane and a four-wheel electric vehicle and a hybrid car, the equation of motion, and the dynamic passport. The discipline studies the stability, controllability, and maneuverability, the braking properties of an electric vehicle and a hybrid car, the body vibrations, and the comfort of driving.	Automotive internal combustion engines and traction electric motors, Fundamentals of vehicle design	Technologies of car production and repair, Fundamentals of calculation of car structures

		equipment for controlling electric vehicles, navigation systems, and autopilot systems	LO6 LO8	electronic equipment. It presents typical designs of electronic systems, peripheral elements, and their operating principles. It examines on-board computerized multimedia and voice assistant systems, built-in communication and satellite navigation systems, computer vision, and autopilot systems. It describes the technologies for controlling advanced electronic systems based on artificial intelligence, their operating algorithms, and their hardware and software.	of the motor vehicle depot, Theory of movement of an electric and hybrid car	production and repair of cars Intelligent transmission control systems for cars		
	Minor program 1:	90	3	7	LO2	This is the first of three disciplines that allows you to develop additional professional competencies in various subject areas.	GED Disciplines	Production Practice 1,2, Final Certification
	Minor program 2	90	3	8	LO9	This is the second of three disciplines that allows you to develop additional professional competencies in various subject areas.	GED Disciplines	Production Practice 1,2, Final Certification
	Minor program 3	90	3	9	LO8	This is the third of the three disciplines that allows you to develop additional professional competencies in various subject areas.	GED Disciplines	Production Practice 1,2, Final Certification
Total:		3000	100					

34

Acting Head of the Department "Motor Vehicles and safety of life activities"

Toilybaev A.E

ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ

на образовательную программу 6B071~~76~~ «Автомобильная инженерия»

В представленной разработчиками АО «ALT Университет имени Мухамеджана Тынышпаева» образовательной программе 6B071~~76~~ «Автомобильная инженерия» охвачены все дисциплины по данному направлению с рациональным распределением часов.

Образовательная программа содержит модули, которые включают дисциплины общеобразовательного и базового циклов; профилирующих дисциплин, а также модули, включающие циклы дисциплин, направленные на формирование дополнительных компетенций.

В образовательной программе приводятся требования, необходимые для получения результата по успешному освоению программы, и компетенции, которыми должен обладать выпускник для успешной профессиональной профессиональной деятельности. В представленном каталоге элективных дисциплин описаны цели, содержание и результаты обучения.

Содержание данной образовательной программы соответствует требованиям Государственного общеобразовательного стандарта высшего образования Республики Казахстан.

Представленная программа направлена на подготовку специалистов для автомобильного транспорта, что отражается в требованиях к уровню образованности выпускников в виде компетенций по модулям дисциплин.

Структура предложенной образовательной программы включает перечень необходимых для изучения дисциплин, объединённых в модули с целесообразным распределением кредитов.

Исходя из вышеизложенного, предложенная образовательная программа 6B071~~76~~ «Автомобильная инженерия» по направлению подготовки: 6B071 Инженерия и инженерное дело (бакалавриат) рекомендуется для использования в учебном процессе.

Директор ТОО "BEST-FITS"



Сатаиов М.Т.

ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ
на образовательную программу 6B071~~76~~ «Автомобильная инженерия»

Реализация образовательной программы 6B071~~76~~ «Автомобильная инженерия» осуществляется посредством последовательности изучаемых дисциплин, с установлением конкретных задач и целевых индикаторов. Четко прослеживается междисциплинарное взаимодействие, которое заключается в комплексной связи между содержанием отдельных учебных дисциплин, посредством которых достигается внутреннее единство программы подготовки специалистов.

В учебном плане ОП «Автомобильная инженерия» определен перечень всех учебных дисциплин обязательного компонента и компонента по выбору, трудоемкость каждой учебной дисциплины в кредитах, последовательность их изучения, виды учебных занятий и формы контроля.

Образовательные траектории разработаны в соответствии с запросами предприятий автомобильного транспорта.

Необходимо отметить, что в разработанной ОП «Автомобильная инженерия» введены новые дисциплины, относящиеся к минорным программам, такие как Основы автоматизации машин и робототехники, Современные технологии на автотранспорте что является большим преимуществом при получении профессиональных знаний в области проектирования, производства, эксплуатации и ремонта автомобилей.

Также хотелось бы отметить управленческие дисциплины – Управленческая экономика(Минор) и Триботехника которые позволяют будущим выпускникам правильно распоряжаться своим временем и быть хорошим управленцем.

Цель ОП «Автомобильная инженерия» актуальна, сформулирована достаточно лаконично и объединяет в себе результаты обучения. В описании дисциплин отражены их цели и содержание, как индикатора достижения результатов обучения по данной образовательной программе. Также, в образовательной программе отражены основные трудовые функции в компетенциях и результатах обучения, указаны виды связей с работодателями: проведение гостевых лекций, лекций ведущих топ-менеджеров, наличие филиалов кафедр на базе организаций.

Таким образом, представленная на экспертизу образовательная программа «6B071~~76~~ Автомобильная инженерия» по направлению подготовки кадров «6B071 - Инженерия и инженерное дело», полностью соответствует требованиям ГОСО, имеет четкую последовательность при разработке, отвечает современным запросам рынка труда, профессиональным стандартам и может быть реализована для подготовки кадров по образовательной программе «6B071__ Автомобильная инженерия» по направлению «6B071 - Инженерия и инженерное дело».

Ассоц.профессор КазНАУ, к.т.н.
г.Алматы



Абдильдин Н.К.

ЗАКЛЮЧЕНИЕ РЕЦЕНЗЕНТА

РЕЦЕНЗИЯ

на образовательную программу 6B071 ~~76~~ Автомобильная инженерия

Образовательная программа бакалавриата «6B071 ~~76~~ Автомобильная инженерия» содержит следующую информацию: квалификация выпускника, форму и срок обучения, направление и характеристику деятельности выпускников, приведен полный перечень компетенций, которыми должен обладать выпускник в результате освоения данной образовательной программы.

Дисциплины учебного плана по рецензируемой образовательной программе формируют весь необходимый перечень общекультурных и профессиональных компетенций, предусмотренных ГОСО по соответствующим видам деятельности.

В учебном плане образовательной программы определен перечень всех учебных дисциплин обязательного компонента, вузовского компонента и компонента по выбору. Трудоемкость каждой учебной дисциплины в кредитах, определена последовательность их изучения, виды учебных занятий и формы контроля. Каталог элективных дисциплин, сформированы модули, каталог внутри вузовского компонента полностью отражают преемственность и последовательность дисциплин (например, для изучения дисциплины «Основы технологии производства и ремонта транспортной техники» изучается дисциплина «Основы расчета прочности машин и механизмов» и т.д.).

Соблюдена последовательность изучения дисциплин, включены дисциплины, необходимые для производства и технологического процесса ремонта автомобилей, путевых и строительных машин.

Содержание рабочих программ учебных дисциплин и практик позволяет сделать вывод, что оно соответствует компетентности модели выпускника его социализацию и адаптацию в обществе и трудовом коллективе, развитие чувств патриотизма и гражданской ответственности, национального самосознания, допорядочности и антикоррупционной культуры, приобретение навыков предпринимательской деятельности и финансовой грамотности, применение информационно-коммуникационных и цифровых технологий в профессиональной деятельности.

Образовательная программа предусматривает профессионально-практическую подготовку обучающихся в виде практики. Содержание программ практик свидетельствует об их способности сформировать практические навыки обучающихся.

Для разработки образовательной программы были привлечены опытный профессорско-преподавательский состав, ведущие представители работодателей, обучающиеся, учтены их требования при формировании дисциплин профессионального цикла.

Заключение:

В целом, рецензируемая образовательная программа «6B071 ~~76~~ Автомобильная инженерия» отвечает основным требованиям ГОСО, отраслевой рамке квалификаций, профессиональных стандартов и способствует формированию общекультурных и профессиональных компетенций по направлению подготовки «6B071 - Инженерия и инженерное дело».

Рецензент:

Ассистент. профессор КазАДИ, т.г.к.



Елемес Д.Е.

РЕКОМЕНДАТЕЛЬНОЕ ПИСЬМО

Зав.кафедрой "АТСиБЖД"
АО «АЛТ Университет имени
Мухамеджана Тынышпаева»
Тойлыбаеву А.Е.

Уважаемый Евгений Каппасайлеевич!

Руководство ТОО "MEGA МОТОРС" в лице генерального директора Оспанова Е.К. ознакомилось с содержанием образовательной программы «6B071Z Автомобильная инженерия» и внесло следующие рекомендации:

- включить в содержание образовательной программы дисциплины, связанные с Smart технологий на транспорте;
 - увеличить количество часов, выделяемых на проведение части практических занятий на базах работодателей с целью формирования определенных видов профессиональных компетенций;
 - актуализировать содержание образовательных программ путем включения в цикл базовых и профилирующих модулей дисциплины, отражающие современные инновационные технологии в автомобильной инженерной сфере. Предлагается включить следующие дисциплины: устройство электромобиля и гибридного автомобиля, основы Smart технологий на транспорте, автомобильные двигатели внутреннего сгорания и тяговые электродвигатели и т.д. - увеличить количество часов, выделяемых на проведение производственных практик;
- включить дисциплины:
- с Smart технологий на транспорте;
 - касающиеся организации производства и охраны труда;
 - экономического и управленческого характера;
 - с программным обеспечением;
 - графики ППР и т.д.

Генеральный директор
ТОО "MEGA МОТОРС"



Оспанов Е.К.

14. APPROVAL SHEET

[illegible]

15. CHANGE REGISTRATION SHEET

№	Section, paragraph of the document	Type of change (replace, cancel, add)	Notification number and date	The change has been made	
				Date	Surname and initials, signature, position