

Specialist degree Program

Study Program: Construction of Railways, Bridges and Transport Tunnels

Duration: 5 years

Language of Training: Russian

№	Subject	Semester	Hours	Credits
C.1.1	Mandatory part of Block 1			
C.1.1.1	History	1,2	/144	/4
C.1.1.2	Philosophy	5	108	3
C.1.1.3	Foreign language	1,2,3,4	/288	/8
C.1.1.4	Psychology	2	72	2
C.1.1.5	Legal regulation of construction. Corruption risks	2	72	2
C.1.1.6	Economics of Industry	3	108	3
C.1.1.7	Mathematics	1,2,3,4	/576	/16
C.1.1.8	Mathematical modeling of systems and processes	6,7	/144	/4
C.1.1.9	Physics	1,2	/288	/8
C.1.1.10	Chemistry	1	108	3
C.1.1.11	Computer science	1	180	5
C.1.1.12	Engineering geodesy and geoinformatics	1,2	/252	/7
C.1.1.13	Descriptive Geometry and Computer Graphics	1,2	/252	/7
C.1.1.14	Theoretical mechanics	2,3	/180	/5
C.1.1.15	History of transport in Russia	2	72	2
C.1.1.16	Legal support of professional activities	3	144	4
C.1.1.17	Organization of accessible transport environment	3	72	2
C.1.1.18	Strength of materials	3,4	/360	/10
C.1.1.19	Structural mechanics	5,6	/288	/8
C.1.1.20	Hydraulics and hydrology	3,4	/252	/7
C.1.1.21	Engineering geology	4	144	4
C.1.1.22	General course of communication	4	108	3
C.1.1.23	Environmental Engineering	3	108	3
C.1.1.24	Information technology in construction	4	108	3
C.1.1.25	Building structures and architecture of transport facilities	5	108	3
C.1.1.26	Metrology, standardization, certification	5	108	3

C.1.1.27	Construction Materials	5	144	4
C.1.1.28	Electrical Engineering and Electromechanics	5	72	2
C.1.1.29	Research and design of railways	5	144	4
C.1.1.30	Soil mechanics	5	72	2
C.1.1.31	Building Foundations	6	108	3
C.1.1.32	Project Management Economics	6	108	3
C.1.1.33	Railway track	6	144	4
C.1.1.34	Bridges on the railways. Reinforced concrete bridges	6	144	4
C.1.1.35	Digital technologies in professional activity	7	108	3
C.1.1.36	Life safety	7	144	4
C.1.1.37	Technical Operation Rules	7	108	3
C.1.1.38	Research and design of bridge crossings	7	108	3
C.1.1.39	Personnel Management	7	72	2
C.1.1.40	Transport safety	7	72	2
C.1.1.41	Tunnels on highways	7	180	5
C.1.1.42	Bridges on the railways. Metal bridges	8	144	4
C.1.1.43	Fundamentals of Reliability Theory	8	72	2
C.1.1.44	Organization and production management	8	108	3
C.1.1.45	Technology and mechanization of railway construction	8	144	4
C.1.1.46	Maintenance of bridges and tunnels	9	108	3
C.1.1.47	Technology and mechanization of railway track maintenance	9	144	4
C.1.1.48	physical Culture and sport	1	72	2
	TOTAL for mandatory part		7164	199
C.1.2	Variable part of Block 1		936	26
C.1.2.1	Bridge construction	8,9	/324	/9
C.1.2.2	Tunnel construction methods	8	144	4
C.1.2.3	Bridge reconstruction	9	144	4
C.1.2.4	Organization, planning and management of bridge and tunnel construction	9	108	3
C.1.2.5	Special types of transport facilities	9	72	2
C.1.2.6	Construction work and machinery in bridge and tunnel construction	9	72	2
C.1.2.7	Tunnel Reconstruction	9	72	2
C.1.3	Disciplines of choice		1084	21

C.1.3.1.1	Automated design of transport facilities	4	144	4
C.1.3.1.2	CAD in the design of transport facilities	4	/144	/4
C.1.3.2.1	Design and construction of culverts	5	144	4
C.1.3.2.2	Modern methods of design and construction of embankments	5	/144	/4
C.1.3.3.1	Innovative bridge building materials and technologies	6	180	5
C.1.3.3.2	The use of geosynthetics in transport construction	6	/180	/5
C.1.3.4.1	Dynamics and sustainability of structures	7	180	5
C.1.3.4.2	Geomechanics of foundations and structures	7	/180	/5
C.1.3.5.1	Improving the durability of transport facilities	8	108	3
C.1.3.5.2	Corrosion and protection of transport facilities	8	/108	/3
C.1.3.6.1	Team sports	2,3,4,5,6,	/328	0
C.1.3.6.2	Physical Training	2,3,4,5,6,	/328	0
C.1.1	Total for the variable part		2 020	47
C.1.1.1	Total for block C.1		9184	246
C.2.1	Mandatory part of Block 2		1188	33
C.2.1.1	Educational (geodesic) practice		108	3
C.2.1.2	Training (hydrometric) practice		108	3
C.2.1.3	Educational (design and technological) practice		216	6
C.2.1.4	Industrial (design and technological) practice		108	3
C.2.1.5	Industrial (organizational and management) practice		108	3
C.2.1.6	Research work		108	3
C.2.1.7	Undergraduate practice		432	12
	Block 3			
C.3	State final certification (basic part)		756	21
C.3.1	Preparing for defense and protecting of the Diploma project		756	21
	TOTAL by the Program		11128	300
F.	Optional disciplines		252	
F. 1	Designing foundations and foundations of artificial structures in difficult conditions		72	
F. 2	Modern materials and technologies in bridge building		/843	

