



AIRCRAFT ENGINEERING

Field of training	24.03.04 Aircraft Engineering	Department	101
Program	Aircraft Design	Form of attendance	intramural

*The courses are listed starting from the second year of studies

To find the necessary course please refer to the table:

** the courses with non-integral numbers (e.g. 22.1, 22.2) are similar and only one of them is taught. The availability of the course is determined on a year-to-year basis

Year	Semesters
1	1 2
2	3 4
3	5 6
4	7 8

No.	Course title	Department	Semester	total Number of credits
1	Physical education	519	3	0,5
2	Foreign language	ДП1	3	2
3	Physical education	519	3	0,5
4,1	Philosophy	517	3	2
4,2	Buddist philosophy	517	3	2
5	Theory of Probability and Mathematical Statistics	804	3	3
6	Theoretical Mechanics	802	3	3,5
7	Physics	801	3	6
8,1	Differential equations	802	3	4
8,2	Ordinary differential equations	802	3	4
9	Theory of mechanisms and machines	ТПЛА	3	3
10	Materials Science	903	3	4
11	Strength of materials	902	3	3



No.	Course title	Department	Semester	total Number of credits
1	Physical education	519	4	0,5
2	Foreign language	ДП1	4	2
3	Physical education	519	4	0,5
4,1	Philosophy	517	4	2
4,2	Buddist philosophy	517	4	2
5	Equations of mathematical physics	802	4	3
6	Applied ecology	610	4	2
7	Thermodynamics	204	4	4
8	Strength of materials	902	4	3
9	Metrology, standardization and certification	207	4	3
10	Technology of construction materials	903	4	4
11	Aerohydrodynamics	105	4	3
12	Industrial and technological practice I	101	4	6
1	Physical education	519	5	0,5
2	Foreign language	ДП1	5	2
3	Economics	507	5	3
4	Physical education	519	5	0,5
5	Information support of product life cycle	101	5	3
6,1	Aerodynamics	105	5	4
6,2	Aerohydrodynamics	105	5	4
7,1	Construction mechanics and strength of aircraft	602	5	5
7,2	Construction Mechanics and Strength of Aviation Structures and Systems	602	5	5
8,1	Numerical methods	806	5	4
8,2	Computational Mathematics	806	5	4
9	Methods of mathematical modeling	101	5	3
10	Machine parts and design basics	ТПЛА	5	4



No.	Course title	Department	Semester	total Number of credits
1	Physical education	519	6	0,5
2	Foreign language	ДП1	6	2
3	Physical education	519	6	0,5
4	Information support of product life cycle	101	6	3
5	Laboratory workshop on dynamics and flight control	106	6	2
6,1	Flight Dynamics	106	6	3
6,2	Calculation of aircraft performance	106	6	3
7	Economy and organization of industry	509	6	3
8	Safety of vital functions	614	6	2
9	Aircraft manufacturing technology	104	6	3
10	Units and assemblies design	101	6	3
11	Aircraft Design	101	6	4
12	Industrial and technological practice II	101	6	6
1	Fundamentals of Management	501	7	2
2	Sociology	514	7	2
3,1	Modeling of engineering tasks	101	7	2
3,2	Solution of engineering tasks on a computer	101	7	2
4	Electrical technology and Electronics	301	7	3
5	Aircraft manufacturing technology	104	7	3
6	Units and assemblies design	101	7	1
7	Certification of aviation equipment	101	7	3
8	Design of airframe assemblies	101	7	5
9,1	Mechanical systems	101	7	4
9,2	Life Support, Protection and Rescue Systems for Aircraft Crews	101	7	4
10,1	Instrumentation systems	305	7	3
10,2	Complexes of instrumentation equipment	305	7	3
11,1	Powerplant of the aircraft	201	7	2
11,2	Forming an aircraft powerplant	201	7	2



No.	Course title	Department	Semester	total Number of credits
1	Design of airframe assemblies	101	8	1
2	Chassis and powerplants design	101	8	4
3	Quality control	104	8	2
4.1	Aircraft Design	101	8	4
4.2	Theoretical basis of aircraft design	101	8	4
5.1	Operation technology and reliability	101	8	3
5.2	Determination of aircraft performance	101	8	3



AIRCRAFT ENGINEERING

Field of training	24.04.04 Aircraft Engineering	Department	101
Program	Composite Materials Airframe Engineering	Form of attendance	intramural

*The courses are listed starting from the second year of studies

To find the necessary course please refer to the table:

** the courses with non-integral numbers (e.g. 22.1, 22.2) are similar and only one of them is taught. The availability of the course is determined on a year-to-year basis

Year	Semesters
1	1 2
2	3 4

No.	Course title	Department	Semester	total Number of credits
1	Foreign Language	ДП1	2	2
2	Philosophy and Methodology of Science and Technology	517	2	2
3	Project Management	505	2	2
4	Numerical Methods	208	2	2
5	Continuum Mechanics	201	2	3
6	Constructions Production Technology	601	2	3
7	Flying Vehicles Design Basics, part 2	601	2	2
8.1	Computer Tools of Analysis and Modelling	101	2	3
8.2	Information Technologies in Engineering	101	2	3
9	Research Practice	101	2	6
10	Research Work	101	2	6

No.	Course title	Department	Semester	total Number of credits
1	Foreign Language	ДП1	3	2
2	Aircraft Design	101	3	4
3	Scientific Seminar on Aircraft Design Airframe Elements Design	101	3	2
4.1	Composite Materials Airframe	101	3	4
4.2	Elements Design	101	3	4
5.1	Mechanical Equipment Systems	101	3	3
5.2	Avionic Systems Equipment	101	3	3
6.1	Aviation Equipment Certification	101	3	2
6.2	Airworthiness	101	3	2
7	Practice 1	101	3	6
8	Semester Research Work	101	3	6
1	Aircraft Design	101	4	3
2	Scientific Seminar on Aircraft Design	101	4	2
3	Practice	101	4	6
4	Semester Research Work	101	4	6



PROPULSION ENGINEERING

Field of training	24.03.05 Propulsion Engineering	Department	201
Program	Aircraft propulsion systems	Form of attendance	intramural

*The courses are listed starting from the second year of studies

To find the necessary course please refer to the table:

** the courses with non-integral numbers (e.g. 22.1, 22.2) are similar and only one of them is taught. The availability of the course is determined on a year-to-year basis

Year	Semesters
1	1 2
2	3 4
3	5 6
4	7 8

No.	Course title	Department	Semester	total Number of credits
1	Philosophy	517	3	2
2	Foreign language	ДП1	3	2
3	Physical education	519	3	0,5
4	Physical education	519	3	0,5
5	Differential equations	802	3	3
6	Theory of Probability and Mathematical Statistics	804	3	3
7	Theoretical Mechanics	802	3	2
8	Physics	801	3	3
9	Theory of mechanisms and machines	ТПЛА	3	3
10	Strength of materials	902	3	3
11	Materials Science	903	3	3



No.	Course title	Department	Semester	total Number of credits
1	Philosophy	517	4	1
2	Foreign language	ДП1	4	2
3	Physical education	519	4	0,5
4	Physical education	519	4	0,5
5	Equations of mathematical physics	802	4	3
6	Applied ecology	610	4	2
7	Thermodynamics	204	4	3
8	Strength of materials	902	4	2
9	Metrology, standardization and certification	207	4	2
10	Technology of construction materials	903	4	3
11	Aerohydrodynamics	201	4	3
12	Industrial and technological practice I	205	4	6
1	Foreign language	ДП1	5	2
2	Economics	507	5	3
3	Physical education	519	5	0,5
4	Physical education	519	5	0,5
5	Numerical methods	806	5	3
6	Heat Transfer	204	5	3
7	Methods of mathematical modeling	204	5	3
8	Machine parts and design basics	ТПЛА	5	3
9	Mechanics of liquid and gas			
10,1	Theory and calculation of V-belt blades	201	5	3
		201	5	3
10,2	Shovel machines GTE and KEU	201	5	3



No.	Course title	Department	Semester	total Number of credits
1	Foreign language	ДП1	6	2
2	Physical education	519	6	0,5
3	Physical education	519	6	0,5
4	Safety of vital functions	614	6	2
5	Economy and organization of industry	509	6	3
6	Dynamics and strength of aircraft power plants	203	6	2
7	Schematics and layout of power plants	203	6	3
8	Processing methods, tools and tools	205	6	3
9	Automation and regulation of aircraft power plants	201	6	3
10.1	Theory and calculation of V-belt blades	201	6	3
10.2	Shovel machines GTE and KEU	201	6	3
11.1	Theory and calculation of aircraft power plants	201	6	3
11.2	Theory and calculation of Air-breathing engines	201	6	3
12	Industrial and technological practice II	205	6	6
1	Fundamentals of Management	501	7	2
2	Sociology	514	7	2
3	Electrical and Electronics	301	7	3
4	Computer design of units and parts of aircraft power plants	203	7	3
5	Testing of aircraft power plants	201	7	3
6	Ecology of power plants LA	201	7	3
7	System design of aircraft power plants	201	7	3
8	Means of mechanization and automation of production	205	7	3
9.1	Theory and calculation of aircraft power plants	201	7	2
9.2	Theory and calculation of Air-breathing engines	201	7	2



No.	Course title	Department	Semester	total Number of credits
10.1	Design and design of components and components of Air-breathing engines	203	7	2
10.2	The construction of advanced GTU and KEU	203	7	2
11.1	Reliability of aircraft power plants	203	7	3
11.2	Reliability and structural strength of GTE and KEU	203	7	3
1	Technology of parts manufacture and assembly of power plants	205	8	2
2	Construction of aircraft	101	8	3
3.1	Design and design of aircraft power plants	203	8	2
3.2	Power plants and units GTE and KEU	203	8	2
4.1	Systems and units of power plants	203	8	4
4.2	Systems and methods of computer-aided design of GTE and KEU	203	8	4
5	Undergraduate practice	201	8	6



AIRCRAFT ENGINEERING

Field of training	24.04.05 Propulsion Engineering	Department	204
Program	Aircraft propulsion systems	Form of attendance	intramural

*The courses are listed starting from the second year of studies

To find the necessary course please refer to the table:

** the courses with non-integral numbers (e.g. 22.1, 22.2) are similar and only one of them is taught. The availability of the course is determined on a year-to-year basis

Year	Semesters
1	1 2
2	3 4

No.	Course title	Department	Semester	total Number of credits
1	Foreign Language	ДП1	2	2
2	Philosophy and Methodology of Science and Technology	517	2	2
3	Project Management	505	2	2
4	Numerical Methods	208	2	2
5	Continuum Mechanics	201	2	3
6	Constructions Production Technology	601	2	3
7	Flying Vehicles Design Basics, part 2	601	2	2
8.1	Computer Tools of Analysis and Modelling	203	2	3
8.2	Information Technologies in Engineering	203	2	3
9	Research Practice	204	2	6
10	Research Work	204	2	6



No.	Course title	Department	Semester	total Number of credits
1	Foreign Language	ДП1	3	2
2	Theory of Material Thermophysical Properties	204	3	2
3	Heat and Mass Transfer. Basics of Thermotechnical Systems Calculations and Theory	204	3	2
4	Gas-Turbine Engine Chambers Work Flows	204	3	3
5	Program CFD Complexes	204	3	2
6.1	Special Chapters of Thermal Physics And Continuum Mechanics	204	3	4
6.2	Convective-Radiation Transfer In Turbulent Flows	204	3	4
7	Research Practice	204	3	6
8	Research Work	204	3	6
1	Program CFD Complexes	204	4	2
2.1	Numerical Modelling of Thermal Physics Tasks	204	4	4
2.2	Numerical Solving of Heat-Mass Transfer Problems	204	4	4
3	Practice	204	4	9
4	Semester Research Work	204	4	6



SPACECRAFT ENGINEERING

Field of training	24.03.01 Rocket Complexes and Cosmonautics	Department	601
Program	Spacecraft engineering	Form of attendance	intramural

*The courses are listed starting from the second year of studies

To find the necessary course please refer to the table:

** the courses with non-integral numbers (e.g. 22.1, 22.2) are similar and only one of them is taught. The availability of the course is determined on a year-to-year basis

Year	Semesters
1	1 2
2	3 4
3	5 6
4	7 8

No.	Course title	Department	Semester	total Number of credits
1	Physical education	519	3	0,5
2	Foreign language	ДП1	3	2
3	Physical education	519	3	0,5
4,1	Philosophy	517	3	2
4,2	Buddist philosophy	517	3	2
5	Theory of Probability and Mathematical Statistics	804	3	3
6	Physics	801	3	2
7	Theoretical Mechanics	802	3	3
8,1	Differential equations	802	3	3
8,2	Ordinary differential equations	802	3	3
9	Theory of mechanisms and machines	ТПЛА	3	3
10	Materials Science	903	3	3
11	Strength of materials	902	3	3



No.	Course title	Department	Semester	total Number of credits
1	Physical education	519	4	0,5
2	Foreign language	ДП1	4	2
3	Physical education	519	4	0,5
4,1	Philosophy	517	4	1
4,2	Buddist philosophy	517	4	1
5	Equations of mathematical physics	802	4	3
6	Applied ecology	610	4	2
7	Thermodynamics	204	4	3
8	Construction Materials Technology	903	4	3
9	Metrology, standardization and certification	207	4	2
10	Strength of materials	902	4	2
11	Aerohydrodynamics	105	4	3
12	Computational Practice	601	4	6
1	Physical education	519	5	0,5
2	Foreign language	ДП1	5	2
3	Economics	507	5	3
4	Physical education	519	5	0,5
5.1	Numerical methods	806	5	3
5.2	Computational Mathematics	806	5	3
6	Methods of mathematical modeling	601	5	3
7	Machine parts and design basics	ТПЛА	5	3
8	Construction mechanics and strength of aircraft	602	5	2
9	Engine installations and power systems of space vehicles	208	5	3
10	Fundamentals of the theory of flight spacecraft	601	5	3
11	Fundamentals of spacecraft devices	601	5	2



No.	Course title	Department	Semester	total Number of credits
1	Physical education	519	6	0,5
2	Foreign language	ДП1	6	2
3	Physical education	519	6	0,5
4	Computer technologies	601	6	2
5	Economy and organization of industry	509	6	3
6	Safety of vital functions	614	6	2
7	Construction mechanics and strength of aircraft	602	6	2
8	Fundamentals of spacecraft devices	601	6	4
9	Fundamentals of engineering development of space systems	601	6	3
10.1	Thermal design of space vehicles	601	6	3
10.2	Thermal Management Systems	601	6	3
11.1	Reliability and efficiency of aircraft	601	6	2
11.2	Reliability and testing of RKT products	601	6	2
12	Internship	601	6	6
1	Fundamentals of Management	501	7	2
2	Sociology	514	7	2
3	Computer technologies	601	7	3
4	electrical and Electronics	301	7	3
5	Technology of spacecraft production	601	7	4
6.1	Design of space vehicles	601	7	3
6.2	Design of spacecraft aggregates	601	7	3
7.1	Onboard systems of space vehicles	601	7	3
7.2	Onboard radio complex of small space vehicles and nanosatellites	601	7	3
8.1	The theory of motion of space vehicles	601	7	3
8.2	Theory of flight and spacecraft control	601	7	3



No.	Course title	Department	Semester	total Number of credits
1	Technology of spacecraft production	601	8	3
2.1	Design of space vehicles and complexes	601	8	3
2.2	Designing of AC and complexes	601	8	3
3.1	Space Vehicle Design	601	8	3
3.2	Design of spacecraft aggregates	601	8	3
4.1	Organization and provision of flight	610	8	3
4.2	Pre-start preparation	610	8	3
5	Undergraduate practice	601	8	6



SPACECRAFT ENGINEERING

Field of training	24.04.01 Spacecraft Engineering	Department	601
Program	Rocket Complexes and Cosmonautics	Form of attendance	intramural

*The courses are listed starting from the second year of studies

To find the necessary course please refer to the table:

** the courses with non-integral numbers (e.g. 22.1, 22.2) are similar and only one of them is taught. The availability of the course is determined on a year-to-year basis

Year	Semesters
1	1 2
2	3 4

No.	Course title	Department	Semester	total Number of credits
1	Foreign Language	ДП1	2	2
2	Philosophy and Methodology of Science and Technology	517	2	2
3	Project Management	505	2	2
4	Numerical Methods	208	2	2
5	Continuum Mechanics	201	2	3
6	Constructions Production Technology	601	2	3
7	Flying Vehicles Design Basics, part 2	601	2	2
8.1	Computer Tools of Analysis and Modelling	203	2	3
8.2	Information Technologies in Engineering	601	2	3
9	Research Practice	601	2	6
10	Research Work	601	2	6



No.	Course title	Department	Semester	total Number of credits
1	Foreign Language	ДП1	3	2
2.1	Spaceflight Theory	601	3	3
2.2	Flight Dynamics	601	3	3
3	Scientific Seminar on Space Equipment	601	3	2
4	Space Systems Engineering Development	601	3	3
5.1	Engineering Methods of Construction	601	3	3
5.2	Composite Materials Structure Design	601	3	3
6.1	Information Technologies in Flying Vehicles Design	601	3	4
6.2	Information Technologies in Engineering	601	3	4
7	Research Practice	601	3	6
8	Research Work	601	3	6
1	Scientific Seminar on Space Equipment	601	4	2
2	Space Systems Engineering Development	601	4	3
3	Research Practice	601	4	6
4	Research Work	601	4	9
