б-ЛАЗР ФГОС 3++ (1 курс)

Bachelor Program: 12.03.05 "Laser Equipment and Laser Technologies"

Institute: Institute of mechanical engineering, materials science

Study Program: “Laser Devices and Systems for Production Technologies”

№	Subject	Semester	Hours	Credits
B.1.1	**Basic part**			
B.1.1.1	History	1	72	2
B.1.1.1	History	2	72	2
B.1.1.2	Philosophy	5	108	3
B.1.1.3	Foreign language	1	108	3
B.1.1.3	Foreign language	2	108	3
B.1.1.3	Foreign language	3	72	2
B.1.1.4	Mathematics	1	144	4
B.1.1.4	Mathematics	2	144	4
B.1.1.4	Mathematics	3	144	4
B.1.1.4	Mathematics	4	108	3
B.1.1.5	Informatics	1	180	5
B.1.1.6	Physics	1	108	3
B.1.1.6	Physics	2	108	3
B.1.1.6	Physics	3	108	3
B.1.1.7	Chemistry	1	108	3
B.1.1.8	Engineering graphics (drawing)	1	72	2
B.1.1.9	Descriptive geometry and computer graphics	2	108	3
B.1.1.10	The receivers of the laser radiation	8	108	3
B.1.1.11	Laser methods for processing materials	7	216	6
B.1.1.12	Laser technologies in the production of machine and instrument making products	3	180	5
B.1.1.13	Laser measurements	5	108	3
B.1.1.14	Optical materials and technologies	5	180	5
B.1.1.15	Basics of optics		108	3
B.1.1.16	Applied mechanics	3	144	4
B.1.1.17	Opto-electronic devices for the investigation of laser parameters	8	72	2
B.1.1.18	Optical systems and	6	144	4

	devices for focusing laser radiation			
B.1.1.19	The state of law and modernity	2	72	2
B.1.1.20	Psychology***	1	108	3
B.1.1.21	Life safety	6	108	3
B.1.1.22	Physical culture and sports	1	72	2
B.1.2	**Variation part**			
B.1.2.1	Information processing methods	5	144	4
B.1.2.2	Materials science and technology of materials	4	216	6
B.1.2.3	Accuracy of measuring instruments	6	216	6
B.1.2.4	Physical experiment technique and Metrology	6	216	6
B.1.2.5	Electrical engineering	4	180	5
B.1.2.6	Innovations in laser technologies	7	72	2
B.1.2.7	Modeling of laser welding and soldering processes	3	108	3
B.1.2.8	Design of laser devices	8	216	6
B.1.2.9	History of Russian culture	1	72	2
B.1.2.10	Laser methods of material analysis	7	180	5
B.1.2.11	Ecology	3	108	3
B.1.2.12	Economy**	7	108	3
B.1.2.13	Ultrasonic and laser devices	8	72	2
B.1.2.14	Mathematical modeling of physical processes	2	252	7
B.1.2.15	Fundamentals of quantum electronics	3	108	3
B.1.2.15	Fundamentals of quantum electronics	4	144	4
B.1.2.16	Physics of laser radiation	5	72	4
B.1.2.17	The interaction of laser radiation with matter	7	180	5
B.1.2.18	Electronics and	5	180	5

	microprocessor technology			
B.1.3	**Disciplines of choice**			
B.1.3.1.1	Foreign language for professional communication	4	72	2
B.1.3.1.1	Foreign language for professional communication	5	72	2
B.1.3.1.2	Technical translation	/4	/72	/2
B.1.3.1.2	Technical translation	/5	/72	/2
B.1.3.2.1	Calculations of the economic efficiency of laser technology devices	7	108	3
B.1.3.2.2	Economic fundamentals of laser technology	/7	/108	/3
B.1.3.3.1	Methods of scientific creativity	3	108	3
B.1.3.3.2	Fundamentals of strategic planning of scientific tasks	/3	/108	/3
B.1.3.4.1	Design of typical units of laser devices and devices	4	144	4
B.1.3.4.2	Designing high-tech laser systems	/4	/144	/4
B.1.3.4.3	Military training	/4	/144	/4
B.1.3.5.1	Fundamentals of the theory of experiment	5	144	4
B.1.3.5.2	Theory of Inventive Problem Solving	5	/144	/4
B.1.3.5.3	Military training	/5	/144	/4
B.1.3.6.1	Coherent Optics	6	180	5
B.1.3.6.2	Nonlinear optics	6	/180	/5
B.1.3.6.3	Military training	/6	/180	/5
B.1.3.7.1	Fiber optics	7	180	5
B.1.3.7.2	The basics of laser optics	7	/180	/5
B.1.3.7.3	Military training	/7	/180	/5
B.1.3.8.1	CAD systems	8	108	3
B.1.3.8.2	Fundamentals of Industrial Programming	/8	/108	/3
B.1.3.8.3	Military training	/8	/108	/3
B.1.3.9.1	Game sports	2	0	82

B.1.3.9.1	Game sports	3	0	82
B.1.3.9.1	Game sports	4	0	82
B.1.3.9.1	Game sports	5	0	38
B.1.3.9.1	Game sports	6	0	44
B.1.3.9.2	Improving physical education	/2	0	/82
B.1.3.9.2	Improving physical education	/3	0	/82
B.1.3.9.2	Improving physical education	/4	0	/82
B.1.3.9.2	Improving physical education	/5	0	/38
B.1.3.9.2	Improving physical education	/6	0	/44
B.2	**Practice**			
B.2.1.1	Educational (fact-finding) practice	2	216	6
B.2.2.1	Production	4	216	6
B.2.2.2	Production	6	216	6
B.2.2.3	Production	8	108	3
B.2.2.4	Undergraduate	8	216	6
B.3.1	**Preparing for defense and protecting BCW**	8	216	6
F.	**Optional subjects**			
F.1	Military training	8	252	
F.2	Introduction of innovative laser technological processes in the production environment	5	72	
F.3	Principles of ultrasound and laser ranging	7	72	
F.4	Military training	4	144	
F.4	Military training	5	144	
F.4	Military training	6	144	
F.4	Military training	7	108	
F.4	Military training	8	51	
F.5	Military training 01 (final certification)	8	252	
	Total		8968	240