

Physics and Astronomy									
Name of course	ECTS	Contact hours	Lab/practical work	Prerequisite	semester		Lecturer	Status of course	
					Autumn	Spring			
General module - 30 credits									
Academic English	6	60				x	Maya Rogava	Oblig	
Mathematical Physics	6	48	14		x		Bidzina Kapanadze	Oblig	
Maple software systems	6	47	28		x		Pavle Midodashvili	Oblig	
Data Analysis in Physics	6	48	15			x	Nino Chkheidze	Oblig	
Classical Hydrodynamics	6	48			x		Goderdzi Didebulidze, Giorgi Dalakishvili,	Oblig	
Concentration "Astronomy-Astrophysics" - 90 credits: obligatory - 42 credits, elective -18 credits, Master Thesis -30 credits									
Stars Astronomy	6	48			x		Bidzina Kapanadze, Giorgi Ramishvili,	Oblig	
Dynamics of Atmospheric Plasma	6	48	14	Classical Hydrodynamics; Mathematical Physics		x	Teimuraz Zaqarashvili, Bidzina Shergelashvili	Oblig	
Astrophysics of Satellites	6	48		Stars Astronomy	x		Vasil Kukhianidze	Oblig	
Numerical Methods in Astrophysics	6	48	12	Mathematical Physics; Data Analysis in Physics		x	Bidzina Shergelashvili	Oblig	
Physics of Stars' Atmosphere	6	48	14	Classical Hydrodynamics		x	Teimuraz Zaqarashvili, Giorgi Javakhishvili	Oblig	
Observational Astronomy	6	71	32			x	Giorgi Javakhishvili, Bidzina Kapanadze	Oblig	
Planets and Exoplanets	6	48	14	Stars Astronomy		x	Darejan Japaridze, Teimuraz Zaqarashvili,	Oblig	
Solar Physics	6	48	14	Classical Hydrodynamics	x		Teimuraz Zaqarashvili,	Elective	
Heliosphere	6	48					Darejan Japaridze	Elective	
Outer Galaxy Astronomy	6	48	7			x	Bidzina Kapanadze	Elective	
Selected Topics of Astronomy	6	48	10		X	X	Giorgi Ramishvili,, Vasil Kukhianidze	Elective	

Astronomical Calculus	6	48			X	X	Giorgi Ramishvili,, Vasil Kukhianidze	Elective
Cosmic Rays Physics	6	48	7		x		Bidzina Kapanadze, Giorgi Didebulidze	Elective
Master Thesis	30			Academic English	x	x		Oblig
Concentration "Cosmology and Gravitation" - 90 credits: obligatory - 30 credits, elective -30 credits, Master Thesis -30 credits								
Cosmology of Early Universe	6	63	26		X		Mikheil Maziashvili	Oblig
Computing Physics: Numerical and computer methods in cosmology and gravitation	6	45	23		X		Lado Samushvia	Oblig
Quantum Particles and Fields I	6	63	24		X		Mikheil Maziashvili	Oblig
Physical Cosmology I	6	64				X	Tinatin Kakhniashvili, Lado Samushvia	Oblig
Master Seminar (for cosmology and gravitation)	6	49		Quantum Particles and Fields I, Physical Cosmology I	X		Tinatin Kakhniashvili, Lado Samushvia, Mikheil Maziashvili	Oblig
Physical Cosmology II	6	64		Physical Cosmology I	X		Tinatin Kakhniashvili, Lado Samushvia	Elective
Quantum Particles and Fields II	6	63	26	Quantum Particles and Fields I		X	Mikheil Maziashvili	Elective
Physics of Gravitation Waves	6	64		Quantum Particles and Fields I, Physical Cosmology I		X	Tinatin Kakhniashvili	Elective
Elementary Particles Theory I – Theoretical Basics of Standard Model	6	60	24	General and Special Relativity Theory I, Quantum Particles and Fields I		X	Zurab Tavartkiladze	Elective
General and Special Relativity Theory I	6	59	18		X		Juansher Chkareuli, Zurab Kepuladze, Juansher Jejelava	Elective
General and Special Relativity Theory II	6	59	18	General and Special Relativity Theory I		X	Juansher Chkareuli, Zurab Kepuladze, Juansher Jejelava	Elective
Relativistic Physics	6	34	13	Theoretical Astrophysics	X		Andria Rogava, Giorgi Machabeli	Elective
Theoretical Astrophysics	6	32	12		X		Giorgi Machabeli, Andria Rogava	Elective
Selected Topics of Theoretical Physics	6	32	13			X	Nino Chkeidze	Elective

Outer Galaxy Astronomy	6	48	7			X	Bidzina Kapanadze	Elective
Master Thesis	30			Master Seminar; Academic English	x	x		Oblig
Concentration "Elementary Particle Physics" - 90 credits: obligatory - 42 credits, elective -18 credits, Master Thesis -30 credits								
General and Special Relativity Theory I	6	59	18		X		Juansher Chkareuli, Zurab Kepuladze, Juansher Jejelava	Oblig
Quantum Particles and Fields I	6	63	24		X		Mikheil Maziashvili	Oblig
General and Special Relativity Theory II	6	59	18	General and Special Relativity Theory I		X	Juansher Chkareuli, Zurab Kepuladze, Juansher Jejelava	Oblig
Quantum Particles and Fields II	6	63	26	Quantum Particles and Fields I		X	Mikheil Maziashvili	Oblig
Elementary Particles Theory I – Theoretical Basics of Standard Model	6	60	24	General and Special Relativity Theory I, Quantum Particles and Fields I		X	Zurab Tavartkiladze	Oblig
Cosmology of Early Universe	6	63	26		X		Mikheil Maziashvili	Oblig
Elementary Particles Theory II – Application of Standard Model	6	45	15	Quantum Particles and Fields II ; Elementary Particles Theory I – Theoretical Basics of Standard Model	X		Zurab Tavartkiladze	Oblig
Group Theory and Geometrical Structures	6	47	13		x		Giorgi Rakviashvili	Elective
Method of Potentials in Mathematical Physics	6	48				x	Merab Svanadze	Elective
Theoretical Astrophysics	6	32	12		x		Giorgi Machabeli, Andria Rogava	Elective
Radiation processes in Astrophysics	6	47	15	Theoretical Astrophysics			Nino Chkheidze, Giorgi Machabeli	Elective
Selected Topics of Theoretical Physics	6	32	13				Grigol Gogoberidze	Elective
Time-Series Analysis	6	32	13		x		Grigol Gogoberidze	Elective
Physics of Gravitation Waves	6	64		Physical Cosmology I, Quantum Particles and Fields I		x	Tinatin Kakhniashvili	Elective
Advanced Quantum Mechanics	6	48	13		x		Aleksandre Nersesiani	Elective
Physics of Condensed Environment 1	6	48	12		x		Giorgi Japaridze	Elective
Advanced Statistical Physics	6	48	13			x	Aleksandre Nersesiani	Elective

Topological aspects of Condensed Matter Physics and Quantum Field Theory	6	48	12			x	Aleksandre Nersesiani	Elective
Physics of Stars' Atmosphere	6	48	14	Classical Hydrodynamics		x	Teimuraz Zaqarashvili, Giorgi Javakhishvili	Elective
Master Thesis	30			Academic English	x	x		Oblig
Concentration "Theoretical Astrophysics" - 90 credits: obligatory - 30 credits, elective -30 credits, Master Thesis -30 credits								
Theoretical Astrophysics	6	32	12		X		Giorgi Machabeli, Andria Rogava	Oblig
Relativistic Physics	6	34	13	Theoretical Astrophysics		X	Andria Rogava, Giorgi Machabeli	Oblig
Selected Topics of Theoretical Physics	6	32	13			X	Nino Chkheidze	Oblig
Analysis of High-Frequency Data	6	48	15	Data Analysis in Physics	X		Nino Chkheidze	Oblig
Radiation processes in Astrophysics	6	47	15		X		Nino Chkheidze, Giorgi Machabeli	Oblig
Physics of Compact Objects	6	34	15	Relativistic Physics	X		Andria Rogava	Elective
General and Special Relativity Theory I	6	59	18		X		Juansher Chkareuli, Zurab Kepuladze, Juansher Jejelava	Elective
Elementary Particles Theory I – Theoretical Basics of Standard Model	6	60	24	General and Special Relativity Theory I, Quantum Particles and Fields I		X	Zurab Tavartkiladze	Elective
Advanced Quantum Mechanics	6	48	13		X		Aleksandre Nersesiani	Elective
Advanced Statistical Physics	6	48	13			X	Aleksandre Nersesiani	Elective
Physics of Condensed Environment 1	6	48	12		X		Giorgi Japaridze	Elective
Physical Cosmology I	6	64				X	Tinatin Kakhniashvili	Elective
Cosmology of Early Universe	6	63	26		X		Mikheil Maziashvili	Elective
Physics of Stars' Atmosphere	6	48	14	Classical Hydrodynamics		x	Teimuraz Zaqarashvili, Giorgi Javakhishvili	Elective
Atmospheric Physics	6	63	40		x		Goderdzi Didebulidze	Elective
Master Thesis	30			Academic English	x	x		Oblig
Concentration "Condensed Matter Physics" - 90 credits: obligatory - 30 credits, elective -30 credits, Master Thesis -30 credits								
Physics of Condensed Environment 1	6	48	12		X		Giorgi Japaridze	Oblig
Advanced Quantum Mechanics	6	48	13		X		Aleksandre Nersesiani	Oblig

Physics of Condensed Environment 2	6	48	12	Physics of Condensed Environment 1		X	Giorgi Japaridze	Oblig
Advanced Statistical Physics	6	48	13	Advanced Quantum Mechanics		X	Aleksandre Nersesiani	Oblig
Theory of Phase Transition	6	48	12		X		Aleksandre Nersesiani	Oblig
Superconductivity	6	48	12		X		Giorgi Japaridze	Elective
Topological aspects of Condensed Matter Physics and Quantum Field Theory	6	48	12			X	Aleksandre Nersesiani	Elective
Theoretical Astrophysics	6	32	12		X		Giorgi Machabeli, Andria B	Elective
Selected Topics of Theoretical Physics	6	32	13			X	Grigol Gogoberidze	Elective
Physical Cosmology I	6	64				X	Tinatin Kakhniashvili, Lado Samushvia	Elective
Elements of Sets Theory	6	63	26		X		Giorgi Rakviashvili	Elective
Linear Ordinary Differential Equations	6	32	13		X		Giorgi Berekelashvili	Elective
Topological Methods of Nonlinear Analysis	6	47				X	Giorgi Khimshiashvili	Elective
Nonlinear Ordinary Differential Equations	6	32	13			X	Sulkhan Mukhigulashvili	Elective
Master Thesis	30			Academic English	x	x		Oblig
Concentration "Biophysics" - 90 credits: obligatory - 42 credits, elective -18 credits, Master Thesis -30 credits								
Molecular Biophysics	6	32			x		Tea Tarielashvili	Oblig
Systems' Biochemistry and Metabolomics	6	39	6			x	David Mikeladze, Lali Shanshiashvili	Oblig
Cell Biophysics	6	32		Molecular Biophysics		x	Nunu Metreveli	Oblig
Research Methods in Biophysics 1	6	48	28			x	Irine Khutsishvili, Nunu Metreveli	Oblig
Research Methods in Biophysics 2	6	48	28	Research Methods in Biophysics 1		x	Irine Khutsishvili, Nunu Metreveli	Oblig
Medical Biophysics	6	32				x	Besik Kankia, Nunu Metreveli	Oblig
Applied Biophysics	6	32		Molecular Biophysics		x	Irine Khutsishvili, Nunu Metreveli	Oblig
Selected Topics of Molecular Biology	6	66					Revaz Solomonias, Ekaterine Tevdoradze	Elective
NanoScience: Principles of Nanobiology and	6	34	10				Mzia Zhvania	Elective
Biotechnological approaches	6	32					Neli Datukishvili	Elective
Advanced Quantum Mechanics	6	48	13			x	Aleksandre Nersesiani	Elective

Advanced Statistical Physics	6	48	13	Advanced Quantum Mechanics		x	Aleksandre Nersesiani	Elective
Physics of Condensed Environment 1	6	48	12				Giorgi Japaridze	Elective
Master Thesis	30			Academic English	x	x		Oblig
Concentration "Atmosphere and Ionosphere Physics" - 90 credits: obligatory - 30 credits, elective -30 credits, Master Thesis -30 credits								
Atmospheric Physics	6	63	40		x		Goderdzi Didebulidze	Oblig
Ionospheric physics	6	63	40			x	Goderdzi Didebulidze	Oblig
Instruments and Methods of Earth Remote Research	6	63	39			x	Maya Todua	Oblig
Plasma Physics	6	47	15	Classical Hydrodynamics; Mathematical Physics	x		Ivane Murusidze	Oblig
Application of Atmospheric Models	6	62	30			x	Giorgi Dalakishvili	Oblig
Atmosphere Luminescence	6	48	12			x	Maya Todua, Giorgi Javakhishvili	Elective
Atmospheric Chemistry	6	33	3		x		Ketevan Kupatadze	Elective
Cosmic Rays Physics	6	48	7		x		Bidzina Kapanadze, Goderdzi Didebulidze	Elective
Solar Physics	6	48	14	Classical Hydrodynamics	x		Teimuraz Zaqarashvili	Elective
Physics of The Sun - The Earth Connections	6	64	40	Classical Hydrodynamics		x	Goderdzi Didebulidze, Maya Todua	Elective
Models of Applied Mathematics	6	39			x		Merab Svanadze	Elective
Time-Series Analysis	6	32	13		x		Merab Svanadze	Elective
Master Thesis	30			Academic English	x	x		Oblig