

Educational Specialty: ENGINEERING PHYSICS			
M.Sc. Programme: “Aerospace Engineering and Communications” (on English) (in two modules)			
Form of Education: full time (regular) , Duration: 3 Terms (1.5 years)			
Course	ETCS credits	Exam or Score during the Term (E/T)	Total Hours Lectures Seminars; Practical Exercises (L + S + P)
FIRST YEAR			
<u>MODULE 1 “Aerospace Engineering (small aerospace apparatus)” (M1)</u>			
First Term (winter) M1			
Introductory Compulsory Courses for M1			
Basic Principles of Mission Design with Small Aerospace Vehicles	5	E	30 + 30 + 0
Introductory Selectable Courses – 1 course with 5 ECTS credits (1/5)			
Satellite Systems and Satellite information	5	E	45 + 15 + 0
Space Physics	5	E	45 + 30 + 0
Common Compulsory Courses			
Fixed and Mobile Satellite Communication Systems	5	E	30 + 15 + 15
Computer Practice in Communication Networks and Protocols	5	T	0 + 0 + 45
Compulsory Courses for M1			
Aerodynamics and Orbital Dynamics	5	E	30 + 30 + 0
Aerospace Control Systems	5	E	30 + 30 + 0
Second Term (summer) M1			
Common Compulsory Courses			
Integrated Circuits	5	E	30 + 0 + 30
Compulsory Courses for M1			
Navigation and Telemetry of Small Aerospace Apparatus	5	E	30 + 15 + 15
Photovoltaic Systems and Power Sources in Aerospace Apparatus	5	E	30 + 15 + 15
Selectable Courses for M1 – 3 courses with 15 ECTS credits (3/15)			
Cosmic Impact on the Environment	5	E	45 + 0 + 15
Space Weather and Its Effects on Space Infrastructure and Engineered Systems	5	E	30 + 30 + 0
Analysis, Interpretation and Application of the Satellite Images	5	T	15 + 45 + 0
Unmanned Aircrafts	5	T	30 + 30 + 0

University Micro- and Nano-Satellites and Applications	5	E	45 + 15 + 0
Software Tools for Aerospace Engineering	5	E	0 + 15 + 45
Management of Innovations	5	T	30 + 30 + 0
Management of Aerospace Vehicles and their Applications	5	T	30 + 30 + 0
One-Term Course in Advanced Topics of Aerospace Engineering (summer)	5	T	30 + 30
Optional Courses			
English language (payable separately by the students)			
Russian language (payable separately by the students)			
Bulgarian language (payable separately by the students)			
<u>MODULE 2 “Wireless and Satellite Communications” M2</u>			
First Term (winter) (M2)			
Introductory Compulsory Courses for M2			
Applied Electrodynamics for MSc. Students	5	E	30 + 30 + 0
Introductory Selectable Courses – 1 course with 5 ECTS credits (1/5)			
Introduction to Wireless Communications	5	E	30 + 30 + 0
Modern Physics for Engineers	5	E	60 + 0 + 0
Common Compulsory Courses			
Fixed and Mobile Satellite Communication Systems	5	E	30 + 15 + 15
Computer Practice in Communication Networks and Protocols	5	T	0 + 0 + 45
Compulsory Courses for M2			
Modulations and Coding in the Digital Communications	6	E	45 + 15 + 15
Microwave and Wireless Technique	5	E	45 + 15 + 15
Second Term (summer) (M2)			
Common Compulsory Courses			
Integrated Circuits	5	E	30 + 0 + 30
Compulsory Courses for M2			
Antennas for Wireless Communication Systems	5	E	30 + 15 + 15
Operational Systems and Open-Source Applications in the Communications	5	T	0 + 0 + 45

Selectable Courses for M2 – 3 courses with 15 ECTS credits (3/15)			
Security of the Communication Networks and Systems	5	E	30 + 30 + 0
Optical Networks and Devices	5	E	45 + 15 + 0
Radio-Frequency Identification Devices (RFID's)	5	E	30 + 15 + 15
Electromagnetic Compatibility in Communications	5	E	30 + 15 + 15
Management of Innovations	5	T	30 + 30 + 0
One-term Course in Advanced Topics in Communications (summer)	5	T	30 + 30
Optional Courses			
English language (payable separately by the students)			
Russian language (payable separately by the students)			
Bulgarian language (payable separately by the students)			
SECOND YEAR			
<u>MODULE 1 “Aerospace Engineering (small aerospace apparatus)” (M1)</u>			
Third Term (winter) M1			
Selectable Courses for M1 – 2 courses with 10 ECTS credits (2/10)			
Optical Instruments and Optical Technologies	5	T	30 + 15 + 15
Plasma and Plasma Propulsion Generators for Satellites	5	E	30 + 15 + 15
Modern Electromagnetic Materials and Electronic Devices	5	E	30 + 15 + 0
One-Term Course in Advanced Topics of Aerospace Engineering (winter)	5	T	30 + 30
Optional Courses			
English language (payable separately by the students)			
Russian language (payable separately by the students)			
Bulgarian language (payable separately by the students)			
Compulsory M.Sc. Thesis			
M.Sc. Thesis	15	Defence of M.Sc. Thesis: February (1st) / July (2nd)	

Selectable Practice for M1			
Educational Practice in Aero-Space Engineering (<i>selectable practice</i>)	-	T	75
Individual Preparation of the M.Sc. Thesis (<i>instead of the practice</i>)	-	T	75
<u>MODULE 2 “Wireless and Satellite Communications” M2</u>			
Third Term (winter) (M2)			
Selectable Courses for M2 – 2 courses with 10 ECTS credits (2/10)			
Communication and Information Systems for Data Transfer	5	E	30 + 30 + 0
Mobile Radio-Channels	5	E	30 + 30 + 0
Microwave Measurements in Communications	5	E	30 + 0 + 30
Practical Programming on Visual C++	5	T	30 + 0 + 30
Wireless Networks and Protocols	5	E	45 + 15 + 0
Management of the Communication Networks	5	T	30 + 30 + 0
One-Term Course in Advanced Topics of Communications (winter)	5	T	30 + 30
Optional Courses			
English language (payable separately by the students)			
Russian language (payable separately by the students)			
Bulgarian language (payable separately by the students)			
Compulsory M.Sc. Thesis			
M.Sc. Thesis	15	Defence of M.Sc. Thesis: February (1st) / July (2nd)	
Selectable Practice for M1			
Educational Practice in Wireless and Satellite Communications (<i>selectable practice</i>)	-	T	75
Individual Preparation of the M.Sc. Thesis (<i>instead of the practice</i>)	-	T	75
Total: 90 ECTS credits for each module; 10 Exams (E); 5 scores during the Term (T)			