

1. SHORT HISTORY OF MILITARY TECHNICAL ACADEMY

The Military Technical Academy was founded on the 15th of September 1949 in conformity with **decree 371 of 14 September 1949**, aiming at *training engineer officers* to comply with the technical characteristics of the various services, necessary to staff of commands, units, and specialized military institutions.

The original structure of the academy was: the command, the faculties (**Weapons and Ammunition; Tanks and Automotive Vehicles; Aircraft; Communications; Navy**), the education planning and research departments and offices, the logistics departments, the military training departments etc. along the years the structure has been changed according to objective factors, political and military circumstances.



In **1952**, by Order of the General Staff the institution was renamed **Military Technical Academy**. In August 1953 graduated the first class of military engineers in the Romanian Army. The 69 graduates received the degree of **military engineers** specialized in mechanical and electrical fields. On 16 October 1954, in conformity with Decree 439 the Military Technical Academy received the Combat Flag.

In the academic year 1956 - 1957, the Military Technical Academy was reorganized in four faculties: **Weapons, Mechanics, Communications, Military Engineering and Geodesy** and in 1960 was integrated in the **Military Academy**.

The revolution of December 1989 allowed for a real revival of education and research take place. The new statute of the **Military Technical Academy** – an independent higher-education military polytechnic institution – was established in the **Romanian Government Decisions 550/1990 and 612/1992**.

Originally, the duration of studies in the **Military Technical Academy** was 4 years originally, 5 years beginning with 1953 and 5 years and a half starting with 1957. Following their degree examination, the graduates were **granted military engineer diplomas** conferring the same rights as those in the civilian polytechnic higher-education. Between 1972-1996, besides the engineer officers the Academy also trained technician engineer officers.

The **Military Technical Academy** is accredited by the Romanian Government Decisions to train engineers in the specialties required by the Ministry of National Defense and by other beneficiaries at home (Ministry of Internal Affairs, Special Communications Service, Romanian Intelligence Service, External Intelligence Service, Protection and Guard Service) and abroad. It also carries out postgraduate courses including doctoral training for the specialization and development of both officer and civilian engineers in the Ministry of National Defense, and other structures of the national defense system as well as other beneficiaries both at home and abroad.

The high level of education in our institution has been acknowledged by including the **Military Technical Academy** in the Polytechnic Universities Consortium in Romania, founded on the 15th of January 1998 by the Agreement signed by the chancellors of eight most important higher education polytechnic institutions in our country.

2. MISSIONS OF THE MILITARY TECHNICAL ACADEMY

- *Scientific education and military training of the officer engineers and specialists* for the Military and other internal and external structures, for the design, manufacturing, maintenance, logistics and utilization of weapon systems and other military systems, as well as for the management of the technical and economic military activities;
- *Specialization and continuous education* of the military and civilian personnel through post graduate studies;
- *Ph.D. postgraduate* education for military and civilian engineers;
- *Scientific research* in specific domains, in accordance with the Armed Forces and the industry needs.



3. FACULTY OF MECATRONICS AND WEAPON INTEGRATED SYSTEMS

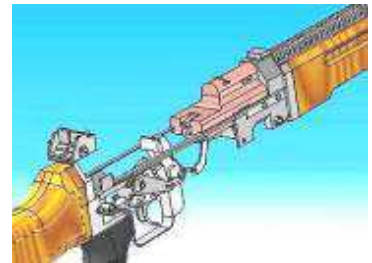
1ST CYCLE: LICENSE

1. Weapons, Artillery Devices and Fire Control Systems
2. Aircraft Weapons, Missiles, Ammunition and Rescue Systems
3. Ammunition, Missiles, Explosives and Powders
4. Military chemistry
5. Aircraft and Aircraft Engines
6. Avionics and Aircraft Equipments
7. Armored Vehicles, Automobiles and Tractors
8. Equipments and vehicle command and control systems
9. Constructions and fortifications
10. Systems for Mine Barrages, Demolition and Concealments
11. Topogeodesy and Automation of Topogeodesy Logistics



2ND CYCLE: MASTER

1. Equipments and Technologies in Autovehicles Engineering
2. Engineering of Aeronautic Systems
3. Technologies and Management in Logistic Structures for Defense and Security
4. Engineering for Defense and Security Special Mechanical Systems



3RD CYCLE: PHD

1. Mechanical Engineering
2. Aeronautic Engineering
3. Industrial Engineering
4. Civil Engineering



Programme of study - 1st cycle - Licence
WEAPONS, ARTILLERY DEVICES AND FIRE CONTROL SYSTEMS
Department Engineering of Weapon Systems and Mechatronics

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Differential Equations; Algebra, Analytic and Differential Geometry; Radiation Physics and Laser Theory; Chemistry of Explosive Materials; Technical Drawing and Engineering Graphics; Computer-Aided Graphics; Techniques and Computer Programming Languages; Probability Theory and Statistical Processing of Experimental Data for Weapons, Missiles and Ammunition Systems*

Disciplines in the Field of Study: *Study and Technology of Materials; Mechanical Treatments and Dimensional Control; Electrotechnics and Electromagnetic Devices; Mechanics and Mechanical Vibrations I; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*



2nd Year:

Fundamental Disciplines: *Special Mathematics; Technical Optics; Physics of Explosions; General Management*

Disciplines in the Field of Study: *Mechanics and Mechanical Vibrations II; Thermodynamics; Mechanisms and Fine Mechanics Issues; Strength of Materials; Numerical; Optimization Theory; Electronics; Fluid Mechanics; Aerodynamics; Automatics; Interior Ballistics; Internship II*

Complementary and Military Disciplines: *English; French; Sport*



3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Machinery Parts; Exterior Ballistics and Missile Flight Dynamic; Firing Theory; Management of Military Technical and Economic Activities*

Specialty Disciplines: *Artillery Devices; Automatic Weapons; Ammunition and Fuses; Construction and Exploiting of Missiles; Sighting and Stabilization Systems for Firing Control Systems; Experimentation, Acceptance and Reliability of Weapon Systems; Computing and Construction of Automatic Weapon Mechanisms; Construction and Exploiting of Artillery Weapons; Reactive Weapon and Launching Devices; Internship III*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*



4th Year:

Disciplines in the Field of Study: *Weapons, Missiles and Ammunition Logistics; Terminal Ballistics of Weapon Systems; Military Tactics*

Specialty Disciplines: *Manufacturing and Repairing Technologies for Weapon Systems; Firing Control Systems; Acting and Command Systems; Computing and Construction of Artillery Weapon Mechanisms; Optoelectronic Devices; Dynamic of Missiles Launching Devices; Integrated Weapon Systems; Maintenances of Weapon Systems; Testing and Evaluation of Weapon Systems; Computer Aided Design of Weapons, Missiles and Ammunition; Robotics Elements Applied in Weapon Systems; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*



Programme of study - 1st cycle - Licence
AMMUNITION, MISSILES, EXPLOSIVES AND POWDERS
Department Engineering of Weapon Systems and Mechatronics

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Differential Equations; Algebra, Analytic and Differential Geometry; Radiation Physics and Laser Theory; Chemistry of Explosive Materials; Technical Drawing and Engineering Graphics; Computer-Aided Graphics; Techniques and Computer Programming Languages; Probability Theory and Statistical Processing of Experimental Data for Weapons, Missiles and Ammunition Systems*

Disciplines in the Field of Study: *Study and Technology of Materials; Mechanical Treatments and Dimensional Control; Electrotechnics and Electromagnetic Devices; Mechanics and Mechanical Vibrations I; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*



2nd Year:

Fundamental Disciplines: *Special Mathematics; Technical Optics; Physics of Explosions; General Management*

Disciplines in the Field of Study: *Mechanics and Mechanical Vibrations II; Thermodynamics; Mechanisms and Fine Mechanics Issues; Strength of Materials; Numerical; Optimization Theory; Electronics; Fluid Mechanics; Aerodynamics; Automatics; Interior Ballistics; Internship II*

Complementary and Military Disciplines: *English; French; Sport*



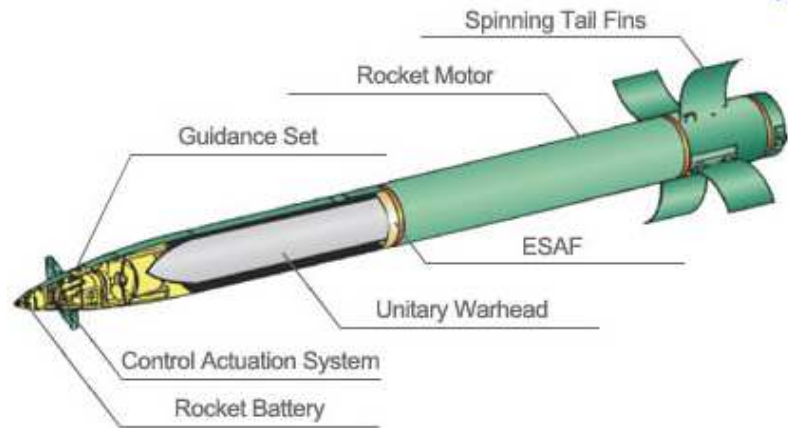
3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Machinery Parts; Exterior Ballistics and Missile Flight Dynamic; Firing Theory; Management of Military Technical and Economic Activities*

Specialty Disciplines: *Artillery Devices; Automatic Weapons; Modeling and Simulation of Explosives Phenomena; Construction and Exploiting of Fuses; Construction and Exploiting of Ammunition; Construction and Exploiting of Missiles; Construction and Exploiting of Artillery Weapons; Experimentation, Acceptance and Reliability of Weapon Systems; Analysis Methods for Explosives Identification; Standardization and Codification in the Field of Weapons, Missiles and Ammunition Systems; Internship III*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*



4th Year:

Disciplines in the Field of Study: *Weapons, Missiles and Ammunition Logistics; Terminal Ballistics of Weapon Systems; Military Tactics*

Specialty Disciplines: *Manufacturing and Repairing Technologies for Explosives, Missiles and Ammunition; Pyrotechnic Security and Explosives and Ammunition Associated Risks; Detonics; Methods and Techniques of Ballistic Protection and NBC; Reactive Weapons and Launching Devices; Pyrotechnic Systems with Military Applications; Acceptance, Supervision, Demilitarization of Explosives, Missiles and Ammunition; Maintenance of Weapons, Missiles and Ammunition; Testing and Evaluation of Explosives, Missiles and Ammunition; Computer Aided Design; Robotics Elements Applied in Weapon Systems; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*

Programme of study - 1st cycle - Licence
AIRCRAFT WEAPONS, MISSILES, AMMUNITION AND EJECTION SEATS
Department Engineering of Weapon Systems and Mechatronics

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Differential Equations; Algebra, Analytic and Differential Geometry; Radiation Physics and Laser Theory; Chemistry of Explosive Materials; Technical Drawing and Engineering Graphics; Computer-Aided Graphics; Techniques and Computer Programming Languages; Probability Theory and Statistical Processing of Experimental Data for Weapons, Missiles and Ammunition Systems*

Disciplines in the Field of Study: *Study and Technology of Materials; Mechanical Treatments and Dimensional Control; Electrotechnics and Electromagnetic Devices; Mechanics and Mechanical Vibrations I; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*

2nd Year:

Fundamental Disciplines: *Special Mathematics; Technical Optics; Physics of Explosions; General Management*

Disciplines in the Field of Study: *Mechanics and Mechanical Vibrations II; Thermodynamics; Mechanisms and Fine Mechanics Issues; Strength of Materials; Numerical; Optimization Theory; Electronics; Fluid Mechanics; Aerodynamics; Automatics; Interior Ballistics of Rifled Weapons; Internship II*

Complementary and Military Disciplines: *English; French; Sport*

3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Machinery Parts; Exterior Ballistics and Missile Flight Dynamic; Aircraft Firing and Bombing Theory; Management of Military Technical and Economic Activities*

Specialty Disciplines: *Modern Aviation Platforms; Airborne Radiolocators, Electronic and Radioelectronic Devices; Aircraft Automatic Weapons; Aircraft Ammunition and Fuses; Missiles and Aviation Rocket Engines; Modeling and Simulation of Aircraft Weapon Systems; Aircraft Rescue Systems; Arming Principles of Aviation Platforms; Computing and Construction of Aircraft Bombs and Submunitions; Acting Systems for Aircraft Weapons and Missiles; Experimentation, Acceptance and Reliability of Aircraft Weapon Systems; Internship III*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*

4th Year:

Disciplines in the Field of Study: *Aircraft Weapons, Missiles and Ammunition Logistic; Terminal Ballistics of Aircraft Weapon Systems; Military Tactics*

Specialty Disciplines: *Manufacturing and Repairing Technologies for Aircraft Weapon Systems; Computing and Construction of Control and Acting Systems for Aircraft Rescue Systems; Sensors and Control Systems for Aircraft Missiles; Airport, Airborne and Air Navigation Equipments; Mathematical Models and Simulation of Aerodynamical Phenomena; Dynamic of Aircraft Missile Guidance; Integrated Avionics and Weapons Systems; Testing and Evaluation of Aircraft Weapon; Maintenance of Aircraft Weapon Systems; Computer Aided Design of Aircraft Weapons, Missiles and Ammunition; Unmanned Aerial Vehicles; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*



Programme of study - 1st cycle - Licence
AIRCRAFTS AND AIRCRAFT ENGINES
Department Aircraft Systems and Mechanics

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Algebra, Analytic and Differential Geometry; Physics; Chemistry of Combustibles and Lubricants; Technical Drawing and Engineering Graphics; Computer-Aided Graphics; Techniques and Computer Programming Languages*

Disciplines in the Field of Study: *Science of Materials; Electrotechnics and Electric Machines; Technology of Aviation Materials; Mechanics I; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*



2nd Year:

Fundamental Disciplines: *Special Mathematics; General Management; Numerical Methods in Aviation*

Disciplines in the Field of Study: *Mechanics II; Strength of Materials; Machinery Parts and Aviation Mechanisms; Fluid Mechanics; Aerospatiale Propulsion Systems; Automatic Systems Theory; Internship II*

Specialty Disciplines: *Construction of Military Aircrafts; Thermogasodynamics; Flight devices for High Altitude*

Complementary and Military Disciplines: *English; French; Sport*



3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Aerodynamic of Aircrafts and Helicopters; Aircraft Weapons and Ejection Seats; Airborne and Air Navigation Equipments; Digital Systems, Airborne Computers and Aviation Simulators; Management of Military Technical and Economic Activities; Management of Quality Assurance in the Aviation Field*

Specialty Disciplines: *Aircraft Structures, Constructive Solutions and Calculus Methods; Mechanic of Aircraft Flight; Theory of Aviation Engines; Airborne Hydraulic and Pneumatic Installations; Internship III*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*



4th Year:

Disciplines in the Field of Study: *Communication and Support Electronic Systems for Aircrafts; Airborne Radar and Optoelectronic Systems; Logistic of Aviation Systems; Military Tactics*

Specialty Disciplines: *Computing and Construction of Military Aircrafts; Flight Dynamic of Aircrafts; Computing and Construction of Aviation Engines; Maintenance, Repairing and Airport Infrastructures; Experimental and Computational Aerodynamics; Unmanned Aerial Vehicles; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*

Programme of study - 1st cycle - Licence
AVIATION EQUIPMENTS AND INSTALLATIONS
Department Aircraft Systems and Mechanics

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Algebra, Analytic and Differential Geometry; Physics; Chemistry of Combustibles and Lubricants; Technical Drawing and Engineering Graphics; Computer-Aided Graphics; Techniques and Computer Programming Languages*

Disciplines in the Field of Study: *Science of Materials; Technology of Electrotechnic Materials; Basis of Electrotehnics I; Mechanics and Mechanisms Theory; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*



2nd Year:

Fundamental Disciplines: *Special Mathematics; General Management; Numerical Methods in Aviation*

Disciplines in the Field of Study: *Basis of Electrotehnics II; Signals, Devices and Electrical Circuits; Aviation Machines and Electrical Acting Systems; Electrical and Electronic Measurements; Aerospatiale Propulsion Systems; Automatic Systems Theory; Internship II*

Specialty Disciplines: *Construction of Military Aircrafts; Sensors and Automatic Elements; Flight devices for High Altitude*

Complementary and Military Disciplines: *English; French; Sport*



3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Aerodynamic of Aircrafts and Helicopters; Aircraft Weapons and Ejection Seats; Airborne and Air Navigation Equipments; Digital Systems, Airborne Computers and Aviation Simulators; Management of Military Technical and Economic Activities; Management of Quality Assurance in the Aviation Field*

Specialty Disciplines: *Electronic Systems for Aircraft Guiding and Control; Airborne and Air Navigation Equipments; Computing and Construction of Airborne Devices; Aviation Gyroscopic Devices; Testing and Evaluating of Airborne Equipments; Internship III*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*

4th Year:

Disciplines in the Field of Study: *Communication and Support Electronic Systems for Aircrafts; Airborne Radar and Optoelectronic Systems; Flight Dynamic of Aircrafts; Logistic of Aviation Systems; Military Tactics*

Specialty Disciplines: *Automatic Command of Aircraft; Aerial Navigation Systems; Equipments for Recording, Decodification and Interpretation of Flight Parameters; Avionic and Weapon Integrated Systems; Maintenance of Airborne Equipments and Electrical Installations; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*

Programme of study - 1st cycle - Licence
ARMORED VEHICLES AUTOMOBILES AND TRACTORS
Department Military Vehicles and Engineering

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Algebra, Analytic and Differential Geometry; Techniques and Computer Programming Languages; Physics; Chemistry; Technical Drawing and Engineering Graphics; Computer-Aided Graphics*

Disciplines in the Field of Study: *Material Science; Technology of Materials; Mechanics and Mechanical Vibrations I; Electrotechnics; Electrotechnics and Electromagnetic Devices; Statistic for Mechanical Engineering; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*



2nd Year:

Fundamental Disciplines: *Special Mathematics; Numerical Methods in Vehicle Engineering; General Management*

Disciplines in the Field of Study: *Mechanics and Mechanical Vibrations II; Strength of Materials; Mechanisms; Machinery Parts; Fluid Mechanics and Hydraulics; Non-conventional Technology and Mechanical Treatments; Technical Measurements, Tolerance and Adjustments; Thermotechniques and Thermo-Machines; Basic of Military Automobiles Industry; Internship II*

Complementary and Military Disciplines: *English; French; Sport*



3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Vehicle Dynamics; Armored Vehicles, Automobiles and Tractors Mechanics; Automatic Applied to Military Automobiles; Software for Vehicle Engineering; Electronics for Vehicle Engineering; Management of Military Technical and Economic Activities*

Specialty Disciplines: *Engines with Internal Ignition; Computing and Construction of Wheeled Military Vehicles; Computing and Construction of Tracked Vehicles I; Special Destination Vehicles I; Technology of Vehicles Manufacturing and Repairing I; Electric Equipments*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*



4th Year:

Disciplines in the Field of Study: *Quality and Reliability of Vehicles; Military Tactics*

Specialty Disciplines: *Maintenance of Vehicles; Diagnostic and Service Stations for Vehicles; Special Equipments for Armored Vehicles; Special Vehicles; Technology of Vehicles Manufacturing and Repairing II; Computing and Construction of Tracked Vehicles II; Special Destination Vehicles II; Hydraulic, Pneumatic and Electric Vehicle Acting Systems; Element Finite Methods for Vehicle Engineering; Alternative Energetically Systems; Logistics of Military Vehicles; Testing and Evaluation of Military Vehicles; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*

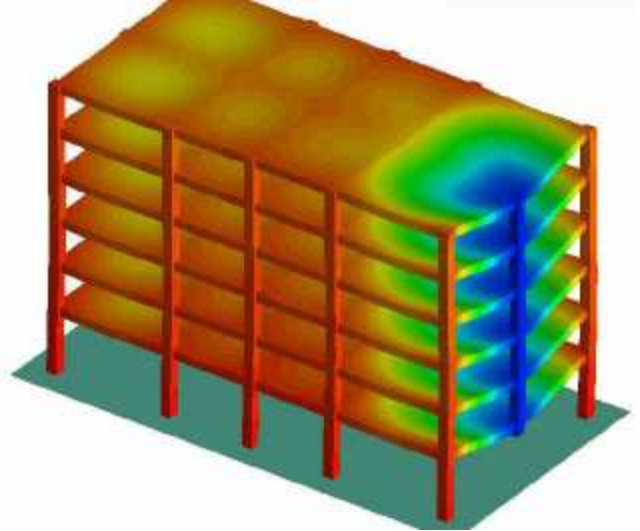
Programme of study - 1st cycle - Licence
CONSTRUCTIONS AND FORTIFICATIONS
Department Engineering of Weapon Systems and Mechatronics

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Differential Equations; Algebra, Analytic and Differential Geometry; Techniques and Computer Programming Languages; Physics; Chemistry of Construction Materials; Technical Drawing and Engineering Graphics*

Disciplines in the Field of Study: *Mechanics; Strength of Materials I; Construction Materials I; Engineering Topography; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*



2nd Year:

Fundamental Disciplines: *Special Mathematics; Probability and Mathematical Statistics; Computer-Aided Graphics; General Management*

Disciplines in the Field of Study: *Static, Stability and Dynamic of Constructions; Strength of Materials II; Theory of Elasticity, Plasticity and Plate Calculus; Ferro-Concrete Pre-Compressed; Hydraulics; Engineering Geology; Architecture Elements; Hydroedilitary Constructions; Geotechniques; Internship II*

Complementary and Military Disciplines: *English; French; Sport*



3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Seismic Engineering; Foundations; Safety of Constructions; Static Analysis of Construction Behavior; Finite Element Methods with Construction Applications; Logistics of Civil Engineering Systems*

Specialty Disciplines: *Wooden Construction; Concrete Constructions; Communication Ways; Buildings I; Mechanics of Masonries; Metallic Constructions I; Installations for Constructions; Internship III*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*

4th Year:

Disciplines in the Field of Study: *Management in Constructions; Construction Economy and Legislation; Military Tactics*

Specialty Disciplines: *Metallic Constructions II; Buildings II; Underground Constructions; Shelters and Fortifications; Computer Aided Design of Constructions; Technology of Constructions; Development of Real Estate Projects; Firing Security of Constructions; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*

4. FACULTY OF MILITARY ELECTRONIC AND INFORMATIC SYSTEMS

1ST CYCLE: LICENSE

1. Telecommunications - Transmissions
2. Military Electronic Equipments and Systems
3. Computer and Information Systems for Defense and National Security
4. Equipment for Modeling, Simulation and Computer Control of Combat Troop



2ND CYCLE: MASTER

1. Electronic Security Systems
2. Engineering of Communication Systems
3. Security of Information Technology



3RD CYCLE: PHD

1. Electronic and Telecommunication Engineering
2. Computers and Information Technology
3. Electric Engineering

Programme of study - 1st cycle - Licence
TRANSMISSIONS (TELECOMMUNICATIONS)
Department Communications and Military Electronic Systems

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Algebra, Analytic and Differential Geometry; Techniques and Computer Programming Languages; Physics; Chemistry; Applied Informatics; Computer Aided Graphics; Probability and Mathematical Statistics; Special Mathematics*

Disciplines in the Field of Study: *Mechanics and Theory of Mechanisms; Materials and Theory of Electronic Elements; Basis of Electrotehnics I; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*



2nd Year:

Fundamental Disciplines: *Special Mathematics; Physic of Lasers; Optics and Optoelectronics; General Management*

Disciplines in the Field of Study: *Basis of Electrotehnics II; Devices and Electronic Circuits; Signals and Analogical Systems; Measurements in Electronics and Telecommunications; Digital Integrated Circuits; Analogical Integrated Circuits; Numerical Signal Treatments; Architecture of Microcomputers and Microcontrollers; Techniques of Microwaves; Television; Systems of Image Interception and Display; Power Electronics; Fundamental Electronic circuits; Electronic circuits; Internship II*

Complementary and Military Disciplines: *English; French; Sport*



3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Special Computer Systems; Digital Processors for Signals; Propagation of Radio Waves, Antennas for Communications and Military Electronic Systems; Data Transmissions; Computer Networks and Data Transmissions Protocols; Microwaves and Antennas Circuits; Management of Military Technical and Economic Activities; Treatment of Voice Signals; Automatics and Automatic Systems; Reliability and Testing of Electronic and Telecommunication Systems*

Specialty Disciplines: *Information Theory and Codes; Technique of Radio-communications; Networks and Communication Protocols; Security of Communications and Information; Telephonic Commutation and Multiplexation Systems I; Transmission and Data Networks; Internship III*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*



4th Year:

Disciplines in the Field of Study: *Electromagnetic Compatibility; Logistic of Electronic and Telecommunication Systems; Military Tactics*

Specialty Disciplines: *Telephonic Commutation and Multiplexation Systems II; Special Communication Equipments; Military National Communication Network; Electronic Warfare; Satellite and Radio-Relay Communication Systems; Radio-Communication Equipments; Communication Integrated Systems and Information Technology; Ultra-Wide Communication Band Systems and Techniques; Mobile Radio-Communications; Optical Communication Systems; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*

Programme of study - 1st cycle - Licence
Military Electronic Equipments and Systems
Department Communications and Military Electronic Systems

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Algebra, Analytic and Differential Geometry; Techniques and Computer Programming Languages; Physics; Chemistry; Applied Informatics; Computer Aided Graphics; Probability and Mathematical Statistics; Special Mathematics*

Disciplines in the Field of Study: *Mechanics and Theory of Mechanisms; Materials and Theory of Electronic Elements; Basis of Electrotehnics I; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*



2nd Year:

Fundamental Disciplines: *Special Mathematics; Physic of Lasers; Optics and Optoelectronics; General Management*

Disciplines in the Field of Study: *Basis of Electrotehnics II; Devices and Electronic Circuits; Signals and Analogical Systems; Measurements in Electronics and Telecommunications; Digital Integrated Circuits; Analogical Integrated Circuits; Numerical Signal Treatments; Architecture of Microcomputers and Microcontrollers; Techniques of Microwaves; Television; Systems of Image Interception and Display; Power Electronics; Fundamental Electronic circuits; Electronic circuits; Internship II*

Complementary and Military Disciplines: *English; French; Sport*

3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Special Computer Systems; Digital Processors for Signals; Propagation of Radio Waves, Antennas for Communications and Military Electronic Systems; Data Transmissions; Computer Networks and Data Transmissions Protocols; Microwaves and Antennas Circuits; Management of Military Technical and Economic Activities; Treatment of Voice Signals; Automatics and Automatic Systems; Reliability and Testing of Electronic and Telecommunication Systems*

Specialty Disciplines: *Elements of Artificial Intelligence in Surveillance Systems; Optimal Treatments of Radar Signals; Structures for Microwaves Emitters and Receptors; Principles and Methods for Guidance, Navigation and Controls; Modern Principles and Methods Used in Tracking and Surveillance Electronic Systems; Image Treatments in Surveillance and Recognition Electronic Systems; Recognition Radio and Video Modules; Internship III*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*



4th Year:

Disciplines in the Field of Study: *Electromagnetic Compatibility; Logistic of Electronic and Telecommunication Systems; Military Tactics*

Specialty Disciplines: *Statistic Treatment of Signals; Optimal Filtration and Decision in Radar Systems; Electronic Systems for Aerial and Perimeter Surveillance; Techniques and Methods for Information Fusion; Electronic Warfare; Global Positional Systems and Satellite Communication; Electronic Simulators; Electronic Systems for Security and Defense; Electronic Systems for Weapons Command and Controls; Sensors and Sensorial Systems; Automatic Recognition and Identifying Systems; C4I Systems; Engineering Systems Elements; Military Communication Networks and Systems; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*

Programme of study - 1st cycle - Licence
Computer and Information Systems for Defense and National Security
Department Computers and Military Informatics Systems

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Algebra, Analytic and Differential Geometry; Techniques and Computer Programming Languages; Physics; Chemistry; Special Mathematics I; Computer Aided Graphics; Numerical Methods*

Disciplines in the Field of Study: *Mechanics and Theory of Mechanisms; Data Structures and Algorithms*

Specialty Disciplines: *Basis of Informatics; Computer Programming; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*



2nd Year:

Fundamental Disciplines: *Probability and Mathematical Statistics; Operational Research; Special Mathematics II; General Management*

Disciplines in the Field of Study: *Basis of Electrotehnics and Electric Measurements; Object Oriented Programming; Databases; Operating Systems; Digital Integrated Circuits; Communication Networks and Protocols; Systems Theory; Architecture of Computer Systems; Internship II*

Specialty Disciplines: *Theory of Information*

Complementary and Military Disciplines: *English; French; Sport*



3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Computer Networks; Artificial Intelligence; Technologies for Documents Management; Multimedia Systems; Formal and Translators Languages (Compilers); Integrated Programming Media; Web Technologies; Management of Military Technical and Economic Activities*

Specialty Disciplines: *Operating Systems Design; Management and Development of Database Applications; Numerical Treatment of Signals; Human-Computer Interface; Cryptography; Reliability of Computer Systems; Internship III*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*

4th Year:

Disciplines in the Field of Study: *Programming Engineering; Parallels Architectures; Specialized Systems with Microprocessors; Geographic Integrated Systems; Management of Informatics Systems; Logistic of Computer Systems and Equipments; Mobile Computer Devices; Military Tactics*

Specialty Disciplines: *Data Mining; Biometric Systems; Informatics Security; Graphic Treatment Systems; Modeling and Simulation; Management and Maintenance of Networks; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*

Programme of study - 1st cycle - Licence
Equipment for Modeling, Simulation and Computer Control of Combat Troop
Department Computers and Military Informatics Systems

1st Year:

Fundamental Disciplines: *Mathematical Analysis; Algebra, Analytic and Differential Geometry; Techniques and Computer Programming Languages; Physics; Chemistry; Special Mathematics I; Computer Aided Graphics; Numerical Methods*

Disciplines in the Field of Study: *Mechanics and Theory of Mechanisms; Data Structures and Algorithms*

Specialty Disciplines: *Basis of Informatics; Computer Programming; Internship I*

Complementary and Military Disciplines: *Communication, Public Relations and Negotiation Techniques; English; French; Politology; Psychology and Sociology; Topography; History; Sport*

2nd Year:

Fundamental Disciplines: *Probability and Mathematical Statistics; Operational Research in Military Field; Special Mathematics II; General Management*

Disciplines in the Field of Study: *Basis of Electrotehnics and Electric Measurements; Object Oriented Programming; Databases; Operating Systems; Digital Integrated Circuits; Communication Networks and Protocols; Systems Theory; Architecture of Computer Systems; Internship II*

Specialty Disciplines: *Theory of Information*

Complementary and Military Disciplines: *English; French; Sport*

3rd Year:

Fundamental Disciplines: *Basic Logistics*

Disciplines in the Field of Study: *Computer Networks; Artificial Intelligence; Technologies for Documents Management; Multimedia Systems; Formal and Translators Languages (Compilers); Integrated Programming Media; Web Technologies; Management of Military Technical and Economic Activities*

Specialty Disciplines: *Operating Systems Design; Management and Development of Database Applications; Electronic Warfare; Modeling and Simulation of Combat and War Games; Reliability of Computer Systems; Internship III*

Complementary and Military Disciplines: *Economy and Accountancy; English; French; Sport*

4th Year:

Disciplines in the Field of Study: *Parallels Architectures; Expert Systems; Systems with Microprocessors; Logistic of Computer Systems and Equipments; Management of Informatics Systems; Mobile Computer Devices; Military Tactics*

Specialty Disciplines: *Data Mining; Informatics Security; Security Strategies and Crises Analysis; Biometric Systems; Engineering of Programming Systems; Elaboration Methodic for Tactic Applications; Informatics Command of Combat Troop; Management and Maintenance of Networks; Internship IV*

Complementary and Military Disciplines: *International Humanitarian Law; NBC Protection; Geography; Management of Projects; Sport*



5. RESEARCH AREAS

1. Aircraft engines:

- Aerodynamic of internal flow
- Combustion
- CFD (FLUENT), CATIA, MAPLE, MATLAB

2. Rocket engines:

- Thermogazodynamics
- Combustion
- Aeroacustics

3. Aerodynamics:

- Aerodynamic of missiles, projectiles and aircrafts
- Turbulent flows
- Aircraft wake turbulence

4. UAV:

- Mini and micro aerial vehicles – design
- Aerodynamics characteristics
- Numerical optimization

5. GEOINT:

- Aerospace remote sensing systems
- Multisource data and sensor fusion
- Image processing and 2D/3D dataset visualization
- Geospatial data development, integration, application tools and enterprise management

6. Weapon systems:

- Artillery weapons and fire control systems
- Electrooptics artillery devices
- Automatic weapons
- Aircraft weapons
- Modeling, simulation and experimentation
- Proximity radio warhead for aircraft bombs

7. Ammunition, Explosives and Powders:

- Guided and Unguided Missiles
- Aircraft and Artillery Ammunition
- Modeling, simulation and experimentation

8. Information Security:

- Cryptographic mechanisms, services and protocols
- Electronic/Digital Signatures
- PKI infrastructures and bridge technologies
- Smart-card applications
- Electronic payment systems
- Security of network protocols
- E-mail and document security
- Information security and risk management
- Web security
- Secure code writing

9. Hardware and Software Design:

- Digital control algorithms (theory and applications).
- Embedded systems (Software and hardware architectures).
- Microprocessors (microcontrollers and DSPs)based systems (hardware and software design).

10. Microwaves:

- Tunable MEMS circuits
- Metamaterials based microwave circuits
- High k dielectric passive devices (antenna, filters, oscillators)
- Radar Cross Section- simple shape analysis
- Radioabsorbing material for Radar Cross Section reduction

11. Ground Penetrating Radar – Stepped Frequency Continuous-Wave Radar:

- Antenna system (ultrawide-band antenna)
- Calibration
- Data processing (SAR, clutter removal)

12. LASER Technology:

- LASER applications in Medicine and Biology
- LASER Therapy
- LASERs and non-linear optics

ERASMUS INSTITUTIONAL COORDINATOR

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