TABLE OF COURSES

1st Semester		
Compulsory		***Hours***
9.2.01.1.1.9	Mathematical Analysis I	6 (+1)[1]
9.2.02.1.1.9	Analytic Geometry and Linear Algebra	5
9.4.01.1.1.9	Physics I (Mechanics)	6 (+1)
9.3.34.1.1.9	Mechanics I (5)	4 (+1)
	Introduction to Computer Programming	5
9.1.04.1.1.9	Microeconomic Theory	2
Electives		
	None	
Also offered as Elective:		
	English, French, German or Italian Language	2

2nd Semester		
	Compulsory	
9.2.03.2.1.9	Mathematical Analysis II	5
9.2.04.2.1.9	Linear Algebra and Applications	4
9.4.03.2.1.9	Physics II (Electromagnetism I)	5
9.4.02.2.1.9	Physics Laboratory I	2
9.3.35.2.1.9	Mechanics II	4 (+1)
	Design and Development of Computer Applications	5
Electives One of the following:		
9.1.02.2.2.9	Introduction to the History of Sciences and Technology	2
9.1.03.2.2.9	History of Economic Theories	2
Also offered as Elective:		
	English, French, German or Italian Language (2)	2

3rd Semester	
Compulsory	

[1] Οι ώρες (+1) αναφέρονται στην Εποπτευόμενη Διδασκαλία

9.2.05.3.1.9	Mathematical Analysis III	4
9.2.06.3.1.9	Ordinary Differential Equations	4
9.2.07.3.1.9	Probability	3
9.4.05.3.1.9	Physics III (Waves)	5
9.4.04.3.1.9	Physics Laboratory II	2
9.3.36.3.1.9	Mechanics III	4
9.2.62.3.1.9	Software for Mathematics and Physics	3
9.1.01.3.1.9	Introduction to Philosophy	2
Electives		
	None	
Also offered as Elective		
	English, French, German or Italian Language	2

4th Semester		
Compulsory		*Hours/week*
9.2.08.4.1.9	Analysis I and Laboratory	4
9.2.09.4.1.9	Complex Analysis	4
9.2.10.4.1.9	Statistics	3
9.4.06.4.1.9	Physics IV (Quantum Mechanics I)	5
	Introduction to Computer Science	5
9.3.32.4.1.9	Structural Mechanics	4
	Scientific Terminology: English, French, German or Italian	2
Electives One of the following:		
9.1.05.4.2.9	Sociology	*2*
9.1.06.4.2.9	Macroeconomic Theory	*2*
9.1.07.4.2.9	Philosophy of Sciences	*2*
Also offered as Elective:		
	Special Pedagogy	

COURSE PROGRAM IN THE CONCENTRATION OF APPLIED MATHEMATICS

5th Semester – *Concentration of Applied Mathematics*

Courses	Hours/ week
Compulsory	

9.2.13.5.1.9	Real Analysis	4
9.2.18.5.1.9	Numerical Analysis II and Laboratory	4
Electives (four from the following courses)		
9.2.45.5.2.9	Convex Analysis	4
9.2.34.5.2.9	Information Theory and Coding	4
9.3.05.5.2.9	Continuum Mechanics	4
9.2.32.5.2.9	Discrete Mathematics	4
9.2.15.5.2.9	Algebra	4
9.2.48.5.2.9	Set Theory	4
9.3.09.5.2.9	Anelastic Behaviour of Materials	4
9.3.07.5.2.9	Analytic Dynamics	4
9.1.12.5.2.9	Introduction to International Economics	4
9.4.09.5.2.9	Quantum Mechanics II	4
	Principles of Teaching	4
Optional		
	History of Education	3
	Technology and its History	3

6th Semester - *Concentration of Applied Mathematics*

Courses		Hours /week
Compulsory		
9.2.16.6.1.9	Functional Analysis I	4
9.2.12.6.1.9	Partial Differential Equations	4
9.2.21.6.1.9	Dynamical Systems	4
Electives (three from the following courses)		
9.2.44.6.2.9	Matrix Analysis and Applications	4
9.2.19.6.2.9	Probability theory	4
9.2.22.6.2.9	Data Structures	4
9.2.66.6.2.9	Teaching Mathematics	3
9.3.08.6.2.9	Theory of Elasticity	3
9.2.33.6.2.9	Differential Geometry	4
9.2.49.6.2.9	Automata and Formal Grammars	4
9.3.06.6.2.9	Experimental Mechanics of Materials	
3.3.10.6.3.9	*Automated Control I*	4
	Principles of Teaching Methodology - Teaching Methods of Mathematics	

9.2.69.8.2.9	Algebra II	3
Optional		
9.4.23.6.3.9	Group Theory in Physics	4
9.4.12.6.3.9	Electromagnetism II	4

7th Semester - *Concentration of Applied Mathematics*

	Courses	**Hours/ week**
Compulsory		
9.2.11.7.1.9	Measure Theory and Integration	4
9.2.27.7.1.9	Stochastic Processes	4
Electives (four from the following course)		
9.2.61.7.2.9	Regression Analysis (and Laboratory)	4
9.2.61.7.2.9	Algorithms and Complexity	4
9.3.12.7.2.9	Computational Mechanics I	4
9.2.55.7.2.9	Mathematical Finance	4
9.1.15.7.2.9	Introduction to Operational Research	4
9.3.22.7.2.9	Non- destructive testing of materials	4
9.4.11.7.2.9	Statistical Physics	4
	Philosophy of Mathematics	2
Optional		
	Educational Research	3

8th Semester - *Concentration of Applied Mathematics*

Courses		Hours/ week
Compulsory		
9.2.38.8.1.9	Optimal Control	4
Electives (five from the following courses)		
9.2.50.8.2.9	Functional Analysis II	4
9.2.58.8.2.9	Linear Models and Designs	4
9.2.14.8.2.9	Mathematical Logic	4
9.2.19.8.2.9	Integral Equations and Applications	4
9.2.52.8.2.9	Analysis of Time Series	4
9.2.23.8.2.9	Operator Theory	4
9.2.54.8.2.9	Mathematical Modeling	4
9.2.43.8.2.9	Special Topics in Discrete Mathematics	4

9.2.17.8.2.9	Optimization	4
9.3.18.8.2.9	Computational Mechanics II – Fluid Mechanics	4
9.2.39.8.2.9	Graph Theory	4
9.3.21.8.2.9	Composite Materials	4
9.2.53.8.2.9	Models of Computation	4
3.3.32.8.2.9	Automated Control II and Laboratory	4
9.3.38.8.2.9	Mathematical Simulation in Mechanics	4
9.3.13.8.2.9	Mechanics of Coupled Fields	3
9.4.35.8.2.9	Theoretical Physics	4
	Algorithmic Geometry	3
	New Technologies in Education	3
Optional		
	Education and Employment	3
	Περιβάλλον και Ανάπτυξη	3

During the summer between 8th and 9th semester, the students' practical exercise is taken place.

9th Semester - *Concentration of Applied Mathematics*

	Courses	**Hours/ week**
Electives (six from the following courses)		
9.2.20.9.2.9	Non Linear Analysis	4
9.3.11.9.2.9	Fluid Mechanics	4
9.2.46.9.2.	Reliability Models (and Quality Control)	4
9.2.68.9.2.9	Cryptography and Complexity	4
9.2.40.9.2.9	Number Theory and Cryptography	4
9.3.20.9.2.9	Wave Theory and Applications to Seismology	4
9.2.29.9.2.9	Numerical Methods for Partial Differential Equations	4
9.2.47.9.2.9	Applications of Logic in Computer Science	4
9.2.51.9.2.9	Stochastic Differential Equations and Applications ….	4
9.2.30.9.2.9	Algorithmic Geometry	4
9.3.26.9.2.9	Advanced Dynamics	4
9.3.17.9.2.9	Analysis of Mechanical Systems	4

	(disks, shells, plates)	
9.3.24.9.2.9	Special Topics in Computational Mechanics	4
9.3.14.9.2.9	Fracture Mechanics	4
	Internet Technologies	3
3.3.17.7.2.9	Communication Networks	4
9.2.35.9.2.9	Mathematical Systems Theory	4
9.2.59.9.2.9	Topics in Analysis	4
Optional		
9.4.44.9.3.9	Relativity	4
9.2.57.9.3.9	History of Mathematics	4
9.1.09.9.3.9	Law	4

10th Semester - *Concentration of Applied Mathematics*

Diploma Thesis

COURSE PROGRAM IN THE CONCENTRATION OF APPLIED PHYSICS

5th Semester – *Concentration of Applied Physics*

Compulsory		**Hours/week**
[9.2.12.5.1.9]	Partial Differential Equations	4
[9.4.09.5.1.9]*	Quantum Mechanics II	4
[9.4.10.5.1.9]	Condensed Matter Physics	4
[9.4.07.5.1.9]	Thermodynamics	3
[9.4.16.5.1.9]	Electronics – laboratory	4
[9.4.20.5.1.9]	Physics Laboratory III	2
[5.-.---.5.1.9]	General Chemistry	3
Elective (extra course)		
	Educational Principles	3
Optional		
	History of Education	3
	Technology and its History	3

6th Semester – *Concentration of Applied Physics*

Compulsory		**Hours/week**
[9.4.12.6.1.9]*	Electromagnetism II	4
[9.4.13.6.1.9]	Atomic and Molecular Physics	4

[9.4.15.6.1.9]	Optics & optics laboratory	4
Elective (four from the following courses)		
[9.4.21.6.2.9]	Experimental Physics Techniques	4
[9.4.23.6.2.9]*	Group theory in Physics (Symmetries in Physics)	4
[9.4.29.6.2.9]	Dielectric, Optical and Magnetic Properties of Materials	4
[3.3.10.6.2.9]	Automatic Control I	4
[3.-.---.6.2.9]	Principles of Microwave Transmission and Optical Signals	4
[9.3.08.6.2.9]	Theory of Elasticity	4
[9.3.06.6.2.9]	Experimental Mechanics of Materials	4
[5.-.---..6.2.9]	Solid State Chemistry	4
	Principles of Teaching Methodology - Teaching Methods of Physics	3

7th Semester– *Concentration of Applied Physics*

Compulsory		**Hours/week**
[9.4.11.7.1.9]	Statistical Physics *	4
[9.4.14.7.1.9]	Nuclear Physics and Elementary Particles	4
Elective (five from the following courses)		
[9.4.36.7.2.9	Computational Physics I]	4
[9.3.07.7.2.9]	Analytical Dynamics	4
[9.4.27.7.2.9]	Applications of Ionizing Radiation in Medicine and Biology	4
[9.4.25.7.2.9]	Optoelectronics	4
[9.4.24.7.2.9]	Semiconductors and Semiconducting Devices	4
[9.4.37.7.2.9]	Characterization methods of materials	4
[9.4.28.7.2.9]	Introduction to Astrophysics	4
[3.3.17.7.2.9]	Introduction to Communication Networks	4
[9.3.12.7.2.9]	Computational Mechanics I	4
[9.3.05.7.2.9]	Mechanics of continuous Media – nonelasticity	4
[9.3.22.7.2.9]	Non destructive testing of Materials	4

[9.1.10.7.2.9]	Philosophy of Physics	2
[9.1.11.7.2.9]	Business Economics	4
Optional		
	Educational Research	3

8th Semester– *Concentration of Applied Physics*

Electives (six from the following courses)		
9.4.50.8.2.9	Physics Seminar	2
9.4.33.8.2.9	Nuclear Physics and Applications	4
9.4.26.8.2.9	Detecting and Accelerating Systems	4
9.4.31.8.2.9	Physics and Technology of Lasers	4
9.3.30.8.2.9	Polymers and Composite Materials	4
9.4.35.8.2.9	Theoretical Physics *	4
9.4.49.8.2.9	Continuous Groups	4
9.4.17.8.2.9	Biophysics	4
9.4.30.8.2.9	Physics of Electronic Devices	4
9.4.45.8.2.9	Signal Analysis	4
9.3.18.8.2.9	Computational Mechanics II – Fluid Mechanics	4
	Introduction to Medical Imaging	4
9.3.13.9.2.9	Mechanics of Coupled Fields	3
3.3.32.8.2.9	Automatic Control II and Laboratory	4
9.1. --.8.2.9	History of 19th and 20th Century Physics	2
	New Technologies in Education	3
Optional		
	Education and Work	3
	Environ and Progress	3

9th Semester– *Concentration of Applied Physics*

Electives (six from the following courses)

9.4.41.9.2.9	Elementary Particles
9.4.44.9.2.9	Relativity *
2.-.---. 9.2.9	Nuclear Technology
9.4.40.9.2.9	Application of Lasers in Biomedicine and the Environment
9.4.42.9.2.9	Introduction to Medical Physics and Telemedicine

9.4.38.9.2.9	Ceramics and Dielectric Materials
9.4.46.9.2.9	Microsystems Technology
9.4.47.9.2.9	Computational Physics II, Modeling
9.4.48.9.2.9	Pattern Recognition and Neural Networks
9.4.18.9.1.9	Environmental Physics
9.3.11.9.2.9	Fluid Mechanics
9.3.14.9.2.9	Fracture Mechanics and laboratory
9.1.09.9.2.9	Law
9.1.---.9.2.9	Environmental Policy
	Introduction to Network Technologies

10th Semester– *Concentration of Applied Physics*

Diploma Thesis