Summarized Content of Courses

Although all the courses were certainly important and essential for my formation as physicist and scientist, highlighted courses with red color are considered by me as the more relevant for my formation in astrophysics and their contents should be reviewed more detailed.

Note: One credit equals: 15 theoretical hours per term. From 45 to 60 hours for laboratories per term.

FIRST TERM 2007

(4 credits) **Algebra and Trigonometry:** Real and complex numbers. Equations and Inequations. Functions. Analytic Trigonometry.

(4 credits) **General Anthropology:** Introduction to basic concepts of anthropology.

(4 credits) **Euclidean Geometry:** Geometric figures. Congruence of triangles. Triangular inequality. Circumferences. Plane figures. Euclid's postulates.

(4 credits) **Physics Fundamentals:** Introduction to physics from an historical approach. Newtonian mechanics. Electromagnetism. Thermodynamics. Modern Physics.

(4 credits) **Calculus Fundamentals:** Basic notions of calculus. Limit and continuity. Functions and relations. Logic. Derivatives and antiderivatives.

(4 credits) **Spanish Language I:** Basic contents in spanish language.

SECOND TERM 2007

(4 credits) **Calculus I:** Limit and continuity of real functions. Derivatives and antiderivatives. Applications of derivatives. Optimization of functions. Integrals of basic functions. Applications of integrals in physics.

(4 credits) **Computers in Physics:** Introduction to Unix and Linux systems. Logic programming. Pseudocode. Compilers. Programming in C and C++ languages. Basic applications to physics and mathematics. Gnuplot.

(4 credits) **Physics I:** Newtonian mechanic. Kinematics and dynamics. Work and energy. Linear momentum and energy conservation laws. Rigid body. Angular momentum conservation law. Introduction to fluid mechanics and thermodynamic.

(4 credits) **Psychology and Psychoanalysis Fundamentals:** Introduction to basic concepts of psychology and psychoanalysis.

(4 credits) **Vector Geometry:** Vectors. Applications of vectors. Conic curves. Parametric surfaces. System of linear equations.

(1 credit) **Physics I Laboratory:** Laboratory experiences related to the contents of Physics I.

FIRST TERM 2008

(4 credits) **Linear Algebra:** Vectorial spaces. Linear transformations. Matrices and determinants. Characteristic polynomials. Canonical forms. Dual spaces. Intern product. Bilinear and quadratic forms. Complex vectorial spaces.

(4 credits) **Calculus II:** Indeterminate forms and Improper integrals. Successions and infinite series. Plane curves, parametric equations and polar coordinates. Vectorial functions in the plane and the space.

(4 credits) **Physics II:** Oscillations. Gravitational interaction. Electric interaction. Electrostatic fields. Circuits of direct current. Magnetic interaction. AmpereâĂŹs law. Time-dependent electromagnetic fields.

(1 credit) **Physics II Laboratory:** Laboratory experiences related to the contents of Physics II.

(3 credits) **Seminar I:** Star to get involved with scientific lectures and articles in english language. Practice english through oral presentations and discussions about topics in general physics.