

Course Syllabi

1. CCFF-00030 PHYSICS II

2. 144 credits hours.

3. Bibliography

- Fundamentos de Física" volumen II, Resnick, Robet, David Halliday, and Kenneth S. Krane, 2012
- Física para ciencias e ingeniería con física moderna Physics scientists and engineers, Serway, Raymond A, 2009

4. Specific Course Information

- a. The subject of Physics II offers students a teaching of electrical and magnetic phenomena so that they can understand and relate them to the elements of their daily life and promote in it, the development of a critical and analytical mentality vis-à-vis scientific knowledge, providing them with tools such as experimentation that allow them to understand and interact with the world in which they live. For this reason this subject is considered totally necessary for an integral formation of Eng. Industrial, Chemical or Environmental Eniero, since with the study of the fundamentals of electricity and magnetism, the previous steps are taken for the further development of other topics that form part of the curriculum mesh of the engineering, such as: Engineering and electrical technologies, Machines and tools Electrical machines, etc. When developing the contents of this subject, it is provided with the following learning results of the career discharge profile: 1. Interprets the information based on mathematical, physical, chemical models and their interrelation. 2. Build simulation models based on different industrial engineering methodologies. 3. Develop problem-solving alternatives, using information from production management indicators.
- b. Corequisites:
 - MAES-00085 INTEGRAL CALCULUS
- c. Prerequisites:
 - MAES-00084 DIFFERENTIAL CALCULUS
 - MAES-00089 LINEAR ALGEBRA
 - CCFF-00029 PHYSICS I

5. Learning Objectives of the Course

- a. Identify and explain the electrical and magnetic phenomena, observed in nature, science and current technologies, by means of physical laws.
 - Understand and apply the concepts of electricity and magnetism within the scientific, technological and everyday field of an engineer.
 - Use the scientific method used in laboratory practices to cement a methodological and causal approach in the analysis and explanation of nature phenomena and everyday events.
 - Integrate the applications ations of electromagnetism with other complementary subjects to generate a global vision within the student's career.
- b. Learning Outcomes
 - Use simulation computer packages, for troubleshooting.
 - Apply the basic foundations of training research, at an exploratory and diagnostic level, in an appropriate way, for the development of experiments, for the search, selection and evaluation of information.
 - Applying knowledge and skills in physics effectively as a basic tool for problem solving in the field

of industrial engineering.

- Use appropriate technical language to communicate orally and in writing in an effective manner, both when working individually or in interdisciplinary groups.

6. Course Topics

- Simple harmonic movement
- Electrostatic
- Electric field
- Electric potential
- Capacity and capacitances
- Electrodynamics
- Electric circuits
- Magnetism
- Electromagnetism and induced electromotor force