Learning Outcomes:
After successfully studying this course, students will:
1. Be able to systematically obtain the equations that characterise the performance of an electric circuit as well as solving both single phase and three-phase circuits in sinusoidal steady state.
2. Acknowledge the principles of operation and the main features of electric machines and their applications.
3. Acquire skills in using electrical measuring devices.
4. Be aware of electrical hazards and able to implement basic actions to avoid unsafe work conditions.

Course Outline:
1. Kirchhoff’s Laws
2. Circuits elements and equations
3. Power and energy
4. Circuit analysis methods
5. Fundamental theorems
6. Electric circuit analysis in sinusoidal steady-state. Complex power
7. Introduction to three-phase AC power systems
8. Principles and main features of electric machines
9. Selection and application of electric machines

Teaching Activities:
The course is equivalent to 6 ECTS credits split into 45 hours of lecture sessions, 15 hours of laboratory sessions, 10 hours of individual graded assignments issued throughout the semester, such as homework, quizzes and other activities, and 80 hours of self-study.

Assessment:

Option 1 (Continuous assessment): The final mark will be as follows: 20% laboratory work, 20% activities evaluated throughout the course and 60% examination (a written test containing theoretical and practical issues and problems). To pass the subject, students must obtain a minimum score of 5 points out of 10 in each part.

Option 2 (Global assessment): This is applied to those students who do not follow, or who have not achieved the minimum requirement to implement Option 1. The final mark will be: 20% laboratory examination and 80% written examination (containing theoretical and practical issues and problems). To pass the subject, students must obtain a minimum score of 5 points out of 10 in both parts.

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