

ENGINEERING PROFESSORS' CONCEPTIONS ON BASIC TOPICS OF ELECTROMAGNETISM IN MEXICO

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Electromagnetism is one of the introductory physics subjects common to many engineering programs in Mexico and other countries. There are several studies about students' misconceptions regarding the contents of electromagnetism courses but the information about teachers' misconceptions which is one of the main factors that contribute to students' misconceptions, is not very extensive. It is a fact that teachers, as well as students, have problems with the scientific knowledge of some concepts (Pardhan & Bano, 2001). Since they are responsible for helping students to fully understand and give a proper meaning to these concepts, it is very important to find out what teachers know about these concepts, to generate teacher formation programs that help them in the improvement of their teaching activities. Moreover, most of the existing studies focus on identifying misconceptions about the properties of electric charges (Furió-Mas & Guisasola Aranzabal, 2008), electric field, Gauss's law, electric current (Hashish et al., 2020) and voltage, but none of them is centered around the basic concepts in electrostatics and the strong relations between them.

This work is part of a qualitative research with a descriptive design and presents the results of a 2-tier instrument combined with a semi-structured interview, designed to identify the conceptions that in-service engineering teachers have about the concepts of electrostatic force, electric field, electric potential, and the relation between them, distinguishing between correct conceptions, misconceptions, and lack of knowledge.

RESULTS

Information about the teachers' academic training and teaching experience will be presented, correlating this information to the conceptions that teachers have about the basic electrostatics concepts.

Due to the academic training and teaching experience that in-service teachers have, predominance of misconceptions over lack of knowledge is expected.

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