



Taking materials engineering to high school

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Abstract – The Universidade de Caxias do Sul elaborated the cooperative project called “The Engineer of the Future”, with the objective of promoting science and engineering among high school teachers and students. At this stage of the project, activities related to materials engineering are being offered to the high school teachers. These activities are workshops in metals, ceramics and polymers, specially emphasizing the importance of advanced materials in our society.

The Universidade de Caxias do Sul (UCS) together with the industries and the public and private schools of the region, elaborated the cooperative project entitled “The Engineer of the Future”, with the objective of promoting science and engineering among high school teachers and students. This project aims to improve the pedagogical formation of teachers and to increase the interest of students in technological areas leading to a future career in engineering or some related area.

The activities of this project were planned to give meaning and foundation to the teaching-learning process of exact and natural sciences and for the application of theory in the solution of real problems, while articulating scientific, economic, environmental, social and political aspects, and also to reinforce the important role of engineering in society, with special attention to the industrial and services sectors.

UCS has both an undergraduate and graduate program in materials engineering. This guides its faculty to design activities that can attract more and better prepared high school students to the materials engineering program. The difference between this project and most of the projects designed to attract young people to engineering are the activities designed to the high school teachers. It is well known that it is necessary to motivate the student to study, to learn how to learn. Diverse actions can be taken to awaken in the student a taste for sciences and the technological area but it is the educator’s mission to show the relations between the real world and what is given in the classroom. Many times the high school teacher does not have the preparation or the knowledge needed to awaken this consciousness in the students.

At this stage of the project, activities related to materials engineering are being offered to the high school teachers. These activities are workshops in metals, ceramics and polymers, specially emphasizing the importance of advanced materials in our society. The development of all the workshops that are being executed in this project is supported by active and significant learning strategies in an interdisciplinary approach. In the activities, high school teachers are actively building their knowledge in materials engineering through their interactions with UCS faculty, undergraduate students and people from the local industry, in accordance with their possibilities and interests, within each context. In the active and significant learning strategies, when an individual is taken to discover phenomena and concepts by himself and, after that, led to relate his discoveries to his previous knowledge of the world around him [1-3], then the acquired knowledge has meaning, much more so than when the information is passed to the individual in a passive way.

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References

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