Promoting Gender-Inclusive Activities in Engineering Education

Selene Pérez-García, Alfredo Beltrán-Hernández, Sergei N. Khotiaintsev
Faculty of Engineering, National Autonomous University of Mexico (Mexico)
mirek925@gmail.com; alfbelher@gmail.com; sergeikh01@yahoo.com.mx

We analyze the efficiency of some extra-curricular educational activities of female students [1]-[2] that study Telecommunications Engineering at the National Autonomous University of Mexico. Teams of mainly female students developed extra-curricular design projects during the 7th and 8th semesters of a 9-semester engineering career. The students designed, fabricated, and tested completely functional devices, such as optical transmitters and receivers, and optoelectronic sensors. The project content was rather diverse. Therefore, the students had to apply and integrate the knowledge learned in many preceding subjects. In addition, they had to decide on some fabrication processes that were not covered by the formal curricula. This stimulated creativity and self-learning. The educational effectiveness of these projects was studied by means of surveys that were focused on different skills and abilities of the students. The survey showed an increase in critical thinking and creativity. Also, personal confidence and the ability to manage emotions and stress had improved. Our results show that educational activities of this kind are very effective in preparing female students for future work in competitive and stressful situations. An additional positive result of this activity was an increase in the number of female students who decided to study for M. Eng. degree after completing the undergraduate studies. The recommendations for promoting the gender-inclusive education that we derive in this work would be helpful for academia of other engineering careers.