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IMPORTANCE OF INCLUSION OF PRACTICAL APPLICATIONS IN STEM CURRICULA

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Abstract

There is an increased effort in recognizing that this 21st century is that of scientific and technological achievements. At elementary and secondary schools, students are encouraged to take courses in STEM (Science, Technology, Engineering and Mathematics), with the idea that they would choose such disciplines when they go to university. Colleges and faculties dealing with these disciplines have taken a new approach of directing students to be involved in applied projects and topics within STEM. In my discipline, engineering, there is also pressure from professional groups and regulators who are asking to include these applied topics in our programs, regardless of the engineering area that the students choose. Thus, in the past years, we have included more and more of these topics and examples of real situations which face practicing engineers in their career. We have developed design courses for graduating engineering students that makes them more attractive to be employed as engineers, and to receive approval from licensing organizations to practice engineering.

Examples of such inclusions in the curricula of engineering, which also include science and mathematics, are presented. They include participation of engineers from local industries to co-supervise students in their areas of expertise. Technical and professional reports are required from the students to show their knowledge of the material of their reports. Also, some concepts of economics are included. Joint academics and engineers from licensing groups grade these projects and give them approval based on the competence of the students. Group projects are also encouraged.

Significant strides have been made since these concepts have been implemented. The presentation will give examples of this undertaking.

Keywords: STEM, Disciplines, Engineering, 21st Century.
