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Student's Difficulties with Classes That Involve Laboratory Education Approach

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Abstract : Experimental based Engineering education approach plays a vital role in the development of student's deep understanding of both social and physical sciences. Experimental based education approach through laboratory class activities prepare students to meet national demand for high-tech skilled individuals in the government and private sector. However, students across the country are faced with difficulties in classes that involve laboratory activities: poor experimental based exposure in their early development of student's education-life-cycle, lack of student engagement in scientific method practical thinking approach, lack of communication between students and the instructor during class, a large number of students in one classroom, lack of instruments and improper equipment calibration. The purpose of this paper is to help students develop their own scientific knowledge and understanding, develop their methodologies in the design of experiments, collect and analyze data, write laboratory reports, present and explain their findings. Experimental based laboratory activities allow students to learn with high-level understanding as well as engage in the design processes of constructing knowledge through practical means of doing science. Experimental based education systems approach will act as a catalyst in the development of practical-based-educational methodologies in social and physical science and engineering domain of learning; thereby, converting laboratory classes into pilot industries and students into professional experts in finding a solution for complex problems, research, and development of super high- tech systems.

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