Impact of Project Based Learning of Physics in Technical Institutions, Karachi

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Project-based learning is a comprehensive approach of teaching and learning strategy that engages students in investigation of their authentic problems. Projects have the potential to help the students in learning. In traditional teaching methodology the students can not think about what they are doing rather they are interested on getting it done. In Project-based learning our goal is to involve in activities that develop creativity and critical thinking by engaging them in substantial opportunities. Once students find such opportunities their ability to understand the physical phenomena is also increased. Projects organize the activities of the students, share their knowledge, conduct research, solve different types of problems, and synthesize information.

Usually the students of technical Institutions are matriculates and majority of them are average and below average. It is very difficult for the teachers to make their concepts of physics clear through the traditional lecture method only. The project-based method adopted in our Institute plays a vital role in removing the misconceptions of the students about physics and developing a solid in-depth understanding of the physics involved in their curriculum. We introduce the way of teaching in which teachers divide the course contents into small tasks, use modelling, making of small projects in the class leading to mega projects. One of such project was the “Distance And Angle Detector”, in which we calculate the distance of an obstacle and its relative position with respect to the magnetic north and getting the display on LCD as well as on Computer.

In Project-based learning performance is assessed on an individual basis although the projects have done by the students in groups. Variety of assessment tools have been used to evaluate the performance including the exhibitions of their projects. We assessed the students on the basis of multiple choice questionnaire, viva voce, and the final projects judges evaluation from the relevant field. The result of such an approach of teaching in our Institute is that the students are motivated. Our last few years results shows that our students have better understanding of physics then the other Institute’s students due to the implementation of project based learning.