

Objective and aims of the study:

1. To identify students difficulties in learning concepts of mechanics at undergraduate level.
2. To overcome this difficulties in learning physics and simplify concepts in mechanics.
3. To develop and implement microcomputer-based interface tools for understanding of Mechanics concepts and to increase the effectiveness of traditional methods in under graduate students.
4. To develop a tool i.e. Mechanics Diagnostic Test (MDT) to measure the effect of teaching using microcomputer based laboratory tool and traditional teaching method.

Hypothesis:

Null hypothesis: Microcomputer-based interface tools in Physics in classroom teaching do not show any significant change on students' achievement and attitude towards physics.

Alternate hypothesis: Microcomputer-based interface tools in Physics in classroom teaching shows significant change on students' achievement and attitude towards physics.

The data on students' conceptual understanding about experiments will be statistically analyzed. T-test will be administered at 0.05 and 0.1 level of significance to test the null hypothesis. If the null hypothesis is true, the alternate hypothesis will be rejected and there is no significance in achievement of learning experiments using computer based experiments. If the null hypothesis is rejected, the alternate hypothesis will be accepted and there is significance in achievement of learning experiments using computer based experiments.

Teaching physics, due to the characteristics of the subject itself, is a fertile ground for the use of modern information technologies. The effectiveness of using the means of the latest information technologies in the educational process largely depends on the successful solution of methodological problems related to the information content and the way of using automated training systems in the educational process. In physics lessons, it is impossible to do without a demonstration experiment, but the material base of the office does not always meet the requirements of a modern physics office. And that's why a computer experiment comes to the rescue here. The computer becomes an assistant not only for the student, but also for the teacher. Microcomputer based laboratory activities as catalysts for student construction of understanding in physics. Paper presented at the annual conference of the Australian Association for Research in Education, Melbourne, Australia. Russell, D., Lucas, K. B., & McRobbie, C. J. (2002, April). Learning about kinematics in a microcomputer-based laboratory. School MBL technology provides powerful ways to resolve many of the difficulties and restraints relating to "ordinary" science laboratories. It has been claimed that the value of the MBL lies in the ease with which data can be collected and stored, the ability to access data over very long or very short time intervals, and the power to process and display data. 1. Different cases of physics instructor's implementations of Microcomputer Based Laboratory (MBL) in physics teaching have been studied. When implemented as a technological tool only poor learning results were observed while when MBL were used as both a technological and cognitive tool good learning results were observed. When developing and implementing computer aided learning we must focus as much on the cognitive aspects as on the technological aspects. Also we must focus on instructors conceptions of teaching and learning since this affects their understanding of curricular reforms and lead to transformations of original developers educational intentions. REAL-TIME DATA LOGGING AND DISPLAY Real-time data logging tools (sometimes called Microcomputer-Based Laboratory or MBL tools in the United States) are now one of the most commonly used computer tools in physics teaching laboratory and classroom. In 1999, Euler and Müller reported at the ESERA-conference in Kiel that MBL is the only method of using computers in physics curricula that has a proven positive learning effect. Teaching physics in the laboratory, and more specifically, the use of computers in the physics laboratory is a question of worldwide concern. In this article the authors shall try to validate the use of microcomputer-based laboratories more. Teaching physics in the laboratory, and more specifically, the use of computers in the physics laboratory is a question of worldwide concern. In this article the authors shall try to validate the use of microcomputer-based laboratories (MBL), based both on theoretical and empirical grounds. Further- more, an example of an MBL in introductory kinematics is proposed. Save to Library. Download.