

## The Impact of Experiential Learning on the Success of Upper Division Mechanical Engineering Students

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**Abstract :** The purpose of this study is to assess the effectiveness of a nontraditional experiential learning strategy in improving the success and interest of mechanical engineering students, using the Kinematics/Dynamics of Machine course as a case study. This upper-division technical course covers a wide range of topics, including mechanism and machine system analysis and synthesis, yet the complexities of ideas like acceleration, motion, and machine component relationships are hard to explain using standard teaching techniques. To solve this problem, a thorough design project was created that gave students hands-on experience developing, manufacturing, and testing their inventions. The main goals of the project were to improve students' grasp of machine design and kinematics, to develop problem-solving and presenting abilities, and to familiarize them with professional software. A questionnaire survey was done to evaluate the effect of this technique on students' performance and interest in mechanical engineering. The outcomes of the study shed light on the usefulness of nontraditional experiential learning approaches in engineering education.

**Keywords :** experiential learning, nontraditional teaching, hands-on design project, engineering education

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