SAMTAL@SU

Science and Mathematics Teaching and Learning Seminars

RACE TO IMPROVE STUDENT UNDERSTANDING OF UNCERTAINTY: USING LEGO IN THE PHYSICS LAB

Maria Parappilly

Date and time: 10 October 12:10-13:00

Place: Room FB 42 AlbaNova

Lunch seminar followed by optional discussion over coffee. Register for a free lunch sandwich at https://doodle.com/poll/qmi9arev7mdyqkp6

Abstract

A novel method is proposed for how LEGO race cars can help students increase their understanding of uncertainty and motivate them in physics labs. The intervention was developed for students in an introductory physics topic with a high early drop-out rate. In this talk, I will discuss the results of the study and how variations in the delivery yielded better learning outcomes. We subsequently adapted the delivery of the LEGO labs for a large Engineering Mechanics cohort. For Engineering, the findings show that LEGO physics was instrumental in teaching students ideas of measurement and uncertainty, improving their lab reporting skills, and was a key factor in reducing the early attrition rate.

Associate Professor Maria Parappilly is an award-winning physics educator and Research Section Head for STEM Education at Flinders University in Australia. She received her PhD in Theoretical Physics from the University of Adelaide. Her pioneering teaching innovations have been recognised with state and national awards, and internationally with the D2L Innovation Award in Teaching and Learning (only one awarded in Physics, Canada, 2017). She has been named as the 2015 South Australian STEM Educator of the year.
Dr. Parappilly is an elected fellow of the Australian Institute of Physics (AIP).

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