

Measuring the acceleration due to gravity

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Experiment Overview

This experiment allows students to measure the value of the acceleration due to gravity by means of a simple pendulum and also to ascertain the uncertainty in their measurement of g . It is a simple experiment but it highlights how the theory of the pendulum can be verified by a doing an experiment with a simple pendulum.

Learning Experience

This experiment is an excellent experiment since it provides a good way to test the prediction of a physical theory, viz: the theory of the pendulum. It is considered one of the ten beautiful experiments in physics because it uses a simple method to measure a fundamental constant of nature.

Aims and Objectives

The aim of the experiment is to measure the acceleration due to gravity. It is also the aim of the experiment to allow students to use Excel software to draw a straight line graph and use the gradient to find g .

Level of Experiment

This is a first year physics experiment for engineering students.

Keyword Descriptions of the Experiment

Domain

Acceleration due to gravity, Simple pendulum.

Course Context and Prerequisite Knowledge and Skills

First year physics about periodic motion and equations for periodic motion.

First year physics and experimental skills in setting up a physics experiment.

Time Required to Complete

Prior to Lab: 30 to 45 minutes

In Laboratory: 2 hours

After Laboratory: Nil

Experiment History

Has been used in the School of Engineering for over five years with several modifications.

References

Young and Freedman. University Physics.

hathal, R. 2010. Physics Experiments Laboratory Manual. UWS.