



SAKARYA UNIVERSITY
FACULTY OF ENGINEERING/SCIENCE
2026-2027 FALL SEMESTER
PHYSICS-I LABORATORY
EXPERIMENT REPORT

DEPARMENT:

NAME-SURNAME- SIGNATURE:

Group
Number:

EXPERIMENT NO1

EXPERIMENT TITLE : ONE-DIMENSIONAL MOTION: POSITION, VELOCITY, AND ACCELERATION

OBJECTIVE OF THE EXPERIMENT (10 points):

MEASUREMENTS AND CALCULATIONS

- 1) Measure of values of **h** (the height of the wedge from the ground) and **d** (the hypotenuse length of the inclined plane) of the setup used during the experiment. **(5 points)**

h=.....cm

d=... ..cm

- 2) Calculate the theoretical acceleration ($a_{\text{theretical}}$). (Take $g=980\text{cm/s}$) **(10 points)** $a = g \sin\theta = \frac{gh}{d}$

3) Fill the table below appropriately using the data you obtained. (20 points)

Point no	x_n (cm)	t_n (s)	x_{n+1} (cm)	x_{n-1} (cm)	t_{n+1} (s)	t_{n-1} (s)	V_n (cm/s)
0				XXXX		XXXX	
1							
2							
3							
4							
5							
6			XXXX		XXXX		XXXX

4) Calculate the “ V_n ” values using the formula. (10 points)

$$V_n = \frac{x_{n+1} - x_{n-1}}{t_{n+1} - t_{n-1}}$$

5) Using Table 1, plot the **Position - Time** and **Velocity - Time** graphs on graph paper. (30 points)

6) Find the **experimental acceleration** of the object from the Velocity-Time graph. (5 points)

a =

7) Calculate the % **error** for the accelerations and interpret the results by comparing them. (10 points)

$$\left(\%Error = \frac{(Experimental\ value - Theoretical\ value)}{Theoretical\ value} \times 100 \right)$$