

SAKARYA UNIVERSITY FACULTY OF ENGINEERING/SCIENCE 2025-2026 FALL SEMESTER PHYSICS-I LABORATORY EXPERIMENT REPORT

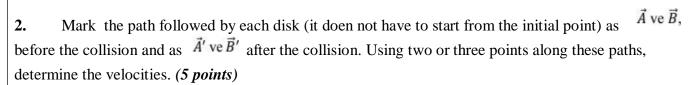
Department:	Name Surname – Signature:
Group	
Number:	
EXPERIMENT NO4	
EXPERIMENT TITLE :	COLLISIONS AND CONSERVATION OF LINEAR MOMENTUM
OBJECTIVE OF THE EXP	PERIMENT (5 points):

THEORY OF THE EXPERIMENT (5 points):
1. Provide information about elastic collisions, inelastic collisions, and perfectly inelastic collisions and briefly explain their differences.
2. Under what conditions is momentum conserved? Explain with an example.

EXPERIMENTAL SETUP:		
1. Draw the setup used in the experiment. (3 points)		
2. Write the names of the materials used in the experiment and briefly explain them. (3 points)		
2. Write the names of the materials used in the experiment and offerly explain them. (5 points)		
PROCEDURE OF THE EXPERIMENT:		
Explain the steps of the experiment procedure completely and sequentially. (5 points)		

MEASUREMENTS AND CALCULATIONS Elastic Collision 1. State the frequency you used. (4 poins)

Frequency (f).....s⁻¹



 $\vec{\mathcal{V}}_{A}$:..... $\vec{\mathcal{V}}_{B}$:.... $\vec{\mathcal{V}}'_{A}$:... $\vec{\mathcal{V}}'_{B}$:....

3. Determine the vector sums $\vec{V}_A + \vec{V}_B \text{ ve } \vec{V}'_A + \vec{V}'_B$ and demonstrate whether momentum is conserved. State theoretically what you expect to observe. (The diagrams will be presented on milimeter graph paper.) (15 points)

4. Find the common velocities of the centers of mass before and after the collision, and state whether these velocities are conserved. State whether the result you expected theoretically matches the result you found. (*5 points*)

5. State whether the total kinetic energy is conserved before and after the collision. State whether the result you expected theoretically matches the result you found. (10 points)