



Department of physics

College of education

Salahaddin University

Subject: *Mechanics and properties of matter lab.*

Course Book – *first year students*

Lecturer's name:

Asst. Prof. Dr. Saed O.Ibrahim

Asst. Prof. *Dr. Ayoub S. Karim*

Asst. Prof. *Dr. Othman salem*

Prof. *Dr. Waed M. N. Sabri*

Asst. Prof. *Dr. Karwan Osman*

Lecture. *M. Gullala Yaseen Bakr*

Asst.Lecture. *M. Lana Awne*

Academic Year: 2023/2024

Course Book

1. Course name	Mechanics and properties of matter laboratory
2. Lecturer in charge	Asst. Prof. Saed O. Ibrahim Asst. Prof. Dr. Ayoub S. Karim Asst. Prof. Dr. Othman salem Prof. Dr. Waed M. N. Sabri Asst. Prof. Karwan Wasman Lecture. Gullala Yaseen Bakr Asst.Lecture. Lana Awne
3. Department/ College	physics / Education
4. Contact	e-mail: glala.baker@su.edu.krd Tel: 07504661338
5. Time (in hours) per week	For example Theory: Practical: 12 hrs/week (6 groups, each 2 hrs/week)
6. Office hours	Tuesday and Wednesday 8:30-2:30
7. Course code	
8. Teacher's academic profile	
9. Keywords	Mechanics and property of maters
10. Course overview:	<p>This course is divided into two semesters in which students conduct several experiments of mechanics and properties of matter of each semester respectively. Most of which conducted are basic related science and merely pre-advanced. A sheet work contains explained experiments are available for students in-soft and hard copies, additionally to recommended a text book of experimental physics. The course explanation, driving practical sessions and other routines are explained to students once the first week began. Finally, students are required to perform his/her work and HomeWorks influentially and on-time.</p>
11. Course objective:	<p>Students should understand the main principles of mechanical force, energy and its aspect by the end of the study year. Students will capable to make a proper connection between theoretical principles and experimental outcomes.</p>
12. Student's obligation	<p>Students should come to lab on time.</p> <p>Making a direct contact with their instructors or assistants.</p> <p>Keep the lab. rules in tight.</p> <p>Doing their homework.</p> <p>Preparing for a 5 min quiz.</p>

Passing from the exam (passing grade is 25%)

13. Forms of teaching

We are going to use whiteboard if needed. Electronic teaching is also provided. Afterword, students start doing their experiments in two hrs and our staff will supervise them until a valid data is obtained. It is used to prepare a lab. report for the next week.

14. Assessment scheme

Reposts and asking question-answering question and Quiz are (10 marks)

Final exam (15 marks)

15. Student learning outcome:

The outcome will be:

- 1- Thinking properly and quickly of principles related of mechanical physics
2. connecting theoretically student materials with practically obtained results, and
3. Self study

16. Course Reading List and References:

17. The Topics:

Lecturer's name

18. Practical Topics (If there is any)

1. Determination of the acceleration of gravity by using a simple pendulum.
2. Determination of the surface tension of water by the capillary tube method.
3. Determination of the velocity of sound by means of a resonance tube closed at one end.
4. Experiments with a spiral spring.
5. To use a Boyle 's law apparatus to verify Boyle 's and to measure the Pressure of the atmosphere .
6. Determination of the specific heat capacity of a solid .
7. Determination of the Coefficient of viscosity of water by capillary flow method.
8. Determination of the focal length of convex lens.
9. Determination of the velocity of sound by means of resonance tube closed at both ends.
10. Determination of the acceleration of gravity by a compound pendulum (bar pendulum).
11. Coefficient of linear expansion of a solid by Fizeau's method
12. Determination of the coefficient of refractive index of water and glass
13. Determination of the moment of inertia of a flywheel.

Laboratory: from 7-10-2023 to 12-4-2024

14. Gravitational & Elastic Potential Energy of a Spring 15. Determination of Frequency in a Mass-Spring System 16. Determination of Tension on a String with Conical 17. Determination of the Coefficient of Static and Kinetic Friction	
19. Examinations: <i>1. Derivation</i> <i>2. Definition</i> <i>3. Prove</i> <i>4. Cause and reason</i> <i>5. Filling gaps.</i> 6. Given data and plotting	
20. Extra notes: .	
21. Peer review	پیداچوونہوہی ہاوہل