



**Philadelphia University**  
Faculty of Engineering  
Mechanical Engineering Department

**Course Outline**

*Course Name : Vibration Lab ( 620476)*

<i>N<sup>o</sup></i>	<i>Experiment</i>
(0)	Introduction and review of vibration basics
(1)	Mass – Spring system
(2)	Pendulum (Simple and Compound)
(3)	Bifilar Suspension
(4)	Forced Vibration with negligible damping
(5)	Transverse Vibrations of a Beam
(6)	Fly Wheel system
(7)	Centre of Percussion & Kater's (Reversible) Pendulum
(8)	Whirling of Shaft Machine
(9)	Static and Dynamic Balancing
(10)	Mass – Spring – Damper system

**Pre – request**

- Mechanical Vibration
- Measurement Lab

**Grading**

1. 50% Lab work ( quizzes and in lab reports ) :
  - i. 15 Marks on the first set experiments
  - ii. 15 Marks on the second set experiments
  - iii. 5 Marks on the last set experiments
  - iv. 10 Marks on quizzes
  - v. 5 Marks on term project
2. 50% final Exam:

### **Attentions**

- 1- **Absence:-** two absence are allowed with accepted excuse and the experiments must be recovered. Any exceeding for the permitted absences will be restricted from taking the final exam
- 2- **Reports:-** the report must be delivered after one week from the experiment in the lab time. No late reports are accepted for any reason and it will be graded as **zero**. The short and full reports must follow the standards of report writing procedures. Any copied reports will be graded zero.
- 3- **The late on the lab time:-** the student is allowed to enter the lab after **10 minutes** from the starting the lab only.
- 4- **Discipline:-** any student make any disturbance in the lab will be dismissed immediately
- 5- **Dismissing:-** no student is allowed to dismiss from the lab until the lab is finished fro any excuse

### **Report Writings**

- 1- **Introduction:-** includes the system description and the objectives of the experiment .
- 2- **Theory:-** include the mathematical model, the derivation of equations and the final shape of the governing equation
- 3- **Collected Data:-** includes the data been collected illustrated in the provided tables
- 4- **Sample of Calculations:-** include one sample of calculations described deeply
- 5- **Results:-** includes all the results been obtained illustrated in figures and tables been provided
- 6- **Discussion:-** includes the understanding of what this experiment implies and the answer of the provided questions
- 7- **Conclusion :-** includes all the conclusions of the experiment implementation

### **Notes:-**

- \* The reports can be handwritten or computer written
- \* The computer written reports must have 2.0 line spacing