MECHANICAL VIBRATIONS LAB (ME-411L)

Pre-requisite: None
Credit Hours: 01
Contact Hours: 48

RECOMMENDED BOOK(S)

Mechanical Vibrations Laboratory Manual

COURSE OBJECTIVES

To study and visualize the different ways of vibration occurrences in mechanical equipment and how to control it, i.e. whirling of shafts, spring damper systems etc.

S. No.	CLO/PLOS MAPPING	DOMAIN	PLO
1	**Conduct** different experiments to measure different mechanical properties like moment of inertia, natural frequencies of different systems etc. with some confidence and proficiency	P4	01
2	**Analyze** oscillations of different systems like simple and compound pendulum, damped and un-damped system frequencies of experimental data by computing derived quantities from the measured values	C4	04

COURSE CONTENTS

Determination of the period of oscillation for bifilar suspension system.
Determination of the period of oscillation and mass moment of inertia for trifilar suspension.
Determination of the rotational inertia of point masses and rod.
Determination of the rotational inertia of disc.
Determination of the rotational inertia of ring.
To demonstrate universal vibration apparatus.
To demonstrate natural undammed free vibration on universal vibration apparatus.
To demonstrate dammed forced vibration on universal vibration apparatus.
To illustrate the experimental method of scientific investigation by finding how the period of a pendulum depends on various factors.
Determination of the period of torsional vibration as a function of: Torsion wire diameter
And Torsion wire length.
Determination of the natural frequency, of a spiral spring-rotating mass system.
To determine whirling speed of shaft theoretically and experimentally.
Determination of static and dynamic unbalances.
Balancing the apparatus statically and dynamically.