



Title of Module:	<b>PASSIVE VIBRATION CONTROL</b>
Code:	<b>TME7008</b>
Total time:	45 hours
Credit points:	3
Level:	MSc and PhD
Prerequisite:	none
Co-requisite:	none

**AIMS:**

The aim of this module is introduce students to the basic concepts of passive vibration control to reduce vibration levels in dynamic structures using dynamic absorber and isolation systems.

**SYLLABUS:**

Introduction. Basic concepts of mechanical impedance. Two degree of freedom models. One degree of freedom MCK dynamic absorbers acting in one degree of freedom primary system: fixed point theory, and optimum design using non linear optimization techniques. Mathematical model of viscoelastic materials. Four fractional derivatives models. Dynamic characteristic of the viscoelastic materials used in vibration control. Generalized equivalent parameters. Dynamic absorbers used in multi degree of freedom systems: the generalized approach, and optimal design. Basic concepts of one degree of freedom isolation system. Tramissibility. One and six degree of freedom system in isolation approach.

**BIBLIOGRAPHY:**

- Dynamics and Control of Structures, Leonard Meirovitch, Wiley-Interscience, 1990;
- Passive Vibration Control, Denys J. Mead, John Wiley & Sons, 2000;
- Principles and Techniques of Vibrations, Leonard Meirovitch, Prentice-Hall, 1997;
- Technical papers in passive vibration control.

**RESPONSIBLE CO-ORDINATOR:**

Prof. Carlos Alberto Bavastri.