1. Course: ENCP 330 - Introduction to Vibrations
2. Credits and Contact Hours: 3 credits, 3 lecture hours per week
3. Instructor: Varies
4. Example Textbook: Introduction to Mechanical Vibrations, R. J. Anderson, 2020 Wiley. 978-1-119-05364-4
5. Course Information
   1. Catalog Description: Theoretical and experimental analysis of systems involving one degree of freedom, including measurement methods. Introduction to free vibrations in systems with two degrees of freedom.
   2. Prerequisites: ENCP 210 or ECIV 210 or EMCH 310; MATH 242.
   3. Substitute for EMCH 330
6. Course Goals
   1. Learning Outcomes. Students will be able to:
      1. model and analyze free and forced vibration of one degree of freedom systems.
      2. demonstrate understanding of vibration behavior of two degree of freedom systems
      3. apply vibration principles in the design of engineering systems and devices.
   2. Learning Outcomes (LOs) relation to ABET EAC Criterion 3 Student Outcomes

|  |  |  |  |
| --- | --- | --- | --- |
| ABET EAC Criterion 3 Student Outcomes | LO1 | LO2 | L03 |
| an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. | X | X | X |

1. Topics Covered

* Linear springs and stiffness
* Equations of motion
* Harmonic motion
* Harmonic excitation
* Base excitation
* Transform function
* Control of one degree of freedom system
* Two degree of freedom system
* Analysis of experimental data

1. Document History

Created April 5, 2022