

ROMA AMNC 301: Complements of Applied Mechanics

Instructor

Dr. Fabio Botta

Duration/Credits

90 hours, 8 hours/week, 12 weeks; 6 credits

Content

Synthesis of the mechanism
Finite elements method
Elements of the theory of the vibrations:
 Single degree of freedom
 Multi degree of freedom
 Continuous models: beams, plates and shells
Critical speeds
Hydrodynamic lubrication
Dynamic analysis of the manipulator
Transient in mechanical systems

Texts-No texts are required but the following texts can be used for reference

- A. G. Erdman, G. N. Sandor, *Mechanism Design – Analysis and Synthesis*, Vol. I – Prentice Hall
- W. Weaver Jr, S. P. Timoshenko, D. H. Young, *Vibration problems in Engineering*, Wiley Interscience
- W. Soedel, *Vibrations of Shells and Plates*, Dekker Mechanical Engineering
- J. P. Den Hartog, *Mechanical Vibrations*, Dover
- W. J. Palm III, *Mechanical Vibration*, Eiley

Prerequisites

Calculus, Engineering Mechanics.

Exam

There will be a final exam, based on an interview and discussion of assigned homemade exercises.

Grades

Exercises discussion: 40%, interview: 60%.