FACULTY OF **ENGINEERING**

DEGREE COURSE: **INDUSTRIAL ENGINEERING**

MASTER DEGREE: **INDUSTRIAL ENGINEERING / DESIGN**

SUBJECT: FUNCTIONAL MACHINE DESIGN

LECTURER: GIACOMO PALMIERI

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OBJECTIVES

The Course will provide fundamentals of kinematics and dynamics of machines, focusing on the case of motions in space.
The Course deals also with actuation systems and design methods for mechanical complex systems.

CONTENTS

Kinematics and dynamics for motions in space – Rotor dynamics – nDOF vibrations – Motion transmission – Cams design – Actuation systems – Design methods – Main principles of the European Machinery Directive.

LEARNING OUTCOMES

The course provides the knowledge of machine mechanics necessary to approach the study and synthesis of complex machines.

ASSESSMENT

Written exam: multiple choice and open questions

RECOMMENDED TEXTBOOKS

- R.L. Norton, *Design of Machinery: An Introduction to the Synthesis and Analysis of Mechanisms and Machines*, Fifth Edition, McGraw-Hill, 2011.

- J. Uicker, G. Pennock, J. Shigley, *Theory of Machines and Mechanisms*, Fourth Edition, Oxford University Press, 2010.