



COMPLEMENTS OF MACHINES MECHANICS

Enrollment year	2018/2019
Academic year	2020/2021
Regulations	DM270
Academic discipline	ING-IND/13 (APPLIED MECHANICS FOR MACHINERY)
Department	DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING
Course	INDUSTRIAL ENGINEERING
Curriculum	Meccanica
Year of study	3°
Period	1st semester (28/09/2020 - 22/01/2021)
ECTS	6
Lesson hours	53 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	ROTTENBACHER CARLO EUGENIO ALESSANDRO (titolare) - 6 ECTS
Prerequisites	Suggested: Applied mechanics; Structural mechanics, Numerical analysis
Learning outcomes	Applied Mechanics module - This course introduces the undergraduate student to the methodologies and techniques for Diagnostics of mechanical systems with particular focus on the numerical solution of engineering problems. The acquisition of a good familiarity with analysis and data processing with special software will be one of the aims of the course.
Course contents	Topics covered include: a) Introduction to signal analysis and data processing with Matlab: - the course introduces the student to the fundamentals of dynamics, simulation and identification of mechanical systems by using computational tool Matlab (de facto standard software

	<p>for technical computing). We start from elementary algebraic operations and proceed to matrix eigenvalue problems and modeling of continuum systems. b) Diagnostics of mechanical systems; elements theory and applications: - inverse problem in mechanics and application to simple examples with Matlab. Introduction to data processing techniques; locking on controlled parameters for diagnostic purposes. Modeling of problems and interpretation of numerical results. Application to simple engineering structures and to biomechanics.</p>
Teaching methods	<p>Lectures (hours/year in lecture theatre): 35 Practical class (hours/year in lecture theatre): 18 Practicals / Workshops (hours/year in lecture theatre): 0</p>
Reccomended or required readings	<p>Handouts and documents given by the teacher</p>
Assessment methods	<p>Assignments are project-oriented relating to mechanical engineering topics. Final examination consists of written test and oral presentation</p>
Further information	
Sustainable development goals - Agenda 2030	<p>\$Ibl legenda sviluppo sostenibile</p>