

Syllabus

Syllabus

Titul dl curs	Meccatronica e Automazione di Processo
Codesc dl curs	42628
Titul suplementar	
SSD	IIND-02/A
Lingaz	Tedesco
Curs de laurea	Corso di laurea professionalizzante in Tecnologie del Legno
D'autri cursc de laurea (cursc deberieda)	
Dozenc	dr. Veit Gufler, Veit.Gufler@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/38756
Assistent didatich	
Semester	Primo semestre
Ann/Agn de stude	3
Credic universitar	3
Ores de insegnament	30
Ores de laboratore	0
Ores de stude individual	45
Ores de riceviment prevedudes	9
Ressumè di contegnus	- Modeling and simulation - Electrical and hydraulic actuators - Power transmission - Machine dynamics and motor-load coupling - Data acquisition and sensing
Argomenc dl curs	The course provides fundamental knowledge of mechatronics and automation engineering. Topics include methods for the modeling and simulation of mechatronic systems, electrical and hydraulic actuators, as well as key drive components for the transmission

	and conversion of motion and forces. Further emphasis is placed on machine dynamics and the interactions between motors, transmissions, and loads. In addition, methods for data acquisition and sensor technology are introduced, with a focus on essential sensor parameters and their characteristics.
Paroles clef	mechatronics, drives, power transmission, sensing
Prerequisic aconsiés	Students should be familiar with the basic knowledge of physics and mathematical analysis.
Cursc propedeutics	
Modalité de enseignament	Frontal lectures, exercises.
Oblianza de frecuencia	Strongly recommended.
Obietifs formatifs y competenzes da arjonje	Learning outcomes Knowledge and Understanding: - Fundamentals of mechatronics and process automation - Principles and applications of electrical and hydraulic actuators - Power transmission and coupling of motor, transmission and load - Fundamentals of data acquisition and sensing Applying Knowledge and Understanding: - Analysis and evaluation of mechatronic systems - Application of methods for the selection of suitable actuators, transmission systems and sensors Making Judgements: - Evaluation of mechatronic solutions with respect to functionality, performance and limitations - Selection of technical components based on specified requirements Communication Skills: - Analysis and discussion of technical documentation - Discussion of technical problems and solution concepts Learning Skills: - Independent deepening of course content through the use of scientific and technical literature - Familiarization with new components and technologies in the field
Obietifs formatifs y competenzes da arjonje (informazions suplementares)	
Sort de ejam	The assessment is based on a written examination consisting of

	numerical exercises accounting for 60 % of the final grade and theoretical questions accounting for 40 %.
Criters de valutazion	The assessment criteria for the numerical exercises are the correctness of the solution procedure and the results. The assessment criteria for the theoretical questions are based on knowledge of the course topics, the clarity and relevance of the answers, command of the language of instruction, and the ability to exercise independent judgment. The weighting of each numerical exercise and theoretical question is specified in the written examination.
Bibliografia obligatora	• Notes taken during lecture • Lecture slides
Bibliografia aconsieda	• W. Roddeck. Einführung in die Mechatronik. Wiesbaden: Springer, 2023. https://doi.org/10.1007/978-3-658-41950-9
Deplù informaziuns	
OSS	Istruzione di qualità, Innovazione e infrastrutture, Energia rinnovabile e accessibile