

Syllabus

Descrizione corso

Titolo insegnamento	Meccatronica e Automazione di Processo
Codice insegnamento	42628
Titolo aggiuntivo	
Settore Scientifico-Disciplinare	IIND-02/A
Lingua	Tedesco
Corso di Studio	Corso di laurea professionalizzante in Tecnologie del Legno
Altri Corsi di Studio (mutuati)	
Docenti	dr. Veit Gufler, Veit.Gufler@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/38756
Assistente	
Semestre	Primo semestre
Anno/i di corso	3
CFU	3
Ore didattica frontale	30
Ore di laboratorio	0
Ore di studio individuale	45
Ore di ricevimento previste	9
Sintesi contenuti	- Modeling and simulation - Electrical and hydraulic actuators - Power transmission - Machine dynamics and motor-load coupling - Data acquisition and sensing
Argomenti dell'insegnamento	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.
Parole chiave	mechatronics, drives, power transmission, sensing
Prerequisiti	Students should be familiar with the basic knowledge of physics and mathematical analysis.
Insegnamenti propedeutici	
Modalità di insegnamento	Frontal lectures, exercises.
Obbligo di frequenza	Strongly recommended.
Obiettivi formativi specifici e risultati di apprendimento attesi	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
Obiettivi formativi specifici e risultati di apprendimento attesi (ulteriori info.)	
Modalità di esame	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 %.
Criteri di valutazione	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 obbligatoria	• Notes taken during lecture • Lecture slides
Bibliografia facoltativa	• W. Roddeck. Einführung in die Mechatronik. Wiesbaden: Springer, 2023. https://doi.org/10.1007/978-3-658-41950-9
Altre informazioni	
Obiettivi di Sviluppo Sostenibile (SDGs)	Istruzione di qualità, Innovazione e infrastrutture, Energia rinnovabile e accessibile