



DIGITAL SYSTEM DESIGN	
Enrollment year	2018/2019
Academic year	2018/2019
Regulations	DM270
Academic discipline	ING-INF/01 (ELECTRONICS)
Department	DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING
Course	INDUSTRIAL AUTOMATION ENGINEERING
Curriculum	Robotics and Mechatronics
Year of study	1°
Period	1st semester (01/10/2018 - 18/01/2019)
ECTS	6
Lesson hours	74 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	LEPORATI FRANCESCO (titolare) - 4 ECTS CRISTIANI ANDREA MARIA - 2 ECTS
Prerequisites	Fundamentals of digital systems electronics and microprocessors architecture.
Learning outcomes	Fundamentals of a typical microprocessor architecture and its instruction set. HW and SW description of a system for signal acquisition based on a Digital Signal Processor. Blue Tooth communication between DSP and PC. Labview software interfaces for data transfer between DSP and PC.
Course contents	Basic elements of assembly programming and correlation with the corresponding microprocessor design. Introduction to Labview. Software design in G language for file, arrays, strings management. Vi design for data acquisition through traditional USB ports or Blue

	<p>Tooth connections.</p> <p>Design of a system managed through a DSP to read sensors for industrial and biomedical applications.</p>
<b>Teaching methods</b>	<p>Lessons: 15</p> <p>Practice exercises: 45</p>
<b>Reccomended or required readings</b>	<p>Lecture notes that can be downloaded from the course site (mclab.unipv.it)</p>
<b>Assessment methods</b>	<p>The final exam is organised in two distinct trials:</p> <p>1) Design of a new version of the microprocessor architecture seen during the lessons, to implement new instructions.</p> <p>2) Design a LabVIEW program and a assembly code for the data acquisition through DSP.</p>
<b>Further information</b>	<p>THE ATTENDANCE TO THE COURSE IS MANDATORY</p>
<b>Sustainable development goals - Agenda 2030</b>	<p><a href="#">\$lbl_legenda_sviluppo_sostenibile</a></p>