SYLLABUS
COURSE DESCRIPTION

COURSE TITLE	**Maker Lab**
COURSE CODE	76205
SCIENTIFIC SECTOR	ING-INF/05
DEGREE	Bachelor in Computer Science
SEMESTER	2nd
YEAR	1st
CREDITS	3

TOTAL LECTURING HOURS	30
TOTAL LAB HOURS	-
PREREQUISITES	none
COURSE PAGE	https://ole.unibz.it

SPECIFIC EDUCATIONAL OBJECTIVES	Type of course: "caratterizzanti" for L-31 Scientific area: "Discipline informatiche" for L-31 The course is designed for acquiring professional skills and knowledge. It gives general practical knowledge and skills necessary for designing interactive IoT solutions. The course is organised into 2 main blocks: - 20 hours: principles and patterns for the design of interactive IoT solutions - 40 hours: projects for realising IoT prototypes of different complexity

LECTURER	TBA
SCIENTIFIC SECTOR OF THE LECTURER	INF/01
TEACHING LANGUAGE	English
OFFICE HOURS	TBA
TEACHING ASSISTANT	None
OFFICE HOURS	

LIST OF TOPICS COVERED	• Principles of electronics, interaction design and programming for IoT:
	  • Introduction to Raspberry Pi 3 and other controllers for IoT
	  • Introduction to the basics of Interaction Design for IoT
	  • Introduction to Python, MicroPyton and high-level programming languages for IoT
	• Plan, design and develop prototypes of IoT interactive solutions
	• Use of machines for the constructions of IoT artifacts

TEACHING FORMAT	Lectures, seminars and workshop

LEARNING OUTCOMES	**Knowledge and understanding:** • Know the main methods for the design of interactive IoT products. **Applying knowledge and understanding:** • Be able to apply interactive design principles and patters. • Be able to develop IoT solutions. **Making judgments** • Be able to plan and re-plan a technical project activity aimed at building an interactive IoT solution and to bring it to completion by meeting the defined deadlines and objectives. **Communication skills** • Be able to coordinate the work of a project team and to interact positively with members of the group. • Be able to interact and collaborate with peers and experts in the realization of a project or research. **Learning skills** • Be able to autonomously extend the knowledge acquired during the study course by reading and understanding scientific and technical documentation in Italian, German and English. • Be able, in the context of a problem-solving activity, to extend even incomplete knowledge taking into account the objective of the project.

ASSESSMENT	The assessment consists of two parts: • Project, consisting of small progressive tasks • Final oral exam with verification questions concerning projects The project part of the exam will assess the learning outcomes related to: (1) the ability to build basic circuits with controllers, sensors and actuators; (2) the ability to design IoT interactive prototype solutions; (3) the ability to develop small programs for the designed solutions, mainly in Python and/or MicroPython. Projects require group work. For students attending the course, formative feedback and assessment on projects will be delivered in person when requested by the students during the course hours. Being a making course, regular attendance is highly recommended so as to exploit this type of in-person interactions besides the course material, which is made available for free to students during course hours only.

	The oral exam will consist of verification questions related to the developed projects.
ASSESSMENT LANGUAGE	English
EVALUATION CRITERIA AND CRITERIA FOR AWARDING MARKS	During labs, students work on small-size projects, which count for 50% of the mark. The final oral exam has a presentation with questions and counts for 50% of the mark. The oral exam will be evaluated in terms of the ability to explain the developed projects---autonomously, clearly, correctly and completely. The projects will be evaluated in terms of the quality of the designed interactive solutions and programs, and specifically: the usability of interactive solutions; the correctness, completeness and clarity of programs.

REQUIRED READINGS	TBA
SUPPLEMENTARY READINGS	-
SOFTWARE USED	-