Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	Fundamentals of Information Science and Microcontroller Programming
Course code	42329
Scientific sector	INF/01
Degree	Bachelor in Wood Engineering
Semester	I
Year	I
Academic Year	2021-22
Credits	6
Modular	No

Total lecturing hours	36
Total lab hours	24
Total exercise hours	
Attendance	Attendance at assigned laboratory sections is *required*; lecture attendance is strongly recommended
Prerequisites	Registration for the course of Bachelor in Industrial and Mechanical Engineering
Course page	

Specific educational objectives	The course will provide an introduction to basic concepts in information and computer science (hardware and software), particularly those topics of fundamental importance to Engineering.

Lecturer	Dr. Helen C. Henninger Facoltà di Scienze e Tecnologie, Building K, Room 2.08 E-mail: HelenClare.Henninger@unibz.it
Scientific sector of the lecturer	Ing-Inf/04
Teaching language	English
Office hours	As listed on Cockpit or by appointment
Teaching assistant (if any)	Hlib Babii
Office hours	As listed on Cockpit or by appointment
List of topics covered	1. Basic structure of microcontroller code (Void setup/Void loop) and microcontrollers 2. Introduction to the prototyping board and simple circuit building. 3. C++ Coding intro; commands, operators and control structures, creating variables, strings, arrays, data types, Functions (inbuilt and making your own) 4. Conditional statements 5. Controlling a servo motor using a microcontroller 6.Using an optical flow sensor with a microcontroller 7.Motor driver/motor control using a microcontroller 8.Arithmetic, comparison and Boolean operators

	9. Pointers and addressing 10. Interrupts
Teaching format	.Classroom lectures and laboratory exercises

Learning outcomes (ILOs)	Knowledge and understanding 1. Basic software design procedures. 2. How to develop simple microprocessor programs. 3. How to interface a microprocessor with simple sensors and actuators. 4. How to implement simple electro-mechanical systems. Applying knowledge and understanding 5. Reports for hands-on laboratory exercises that complement the lectures will require you to devise and sustain arguments. Making judgements 6. On the choice of the right tools such as data types, programming approaches, or electrical components. The labs will also require you to gather and interpret relevant data. Communication skills 7. Lab reports will require you to present information, ideas, problems and solutions in clear and simple language. Learning Skills 8. Basic foundations for further study in more advanced courses in Engineering

Assessment

Formative assessment

Form	Length /duration	ILOs assessed
Labs	24 hours total	01/07/21

Summative assessment

Form	%	Length /duration	ILOs assessed
Final Exam	60	4 hours	1-4,6,8

Assessment language	English
Evaluation criteria and criteria for awarding marks	Labs: Completeness and correctness of code; quality and accuracy of lab reports (level of observation of physical processes) Written Final Exam: Completeness and correctness of answers. Students are required to receive an overall grade of greater than 60/100 points in order to pass the course

Required readings	Course notes
Supplementary readings	