Università degli Studi della Basilicata
Scuola di Ingegneria

COURSE: Electronic sensors, detectors and devices			
ACADEMIC YEAR:2017/18			
TEACHER: IULA ANTONIO			
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phone: 0971205151		web:	
Language: ITALIAN		mobile (optional):	
TEACHER: IULA ANTONIO			
ECTS: 9	n. of hours : 81	Campus: Potenza Dept./School: Scuola di Ingegneria Program: Corso di Laurea Magistrale in Ingegneria Informatica e delle Tecnologie dell'Informazione	Semester: A

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

Knowlegde. The student has to know and understand the working principle of electronic devices and systems studied during the course.

Applying knowledge. The student has to be able to apply acquired knowledge through experiments and/or numerical exercises on real devices.

Criticism. The student has to be able to evaluate by himself possible methods or techniques to solve specific problems.

Communication Skills. The student has to show his communicative skills through written reports and oral presentations.

Learning capability. The student has to able to get the state of art on a specific issue trough consultation of scientific literature.

PRE-REQUIREMENTS

Courses of Electronics, Numerical Models for Fields and Circuits.

SYLLABUS

Introduction to biometric systems. (27 h).

Goals of biometric systems. Main biometric characteristics. Advantages of the biometric recognition. Classification of biometric applications. Architecture and Performance of a biometric system. Template and matching. Errors in biometric systems. Evaluation parameters of a biometric system. Example of biometric characteristics.

Devices for ultrasound generation. (54 h)

Fundamental of Acoustics. Propagation of acoustic waves. Acoustic impedance. Piezoelectricity. Piezoelectric transducers. Main application of Ultrasounds. Analytical and Finite Element MOdelling of ultrasound transducers. Systems for Ultrasound Imaging. Basic principles for acoustical image generation. AScan, BScan and CScan images. CScan mapping.

TEACHING METHODS

Theoretical lessons, Classroom and laboratory tutorials

EVALUATION METHODS

Discussion of a project and/or final examination.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Pamphlets supplied during lessons

Wayman, J.L.; Jain, A.K.; Maltoni, D.; Maio , Biometric Systems: Technology, Design and Performance Evaluation, Springer ,2005.
L. Kinsler, A. R. Frey, A. B. Coppens, Fundamentals of Acoustics, John Wiley & Sons. 1999.

INTERACTION WITH STUDENTS

Direct (2 hours a week) Wednesday 12,00-14,00, by e mail (at any time), before and after lessons. Mailing or whatsapp list.

EXAMINATION SESSIONS (FORECAST)[1]

04/07/2018; 18/07/2018; 19/09/2018; 24/10/2018; 19/12/2018; 20/02/2019; 08/05/2019

SEMINARS BY EXTERNAL EXPERTS YES x NO □

FURTHER INFORMATION

[1] Subject to possible changes: check the web site of the Teacher or the Department/School for updates.