



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	Promozione della Salute, Materno-Infantile, di Medicina Interna e Specialistica di Eccellenza "G. D'Alessandro"
<b>ACADEMIC YEAR</b>	2019/2020
<b>BACHELOR'S DEGREE (BSC)</b>	PREVENTION TECHNIQUES FOR THE ENVIRONMENT AND WORKPLACE
<b>INTEGRATED COURSE</b>	PHYSICAL AND RADIATION SCIENCES - INTEGRATED COURSE
<b>CODE</b>	06349
<b>MODULES</b>	Yes
<b>NUMBER OF MODULES</b>	3
<b>SCIENTIFIC SECTOR(S)</b>	FIS/07, MED/36, ING-IND/11
<b>HEAD PROFESSOR(S)</b>	RASO GIUSEPPE      Professore Ordinario      Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>	RASO GIUSEPPE      Professore Ordinario      Univ. di PALERMO LO BRANO VALERIO      Professore Ordinario      Univ. di PALERMO LA GRUTTA LUDOVICO      Professore Associato      Univ. di PALERMO
<b>CREDITS</b>	9
<b>PROPAEDEUTICAL SUBJECTS</b>	
<b>MUTUALIZATION</b>	
<b>YEAR</b>	2
<b>TERM (SEMESTER)</b>	1° semester
<b>ATTENDANCE</b>	Mandatory
<b>EVALUATION</b>	Out of 30
<b>TEACHER OFFICE HOURS</b>	<p><b>LA GRUTTA LUDOVICO</b> Monday 10:00 12:00 Istituto di Radiologia, Stanza 125 - si prega di concordare via mail</p> <p><b>LO BRANO VALERIO</b> Thursday 12:00 13:30 edificio 9</p> <p><b>RASO GIUSEPPE</b> Wednesday 15:00 16:00 Dipartimento di Fisica e Chimica Thursday 15:00 16:00 Dipartimento di Fisica e Chimica</p>

<b>PREREQUISITES</b>	• General concepts of elementary algebra and geometry
<b>LEARNING OUTCOMES</b>	<p>Knowledge and understanding:  Knowledge of methods and detection techniques for the control and the detection of physical phenomena even in confined environment, knowledge of energy sources, knowledge on radiation and on radiation protection interventions. The assessment of knowledge is carried out by an oral assessment preceded by a written evaluation.</p> <p>Applying knowledge and understanding:  Ability to knowledge of physical principles for the use of the main tools for the detection of risk factors in living and working environments.</p> <p>Making judgments:  Independent judgment required for the measurement of parameters aimed at the wellbeing of man especially in indoor environment.</p> <p>Communication skills:  Skills in oral communication, written and multimedia with exposure so made for the training of personnel exposed to radiation, to exchange information, to communicate with experts from other fields.</p> <p>Learning skills:  Learning skills for the development and deepening of competencies, with reference to the continuous update of knowledge through consultation of library materials, databases, etc, also useful for the purposes of access to degree courses, first-level masters and other postgraduate training activities.</p>
<b>ASSESSMENT METHODS</b>	<p>Test in an ongoing written + Oral Exam.</p> <p>1. Assessment procedure for written tests in the pipeline  The course tests are formulated in terms of multiple choice exercises. The course tests tend to verify the possession of skills, abilities and skills required. The stimuli, well-defined, clear and interpretable only, allow to formulate independently the response, and are structured so as to ensure comparability.  The closing of the stimulus and the response is used to determine a priori, that is, at the time of the test construction, and therefore before it is administered, the score to be assigned to each question depending on the answer proves correct, incorrect or misleading statement.  The assessment is expressed in thirtieth and admission to oral test is determined by a minimum score.</p> <p>2. Evaluation criteria for the oral examination  The oral test consists of an interview, in order to check that you have skills and knowledge disciplinary provided by each of the modules provided by the course; the evaluation is expressed in thirtieths.  The questions, both open both semi-structured and specifically designed to test the results of learning provided for, will tend to occur) the knowledge captured; b) the processing capacity, c) have adequate display capacity on the contents of the course.  The final evaluation will take into account both the score of tests in the pipeline than that of the Oral Exam.</p> <p>Excellent 30-30 and praise, very good knowledge of the topics, excellent properties of language, good analytical ability, the student is able to apply knowledge to solve problems proposed  26-29 Very Good, Good command of the topics, full of language, the student is able to apply knowledge to solve problems proposed  24-25 good, basic understanding of the main topics, discrete properties of language, with limited ability to independently apply the knowledge to the solution of the proposed problems  Satisfactory 21-23, has not fully mastered the main teaching subjects but it has the knowledge, satisfactory property language, poor ability to independently apply the knowledge acquired  Sufficient 18-20, Minimum basic understanding of the major teaching and technical language issues, very little or no ability to independently apply the knowledge acquired  Insufficient, it does not have an acceptable knowledge of the contents of the topics covered in the teaching.</p>
<b>TEACHING METHODS</b>	<p>Frontal lessons.  Classroom exercises.</p>

**MODULE  
APPLIED PHYSICS**

*Prof. GIUSEPPE RASO*

**SUGGESTED BIBLIOGRAPHY**

D. Scannicchio - E. Giroletti, Elementi di Fisica Biomedica, EdiSES, 2015  
G. Raso - Dispense del corso

email: giuseppe.raso@unipa.it

<b>AMBIT</b>	10357-Scienze propedeutiche
<b>INDIVIDUAL STUDY (Hrs)</b>	45
<b>COURSE ACTIVITY (Hrs)</b>	30

**EDUCATIONAL OBJECTIVES OF THE MODULE**

Acquire the basic knowledge of the principles of physics necessary for understanding the operation of the main systems that constitute the human body and for the use of biomedical instrumentation.

**SYLLABUS**

<b>Hrs</b>	<b>Frontal teaching</b>
2	Introduction
6	Mechanics
2	Static
4	Thermology
4	Electromagnetism
3	Overview of radiation physics.

<b>Hrs</b>	<b>Practice</b>
4	Mechanics and static
2	Thermology
3	Electromagnetism

**MODULE  
RADIOLOGY AND RADIOPROTECTION**

*Prof. LUDOVICO LA GRUTTA*

**SUGGESTED BIBLIOGRAPHY**

Dispense del docente  
Cittadini. Diagnostica per immagini e radioterapia. Ediz. illustrata Copertina flessibile – 30 giu 2015  
tommasovincenzo.bartolotta@unipa.it

<b>AMBIT</b>	10363-Scienze della prevenzione e dei servizi sanitari
<b>INDIVIDUAL STUDY (Hrs)</b>	45
<b>COURSE ACTIVITY (Hrs)</b>	30

**EDUCATIONAL OBJECTIVES OF THE MODULE**

Provide the students with the key information pertaining the ionizing radiation (IR) and the Non Ionizing Radiation (NIR) in order to create a knowledge framework, so that they can autonomously and properly assess risk, benefit and main diagnostic and therapeutic applications of IR and NIR.

**SYLLABUS**

<b>Hrs</b>	<b>Frontal teaching</b>
8	Physics of ionizing radiations (IR). Health issues related to the use of IR.
2	Physics of non ionizing radiations (NIR). Use of NIR in Diagnostic Imaging.
8	Fundamentals of Radiobiology.
2	Contrast agents: classification and properties. Clinical applications. Adverse events and treatment. Patient preparation and management.
8	Health hazard due to Ionizing Radiation. Protection from Ionizing Radiations.
2	Legislation concerning population, patients and worker protection. Risk assessment.

**MODULE  
ENVIRONMENTAL TECHNICAL PHYSICS**

*Prof. VALERIO LO BRANO*

**SUGGESTED BIBLIOGRAPHY**

Steven V. Szokolay. Introduzione alla progettazione sostenibile. Hoepli  
Marco Beccali, Maristella Gussoni, Francesca Tosi; Ergonomia e ambiente. Progettare per i cinque sensi. Metodi, strumenti e criteri d'intervento per la qualità sensoriale dei prodotti e dello spazio costruito. Il Sole 24 Ore  
Testi forniti durante il corso

<b>AMBIT</b>	10360-Scienze della prevenzione nell' ambiente e nei luoghi di lavoro
<b>INDIVIDUAL STUDY (Hrs)</b>	45
<b>COURSE ACTIVITY (Hrs)</b>	30

**EDUCATIONAL OBJECTIVES OF THE MODULE**

The course aims to provide the basics and a methodology for the analysis of the main technologies of environmental control; heating, cooling, ventilation, lighting and acoustics. To provide knowledge and understanding of environmental comfort parameters. Furthermore, basics concerning sustainability of renewable energy sources and laws about health of workers are provided.

**SYLLABUS**

<b>Hrs</b>	<b>Frontal teaching</b>
4	Climate Analysis in urban places: comfort and health of the population; Sensation indices; Environmental monitoring: fixed and mobile stations.
8	The thermal behavior of buildings; environmental control systems; Global comforts of confined spaces. thermal comfort, air quality, visual and acoustic comfort.
4	Indoor and outdoor lighting. sector regulations. Incandescent lamps, LED lamps
7	Physics of sound, noise control, room acoustics
7	renewable energy sources (solar thermal, photovoltaic, wind, geothermal) for environmental control