



CLINICAL ENGINEERING	
Enrollment year	2019/2020
Academic year	2021/2022
Regulations	DM270
Academic discipline	ING-INF/06 (ELECTRONIC AND INFORMATION BIOENGINEERING)
Department	DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING
Course	BIOENGINEERING
Curriculum	PERCORSO COMUNE
Year of study	3°
Period	2nd semester (07/03/2022 - 17/06/2022)
ECTS	6
Lesson hours	45 lesson hours
Language	Italian
Activity type	WRITTEN TEST
Teacher	BUIZZA ANGELO (titolare) - 6 ECTS
Prerequisites	Fundamentals of electric and electronic circuits.
Learning outcomes	<p>The course will introduce the principles and tools for correct management of healthcare technology (medical devices and systems, information and communication technologies) in a hospital environment. The student will gain awareness of the technological, organisational and economical implications of the use of technology in healthcare, and acquire basic methodological and operational skills for easy access to the structures and services responsible for medical technology management, such as clinical engineering departments and services, either internal to the hospital or providing in-service support.</p>
Course contents	<p>Regulations, Standards and Norms concerning Medical Devices - EU context; the New Approach; the new regulation UE 2017/745 on medical devices (MDR); harmonised EU standards and norms.</p>

	<p>Electrical safety in the clinical environment - Electrocution, physiological effects of electric current, macro- and micro-shock. Safety of electromedicals: IEC EN 60601.1 standard. Electrical safety of power distribution system in a hospital: Italian regulations and standards. Case studies.</p> <p>Management of medical technology - Acquisition of new equipment and relevant procedures; incoming inspection and acceptance; maintenance of medical technology: different kinds of maintenance, maintenance programme, organization, scheduling, realization; electrical safety program, IEC EN 62353 norm; technology replacement planning, criteria and tools; software tools supporting technology management organisation.</p> <p>Clinical Engineering Services - History, functions, structure, organisation, responsibilities, implementation, evaluation of Clinical Engineering Service. Health Technology Assessment: overview, basic principles, different levels.</p>
Teaching methods	Lectures concerning the different aspects and phases of health technology management in a hospital setting. Practical classes aimed at quantitative analysis and evaluation of electrical risk situations due to the use of electromedicals. Seminars by professional on specific relevant topics.
Reccomended or required readings	Lecture notes by the teacher (in Italian), made available through the website https://elearning.unipv.it/
Assessment methods	Written exam.
Further information	Written exam.
Sustainable development goals - Agenda 2030	<u>\$ibl legenda sviluppo sostenibile</u>