UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata
ACADEMIC YEAR	2021/2022
BACHELOR'S DEGREE (BSC)	AUDIOPROTHESIC TECHNIQUES
INTEGRATED COURSE	AUDIOPROTESIC SCIENCES II - INTEGRATED COURSE
CODE	20347
MODULES	Yes
NUMBER OF MODULES	2
SCIENTIFIC SECTOR(S)	MED/32, MED/50
HEAD PROFESSOR(S)	MARTINES FRANCESCO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	CARUSO SERGIO ANDREA Professore a contratto Univ. di PALERMO
	MARTINES FRANCESCO Professore Associato Univ. di PALERMO
CREDITS	7
PROPAEDEUTICAL SUBJECTS	20396 - GENERAL AUDIOLOGY
	20340 - AUDIOLOGICAL SCIENCES - INTEGRATED COURSE
MUTUALIZATION	
YEAR	3
TERM (SEMESTER)	1° semester
ATTENDANCE	Mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**MARTINES FRANCESCO**
	Monday 10:00 12:00 Ambulatorio di Audiologia infantile - AOUP Paolo Giaccone

DOCENTE: Prof. FRANCESCO MARTINES

PREREQUISITES	General Audiology and Audiologic sciences I C.I.
LEARNING OUTCOMES	KNOWLEDGE AND UNDERSTANDING: Knowledge of the charachteristics of hearing aid fitting, REM, tests with RECD coupler, audioprothesic counseling, evaluation of hearing aid benefit through questionnaires. Knowledge of the components, functioning, indications and fitting of cochlear implants. CAPACITY TO APPLY KNOWLEDGE and UNDERSTANDING: Ability to make an adequate audioprothesic counseling, evaluation of hearing aid benefit through questionnaires and in-vivo measures. Ability to identify potential candidates for cochlear implant and ability to fit a cochlear implant. JUDGMENT SKILLS: Acquisition of the minimum critical capacity to evaluate the implications of the choice of treatment and the achievable results depending on the mental and chronological age of patients. COMMUNICATION SKILLS: Ability to expose and motivate operational choices, depending on the individual characteristics of the patient, the family context and the environmental characteristics. LEARNING SKILLS: Ability to correctly use specific scientific texts and literature of the sector for a continuous updating of knowledge in the specific health field. Ability to appropriately learn and follow subsequent curricular lessons using the knowledge acquired during the course; ability to continue to study independently to take advantage of in-depth courses, specialized seminars and Masters.
ASSESSMENT METHODS	The oral exam is an interview, aimed at determining whether the candidate has developed the skills and the disciplinary knowledge provided by the course; the evaluation is expressed in thirtieths. The questions (input), both open and semi-structured and specifically designed to test the results of learning provided, will verify a) the acquired knowledge; b) the processing capabilities, c) the possess of an adequate capacity to discuss the topics of the exam. a) As regards to the verification of knowledge, the ability to make connections between contents (theories, models, tools, etc.) will be required. b) Concerning the verification of processing capacity, at least one of the following three objectives will be indicated: b1) to provide independent judgments regarding the disciplinary contents; b2) to understand the applications or implications of the aforementioned judgments within the discipline; b3) to place the disciplinary contents within the professional, technological or socio-cultural context of reference. The maximum score is obtained if the exam verifies the full possession of the following three skills: a capacity of judgment able to represent emerging and / or little explored aspects of the discipline; a marked ability to represent the impact of course's contents within the sector / discipline in which they are; finally, a mastery of the ability to represent innovative ideas and / or solutions within the professional, technological or socio-cultural context of reference. c) Regarding the verification of the ability to show the acquired knowledge, a minimum evaluation will be achieved when the examiner demonstrates that the candidate exhibits a language property appropriate to the professional context of reference but not sufficiently articulated, while the maximum evaluation can be achieved by candidates who demonstrate full mastery of the sectorial language.
TEACHING METHODS	Lessons

MODULE
COCHLEAR IMPLANTS

Prof. FRANCESCO MARTINES

SUGGESTED BIBLIOGRAPHY	
-"Argomenti di Audiologia" Autori: S. Prosser e A. Martini Edizioni: Omega -"Audiologia protesica" Autori: U. Ambrosetti, F. Di Berardino, L. Del Bo -Dispenze fornite dal docente	
AMBIT	10348-Scienze e tecniche audioprotesiche
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30
EDUCATIONAL OBJECTIVES OF THE MODULE	
After completing the course the student must know: -Cochlear implant and Bone-anchored hearing aids characteristics. -Surgical indications of cochlear implantation in children and adults. -Fitting and follow-up of cochlear implant users.	

SYLLABUS

Hrs	Frontal teaching
3	Indications and contraindications of cochlear implantation among adults and children. Description of the cochlear implant.
3	Cochlear implant: external parts, processors, internal parts, receiver/stimulator and arrays.
3	Cochlear implant functioning
3	Electric stimulation of acoustic nerve fibers. From the speech processor to the receiver/stimulator. Signal processing.
3	Coding strategies for signal processing. Future perspectives. Bilateral cochlear implantation. Bimodal stimulation
2	Cochlear implantation and Intraoperative cochlear implant device testing.
3	Telemetry. EASR (electrical stapedius reflex) EABR Electric auditory brainstem response. ECAP (Evoked Compound Action Potentials).
2	Fitting. Timing and criteria of activation.
3	Cochlear implant fitting in children and adults.
2	Follow-up of cochlear implant users.
3	Bone-anchored hearing aids.

MODULE
HEARING AIDS III

Prof. SERGIO ANDREA CARUSO

SUGGESTED BIBLIOGRAPHY
-"Argomenti di Audiologia" Autori: S. Prosser e A. Martini Edizioni: Omega -"Audiologia protesica" Autori: U. Ambrosetti, F. Di Berardino, L. Del Bo -Dispenze fornite dal docente

AMBIT	10348-Scienze e tecniche audioprotesiche
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40
EDUCATIONAL OBJECTIVES OF THE MODULE	

EDUCATIONAL OBJECTIVES OF THE MODULE
After completing the course the student must know: -Main methods of validation of hearing aid fitting. -Algorithms used in hearng aid fitting. -Tests and questionnaires to assess hearing aid benefit.

SYLLABUS

Hrs	Frontal teaching
4	Diagnostic-audio-prosthetic strategy: approach to the clinical case, general concepts.
4	Hearing aid interview, needs analysis, psychometric questionnaires, hearing aid assessment.
6	Audioprosthetic audiometry, proposal of the integrated prosthetic solution (device + accessories), definition of objectives and rehabilitation plan, sharing with beneficiaries and care givers.
6	Choice of independent or proprietary predictive algorithms of auditory dynamics. Initial fitting and verification of the fitting. Using the analyzer (electronic ear) in standard coupler. Verification of "in vivo" fitting. REM, Auto REM, RECD tests.
8	Signal processing algorithms and their use. Multi-channel compression, feedback management, frequency lowering, noise reduction, microphone directionality.
8	Evaluation of outcomes. Audibility, comfort, quiet understanding and noise. Listening in the reverb. Listening from a distance. Spatial localization. Efficiency and ease of use.
4	Complex clinical cases. Unilateral hearing loss. Ski-slope hearing loss. Hearing loss with abnormal audiometric profiles. Hearing loss and comorbidities.