COURSE DATA

DATA SUBJECT

Code: 35301
Name: Assistive Technology Applied to Speech Therapy Intervention
Cycle: Undergraduate Studies
ECTS Credits: 4.5
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1203 - Degree in Speech Therapy	Facultat de Psicologia i Logopèdia	3	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1203 - Degree in Speech Therapy	Technological resources and augmentative communication systems	COMPULSORY

COORDINATION

MARQUEZ BALDO LIDIA

SUMMARY

This course offers a theoretical and practical approach to the use of technology in the field of speech and language therapy, with a particular focus on its application in the assessment and intervention of language, speech, voice, hearing, and communication disorders. Throughout the course, students will analyse specific digital tools and multimedia applications, explore the design of interactive resources tailored to patients needs, and examine the role of augmentative and alternative communication systems (AAC) in cases of motor or communicative disabilities. The course aims to equip students with the skills to critically select, use, and design effective, ethical, and accessible technological resources for professional speech and language therapy practice.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

No specific requirements. Students are encouraged to approach the course with an active and participatory attitude, as its contents are directly applicable to professional speech and language therapy practice and will be addressed through a hands-on approach.

COMPETENCES / LEARNING OUTCOMES

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Be familiar with communication, language, speech, hearing, voice and non-verbal communication disorders.

Design and conduct speech therapy treatments, both individual and collective, by setting targets and stages, with the most effective and adequate methods, techniques and resources, and bearing in mind the different life developmental stages as well as gender perspective.

Explore, evaluate, diagnose and predict the evolution of communication and language disorders from a multidisciplinary perspective.

Facilitate learning of alternative and augmentative communication systems as well as the design and use of prostheses and assistive devices.

Have computer skills related to the field of study.

Manage the technologies of communication and information.

Select, implement and facilitate the learning of augmentative communication systems, as well as the design and use of prostheses and technical aids adapted to the physical, psychological and social conditions of the patient.

Students must be able to apply their knowledge to their work or vocation in a professional manner and have acquired the competences required for the preparation and defence of arguments and for problem solving in their field of study.

Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.

Students must have developed the learning skills needed to undertake further study with a high degree of autonomy.

Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.

Understand and critically evaluate the terminology and research methodology of speech therapy.

Use the exploration techniques and instruments typical of the profession and record, synthesize and interpret the data provided by integrating them into the information set.

Work in the school, healthcare and healthcare settings as part of the professional team. Advice on the development, implementation of care and education policies on topics related to speech therapy.

DESCRIPTION OF CONTENTS

1. Information and Communication Technologies: Resources and Services.
The role of ICTs in healthcare and education, and their applicability in speech therapy.
Digital resources and services available for communication and language professionals.
Platforms, repositories of materials, online professional communities, and clinical and therapeutic information management tools.

2. Technological Resources and Their Use in Speech Therapy: Diagnosis and Intervention.
Specific technological tools used in speech therapy assessment and intervention.
Voice and speech recording and analysis software.
Digital instruments for observing and monitoring communication difficulties.
Criteria for selecting tools based on patient needs and therapeutic objectives.

3. Interactive Multimedia Applications: Evaluation and Design.
Analysis of multimedia applications used in speech therapy intervention: interactivity, accessibility, feedback, and motivation.
Critical evaluation of these tools.
Basic concepts of designing multimedia materials adapted to different user profiles with speech therapy needs.

4. Multimedia applications for intervention in oral and written language disorders.
Practical examples and evidence of the use of specific multimedia applications for the treatment of difficulties in the acquisition and use of oral and written language.
Commercial and open-access resources.
Possibilities for working on vocabulary, morpho-syntax, phonological awareness, and reading comprehension.

5. Speech visualizers in the treatment of speech and voice disorders.
Use of speech visualization technologies (spectrograms, sonograms, or real-time visual feedback) for speech therapy intervention.
Applications and their usefulness in the rehabilitation of articulatory disorders, dysphonia, and prosody disorders.

6. Technological resources for intervention in hearing disorders.
Technological tools used in working with people with hearing loss.
Hearing aids and FM systems.
Auditory training or lip-reading applications.
Use of augmentative communication platforms, automatic subtitling, and accessible resources to support communication and learning.

7. Technological resources for interventions for severe motor and communication disorders. Communication boards.
Communication assistive technologies (AAC).
Specific software and devices: communication boards, dynamic communicators, and alternative systems based on pictograms, symbols, or text.
Design of accessible communication environments.
Personalization of resources for people with cerebral palsy, neuromuscular disorders, or other conditions that affect speech.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	30,00
Laboratory	15,00
Total hours	**45,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	2,00
Individual or group project	18,00
Independent study and work	20,00
Preparation of lessons	5,00
Preparation for assessment activities	10,00
Resolution of case studies	12,50
Total hours	**67,50**

TEACHING METHODOLOGY

The course will be developed through a combination of active methodologies that promote practical and meaningful learning. The following teaching strategies will be employed:
- Lectures delivered by the teaching staff, in which the different contents of the subject will be presented. These sessions will aim to facilitate the understanding of key concepts while encouraging active student participation through questions, clarification of doubts, and the joint analysis of real examples.
- Practical classes, demonstrations, and case studies, designed to help students acquire the necessary knowledge for assessment, diagnosis, and development of speech and language therapy intervention programmes, as well as the selection and adaptation of technological communication materials.
- Theory-practice sessions in the computer lab, focused on the use of specific technological programs and tools applied to speech therapy. These sessions will allow students to become familiar with digital tools used in the design, implementation, and evaluation of interventions.
- Independent student work, including the preparation of assignments, analysis of clinical cases, design of interventions, and writing of reports. This work will be supported by virtual classroom resources and structured follow-up activities.
- Scheduled individual and group tutorials, intended for the supervision of practical assignments, methodological guidance, and resolution of questions related to course content or current tasks.

EVALUATION

The evaluation of the course will be carried out through a combination of procedures aimed at assessing both the acquisition of theoretical knowledge and the development of practical skills related to the use of technological resources in speech and language therapy:
- Preparation and presentation of practical assignments, individually or in groups (70%). These activities, which will be submitted through the Virtual Classroom, will focus on the design of interventions, the resolution of clinical cases, the analysis and use of specific technological tools, and the preparation of applied reports. Particular emphasis will be placed on the relevance and justification of the proposals, their adaptability to the patients¿ needs, and the technical quality of the work produced.
- Objective theoretical tests (multiple-choice format) (30%), which will assess the students¿ understanding of the concepts studied in class, as well as their ability to relate and apply them to practical situations.
To pass the course, students must successfully complete all assessment activities ¿ both practical and theoretical ¿ with a minimum grade of 5 out of 10 in each. If any of the activities are not passed during the first examination session, they may be recovered in the second session through improvement of the original work or submission of an alternative assignment, as indicated by the professor. In the case of recovered activities, the maximum grade awarded will be 5. Grades from already passed activities will be retained.
Active participation in class, tutorials, seminars, and workshops, as well as demostrated motivation for quality learning, will be taken into account throughout the course, although it will not have a specific weight in the final grade. However, it may be considered as an additional criterios for the awarding of the Distinction (Matrícula de Honor).
The Distinction may be awarded only to students who have passed the course in the first examination session and obtained a final grade of 9 or higher. It will be granted to those students who achieve the highest marks, in strict order. In the event of a tie, priority will be given, in this order, to those who have completed voluntary activities, demonstrated greater commitment in terms of attendance and participation, and obtained a higher number of outstanding grades in practical tasks.
Fraudulent conduct in assessment tests and plagiarism in assessment work will be considered in accordance with the UV Assessment and Grading Regulations (ACGUV 108/2017) and the Protocol for Action against Fraudulent Practices (ACGUV 123/2020).
The use of technologies (including AI) to create assessment materials without prior and express authorization from the teaching staff will prevent them from being considered as self-authored and will be treated according to current regulations and the UV Code of
Coexistence and Good Practices (ACGUV 300/2023, DOGV, no. 9747/18.12.2023).

REFERENCES

Basic

- La bibliografía básica de la materia se limitará a los materiales propios del profesorado, que se incorporarán a Aula Virtual.

Supplementary

- Deka, C., Shrivastava, A., Abraham, A. K., Nautiyal, S. y Chauhan. P. (2022). AI-Based automated speech therapy tools for personas with speech sound disorders: a systematic literature review. Speech, Language and Hearing, 28(1). https://doi.org/10.1080/2050571X.2024.2359274
- Gil, A. y Cárdenas, B. (2023). Comunicación Aumentativa Alternativa. Fundamentos lingüísticos: Intervención y Evaluación. Universo de Letras.
- Jakubowitz, M. y Edwards-Gaither, L. (2022). Telepractice: A Clinical Guide for Speech-Language Pathologists. Plural Publishing.
- Jurafsky, D. y Martin, J. H. (2025). Speech and Language Processing. An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition with Language Models. K (3rd edition). Stanford University. https://web.stanford.edu/~jurafsky/slp3/ed3book_Jan25.pdf
- Kumar M, A., Chakravarthi, B. R., Bharathi, B., O¿Riordan, C., Murth, H., Durairaj, T. y Mandl, T. (Eds.) (2023). Speech and Language Technologies: First International Conference, SPELLL 2022, Kalavakkam, Indica. Novembre 23-25, 2022 Proceedings. Springer.
- Martin, L. J. y Nagalakshmi, M. (2024). Bridging the Social & Technical Divide in Augmentative and Alternative Communication (AAC) Applications for Autistic Adults. arXiv. https://doi.org/10.48550/arXiv.2404.17730
- Real Patronato sobre Discapacidad (2024). Impacto de la Inteligencia Artificial en los derechos de las personas con discapacidad. Centro Español de Documentación e Investigación sobre Discapacidad (CEDID). https://www.siis.net/documentos/ficha/586018.pdf
- Royal College of Speech & Language Therapists (2024). Augmentative and alternative communication (AAC) overview. RCSLT. https://www.rcslt.org/speech-and-languagetherapy/clinical-information/augmentative-and-alternative-communication/
- Shethia, U., Inamdar, V. y Kulkarni, V. (2025). Evaluating a Digital Speech Therapy App for Stuttering: A Pilot Validation Study. arXiv. http://dx.doi.org/10.48550/arXiv.2503.02743
- Wahl, M. y Weiland, K. (2023). Augmentative and Alternative Communication and digital participation. Frontiers in Communication, 8. https://doi.org/10.3389/fcomm.2023.118025