



Inclusive Computer Science

A Teacher's Guide for Supporting Deaf Students

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Introduction

The Access2CS project aims to promote inclusive and accessible Computer Science (CS) education, with a particular focus on supporting **deaf and hard-of-hearing students** in Higher Education. While inclusive education also encompasses a broader range of learners with diverse needs, this guide is specifically designed to address the barriers, challenges, and opportunities experienced by deaf students within Computer Science learning environments.

Deaf students often encounter unique obstacles in Higher Education, particularly in subjects such as Computer Science that rely heavily on specialised terminology, fast-paced communication, and complex visual and auditory information. These challenges can affect access to lectures, interactions with peers and instructors, and assessment processes. As a result, there is a clear need for targeted guidance to support educators in adapting their teaching practices to be more inclusive and accessible for deaf learners.

This guide has been developed to support Higher Education teachers in understanding the needs of deaf students and in creating learning environments that promote accessibility, participation, and academic success. It provides both practical strategies and evidence-based insights to help educators implement inclusive approaches in their teaching.

The document is structured in two main parts.

The first part presents the results of a series of interviews conducted with academic staff and professionals across partner countries. These interviews explore current practices, challenges, and needs related specifically to the inclusion of deaf students in Higher Education, with particular attention to teaching methods, assessment, communication, and institutional support systems.

The second part offers a state-of-the-art review, bringing together relevant laws, policies, best practices, guidelines, tools, glossaries, and resources at both national and international levels. This section provides teachers with concrete references and practical materials to support the implementation of inclusive teaching strategies tailored to deaf students in Computer Science education.

By combining insights from real-world experiences with a comprehensive overview of existing resources, this guide aims to equip educators with the knowledge and tools needed to foster accessibility, promote equal opportunities, and support the academic success of deaf students.

Interviews

The Access2CS Consortium conducted 16 interviews between May and July 2025, investigating teachers' current knowledge of the inclusion of deaf students, collaboration with service centers and the implementation of compensatory tools and dispensatory measures both in the conduct of exams and in the structuring of lessons.

The profile of the people interviewed was very diversified:

- Johannes Kepler University (JKU) in Austria interviewed: lecturers from various disciplines, including mechanics, movement science, inclusive education, statistics and sign language communication;
- University of Ljubljana (UL) in Slovenia interviewed: one Student Office professional, assistant and full professors, senior professionals, and lecturers from disciplines such as mathematics, user-adapted communication, and circuits and signals;
- Technological University Dublin (TU Dublin) in Ireland interviewed: engineering lecturers across two Irish Higher Education institutions;

Istituto dei Sordi di Torino (IST) in Italy interviewed: two communication assistants for deaf people, an educator from the Institute that manages the support desk for students with disabilities at the Polytechnic University of Turin, and university professors who manage the “Life Laboratory” in Turin.

Although each country's situation is different, with specific regulations, common challenges and obstacles have emerged that require a strong network and collaboration between multiple institutions and university professors in order to be addressed.

All universities in partner countries have a structured system for registering and approving accommodations for students with disabilities. However, there is a **lack of direct communication from the Services Centers** to the instructors of the courses in which the student with disabilities is enrolled. This means that teachers do not have enough time to adapt their courses to the characteristics of their students, or they do not receive guidelines that can support the creation of resources and materials to make their courses inclusive.

A good practice is that of the Polytechnic University of Turin, where teachers can see on their digital profile which students are enrolled and which ones have a specific disability. This method efficiently speeds up communication and allows for direct contact between teachers and students. Remaining in the Italian context, usually the communication assistant and/or the student's tutor contacts the teacher to explain their difficulties and needs. The meeting between all three parties allows for the agreement of dispensatory measures and compensatory tools in view of the exam and also during the course itself. However, communication assistants report that, unfortunately, **teachers often lack specific training on the needs of students with disabilities**, which means that specific

accommodations are often not allowed, with the exception of additional time. In most cases, this results in students failing the exam on their first attempt.

For subsequent exams, professors are more willing to accept special accommodations (such as switching from a written exam to an oral exam, partially replacing open-ended questions with multiple-choice questions, etc.).

The University of Turin expects deaf students to contact their professors at the beginning of the course to inform them of their presence and request any necessary accommodations. This meeting can take place without the involvement of a communication assistant and/or tutor, in order to promote student self-determination. Obviously, in the case of a deaf student who uses sign language to communicate (without hearing aids or a cochlear implant), an interpreter must be present during meetings with the teacher.

One difficulty reported by teachers in all partner countries is **the number and availability of interpreters, communication assistants, and tutors**. It has been noted that availability is limited and often does not meet student demand. This **creates significant communication and institutional barriers**.

Another aspect to consider is the specificity of Computer Science and other related subjects: they **require knowledge and precise vocabulary** that is often not part of the educational and cultural background of interpreters and communication assistants. This means that these professionals must have access to the course materials provided by the teacher in order to understand the key concepts and thus be able to explain them clearly and comprehensively to deaf students. This step requires additional time which, if not managed properly, can affect the deaf student's career and academic success.

The peer tutor service directly involves university students who are familiar with the subject and can therefore accelerate the transition described above, but there is often a lack of knowledge about deafness and its characteristics. In such cases, for example in Italy, the strategy is to have the communication assistant who supports the student in certain subjects provide brief training to the tutor assigned to other subjects and make themselves available to explain the specific needs together with the student themselves. Roberta N., who manages the help desk at the Polytechnic University of Turin, reports that general introductory training on various disabilities (deafness, blindness and low vision, neurodiversity, etc.) is provided to tutors at the beginning of the school year in order to provide them with general knowledge. The problem is that the training takes place before the tutors are assigned to specific cases, so they do not yet know what tools they will need to support the students they will be working with during the year. It would therefore be very useful to provide further opportunities for learning and information in order to implement specific knowledge.

Common elements required among all partner countries:

- **Regular training courses for teachers** covering topics such as accessible teaching, dealing with sign language interpreters, the use of disability compensation and the integration of assistive technologies regarding students' disabilities or support needs. As reported by a professor interviewed by partner JKU (Austria): *“regular training on inclusive teaching and dialogue between teachers could help to reduce uncertainties and improve the quality of teaching”*;
- **Exchange of experiences and best practices among teachers**: this would create an opportunity to establish common standards for the inclusion of deaf students;
- **Support and close cooperation with institutions and service centers**: more direct communication and specific guidelines to be used in courses would improve the accessibility of lessons and promote the academic success of deaf students, as well as greater social inclusion with their peers.
- **Implementation of available technologies**: only the interviews reported by partner TU Dublin (Ireland) mention the use of real-time subtitling tools (e.g., Otter AI). Although this tool alone is not sufficient, it can be taken as a starting point in other countries to make lessons more accessible. One lack in all partner countries is the non-embedding of interpreters in video recordings: their inclusion and the addition of subtitles would make recorded lessons much more accessible.

In order to implement all the proposed changes, it is necessary, as noted by our partner TU Dublin, to have a “systemic change at the institutional and political level, including proactive dissemination processes, consistent technological and interpretative support, teacher training, and a shift to universal design for learning (UDL) approaches integrated into curricula”.

In order to make university education truly accessible to deaf students, it is clear that greater training for teachers, with specific time set aside for this purpose, would have a direct impact on the quality of study and learning for the students themselves.

We conclude by quoting the **United Nations Convention on the Rights of Persons with Disabilities**, which states (**Article 1**) “Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with **various barriers** may hinder their full and effective participation in society on an equal basis with others”. The Convention recognises that disability is an “evolving concept and that disability results from the **interaction between persons with impairments and attitudinal and environmental barriers** that hinders their full and effective participation in society on an equal basis with others.”

Specifically, **Article 24** is dedicated to ‘**Education**’: “States Parties recognize the right of persons with disabilities to education. With a view to realizing this right without discrimination and on the basis of equal opportunity, States Parties shall ensure an inclusive education system at all levels and lifelong learning [...]”.

With regard to the inclusion of deaf students and accessibility to university courses, it is strongly recommended that the following criteria set out in point 2 be observed:

- (c) Reasonable accommodation of the individual's requirements is provided;
- (d) Persons with disabilities receive the support required, within the general education system, to facilitate their effective education;
- (e) Effective individualized support measures are provided in environments that maximize academic and social development, consistent with the goal of full inclusion.

To implement the training of university lecturers, point 4 suggests that *"[...] States Parties shall [...] train professionals and staff who work at all levels of education. Such training shall incorporate disability awareness and the use of appropriate augmentative and alternative modes, means and formats of communication, educational techniques and materials to support persons with disabilities"*

State of the art research

The objectives of the Erasmus+ Access2CS project are to create an accessible Computer Science programme for deaf students and to train academic staff in providing accessible teaching materials. The purpose of this guide is to help teachers understand how to welcome deaf students and what resources to use to make their academic journey accessible.

In this context, the Consortium identified a list of existing:

- **Policies and Laws:** For each national context and at European level, it is possible to find regulations concerning the inclusion of students with disabilities, including deaf and blind students.
- **Best practices and Guidelines:** good practices and existing projects from which to draw inspiration in order to apply the same methodologies with students.
- **Tools:** documents, slides or other practical materials already available for use at European level, mainly in digital format.
- **Glossaries:** Sign Language glossaries have been identified in the field of Computer Science that can be used by deaf students with interpreters to define a common vocabulary.

All these resources (59 in total) at national and international level searched together with the needs of hearing-impaired/Deaf students and academic staff in the field of Computer Science education. The aim is to provide educators with the practical tools they need to effectively support hearing-impaired/deaf students in the learning process.

Below are the results found by all partner countries, with the author of the resource, a brief description, the reference link and the language in which it is available.

Policies and Laws

Istituto dei Sordi di Torino – Italy

LAW No. 104 OF 1992 FOR THE ASSISTANCE, SOCIAL INTEGRATION AND RIGHTS OF PERSONS WITH DISABILITIES

Author: The Official Journal of the Italian Republic, as an official source of knowledge of the laws in force in Italy and a tool for the dissemination, information and formalization of legislative texts, public and private acts, is published by the Istituto Poligrafico e Zecca dello Stato (State Mint and Polygraphic Institute) and published in collaboration with the Ministry of Justice, which provides for its direction and drafting.

Article 3 of Law 104 of 1992 defines disability and establishes when it is considered severe. In particular, paragraph 3 recognises severe disability, which involves a significant reduction in personal autonomy and the need for continuous support. This recognition allows access to various benefits provided for by law. These include university benefits, such as total or partial exemption from paying fees. University students with disabilities, depending on the degree of disability recognised, can therefore take advantage of financial support measures, applied by universities in accordance with current legislation.

With regard to the inclusion and rights of students with sensory disabilities, it is important to be familiar with and apply Law 104, specifically Articles 3, 12, 13 and 16.

Article 12 of Law 104 of 1992 explicitly establishes the right to education for students with disabilities, extending it fully to the university context. University students with disabilities therefore have the right to enrol, attend courses and take exams under the same conditions as other students, in accordance with their specific needs. University institutions are called upon to ensure the effective inclusion of students in the educational process by providing appropriate support measures and services. This involves adopting organisational, educational and structural measures aimed at removing physical, sensory and communication barriers that may hinder participation in academic life. The university must also promote accessibility to facilities, teaching materials and educational activities, ensuring conditions that enable effective and independent learning. According to Article 12, the university course is not limited to the transmission of knowledge, but aims to develop the skills, individual potential and personal autonomy of students with disabilities.

Article 13 of Law 104 of 1992 specifically regulates the inclusion of pupils and students with disabilities in schools. The law establishes that integration into mainstream schools is a fundamental right and a priority objective of the education system. Article 13 also provides for assistance measures to promote independence and communication, especially in cases of sensory or severe disabilities. Overall, Article 13 states that inclusion in education is not limited to simple educational support, but represents a broader educational and social process.

The aim is to ensure equal opportunities, promote personal independence and encourage the integration of students with disabilities into school and society.

Article 16 of Law 104 of 1992 regulates the assessment of students with disabilities, with particular attention to tests and examinations. The law affirms the principle that assessment must take into account the condition of disability, without however altering the educational objectives of the course of study. In the university context, this means ensuring fair examination methods that are appropriate to the student's needs. The law provides for the adoption of equivalent tests or compensatory tools, where necessary, in order to allow students to demonstrate their knowledge and skills. The methods of conducting examinations may be adapted, for example in terms of time, tools or forms of administration, in accordance with the subject content and established assessment criteria. The aim is not to simplify the test, but to make it accessible. Overall, Article 16 reinforces the right to study at university, stating that the assessment phase must also be inclusive. Assessment thus becomes a tool for enhancing the abilities of students with disabilities, in line with the principles of equal opportunities and non-discrimination enshrined in Law 104 of 1992.

[Access the resource clicking here.](#) Language: Italian

LAW N.17/99 OF 28TH JANUARY 1999

Author: The Official Journal of the Italian Republic, as an official source of knowledge of the laws in force in Italy and a tool for the dissemination, information and formalization of legislative texts, public and private acts, is published by the Istituto Poligrafico e Zecca dello Stato (State Mint and Polygraphic Institute) and published in collaboration with the Ministry of Justice, which provides for its direction and drafting.

By integrating and modifying Law No. 104 of 1992 for the assistance, social integration and rights of persons with disabilities, it established a series of measures to support their participation in university courses. Anticipating the UN Convention on the Rights of Persons with Disabilities, with this law Italy guaranteed the right to study through access to the highest levels of education.

[Access the resource clicking here.](#) Language: Italian

LAW N. 170, 8 OCTOBER 2010 SPECIFIC LEARNING DISABILITIES IN SCHOOLS

Author: The Official Journal of the Italian Republic, as an official source of knowledge of the laws in force in Italy and a tool for the dissemination, information and formalization of legislative texts, public and private acts, is published by the Istituto Poligrafico e Zecca dello Stato and published in collaboration with the Ministry of Justice, which provides for its direction and drafting.

Law 8 October 2010, n° 170 recognizes dyslexia, dysgraphia, dysorthographia and dyscalculia as specific learning disorders (LSD), DSA in the Italian acronym. The right to study of students with DSA is guaranteed through multiple initiatives promoted by the Ministero dell'Università e della Ricerca (Ministry of University and Research) and through the creation of individualized paths in the school environment.

[Access the resource clicking here. Language: Italian](#)

Johannes Kepler University (JKU) – Austria

NATIONAL ACTION PLAN ON DISABILITY (AUSTRIA)

Author: Austrian Federal Ministry of Social Affairs, Health, Care, and Consumer Protection

The National Action Plan on Disability in Austria aims to improve the living conditions and rights of people with disabilities by implementing measures for inclusion, accessibility, and equal opportunities across various sectors.

Chapter Higher Education: Austrian universities and colleges are advancing towards inclusive higher education by integrating disability and diversity dimensions into their development plans.

Key measures include expanding services like GESTU – Gehörlos erfolgreich studieren (“Studying Successfully as a Deaf Student”), enhancing digital accessibility, and promoting inclusive pedagogy in teacher training programs.

GeStu is a competence and service center at the TU Graz and the TU Vienna (JKU is just about to get one - of all in all three Gestu's in Austria) that supports deaf and hard-of-hearing students with various services to ensure equal access to education. It organizes and coordinates sign language interpreters, speech-to-text interpreters, and note-taking assistants for classes.

The National Strategy aims to improve access and participation for students with disabilities, ensuring equality and visibility in academia.

[Access the resource clicking here. Language: German](#)

[Access the resource clicking here. Language: English](#)

Technological University Dublin (TU Dublin) - Ireland

IRISH SIGN LANGUAGE ACT 2017

Author: Oireachtas (Houses of the Irish Parliament)

The Irish Sign Language Act 2017 (ISL Act) is the law that recognises Irish Sign Language (ISL) and sets out the duties of public bodies in Ireland to provide ISL interpretation.

[Access the resource clicking here. Language: English](#)

IRISH DISABILITY ACT

Author: Oireachtas (Houses of the Irish Parliament)

The Irish Disability Act is a law that safeguards the rights of people with disabilities in Ireland by ensuring accessible services, promoting equal opportunities, and prohibiting discrimination in all areas of public life.

[Access the resource clicking here. Language: English](#)

University of Ljubljana (UL) - Slovenia

RULES ON STUDENTS WITH SPECIAL NEEDS AND SPECIAL STATUS AT THE UNIVERSITY OF LJUBLJANA

Author: University of Ljubljana

Official rules and regulations for students with special needs and students with special status at the University of Ljubljana.

[Access the resource clicking here. Language: English](#)

ACT REGULATING THE USE OF SLOVENE SIGN LANGUAGE

Author: National Assembly of the Republic of Slovenia

This foundational law, which establishes the legal basis for Slovene Sign Language use, outlines rights and responsibilities, particularly in official settings, and sets standards for sign language interpreters.

[Access the resource clicking here. Language: Slovene](#)

[Download the resource clicking here. Language: English](#)

Europe

UNITED NATIONS CONVENTION ON THE RIGHTS OF PERSONS WITH DISABILITIES

Author: United Nations

The Convention is a human rights treaty developed by representatives of the international community, including people with disabilities, government officials, representatives of non-governmental organizations and others, to change the way people with disabilities are viewed and treated in their societies. Particular attention to Article 9 and 24.

[Access the resource clicking here. 28 languages available](#)

Best Practices and Guidelines

Istituto dei Sordi di Torino – Italy

THE NEW GUIDELINES FOR INCLUSION IN UNIVERSITIES

Authors: CRUI - Conferenza dei Rettori delle Università Italiane (Conference of Italian University Rectors) is the association of recognized Italian state and non-state universities.
HandyLex: The aim of HandyLex is to make available to everyone, in a reasoned and organic way, the legislation in favour of people with disabilities, together with some notes on the legislation more generally concerning the Third Sector.

The CNUDD - Conferenza Nazionale Universitaria dei Delegati per la Disabilità (National University Conference of Delegates for Disability) approved on September 25, 2024 the new guidelines for the inclusion of university students with disabilities (National University Conference of Delegates for Disability - Guidelines). The regulatory source is Law 17 of 1999, which provided for the establishment of a delegate of the rector for inclusion in each university. The guidelines concern not only students with certified disabilities, but also those with SLD (Specific Learning Disorders) and BES (Additional Specific Educational Needs). Law 17 of 1999 also provided for the appointment, at the university's expense, of tutors in the person of university students to be supported as support for students with disabilities or SLD. Furthermore, the compensatory tools and dispensatory measures that the teacher must apply with students with SLDs and disabilities are specified.

[Access the resource clicking here. Language: Italian](#)

SUPPORT FOR STUDENTS WITH DISABILITY IN TAKING EXAMS

Author: University of Turin

This page explains the support that teachers must provide to students with disabilities in taking exams.

Languages: English, Italian, Spanish, French, Portuguese, Chinese

[Access the resource clicking here. Multiple languages available](#)

COMMUNICATION ASSISTANTS AND ITALIAN SIGN LANGUAGE (LIS) INTERPRETERS

Author: University of Turin

The University of Turin website explains the communication assistant and interpreter service, aimed at all students with hearing disabilities, to facilitate communication with classmates and with all the figures present in the University. The teacher must know that these figures are present in the classroom and assist the student in preparing and/or during exams

[Access the resource clicking here. Multiple languages available](#)

DSA SLIDE TEMPLATES

Author: University of Turin - Department of Computer Science

A series of templates designed to improve them presentations to students with SLD (specific learning disorder) and to students with disabilities

Language: Italian

[Access the resource clicking here. Language: Italian](#)

GUIDELINES AND MATERIALS FOR INCLUSION AND ACCESSIBILITY OF TEACHING

Author: University of Turin - Department of Computer Science

Slides presentation templates for teachers that provide guidelines on accessible fonts, colors, maps, content structure, quotes to be used to make lessons accessible to deaf and/or SLD students.

[Access the resource clicking here. Language: Italian](#)

STUDENTS-POLYTECHNIC UNIVERSITY OF TURIN

Author: Polytechnic University of Turin

In this section teachers can see which students can be officially supported by the Special Educational Needs Unit during their educational path (Bachelor's Degree, Master's Degree, Doctorate, State Exam).

Languages: English, Italian

[Access the resource clicking here. Languages: English and Italian](#)

SPECIAL NEEDS UNIT BETWEEN TEACHERS AND STUDENTS

Author: Polytechnic University of Turin

Presentation of the Special Needs Unit of the Polytechnic of Turin which explains how it supports teachers and students with SLD and/or disabilities in their studies, making reference to Italian legislation.

[Access the resource clicking here. Language: Italian](#)

GUIDELINES FOR SUPPORTING STUDENTS WITH DISABILITIES AND DSA

Author: Polytechnic University of Turin

The document is intended for teachers of the School of Design of the Politecnico di Milano and aims to provide a general overview of the support service for students with disabilities and Specific Learning Disorders (SLD) present in the University. General indications are provided on the "operational" management of requests for assistance (via an ad hoc application) and on the regulatory framework of reference, from which the provisions active within the Politecnico di Milano derive.

[Access the resource clicking here. Language: Italian](#)

DISABILITY AND SpLD

Author: Polytechnic University of Turin

At the Politecnico di Milano, specialized support for students with disabilities and SLD (Specific Learning Disorders) is guaranteed by a multidisciplinary team that develops personalized plans and provides ad hoc technical and educational services, starting from the admission tests and throughout the academic path. The service also includes a specific counseling program related to post-graduate job placement, putting the student in direct contact with companies.

[Access the resource clicking here. Language: Italian](#)

Johannes Kepler University (JKU) – Austria

DEAF-FRIENDLY HIGHER EDUCATION

Author: National Deaf Children's Society – United Kingdom

Information for higher education staff on how to support deaf young people in higher education, including university and apprenticeships. The resource will help staff in higher education to make sure that deaf students have the support they need to make good progress, take advantage of the opportunities of higher education and successfully complete their studies

[Access the resource clicking here.](#) Language: English

DEAFTEC: TEACHING AND LEARNING RESOURCES

Author: National Technical Institute for the Deaf (DeafTec) - USA

Best practices and strategies were developed to support instructors and staff who work with deaf and hard-of-hearing students in mainstream classes. The goal of these resources is to improve teaching practice that will provide greater access to learning for deaf and hard-of-hearing students but will benefit all students in the classroom as well.

[Access the resource clicking here.](#) Language: English

UTILIZING THE UNIVERSAL DESIGN FOR LEARNING FRAMEWORK IN COMPUTER SCIENCE EDUCATION

Author: Creative Technology Research Lab, University of Florida – USA

The Universal Design for Learning (UDL) framework provides guidelines that can help teachers proactively plan for the academic diversity present in classrooms.

This is especially important when it comes to Computer Science (CS) education due to the historic underrepresentation of women, people from different cultural backgrounds, and people with disabilities in CS fields.

[Access the resource clicking here.](#) Language: English

INCLUDE. TECHNICAL GUIDELINES FOR ACCESSIBLE DIGITAL HIGHER EDUCATION

Author: Hilzensauer, Marlene; Pecher, Alexandra; Angeloni, Flavio

InclUDE (Inclusive University Digital Education) promotes the realisation of accessible and inclusive higher education opportunities for all students

[Access the resource clicking here. Language: English and German](#)

SWING CAMPUS PROJECT

Author: SWING project

Project: Improving inclusion in higher education by teaching sign language skills to future teachers. Innovative Training Program with practical activities for future teachers to learn 5 sign languages (DGS, LSE, LIS, ÖGS, and International Sign) in 5 academic fields.

[Access the resource clicking here. Sign Languages in German, Austrian German, Spanish, Italian and International Sign Language](#)

ISENSE

Author: ISENSE project

The project aims at implementing supporting services, to be understood as both digital tools and innovative good practices, based on higher technologies, such as augmented reality and interactive holograms to assist the students with deafness during their academic life, especially focusing on the university orientation. In addition, a set of guidelines to support these students during the stage of enrolment and study, as well as for the entry into employment will be defined.

[Access the resource clicking here. Multiple languages available](#)

Technological University Dublin (TU Dublin) - Ireland

DISABILITY SUPPORT SERVICES

Author: TU Dublin

Official service at TU Dublin to support students with disability and deaf students. However, the general service does not include liaising directly with lecturers, the School of Computer Science is one of the two schools at the university that has one appointed disability support contact to connect both departments.

[Access the resource clicking here. Language: English](#)

SUPPORTING STUDENTS - DEAF OR HARD OF HEARING

Author: University of Galway

Guidelines and accommodations provided by the Support Services for staff.

[Access the resource clicking here. Language: English](#)

GOOD PRACTICE GUIDELINES

Author: AHEAD

These guidelines aim to create a better understanding of the needs of students with disabilities and help to promote inclusive practice across institutions. Included in the guidelines are practical examples, case studies and recommendations.

[Access the resource clicking here. Language: English](#)

CLASSROOM ACCESSIBILITY FOR STUDENTS WHO ARE DEAF AND HARD OF HEARING

Author: Canadian Hearing Society

Best practices in the Classroom for hearing-impaired or deaf students

[Access the resource clicking here. Language: English](#)

GOOD PRACTICE TO ASSIST INDIVIDUALS WITH HEARING LOSS

Author: University of York

This good practice guide is to help create an inclusive meeting where individuals may have a range of hearing loss. Some may use assistive technology such as hearing aids and loops, others may lip-read and some may use signing or a combination of these.

[Access the resource clicking here.](#) Language: English

DIGITAL ACCESSIBILITY BEST PRACTICES GUIDE (BRITISH GOVERNMENT ETC)

Author: British Government, the Digital Government Secretariat of the Ministry of Management and Innovation in Public Services

The Guide's general objective is to provide the federal government with theoretical and practical input, documentation, and tools to support the implementation of strategies for accessible digital transformation, given the Government's responsibility to ensure adequate treatment for persons with disabilities and implement public policies based on concepts of human rights and social vulnerabilities.

[Access the resource clicking here.](#) Language: English

DAWN REASONABLE ACCOMMODATIONS IN EXAMS GUIDELINES (AHEAD & DAWN)

Author: AHEAD & DAWN

Reasonable accommodations for exams (downloadable file). Includes two specific recommendations for deaf students.

[Access the resource clicking here.](#) Language: English

DISABILITY SUPPORT SERVICES - INFORMATION FOR STAFF

Author: University College Dublin (UCD) UCD

Disability support service page for staff on supporting students with disabilities. Some links are broken but overall, high level but good advice for lecturers.

[Access the resource clicking here.](#) Language: English

COMPUTER SCIENCE PRINCIPLES FOR TEACHERS OF DEAF STUDENTS

Author: University of Washington - USA

Paper on Computer Science Principles for Teachers of Deaf Students

[Access the resource clicking here.](#) Language: English

MAYNOOTH ACCESS PROGRAMME (MAP) -- GUIDELINES

Author: Maynooth University

The Maynooth Access Programme (MAP) encourages under-represented groups to enter third level and provides these groups with support through their time at Maynooth. Their website includes guidelines for deaf, Deaf and HoH students.

[Access the resource clicking here.](#) Language: English

DEAF-FRIENDLY HIGHER EDUCATION (NATIONAL DEAF CHILDREN'S SOCIETY)

Author: National Deaf Children's Society

Information for higher education staff on how to support deaf young people in higher education, including university and apprenticeships.

[Access the resource clicking here.](#) Language: English

CONSENT TO DISCLOSE AND SHARE DISABILITY INFORMATION (TRINITY COLLEGE)

Author: Trinity College

Policy for sharing data where a deaf student agrees to share their Learning Education Needs Summary report with their lecturer

[Access the resource clicking here.](#) Language: English

ALTITUDE CHARTER

Author: Atlantic Technological University (ATU)

The ALTITUDE project intends in the coming year to develop a national community of practice for individuals and institutions who are implementing the Charter to share good practice and provide peer to peer support.

[Access the resource clicking here.](#) Language: English

University of Ljubljana (UL) - Slovenia

SUPPORT SERVICES FOR STUDENTS WITH SPECIAL NEEDS

Author: University of Ljubljana

Support Services provided by the University of Ljubljana include: Contact persons for students with special needs or status, Student Ombudsman's Office, Psychosocial counselling service, Trusted persons, Tutelage, Career centers

[Access the resource clicking here. Language: English and Slovene](#)

TEACHING STUDENTS WITH SPECIAL NEEDS

Author: Career Centre of the University of Ljubljana

A guide for higher education teachers, assistants and others who meet students with disabilities in their studies

[Access the resource clicking here. Language: Slovene](#)

ADAPTATIONS FOR SPECIFIC GROUPS OF STUDENTS

Author: University of Ljubljana, Faculty of Education

Guidelines higher education teachers for preparation of open access materials for specific groups of students, including students with blindness or visual impairment, students with deafness and hearing difficulties, and students with deaf-blindness.

[Access the resource clicking here. Language: Slovene](#)

SPECIAL PEDAGOGICAL ASPECTS OF INNOVATIVE APPROACHES TO LEARNING AND TEACHING FOR STUDENTS WITH DISABILITIES IN HIGHER EDUCATION

Author: University of Ljubljana, Faculty of Education

A monograph on the analysis and recommendations for the inclusion of students with disabilities in higher education, aimed at higher education teachers, practitioners, students and decision-makers.

[Access the resource clicking here. Language: Slovene](#)

SUPPORT FOR UNIVERSITY TEACHERS

Author: Association of Students with Disabilities of Slovenia

The Association offers support to higher education institutions in the form of: advice on improving accessibility of studies, advice on special adaptations for students with disabilities, training workshops and seminars on the needs of students with disabilities, training for tutors on how to support students with disabilities, seminars and experiential workshops aimed at students and staff to raise general awareness of special needs.

[Access the resource clicking here.](#) Language: Slovene

ADAPTATIONS TO STUDY MATERIALS FOR STUDENTS WITH DISABILITIES

Author: Association of Students with Disabilities of Slovenia

Recommendations and guidelines on how to adapt study materials to the needs of students with disabilities. One of the tools made available is the screen reader for blind and visually impaired students.

[Access the resource clicking here.](#) Language: Slovene

STUDENTS WITH DISABILITIES ON PLACEMENT - GUIDANCE ON THE PROVISION OF REASONABLE ACCOMMODATIONS ON PRACTICE-BASED PLACEMENTS IN PROFESSIONALLY ACCREDITED PROGRAMMES

Author: AHEAD Ireland - recommended by Association of Students with Disabilities of Slovenia

AHEAD Ireland - partner document with analysis and examples of good practice in practical training for students with disabilities

[Access the resource clicking here.](#) Language: English

GLAS ŠTUDENTOV

Author: University of Ljubljana, Faculty of Arts

The publication Student Voice is a collection of articles written by students from the Faculty of Education and the Faculty of Arts. It contains professional articles about students with disabilities and personal stories of people with disabilities.

[Access the resource clicking here.](#) Language: Slovene

Tools

Istituto dei Sordi di Torino - Italy

REQUEST FOR INDIVIDUAL TREATMENT FOR EXAMS STUDENTS WITH DISABILITY

Author: University of Turin

This is the form that the student with sensory disabilities must fill out and deliver by email to the teacher to take the exams with the support of compensatory tools and/or dispensatory measures.

The teacher must confirm the requests selected in the form at least 15 days before the exam and the office for students with disabilities must always be in copy.

[Access the resource clicking here. Language: English and Italian](#)

GUIDELINES AND MATERIALS FOR INCLUSION AND ACCESSIBILITY OF TEACHING

Author: University of Turin - Department of Computer Science

Slides presentation templates for teachers that provide guidelines on accessible fonts, colors, maps, content structure, quotes to be used to make lessons accessible to deaf and/or SLD students.

Link: [Access the resource clicking here. Language: Italian](#)

UDL IN HIGHER EDUCATION

Author: UDL On Campus is a collection of resources developed by CAST geared towards multiple stakeholders within postsecondary institutions, including instructional designers, faculty, policy makers, and administrators. The purpose of the site is to offer an understanding of Universal Design for Learning (UDL) in higher education across five categories: 1) Assessment, 2) Selecting Media and Technology, 3) Improving Institutional Policies and Practices, 4) Planning Your Course, and 5) Teaching Approaches.

It is an overview of the Universal Design for Learning (UDL) framework and how it applies to higher education learning environments and additional resources for deeper understanding. It also offers practical information about getting started, case stories that are examples of courses and programs that use UDL to improve student success and links to some colleges and universities that have UDL initiatives.

[Access the resource clicking here. Language: English](#)

CAST

Author: The CAST team is made up of specialists in human development, neuropsychology, instructional design, literacy instruction, learning analytics, technology design, accessibility, and more.

In 1984, a group of education researchers founded the Center for Applied Special Technology, or CAST, to leverage new technologies to improve the education of students with disabilities. As they refined their approach, they developed UDL, a flexible method for improving education for all students. Today, UDL drives CAST's research and development, leading to innovative solutions in curriculum planning, software development, policy, teacher preparation, and educational research through strategic collaborations.

[Access the resource clicking here. Multiple languages available](#)

SET4INCLUSION-SELF-EVALUATION TOOLS FOR E-INCLUSION IN HEI

Author: European Project Erasmus+

It is a project designed for universities to promote and facilitate the inclusion of people with different abilities or special needs. The project aims to improve the inclusive digital capabilities of the higher education sector to enable equal educational opportunities for all students, especially for students with disabilities or special needs.

[Access the resource clicking here. Multiple languages available](#)

Johannes Kepler University (JKU) - Austria

GeStu (GEHÖRLOS STUDIEREN - STUDYING DEAF) TU VIENNA

Author: GeStu Vienna

GeStu at TU Vienna is a competence and service center at university that supports deaf and hard-of-hearing students with various services to ensure equal access to education. It organizes and coordinates sign language interpreters, speech-to-text interpreters, and note-taking assistants for classes.

[Access the resource clicking here. Language: German](#)

GeStu (GEHÖRLOS STUDIEREN - STUDYING DEAF) TU GRAZ

Author: GeStu Graz

GeStu at TU Graz is a service center for deaf and hard-of-hearing students in Graz, offering various support services to ensure barrier-free access to education for students, prospective students, and academic staff at Graz universities.

[Access the resource clicking here.](#) Language: German

INFORMATION FOR EDUCATORS: FOR THE CREATION OF ACCESSIBLE AND INCLUSIVE COURSES AND LEARNING MATERIALS

Author: Disability Officer University of Innsbruck

Resource about tools and information for creating accessible and inclusive courses and learning materials. It includes practical guides for inclusive teaching, detailed information on various disabilities, and podcasts that provide insights into students' experiences of university life.

[Access the resource clicking here.](#) Language: German

REPOSITORY OF ACCESSIBLE TOOLS AND RESOURCES

Author: EASPD

The Include Repository of Accessible Digital Tools is a platform of digital tools and resources that can be used to promote inclusive education in online and blended learning settings. This repository includes resources for the creation and presentation of accessible digital content. Alongside providing accessibility solutions for specific user needs and disabilities, it also aims to provide tools for use in high and low-resource environments.

[Access the resource clicking here.](#) Language: English

Technological University Dublin (TU Dublin) - Ireland

ACCESSCSFORALL

Author: University of Washington

Website that offers several different resources to include K-12 students with disabilities in Computer Science education

[Access the resource clicking here.](#) Language: English

University of Ljubljana (UL) - Slovenia

KNJIŽNICA SLEPIH IN SLABOVIDIH ("KNJIŽNICA SLEPIH IN SLABOVIDIH")

Author: Ministry of Culture, Slovenia

The Library for the Blind and Visually Impaired is aimed at blind and visually impaired people as well as people who have difficulty reading normal writing.

[Access the resource clicking here.](#) Language: Slovene

Glossaries

Istituto dei Sordi di Torino – Italy

EU DIGITAL FRAMEWORK FOR SIGN LANGUAGES

Author: European Project Erasmus+

The project "EU Digital Framework For Sign Languages" has developed a database that provides 500 lemmas in International Sign related to the lexical domain of digital and ICT. The material is provided online through an e-learning platform divided into five different subdomains in the fields of: Computer Science, Cloud networking, Internet of Things (IoT), Artificial Intelligence (AI) and robotics, Audiovisual and multimedia production.

[Access the resource clicking here. Languages: English, Italian, German, Greek, Bulgarian, Spanish, Portuguese and International Sign](#)

Johannes Kepler University (JKU) - Austria

SIGNS: COMPUTER SCIENCE

Author: GeStu TU Vienna

Development of new signs for many subjects - also Computer Science.

Language: German

Link: [Access the resource clicking here. Language: German](#)

SPREAD THE SIGN: CATEGORY: COMPUTER AND MODERN TECHNOLOGY

Author: European Sign Language Center

Database with 400,000 signs - with a "chapter" on computer and modern technology.

[Access the resource clicking here. 39 languages available](#)

Conclusions

This report has highlighted both the challenges and opportunities involved in making Computer Science education more accessible to deaf and hard-of-hearing students. While many Higher Education institutions have established support systems, the findings show that significant barriers remain, particularly in relation to communication, access to teaching materials, and the implementation of inclusive practices within the classroom.

The results of the interviews emphasise that deaf students face specific challenges linked to the nature of Computer Science education. These include the reliance on specialised and rapidly evolving terminology, the need for effective collaboration with sign language interpreters and communication assistants, and the limited availability of adequately trained support staff. In addition, gaps in communication between service centers and academic staff often prevent timely and effective adaptations to teaching and assessment.

A recurring theme across all partner countries is the need for greater awareness and targeted training among educators. Many teachers report uncertainty about how to adapt their teaching methods, structure accessible learning materials, or implement appropriate accommodations for deaf students. Addressing these gaps is essential to ensure that deaf learners can fully participate in and benefit from Higher Education.

The state-of-the-art analysis demonstrates that a wide range of laws, policies, guidelines, and tools already exist to support inclusive education. However, these resources are not always effectively integrated into everyday teaching practice. Bridging the gap between available knowledge and practical implementation is therefore a key priority.

Moving forward, a more coordinated and systemic approach is required. This includes providing regular, specialised training for teachers on deaf awareness and inclusive pedagogy, strengthening collaboration between educators and support services, and ensuring the consistent use of accessible teaching strategies. Approaches such as Universal Design for Learning (UDL), alongside the integration of Assistive Technologies can play a crucial role in improving accessibility.

Ultimately, creating an inclusive Computer Science learning environment for deaf students requires both structural change and a shift in educational culture. By equipping educators with the appropriate knowledge, tools, and institutional support, Higher Education institutions can move towards a model where deaf students are not only accommodated, but fully included and empowered to succeed in their academic journeys.