

Code of Good Practices

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# Univeristy education on accessible ICT

# School education on accessible ICT

# Supoorting resources platforms for education on accessible ICT

## Teach ICT

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[https://www.teach-ict.com](https://www.teach-ict.com/)

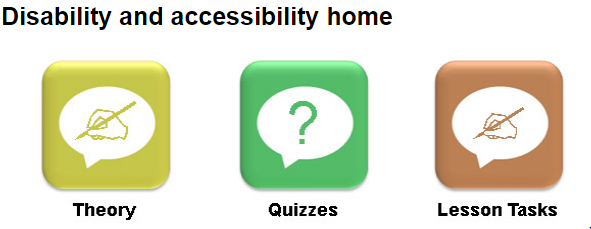
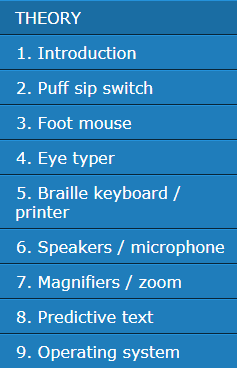
UK platform for ICT resources for teachers. Disability and accessibility is part of the syllabus. Students are introduced to some of the clever devices that have been developed to allow access to ict for almost everyone.

Syllabus and assessment topics:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Using computer systems | [Managing files and folders](https://www.teach-ict.com/gcse_new/using_computer_systems/managing_files_folders/tasks_managing_files_folders.htm) | | | | |
| [Choosing secure passwords](https://www.teach-ict.com/gcse_new/using_computer_systems/managing_files_folders/tasks_passwords.htm) | | | | |
| [Backups](https://www.teach-ict.com/gcse_new/using_computer_systems/managing_files_folders/tasks_backups.htm) | | | | |
| ICT problems and errors | [ICT problems and errors](https://www.teach-ict.com/gcse_new/using_computer_systems/managing_files_folders/tasks_problems_computer.htm) | | | | |
| Computer systems | [Hardware and software](https://www.teach-ict.com/gcse_new/computer%20systems/hardware_software/home_hw_sw.htm) | | | | |
| [Microprocessors](https://www.teach-ict.com/gcse_new/computer%20systems/microprocessors/home_microprocessors.htm) | | | | |
| [Types of computer](https://www.teach-ict.com/gcse_new/computer%20systems/types_computer/home_types_computer.htm) | | | | |
| [Input devices](https://www.teach-ict.com/gcse_new/computer%20systems/input_devices/home_input_devices.htm) | | | | |
| [Output devices](https://www.teach-ict.com/gcse_new/computer%20systems/output_devices/home_output_devices.htm) | | | | |
| [Disability and access](https://www.teach-ict.com/gcse_new/computer%20systems/disability_accessibility/home_disability.htm) | | | | |
| [CPU](https://www.teach-ict.com/gcse_new/computer%20systems/cpu/home_cpu.htm) |
| [Storage units](https://www.teach-ict.com/gcse_new/computer%20systems/storage_units/home_storage_units.htm) | | |
| [Memory](https://www.teach-ict.com/gcse_new/computer%20systems/memory/home_memory.htm) | | |
| [Storage devices](https://www.teach-ict.com/gcse_new/computer%20systems/storage_devices/home_storage_devices.htm) | | |
| [Operating system functions](https://www.teach-ict.com/gcse_new/computer%20systems/operating_system_functions/home_operating_system_functions.htm) | | |
| [Operating system types](https://www.teach-ict.com/gcse_new/computer%20systems/operating_system_types/home_operating_system_types.htm) | | |
| [User interface](https://www.teach-ict.com/gcse_new/computer%20systems/user_interface/home_user_interface.htm) |

|  |  |
| --- | --- |
|  |  |

Content of the section about disability and accessibility:



## Courses in Coursera Platform

The Coursera Platform provides links to a huge number of online courses. Accessibility is included as a topic in the content of following courses:

* **[Introduction to HTML5](https://www.coursera.org/learn/html)** [University of Michigan](https://www.coursera.org/learn/html)

**[OURSE](https://www.coursera.org/learn/html)**

* **[Basics of Inclusive Design for Online Education](https://www.coursera.org/learn/inclusive-design)** [University of Colorado Boulder](https://www.coursera.org/learn/inclusive-design)

**[OURSE](https://www.coursera.org/learn/inclusive-design)**

* **[Web Design for Everybody (Basics of Web Development and Coding)](https://www.coursera.org/specializations/web-design)** [University of Michigan](https://www.coursera.org/specializations/web-design)

**[PECIALIZATION](https://www.coursera.org/specializations/web-design)**

* **[Web Applications for Everybody](https://www.coursera.org/specializations/web-applications)** [University of Michigan](https://www.coursera.org/specializations/web-applications)

**[ECIALIZATION](https://www.coursera.org/specializations/web-applications)**

* **[Responsive Website Development and Design](https://www.coursera.org/specializations/website-development)** [Goldsmiths, University of London](https://www.coursera.org/specializations/website-development)

**[ECIALIZATION](https://www.coursera.org/specializations/website-development)**

* **[Introduction to CSS3](https://www.coursera.org/learn/introcss)** [University of Michigan](https://www.coursera.org/learn/introcss)

**[OURSE](https://www.coursera.org/learn/introcss)**

* **[Responsive Web Design](https://www.coursera.org/learn/responsive-web-design)** [Goldsmiths, University of London](https://www.coursera.org/learn/responsive-web-design)
* **[COURSE](https://www.coursera.org/learn/responsive-web-design)**
* **[Ubiquitous Learning and Instructional Technologies](https://www.coursera.org/learn/ubiquitouslearning)** [University of Illinois at Urbana-Champaign](https://www.coursera.org/learn/ubiquitouslearning)

**[OURSE](https://www.coursera.org/learn/ubiquitouslearning)**

* **[Accessibility to the Scenic Arts](https://www.coursera.org/learn/accessibility-scenic-arts)** [Universitat Autònoma de Barcelona](https://www.coursera.org/learn/accessibility-scenic-arts)

**[COURSE](https://www.coursera.org/learn/accessibility-scenic-arts)**

* **[Web Design for Everybody Capstone](https://www.coursera.org/learn/web-design-project)** [University of Michigan](https://www.coursera.org/learn/web-design-project)

### Basics of Inclusive Design for Online Education

Special stress to the accessibility ICT is the course about Inclusive Design



<https://www.coursera.org/learn/inclusive-design>

This course provides instruction and strategies to support students in developing a course that is inclusive to students with a wide range of abilities, including students with disabilities. It covers effective practices to increase inclusion and avoid some of the common accessibility issues that can arise in an online course.

In particular, Basics of Inclusive Design Online covers course organization, the accessibility of Microsoft Office and PDF documents, making course instruction pages accessible, captioning of videos, making images accessible, and designing for learning differences. It is also discuss how inclusive course materials can help all students, including students without disabilities.

This course appeals to those who want both a broad overview of the range of accessibility considerations and also a step-by-step guide of how to check documents for accessibility, caption a video, or prepare course content for non-visual users.

## Accessibility education at Deque University



https://dequeuniversity.com/curriculum/online-classes/

Deque University provides an extensive curriculum of self-guided online courses so that students can focus on the skills they need with the flexibility their schedule requires. Whether you’re working on your own professional development or training a team, make Deque U your go-to resource for in-depth accessibility expertise.

There is a variety of courses provided on this university. Students can choose an individual course or a package. The offered packages are:

* Full Curriculum
* IAAP Certification Preparation Web Accessibility Curriculum Package
* Accessibility QA Testing Curriculum Package
* Document Accessibility Curriculum Package
* Accessibility for Designers Curriculum Package

Below is a list of accessibility courses:

**Individual Online Classes**

* Fundamentals:
  + [Accessibility Fundamentals: Disabilities, Guidelines, and Laws](https://dequeuniversity.com/curriculum/courses/fundamentals)
  + [Designing an Accessible User Experience](https://dequeuniversity.com/curriculum/courses/accessible-ux)
  + [Basic Web and Document Accessibility for Content Contributors](https://dequeuniversity.com/curriculum/courses/content-contributors)
  + [Section 508: Fundamentals of the Law and Technical Standards](https://dequeuniversity.com/curriculum/courses/508-fundamentals)
* IAAP CPACC (Certified Professional in Accessibility Core Competencies) Exam Preparation:
  + [IAAP CPACC Certification Preparation Course](https://dequeuniversity.com/curriculum/courses/iaap-cpacc)
* Web Accessibility:
  + [Semantic Structure and Navigation](https://dequeuniversity.com/curriculum/courses/semantic-structure)
  + [Images, SVG, and Canvas](https://dequeuniversity.com/curriculum/courses/images)
  + [Visual Design and Colors](https://dequeuniversity.com/curriculum/courses/visual-design)
  + [Responsive Design and Zoom](https://dequeuniversity.com/curriculum/courses/responsive-zoom)
  + [Multimedia, Animations, and Motion](https://dequeuniversity.com/curriculum/courses/multimedia)
  + [Device-Independent User Input Methods](https://dequeuniversity.com/curriculum/courses/user-input)
  + [Form Labels, Instructions, and Validation](https://dequeuniversity.com/curriculum/courses/forms)
  + [Dynamic Updates, AJAX, Single Page Apps](https://dequeuniversity.com/curriculum/courses/dynamic-updates)
  + [Custom JavaScript/ARIA Widgets](https://dequeuniversity.com/curriculum/courses/customwidgets)
* Accessibility QA Testing:
  + [Web Accessibility Testing: Basic Methods and Tools](https://dequeuniversity.com/curriculum/courses/testingmethods)
  + [Web Accessibility Testing: Screen Readers](https://dequeuniversity.com/curriculum/courses/screenreaders)
  + [Web Accessibility Testing: WCAG Conformance Testing, Detailed Methodology](https://dequeuniversity.com/curriculum/courses/wcagtesting)
* Document Accessibility:
  + [Basic Web and Document Accessibility for Content Contributors](https://dequeuniversity.com/curriculum/courses/content-contributors)
  + [MS Word Accessibility](https://dequeuniversity.com/curriculum/courses/word)
  + [MS PowerPoint Accessibility](https://dequeuniversity.com/curriculum/courses/powerpoint)
  + [MS Excel Accessibility](https://dequeuniversity.com/curriculum/courses/excel)
  + [InDesign Accessibility](https://dequeuniversity.com/curriculum/courses/indesign)
  + [PDF Accessibility](https://dequeuniversity.com/curriculum/courses/pdf)
  + [EPUB Accessibility](https://dequeuniversity.com/curriculum/courses/epub)
* Accessibility Management:
  + [Accessibility Program Management](https://dequeuniversity.com/curriculum/courses/program-management)
* Native Mobile App Accessibility:
  + [iOS Mobile App Accessibility](https://dequeuniversity.com/curriculum/courses/ios)
  + [Android Mobile App Accessibility](https://dequeuniversity.com/curriculum/courses/android)

# Оther good examples

## Good practices in Bulgaria

In Bulgaria there are no trainings, but studies have been conducted to show the importance and necessity of activities in thе area accessibility of people with disabilities.

The texts from the sites show examples where such topics are partially covered (for example from Plovdiv) and they are from business representatives, which deal with the topic of accessibility and can support the development of accessible content (for example djamba, db2).

1. <https://jamba.bg/dostupna-sreda/> - Jamba.bg

Adaptation at work can ensure that you can get a better position to do your job. If you are a person with different abilities or have a medical condition that you require specific working conditions, JAMBA can be happy to assist you or your employer.

Jamba contribution can be focused on the adaptation of the operational equipment, which will be the result of an expert study. Through it you or your employer will understand what is needed to make the environment accessible.

At JAMBA, they have expertise in this field, thanks to the close relationship and work with Bulgarian and international companies and organizations in the field. They offer tools and individual work solutions that will help your integration. Sometimes this takes only one simple application or software that makes it easy to adapt quickly and easily.

Their activity in terms of accessibility includes 4 steps:

**Analysis:** First, they collect information about the challenges that may arise in your real integration. This helps to create a detailed plan to compensate for these obstacles.

**Testing:** As a next step, testing the strategy and the tools that best help to provide an accessible environment.

**Installation, commissioning and training:** Install and guarantee the fitting of the workstations. Then one of their team is involved with training both you and your colleagues and employers to make sure that the adaptation will work well for everyone.

**Monitoring and maintenance:** As a final part, checks for a certain amount of time. It is extremely important for Jamba team to make sure that their decision is working properly. Their commitment is to make adjustments if needed.

1. <http://success4allstudents.eu/wp-content/uploads/2017/12/IO1_BG.pdf>

**Summary: Before you begin to develop a given website, you should make sure you understand the real ones needs of their audience.**

**Goals:**

**- Find out which are the best practices applicable to**

**website**

**- Choose the appropriate site structure**

**- Find out which are the most important criteria to ensure**

**the success of the website**

The most important thing is to design a useful website that has characteristics to provide the maximum access of users with all different physical types disability. In sensory impairments and cognitive the existing obstacles are very different, but also so too different tools are available to assist users to access "on-line" media. As the specialized needs of consumers differ within a wide range, there is a wide range of tools, helping them meet their needs.

They are tools offered by the World Wide Web Consortium .

Therefore, the first step towards providing the maximum accessible website is to achieve the best possible knowing the specialized needs that yours specific users will have when they want to access Your website. One best practice is to spend some

time together with your potential users before building website. You will be able to find out how they are benefiting from

websites, and then design your proposal, taking into account the process of using sites from them.

Summary: Create a Developer's Guide Handling

with the creation of content and sites that enable them

to properly meet the needs of consumers.

**Goals:**

**- Develop the Accessibility Guide for websites**

**based on requirements tailored to your needs**

**specific users**

**- Use existing guides such as the Project**

**"WCAG"**

**- Use other resources, such as the DASH Project**

**- Create a resource that provides optimal development**

Once the needs of the specific one have been determined audience, one best practice in the industry is to document understanding by issuing a reference guide,

which can be used when designing the site, web development and development

the content of the site.

**Goals:**

**- Allow the use of the content of everyone multimedia from all users**

**- Allowing the use of alternative technologies for browsing**

Educational materials are also seen understood through different sensor channels, that's why teachers often use diverse media forms for communication with students. To achieve the desired results learning, sound or moving video content may be the best way to communication with students, but such multimedia

approach can cause problems for students with physical disabilities. If the student finds it difficult, or it is totally impossible for him to see the information, which should be transmitted via the multimedian communication channel, the effect may be mitigated by including additional text information.

All modern video information formats transmission include the ability to include subtitles or related subtitle files. Usage

subtitle allows access to information from students with hearing impairments and some forms of impaired vision. For Students with impaired hearing, textual presentation of dialogues and audio help signals will help the student to understand and interpret the content. When creating the content of the subtitles is important to include audio hinting elements, transcription of the whole dialogue, and even descriptions of the most important moments of the visual content that is not listed or which is difficult to see. Audio content can also be enhanced by transcription technology. The creation of accompanying transcribed files not only facilitates communication with students with auditory disabilities, but also provides resources for students, suffering from physical disabilities, violating their ability to fully understand, or in conditions, requiring modulation of the information flow. IN case of transcribed content presentation transcription may be easy, requiring only cut and patch transcription in the appropriate format.

Provide additional content text of all multimedia is generally accepted part of the best practices that allow for maximum utilization information and understanding by all users, whether they are physically disabled. Alternative strategy would be to provide a complete alternative set of course material (but equivalent in content) for all multimedia content.

1. https://horizonti.bg/sites/default/files/attachments/doklad-horizonti-april2016gpnjhussgng6.pdf

General recommendations and measures to improve web accessibility

for people with disabilities.

In addition to the specific findings set out above in the study (aimed at people with visual problems) for the greater completeness is presented and more general recommendations measures and opportunities, proposed by international normative documents and practice improving web accessibility.

Improving accessibility with regard to the use of ICT for access to information and knowledge about people with disabilities would make it easier significant lives of citizens with functional restrictions or disability. This would help about 15% of the EU 's population working age or 80 million people, with the number of people with

functional limitations or injuries may increase significantly in future as a result of the aging of the EU population. Will be revealed European Market for Accessibility Products and Services websites (estimated at approximately EUR 2 billion). This market could increase, as less than 10% of market potential.

According to the press service of the European Commission (EC), following the implementation of the proposed new rules, over 100 million EU citizens will be able to use public services on the Internet register a car, file a tax return, apply for

issuing a passport or driving license, etc.).

Thanks to the directive on the accessibility of the Web sites of the public sector in the EU by the end of 2015 would be mandatory standardized requirements for the accessibility of the sites through which they are accessed provide 12 types of public services. The obligation to provide accessibility would refer to the basic services provided by the state authorities, for example in relation to social security and health, looking for a job, applying to a university and issuing personal documents and civil status documents. The state is planned authorities to be encouraged to apply these rules to all services and not only for those listed in the mandatory list. This suggestion would be from the greatest benefit to the 80 million European citizens with disabilities and for the 87- those millions of Europeans over the age of 65.

The European Disability Strategy 2010-2020:

"A renewed commitment to a barrier-free Europe" is a political tool for

implementation of the UN Convention on the Rights of Persons with Disabilities and for the fulfillment of the obligations arising from its conclusion the document has significant barriers in each of the areas mentioned.

For example, on average in the EU only 5% of public websites are completely

comply with accessibility standards, although the number is partial

accessible websites are bigger. Many TV broadcasters ever still provide a small number of subtitled programs and programs with sound description.

In February 2013, UNESCO published a report devoted to access to information and knowledge of people with disabilities through modern information and communication technologies. Emphasizes the immense and multilateral importance of ICT for the practical and efficient access to information and knowledge about this group of people. The report is listed a number of problems, including: insufficient infrastructure for communication services supporting e-learning; wide the widespread use of illegal software; insufficient protection of

intellectual property; problems with physical access to social and educational infrastructure. While ensuring free access to information about the citizens, specific regulations are to be regulated requirements for providing information in formats, channels and Facilities suitable for people with disabilities.

1. <https://uni->plovdiv.bg/uploads/site/departament/%D0%9A%D0%B2%D0%B0%D0%BB%20%D0%BA%D1%83%D1%80%D1%81%D0%BE%D0%B2%D0%B5%20%D0%98%D0%A2%20%D0%B2%20%D0%BE%D0%B1%D1%80%D0%B0%D0%B7%D0%BE%D0%B2%D0%B0%D0%BD%D0%B8%D0%B5%D1%82%D0%BE.pdf

Annotation: The course aims at introducing the students to the basic concepts and positions in the special education; the notion of special educational needs (SEN) and the SOP categories; problems with the perception of information by persons with SEN and SEN accessibility alternatives. The standards and principles for

creating accessible websites, and validation tools accessibility and dedicated accessibility tools and tools.

The pedagogical specialists are acquainted with the basic concepts of

inclusive and integrated education, concepts of learning difficulties, dyslexia, dictionaries and dictionaries. Detailed acquaintance with the peculiarities of children and adults with learning difficulties (dyslexia, dysgraphia and dyscalculia). Mainly Emphasis on acquainting with the basic functions of information technologies used as assisting children and adults with learning difficulties, such as speech-to-speech conversion, training games, and plan-making applications schedules and more. Practical sessions include consideration of sample examples Internet sites and introduction to the interface of two software products to create test and didactic.

**Practice examples**

IBM® Business Process Manager on Cloud includes the following main accessibility features:

Keyboard-only operations

Accessibility components help people with physical disabilities, such as reduced mobility or limited vision, successfully use software products. The following list specifies the main accessibility features:

All DB2 product functionalities are accessible by navigating from the keyboard instead of the mouse. You can customize the font size and color of user interfaces.

DB2 products support accessibility applications that use the Java ™ API for Accessibility.

DB2 documentation is provided in an accessible format.

Keyboard input and navigation

Keyboard input

You can use DB2 resources only by using the keyboard. You can use keys or shortcuts to perform operations that can also be performed with the mouse. Standard operating system keyboard shortcuts are used for standard operations on the operating system.

Navigation with the keyboard

You can navigate the DB2 user interface with keys or shortcuts.

Focus on the keyboard

In Linux and UNIX operating systems, the active focus window area is highlighted to indicate which input control functions will be affected by your keystrokes.

TTY phone service for use by deaf or hard-to-hear customers

In addition to IBM's standard support center and supported websites, IBM also has a TTY phone service for use by deaf or hard-to-hear customers to access sales and support services