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MADA Information and Communication Technologies Accessibility and Inclusive Design ICT-AID Competency Framework

July 2021

1st Edition



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1-Background

Persons with Disabilities (PWDs), People with Functional Limitations (PFLs), and the Elderly, face daily challenges and barriers in different sectors, especially the ICT field, which result in their exclusion accessing and using digital technologies, limiting therefore their access to diverse online services, educational opportunities as well as employment.

At the global level, it is recognized that **accessibility is essential for individuals and organizations towards removing barriers hindering access to ICTs**, and creating high-quality products and services that are as far as possible, universally accessible and usable by a large spectrum of users.

The 2030 Agenda for Sustainable Development highlights **the pivotal role and the significant potential of ICTs to bridge the digital divide and to support the development of inclusive Knowledge Societies**. Accordingly, the 2030 Agenda has required United Nations member states **to promote access for persons with disabilities to ICTs**.

The United Nations Convention on the Rights of Persons with Disabilities UNCRPD, to which Qatar is a signatory, recognizes **accessibility as a human right** and requires signatories to adopt **appropriate measures for access for persons with disabilities on an equal basis with others to ICTs, emergency services and Internet services**.

The Ministry of Transport and Communication in Qatar introduced the national e-Accessibility policy to make ICT more accessible for persons with disabilities. The policy is aimed at ensuring that people with disabilities in Qatar have equal access to the technologies that can enrich their lives, and covered a range of **e-Accessibility issues, including websites, telecommunications services, handsets, ATMs, government services, education, access to assistive technologies and digital content**.

ICTQATAR's Strategy ICT2015 commits the nation to **developing an ICT-skilled population whose members share equal access to technology and can succeed in a knowledge economy**. This effort includes the prioritization of disadvantaged demographic groups, especially women, retirees and people with disabilities.

2- MADA's response

In this context, it is essential that peoples in Qatar and beyond, have the required competencies to use and develop universally accessible ICTs, in particular in Arabic language, as well as appropriate assistive technologies, and make it part of their professional practices towards maintaining an inclusive workplace, and bridging the digital divide and making ICTs accessible to every user, so that no one will be left behind. On this premise, education, training and long life learning programmes harnessing the power of ICTs can enable all persons, including those with disabilities, to develop the necessary ICT accessibility and inclusive design ICT-AID relevant competencies for life and work.

In response, MADA has developed the ICT-AID Competency Framework as part of Mada Academy project to guide training of students and workers on the foundation in ICT accessibility and inclusive design which allows the intended audience to make a sense of the experience of disability related to the use of ICTs, and to increase their accessibility awareness when using and creating electronic materials, and to apply accessibility standards and techniques, including W3C Web Content Accessibility Guidelines, so that they will be well prepared to excel in their accessibility professions and contribute in the creation of accessible products, content and services.

Mada has been working with its partners, in collaboration with a group of experts, to commissioning the ICT-AID competency framework, considered as the first in its kind on digital accessibility in Arabic language, in a bid to

advance the level of understanding, using, and developing accessible ICTs at different levels in the region.

In the same way, Mada, as part of its endeavors to enabling equal opportunities for all and to ensuring an inclusive education system at all levels and lifelong learning through ICT education, is collaborating with ISKME to launch the "Mada OER Hub". Mada Hub is meant to be the Mada branded portal on OER Commons where accessible resources are aggregated, curated and managed through collections, and groups, and development tools. The Hub provides the following services:

- Gathering collections of Accessible Open Education Resources (OER) (in Arabic and English languages) curated by Mada and partners, aligned to the Mada ICT Accessibility and Inclusive Design Competency Framework (ICT-AID) and in compliance with W3C accessibility standards;
- Offering dedicated groups to partners in order to organize, collaborate, and share Mada ICT-AID aligned resources;
- Managing and supporting activities of Arab ICT Accessibility Expert Group "AIAEG" (Accessible OER, ICT-AID competency framework, Digital Educational Content Accessibility, ICT Accessibility Standards localization, UDL, Policy and advocacy, ICT accessibility accreditation, etc.).

3- Objective

The main objective of the MADA ICT-AID competency framework is to provide the community with a framework that can be used as a template to assist educational institutions, organizations and individuals in delimiting the required relevant competencies in the ICT accessibility and inclusive design field. This framework can help in creating learning resources and teaching

materials on ICT accessibility and inclusive design, and also to make other courses accessible.

The MADA ICT-AID competency framework can be adapted for use in different learning contexts and modes, and availed as a tool for designing and structuring learning and training content in the field of ICT accessibility. It contains a coherent set of competencies necessary to apply, review, and evaluate the accessibility of digital content and platforms in compliance with International ICT Accessibility standards and best practices.

4-Target Audience

The intended audience for the MADA ICT-AID competency framework include, but not limited to decision makers, administrators, and teachers responsible for curriculum formulation and implementation within educational and training institutions, organizations, as well as experts in the fields of ICTs, inclusive digital education, social affairs, business and industry, innovation and research. Education programmes and certifications prepared based on MADA ICT-AID competency framework are intended to cover a large spectrum of occupations including digital content writers, Web content managers, administrators, web developers, designers, instructional designers, digital education specialists, disability service providers, teachers, project managers, ICT managers, marketing staff, communications specialists and managers, etc.

5-ICT-AID competencies

The framework features six domains of competencies (Table 1) that follow a logical progression in mastering digital accessibility :

Competency Domains	
D1.	Becoming familiar with Disability and Accessibility
D2.	Describing the legal landscape of Disability and Accessibility
D3.	Making a sense of Universal Design
D4.	Creating Accessible Digital Content
D5.	Creating Accessible Web Content
D6.	Making Digital Environments and Platforms Accessible

Table 1: ICT-AID Competency Domains

Each competency domain contains a set of competencies (Table 2) each of which is sub-divided into capabilities that the intended audience should master to be able to develop, evaluate, and remediate accessible digital content. In the following, corresponding ICT-AID competencies (Table 3, 4, 5, 6, 7, 8) and related capabilities are outlined.

Competency Domains	Competencies
D1. Becoming familiar with Disability and Accessibility	D1.1 Distinguishing theoretical Models of Disability
	D1.2 Recognizing the major types of Disabilities and their impact on lives of PWDs
	D1.3 Demonstrating Understanding of Accessibility
	D1.4 Describing and following disability etiquette guidelines for interacting with PWDs
D2. Describing the legal landscape of Disability and Accessibility	D2.1 Identifying and characterizing main Laws, Declarations and Conventions on Human Disability Rights
	D2.2 Recognizing key ICT Accessibility regulations, policies and best practices
	D2.3 Identifying ICT Accessibility standards
	D2.4 Integrating ICT Accessibility across the organization
D3. Making a sense of Universal Design	D3.1 Describing the Universal Design paradigm
	D3.2 Demonstrating understanding of Universal Design for Learning
D4. Creating Accessible Digital Content	D4.1 Identifying major Accessibility considerations to common digital formats
	D4.2 Creating Accessible Word-processing documents
	D4.3 Creating Accessible Presentation documents
	D4.4 Creating Accessible PDF documents
	D4.5 Generalizing Accessibility considerations for different multimedia formats
D5. Creating Accessible Web Content	D5.1 Demonstrating understanding of Web Accessibility
	D5.2 Designing and creating web content in accordance with the W3C Accessibility specifications
	D5.3 Testing and evaluating Web Accessibility
	D5.4 Remediating inaccessible Web documents

D6. Making Digital Environments and Platforms Accessible	D6.1 Identifying and applying the basic principles of Mobile Applications Accessibility
	D6.2 Evaluating Mobile Applications Accessibility
	D6.3 Identifying Accessibility considerations for improved game Accessibility
	D6.4 Ensuring the Accessibility of emerging digital technologies

Table 2: ICT-AID Competencies

5.1 Becoming familiar with Disability and Accessibility

Competency domain D1. Becoming familiar with Disability and Accessibility	
Competencies	Capabilities
D1.1 Distinguishing theoretical Models of Disability	1. Identifying prominent theoretical models of disability
	2. Describing Models' characteristics and understanding their strengths and weaknesses
	3. Defining Disability on your own words
D1.2 Recognizing the major types of Disabilities and their impact on lives of PWDs	1. Identifying basic categories of Disabilities and related demographics
	2. Naming main characteristics of disabilities and associated barriers
	3. Distinguishing how PWDs are impacted by different technologies
D1.3 Demonstrate Understanding of Accessibility	1. Describing the broad scope of Accessibility and technology
	2. Identifying Benefits of Accessibility
	3. Defining ICT Accessibility (and related terminology) on your own words
	4. Exploring Accessibility barriers and Accessibility solutions
	5. Identifying the use and application of AT and adapted Strategies
	6. Identifying key professional organizations and networks in the area of Accessibility
	7. Discussing your role in promoting digital inclusion through ICT
D1.4 Describing and following disability etiquette guidelines for interacting with PWDs	1. Identifying major misconceptions or stereotypes about PWDs
	2. Applying disability etiquette to different life settings
	3. Determining what your contributions could be to the Disability and ICT Accessibility movement

Table 3: Competency domain D1. Becoming familiar with Disability and Accessibility

5.2 Describing the legal landscape of Disability and Accessibility

Competency domain D2. Describing the legal landscape of Disability and Accessibility	
Competencies	Capabilities
D2.1 Identifying and characterizing main Laws, Declarations and Conventions on Human Disability Rights	1. Naming the most prominent international declarations and conventions for the rights of PWDs
	2. Describing the place of ICT Accessibility in the Sustainable Development Goals (SDG) of the United Nations
	3. Identifying the major National and International Accessibility laws and the legal landscape for people with disabilities
	4. Recognizing some key specific domains laws on Human Disability Rights
D2.2 Recognizing key ICT Accessibility regulations, policies and best practices	1. Reviewing examples of specific domains policies on Accessibility
	2. Naming prominent examples of Accessibility laws and regulations applied to ICT
	3. Reviewing examples of ICT Accessibility policies and best practices
D2.3 Identifying ICT Accessibility standards	1. Exploring major examples of ICT Accessibility Standards and Guidance
	2. Listing the W3C Web Accessibility Initiative (WAI) Accessibility standards
	3. Explaining the guiding principles of web Accessibility
	4. Identifying potential ICT Accessibility features and barriers
	5. Demonstrating understanding of checking ICT Accessibility in compliance with standards
D2.4 Integrating ICT Accessibility across the organization	1. Describing the place of ICT Accessibility in the national and the United Nations frameworks
	2. Identifying potential Accessibility issues in workplace
	3. Discussing planning and managing Accessibility

	4. Achieving ICT accessibility through public procurement
	5. Describing how to develop and update Accessibility policies, strategies and best practices for organizations

Table 4: Competency domain D2. Describing the legal landscape of Disability and Accessibility

5.3 Making a sense of Universal Design

Competency domain D3. Making a sense of Universal Design	
<i>Competencies</i>	<i>Capabilities</i>
D3.1 Describing the Universal Design paradigm	1. Demonstrating understanding of Diversity and Inclusion
	2. Defining Universal Design in your own words
	3. Naming the seven principles of Universal Design
	4. Describing the goals and benefits of Universal Design
	5. Distinguishing between Accessibility , Usability, and Universal Design concepts
	6. Knowing the difference between Universal Design and Accommodations
D3.2 Demonstrating understanding of Universal Design for Learning	1. Describing the Universal Design for Learning concept
	2. Demonstrating understanding of Open Education, Open Educational Resources, and Inclusive Education
	3. Describing why UDL matters in today’s classrooms
	4. Identifying the benefits of Universal Design for Learning
	5. Identifying and describing the three core principles of UDL
	6. Making a sense of key concepts of the UDL Guidelines
	7. Developing a basic understanding on how to use the UDL guidelines in course design

Table 5: Competency domain D3. Making a sense of Universal Design

5.4 Creating Accessible Digital Content

Competency domain D4. Creating Accessible Digital Content	
<i>Competencies</i>	<i>Capabilities</i>
D4.1 Identifying major Accessibility considerations to common digital formats	1. Identifying potential Accessibility issues in digital materials
	2. Recognizing some key Accessibility considerations that apply to common digital formats
	3. Exploring some alternatives to implement in a remediation context
D4.2 Creating Accessible word-processing document	1. Identifying and applying the basic principles of logical structure in Word-processing documents
	2. Identifying and applying visual styling Accessibility considerations in Word-processing documents
	3. Auditing and evaluating Accessibility in Word-processing documents
	4. Identifying the limitations of automated testing in Word-processing documents
	5. Performing tests with Assistive Technology for Word-processing documents
	6. Implementing alternative text or text equivalents in a remediation context of Word-processing documents
	7. Creating Word-processing documents Accessibility requirements checklist
	8. Examining and remediating inaccessible Word-processing documents
	9. Reviewing best practices for creating accessible Word-processing documents
D4.3 Creating Accessible Presentation documents	1. Identifying and applying the basic principles of logical structure in Presentation documents
	2. Identifying and applying visual styling Accessibility considerations in Presentation documents

	3. Auditing and evaluating Accessibility in Presentation documents
	4. Identifying the limitations of automated testing in Presentation documents
	5. Performing tests with Assistive Technology for Presentation documents
	6. Implementing alternative text or text equivalents in a remediation context of Presentation documents
	7. Creating Presentation documents Accessibility requirements checklist
	8. Examining and remediating inaccessible Presentation documents
	9. Reviewing best practices for creating Presentation documents
D4.4 Creating Accessible PDF documents	1. Identifying Accessibility considerations before converting a document to PDF
	2. Identifying Characteristics of Accessible PDF files
	3. Using the Accessibility Checkers to evaluate Accessibility in PDF files
	4. Creating PDF Accessibility requirements checklist
	5. Examining and remediating inaccessible PDF files
	6. Reviewing guidelines and best practices to support the creation of Accessible PDF files from authoring applications
D4.5 Generalizing Accessibility considerations for different multimedia formats	1. Identifying Accessibility issues in multimedia content
	2. Recognizing some key Accessibility considerations that apply to different multimedia formats
	3. Making Audio and Video Media Accessible
	4. Captioning and describing videos
	5. Adding captions to Web hosted videos
	6. Creating Accessible complex images
	7. Creating Accessible Animations
	8. Creating Accessible STEM content
	9. Examining and remediating inaccessible multimedia files

	10. Reviewing guidelines and best practices to support the creation of Accessible Multimedia files
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Table 6: **Competency domain D4. Creating Accessible Digital Content**

5.5 Creating Accessible Web Content

Competency domain D5. Creating Accessible Web Content	
<i>Competencies</i>	<i>Capabilities</i>
D5.1 Demonstrating understanding of Web Accessibility	1. Explaining the guiding principles of web Accessibility
	2. Recognizing Accessibility specifications for Web content
	3. Identifying major features of HTML Accessibility
	4. Reviewing the essential components of web Accessibility
	5. Discussing approaches towards ensuring Web Accessibility
	6. Examining Accessibility in Web content
D5.2 Designing and creating web content in accordance with the W3C Accessibility specifications	1. Understanding and interpreting Web Content Accessibility Guidelines (WCAG)
	2. Understanding and interpreting Authoring Tool Accessibility Guidelines (ATAG)
	3. Understanding and interpreting User Agent Accessibility Guidelines (UAAG)
	4. Understanding and interpreting Accessible Rich Internet Applications (WAI-ARIA)
	5. Reviewing and summarizing guidelines, principles and techniques for designing and creating Web accessible solutions
	6. Identifying and applying principles of logical structure and semantics in Web documents
	7. Describing requirements for providing users with a good way to navigate and interact with Web content
	8. Identifying and applying visual styling Accessibility considerations in Web documents
	9. Identifying and applying Accessibility supported technologies
	10. Creating interactive controls/widgets
	11. Creating accessible single-page applications

	12. Creating web content that is compatible with the PWDs common strategies to accessing web content
	13. Integrating Accessibility into the quality assurance process
	14. Reviewing guidelines and best practices to support Web Accessibility
D5.3 Testing and evaluating Web Accessibility	1. Identifying potential Accessibility issues in Web documents
	2. Identifying Interoperability and compatibility issues
	3. Determining conformance to Accessibility specifications based on Accessibility issues found
	4. Testing for end-user impact
	5. Using assistive Technology to test Web Accessibility
	6. Identifying major tools for auditing and evaluating Web Accessibility
	7. Identifying the limitations of automated testing
	8. Creating Web Accessibility requirements checklist
	9. Examining inaccessible Web documents based on the Web Accessibility requirements checklist
	10. Reviewing best practices for designing and creating accessible Web documents
D5.4 Remediating inaccessible Web documents	1. Identifying and classifying Web Accessibility issues and user Impact
	2. Analyzing Cost-Benefit and potential risks
	3. Determining required actions and efforts associated with Issue Remediation
	4. Prioritizing Accessibility issues based on the level of severity
	5. Developing remediation strategy and action plan
	6. Applying the remediation plan
	7. Implementing alternative options in a remediation context
	8. Reviewing strategies and/or techniques for fixing Accessibility issues

Table 7: Competency domain D5. Creating Accessible Web Content

5.6 Making Digital Environments and Platforms Accessible

Competency domain D6. Making Digital Environments and Platforms Accessible	
<i>Competencies</i>	<i>Capabilities</i>
D6.1 Identifying and applying the basic principles of Mobile Applications Accessibility	1. Demonstrating understanding of Mobile Applications design and development
	2. Identifying potential Accessibility issues in Mobile Applications
	3. Identifying Interoperability and compatibility issues in Mobile Applications
	4. Describing Mobile Accessibility Platform Features
	5. Understanding and interpreting WAI's Accessibility standards addressing mobile Accessibility
	6. Reviewing and summarizing guidelines, principles and techniques for Mobile Applications Accessibility
	7. Identifying and applying Accessibility supported mobile technologies
	8. Reviewing Accessible Mobile Web Application Best Practices
	9. Identifying and applying Accessibility considerations in Mobile Applications
D6.2 Evaluating Mobile Applications Accessibility	1. Determining conformance to mobile applications Accessibility specifications
	2. Using assistive Technology to test Mobile Apps Accessibility
	3. Identifying major tools for auditing and evaluating Mobile Apps Accessibility
	4. Synthesizing testing Checklist for Mobile Apps Accessibility
	5. Examining inaccessible Mobile Apps based on the Mobile Accessibility requirements checklist
	6. Developing design guidance and mobile Web Accessibility best practices

D6.3 Identifying Accessibility considerations for game Accessibility	1. Recognizing major barriers to access Video games in relation to specific type of impairments
	2. Identifying Accessibility issues in the games' design and implementation
	3. Identifying Accessible game categories
	4. Recognizing modified video game controllers for improved game Accessibility
	5. Identifying major approaches used to address Accessibility in games
	6. Reviewing and summarizing guidelines, strategies and techniques for game Accessibility
D6.4 Ensuring the Accessibility of emerging digital technologies	1. Defining XR and immersive environments
	2. Demonstrating understanding of XR and Accessibility Challenges
	3. Identifying major Accessibility issues in XR and immersive environments
	4. Recognizing various Accessibility related user needs and requirements for XR
	5. Reviewing approaches and Accessibility requirements supporting XR Accessibility user needs
	6. Making a sense of accessibility requirements for future digital technologies

Table 8: Competency domain D6. Making Digital Environments and Platforms Accessible

6. ICT-AID aligned courses and certifications

The ICT Accessibility and inclusive design specialization includes three courses aligned to ICT-AID competencies according to three skill levels: beginner, intermediate and advanced. These courses can be offered at universities and training institutions (Table 9), and certificates can be obtained accordingly to attest the acquisition of the necessary competencies for each level (Table 10). The Mada accredited training program includes the following courses:

- An introduction to ICT Accessibility and Universal Design
- Digital Accessibility
- Digital platforms and environments Accessibility

Course	Title	Level	Certification
Course 1	An introduction to ICT Accessibility and Universal Design	Starter	ICT Accessibility and Universal Design Core Competencies
Course 2	Digital Accessibility	Intermediate	Digital Accessibility Specialist
Course 3	Digital platforms and environments Accessibility	Advanced	Digital Accessibility Expert

Table 9: ICT-AID specialization within Mada accredited training programme

The first course corresponding to the first level can be offered in universities under the Common Core Program CCP, and this level corresponds to the first certificate attesting the acquisition of key competencies in ICT Accessibility and Inclusive Design competency framework.

The second and third courses for the intermediate and advanced levels can be included within specialized computer science programs at universities. These levels allow students and trainees taking the second certificate for digital accessibility specialists and then the third certificate for digital accessibility experts (Table 11).

Course	Title	Level	Academic	Certification
Course 1	An introduction to ICT Accessibility and Universal Design	Starter	Course 1: [Core Curriculum Program]	ICT Accessibility and Universal Design Core Competencies
Course 2	Digital Accessibility	Intermediate	Course 2+3 : Web and Mobile Accessibility [Computer Science Program]	Digital Accessibility Specialist
Course 3	Digital platforms and environments Accessibility	Advanced	Course 2+3 : Web and Mobile Accessibility [Computer Science Program]	Digital Accessibility Expert

Table 10: ICT-AID specialization for academic programmes

The Mada ICT-AID aligned accredited training Programme includes three courses (Fig. 1). Attending one of these courses requires completing the course that precedes or obtaining a certificate for the corresponding level. There are three certificates for each level (beginner, intermediate and advanced) as follows:

- Level I Certificate: Core Competencies in ICT Accessibility and Inclusive Design
- Level II Certificate: Digital Access Specialist
- Level III Certificate: ICT Accessibility Expert

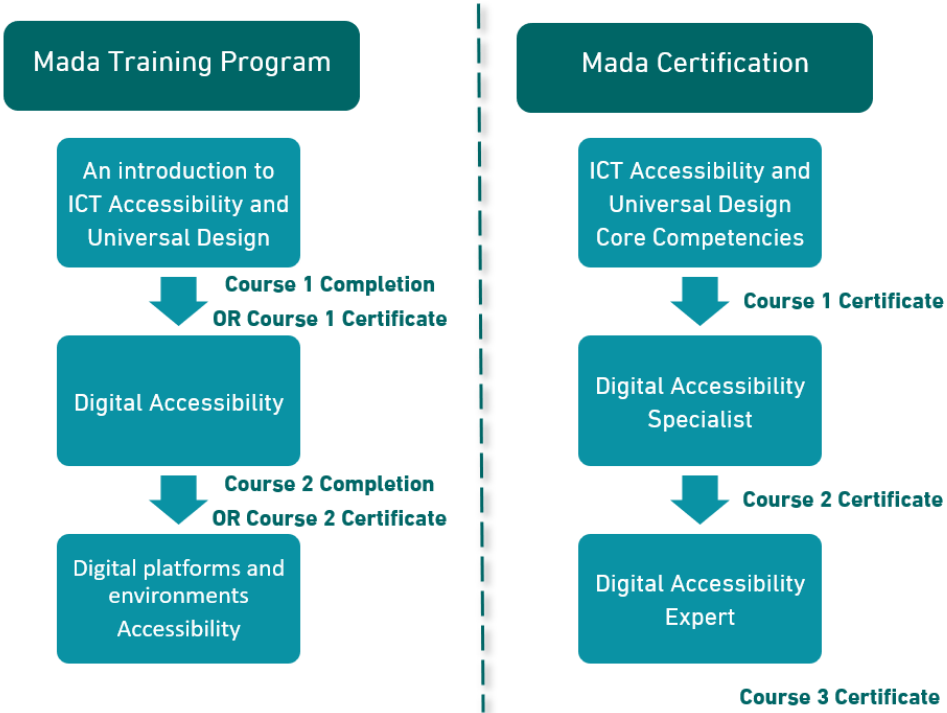


Figure 1: ICT-AID aligned courses and certifications

Competency Domains	Competencies	Capabilities	Course Portfolio			
			Course 1	Course 2	Course 3	
D1.Becoming familiar with Disability and Accessibility	D1.1 Distinguishing theoretical Models of Disability	D1.1.1	X			
		D1.1.2	X			
		D1.1.3	X			
	D1.2 Recognizing the major types of Disabilities and their impact on lives of PWDs	D1.2.1	X			
		D1.2.3	X			
		D1.2.3	X			
	D1.3 Demonstrating Understanding of Accessibility	D1.3.1	D1.3.1	X		
			D1.3.2	X		
			D1.3.3	X		
			D1.3.4	X		
			D1.3.5	X		
			D1.3.6	X		
	D1.4 Describing and following disability etiquette guidelines for interacting with PWDs	D1.4.1	D1.3.7	X	X	X
			D1.4.1	X		
D1.4.2			X			
D2.Describing the legal landscape of	D2.1 Identifying and characterizing main Laws, Declarations and Conventions on Human Disability Rights	D1.4.3	X	X	X	
		D2.1.1	X			
		D2.1.2	X			
		D2.1.3	X			
		D2.1,4	X			

Disability and Accessibility	D2.2 Recognizing key ICT Accessibility regulations, policies and best practices	D2.2.1	X		
		D2.2.2	X		
		D2.2.3	X		
	D2.3 Identifying ICT Accessibility standards	D2.3.1	X	X	
		D2.3.2	X	X	
		D2.3.3	X	X	
		D2.3.4	X	X	
		D2.3.5	X	X	
	D2.4 Integrating ICT Accessibility across the organization	D2.4.1	X		
		D2.4.2	X		
		D2.4.3	X	X	X
		D2.4.4	X	X	X
		D2.4.5	X	X	X
	D3. Making a sense of Universal Design	D3.1 Describing the Universal Design paradigm	D3.1.1	X	
D3.1.2			X		
D3.1.3			X		
D3.1.4			X		
D3.1.5			X		
D3.1.6			X		
D3.2 Demonstrating understanding of Universal Design for Learning		D3.2.1	X		
		D3.2.2	X		
		D3.2.3	X		
		D3.2.4	X		
		D3.2.5	X		

		D3.2.6	X		
		D3.2.7	X		
D4.Creating Accessible Digital Content	D4.1 Identifying major Accessibility considerations to common digital formats	D4.1.1	X		
		D4.1.2	X		
		D4.1.3	X		
	D4.2 Creating Accessible Word documents	D4.2.1	X		
		D4.2.2	X		
		D4.2.3	X		
		D4.2.4	X		
		D4.2.5	X		
		D4.2.6	X		
		D4.2.7	X		
		D4.2.8	X		
		D4.2.9	X		
	D4.3 Creating Accessible PowerPoint Presentations	D4.3.1	X		
		D4.3.2	X		
		D4.3.3	X		
		D4.3.4	X		
		D4.3.5	X		
		D4.3.6	X		
		D4.3.7	X		
		D4.3.8	X		
		D4.3.9	X		
D4.4 Creating Accessible PDF documents	D4.4.1	X			

		D4.4.2	X		
		D4.4.3	X		
		D4.4.4	X		
		D4.4.5	X		
		D4.4.6	X		
		D4.5 Generalizing Accessibility considerations for different multimedia formats	D4.5.1	X	
	D4.5.2		X		
	D4.5.3		X		
	D4.5.4		X		
	D4.5.5		X		
	D4.5.6			X	
	D4.5.7			X	
	D4.5.8			X	
	D5.Creating Accessible Web Content	D5.1 Demonstrating understanding of Web Accessibility	D5.1.1	X	
D5.1.2			X		
D5.1.3			X		
D5.1.4			X		
D5.1.5			X		
D5.1.6			X		
D5.2 Designing and creating web content in accordance with the W3C Accessibility specifications		D5.2.1		X	
		D5.2.2		X	
		D5.2.3		X	

		D5.2.4		X		
		D5.2.5		X		
		D5.2.6		X		
		D5.2.7		X		
		D5.2.8		X		
		D5.2.9		X		
		D5.2.10		X		
		D5.2.11		X		
		D5.2.12		X		
		D5.2.13		X		
		D5.2.14		X		
		D5.3 Testing and evaluating Web Accessibility	D5.3.1		X	
			D5.3.2		X	
			D5.3.3		X	
D5.3.4			X			
D5.3.5			X			
D5.3.6			X			
D5.3.7			X			
D5.3.8			X			
D5.3.9			X			
D5.3.10			X			
D5.4 Remediating inaccessible Web documents	D5.4.1		X			
	D5.4.2		X			
	D5.4.3		X			

		D5.4.4		X	
		D5.4.5		X	
		D5.4.6		X	
		D5.4.7		X	
		D5.4.8		X	
D6.Making Mobile Applications and Environments Accessible	D6.1 Identifying and applying the basic principles of Mobile Applications Accessibility	D6.1.1			X
		D6.1.2			X
		D6.1.3			X
		D6.1.4			X
		D6.1.5			X
		D6.1.6			X
		D6.1.7			X
		D6.1.8			X
		D6.1.9			X
	D6.2 Evaluating Mobile Applications Accessibility	D6.2.1			X
		D6.2.2			X
		D6.2.3			X
		D6.2.4			X
		D6.2.5			X
		D6.2.6			X
	D6.3 Identifying Accessibility considerations for improved game Accessibility	D6.3.1			X
		D6.3.2			X
		D6.3.3			X
		D6.3.4			X

		D6.3.5			X
		D6.3.6			X
	D6.4 Making a sense of accessible Immersive Media Environments	D6.4.1			X
		D6.4.2			X
		D6.4.3			X
		D6.4.4			X
		D6.4.5			X

Table 11: Alignment of courses with ICT-AID competencies

7- References

Khribi, M. K. & Al-Sinani, A. (2021, September). Harnessing OER to build capacity in ICT Accessibility and Inclusive Design. (Accepted) In Open Education Global Conference, OEGlobal'21, Nantes, France.

Thompson, M., Lane, L., & Heap, T. (2020) [An Introduction to Accessibility and Inclusive Design Course. MOOC course on Coursera by University of Illinois at Urbana-Champaign](#)

Lahiri, A., Othman, A., Al-Thani, D. A., & Al-Tamimi, A. (2020, September). Mada Accessibility and Assistive Technology Glossary: A Digital Resource of Specialized Terms. In *ICCHP* (p. 207).

Zhang, X., Tlili, A., Nascimbeni, F., Burgos, D., Huang, R., Chang, T. W., ... & Khribi, M. K. (2020). Accessibility within open educational resources and practices for disabled learners: A systematic literature review. *Smart Learning Environments*, 7(1), 1-19.

Brahim, H. B., Khribi, M. K., Jemni, M., & Tlili, A. (2020, September). Promoting inclusive open education: A holistic approach towards a novel accessible OER recommender system. In *International Conference on Computers Helping People with Special Needs* (pp. 166-176). Springer, Cham.

Forgue, M. C. & Abou-Zahra, S. (2020). Introduction to Web Accessibility MOOC course on Edx by W3C. <https://learning.edx.org/course/course-v1:W3Cx+WAI0.1x+3T2019/home>

The ERASMUS+ Certified Digital Accessibility Training project. (2018). [Certified Digital Accessibility Training. https://digital-accessibility.eu/](https://digital-accessibility.eu/)

Yesilada, Y., & In Harper, S. (2019). Web accessibility: A foundation for research.

Montalvo Daniel and Abou-Zahra Shadi. (2019). Curricula on Web Accessibility: A Framework to Build Your Own Courses. <https://www.w3.org/WAI/curricula/>

Cook, A., Polgar, J., & Encarnação, P. (2019). Assistive Technologies: Principles and Practice

Jemni, M., & Khribi, M. K. (Eds.). (2016). *Open education: from OERs to MOOCs*. Springer.

Gould, M., Leblois, A., Cesa Bianchi, F., Montenegro, V., & Studer, E. (2014). Convention on the Rights of Persons with Disabilities 2012 ICT Accessibility Progress Report. *Survey Conducted in Collaboration with DPI—Disabled Peoples' International*.

The Global Initiative for Inclusive ICTs [G3ICT, Training & Certification, https://g3ict.org/what-we-do/training-certification](https://g3ict.org/what-we-do/training-certification)

[International Association of Accessibility Professionals \(IAAP\)](#) Certifications. [IAAP Certified Professional in Accessibility Core Competencies \(CPACC\)](#), [Web Accessibility Specialist \(WAS\)](#), [Certified Professional in Accessible Built Environments \(CPABE\)](#), [Certified Professional in Web Accessibility \(CPWA\)](#), <https://www.accessibilityassociation.org/s/certification#memberSec1>.

Certificate Of Professional Development [Information Accessibility Design and Policy \(IADP\)](#) by the College of Applied Health Science (AHS) University of Illinois. <http://iadp.ahs.illinois.edu/>

Meyer, A., H Rose, D., & T Gordon, D. (2014). Universal design for learning: Theory and Practice.

Smeltzer, S.C. (2007). Improving the Health and Wellness of Persons with Disabilities: A Call to Action Too Important for Nursing to Ignore. *Nursing Outlook*, 55: 189-195.