



DIGITAL ACCESSIBILITY

I02/A1

Developing training curriculum

Certified Digital Accessibility Training Project
(Project reference number: **KA2-VET-16/18**)

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2 Introduction

The aim of the Certified Digital Accessibility Training Project is to develop VET training modules totally focused on digital accessibility to improve the knowledge, skills and competencies of key stakeholders according to web accessibility standards and in order to enable them to respond to the needs of visual, auditory, physical or cognitive disabled as well as older persons or low literacy website visitors / apps users, so they in turn are able to fully access and benefit from the digital era.

The Project aims to address societal challenges by building a bridge of educated VET trainers, VET learning students and professionals. In this regard, the Project focuses on the competences of VET trainers, teachers and mentors by equipping them with new tools to secure the outcomes of learning processes in VET, validating skills of learners and making these visible to their learners. The Project will:

- improve the quality of training (initial education and continuing development),
- improve the quality of teachers, trainers and other professionals in the sector,
- make courses more relevant to the labour market.

New requirements on the market regarding digital accessibility are leading to new employment possibilities as totally new job roles are evolving in this field. For example, Digital Accessibility Manager (the one who is responsible in the company for digital accessibility policy regarding uploading digital content), or Digital Accessibility testing specialist (PWD are needed for usability testing of web pages and apps; automated testing tools cannot replace specific user tests). On the other hand, employers face the problem of not having a single standard of what the digital accessibility expert should master. There is, however, no professional qualification for digital accessibility professionals in Europe and, by our knowledge, no regular or standardized education in this field. In Slovenia for example we do not have a provider of regular training in this field. Existing VET curricula in participating countries also do not address this issue.

2.1 IO2 - TRAINING CURRICULUM

One of the main objectives of the Certified Digital Accessibility Training Project is to prepare opportunities for the continuous professional development of VET Trainers/Teachers/Mentors through the development of curriculum, lessons plans and presentations which enables trainers to teach the implementation of accessible websites/apps to learners. Aim is to prepare, according to the diversity of target groups, several modules inter-connected but individual units to be able to use them separately.

Development and implementation of curricula for trainers, as the major milestone WP3 - Training curriculum & Certification methodology (IO2), consists of two activities: A1 – Development of training curriculum and A2 – Development of certification methodology. These two activities have two main goals to achieve:

- to develop innovative and uniform training curriculum that delivers fundamental knowledge and skills for performing new and evolving job roles within the digital accessibility field, and
- to develop certification methodology for certification of qualified digital accessibility professionals.

The WP3 was led by P4 – Siedlce University (Poland) together with P3 - Horizons (Poland). Within the IO2 activity Siedlce University established the protocol for IO2/A1 and all partners contributed to development of IO2/A1 according to their expertise and distribution of developed modules. Horizons established the protocol for IO2/A2 and all partners contributed to development of IO2/A2 according to their expertise and distribution of tasks determined by P3.

IO2 was planned to last 5 months but it took 8 months to prepare all needed materials to develop curricula.





3 Development of training curricula IO2/A1

Within IO2/A1 - Training curriculum Project Partners established the innovative curricula for four job roles trainings thanks to which the learners will be able to achieve not only new digital skills that are useful and desired in contemporary organizations but also certificates after completing the training, proving these skills.

According to Project Proposal assumptions and after carried out researches training curricula include:

- Titles of the units/modules
- The field of education for which the course / module is offered
- Target Groups
- ECVET Credits
- Learning goals
- Learning outcomes
- Form and types of activities
- Entry Requirements
- Short description of the unit/module
- Needed materials
- Teaching Methods
- Assessment plan
- The method and form of the module credit
- Trainers recommendations
- Balance of ECVET Credits

Training curricula consist of diverse modules/units according to the diverse needs of various target groups which were defined in IO1. Partners of the Project established 6 modules/units, with the division of tasks as follows:

1. Introduction to digital accessibility - P4.
2. Managing digital accessibility - P1.
3. Implementation of digital accessibility - P6.
4. Evaluation of digital accessibility - P3.
5. Developing/programming for digital accessibility - P2
6. Designing for digital accessibility - P5.

There are four training curricula which are divided into two groups: new non-technical and the existing technical enriched by new digital skills.

Non-technical job roles trainings: Digital Accessibility Manager and Digital Accessibility Tester.

Technical job roles trainings: Web Developer with expertise in Digital Accessibility and Web Designer with expertise in Digital Accessibility.





3.1 Digital Accessibility Manager Training

Digital Accessibility Manager training will be focused on preparing the specialists who are able to manage and implement digital accessibility standards in their organizations, or in organizations they work for.

3.1.1 General objectives of the training.

The general objective of the training is to prepare specialists for managing and implementing Digital Accessible websites of their organization or organization in which they work. The total number of ECVET credits to be obtained during the training is 3 (1 ECVET ≈ 20 hours).

3.1.2 Education objectives for qualifications

Symbols of the course effects and DIGITAL ACCESSIBILITY SKILLS are as follows:

KM_01 - Knowledge and understanding of Web Content Accessibility Guidelines (WCAG, 2018), and its principles (perceivable, operable, understandable, robust).

KM_02 - Knowledge of Web Accessibility Initiative Accessible Rich Internet Applications (WAI-ARIA, 2018)

KM_03 - Knowledge of User Agent Accessibility Guidelines (UAAG, 2018)

KM_04 - Knowledge of Authoring Tool Accessibility Guidelines (ATAG, 2018)

KM_05 - Basic knowledge of assisting technology and the ways of its use

KM_06 - Knowledge of different types of disabilities, understanding the needs of people with disabilities and older people, and the barriers they experience

KM_07 - Basic knowledge of authoring tools and content management systems

KM_08 - Basic knowledge of evaluation tools for checking digital accessibility

KM_09 - Deep understanding of digital accessibility and its domains, also on the humanitarian level

KM_10 - Knowledge of the relevant legislations of digital accessibility

SM_01 - Ability to interpret and advise based on WCAG 2.0/2.1

SM_02 - Ability to create and write accessible web content (including web page structure, proper headings, alt-text, captions, transcripts, links, tables etc.)

SM_03 - Good stakeholder management

SM_04 - Ability to develop a digital accessibility implementation plan and organizational policies on digital accessibility

SM_05 - Ability to undertake and document a preliminary check for digital accessibility

SM_06 - Ability to develop the business case that influences an organization's web accessibility efforts

CM_01 - A sense of empathy.

3.1.3 Introductory and recommended requirements.

ENTRY AND RECOMMENDED REQUIREMENTS are as follows: Basic IT knowledge, Education – university or college education or working experience at management position, Empathy and willingness to help people with disabilities, Management and organizational skills (planning, organizing, motivating, controlling).

3.1.4 Duration, number of hours and organization of the training.

60 hours (Introduction to DA – 20 hours; Managing DA – 24 hours; Implementation of DA – 16 hours).

3.1.5 E-learning.

In case of an on-site training in a combination with individual online learning: 40 hours (Introduction to DA – 16 hours; Managing DA – 12 hours; Implementation of DA – 12 hours).

In case of an online only training: 48 hours (Introduction to DA – 16 hours, Managing DA – 16 hours, Implementation of DA – 16 hours).





3.1.6 Teaching plan.

- Introduction to Digital Accessibility
- Managing Digital Accessibility
- Implementation and best practices for Digital Accessibility

Introduction to Digital Accessibility

The field of education for which the course / module is offered: not specified

Target Groups: Managers, decision makers, PR & marketing professionals, procurement, legal and policy advisors, organizations from public sectors, S&P makers, people who work with and for PWD, and similar.

ECVET Credits: 1

Learning goals:

1. To familiarize the learners with the basic principles and importance of digital accessibility.
2. To familiarize the learners with diversity of disabilities and related needs (assistive technologies).
3. Acquainting with the common barriers for PWDs.
4. Acquainting with the benefits for all people (UXD principles).
5. To familiarize the learners with the relevant standards.
6. To familiarize the learners with the relevant legislation.
7. Acquainting with the components of digital accessibility.
8. Introducing to WCAG 2.0 /2.1.

Learning outcomes:

The learner is able to:

K_01_ - describe digital accessibility, its components and benefits for all people (**KM_09**)

K_02 - indicate digital accessibility legislations (**KM_10**)

K_03 - distinguish different types of disabilities (**KM_06**)

K_04 - recognise the needs of people with disabilities and older people, and the barriers they experience (**KM_06**)

K_05 - recognise the assisting technology and the ways of its use (**KM_05**)

K_06 - recognise “Web Content Accessibility Guidelines” (WCAG, 2018) (**KM_01**)

K_07 - recognise “Web Accessibility Initiative Accessible Rich Internet Applications” (WAI-ARIA, 2018) (**KM_02**)

K_08 - recognise “User Agent Accessibility Guidelines” (UAAG, 2018) (**KM_03**)

K_09 - recognise “Authoring Tool Accessibility Guidelines” (ATAG, 2018) (**KM_04**)

K_10- explain “Web Content Accessibility Guidelines” (WCAG, 2018) principles (perceivable, operable, understandable, robust) (**KM_01**)

C_01 - demonstrate a sense of empathy (**CM_01**)





Form and types of activities: Workshops (stationary or online), e-learning

Entry Requirements: Basic IT knowledge

Short description of the unit/module:

1. Overview and Importance of digital accessibility
2. Diversity of disabilities and related needs (assistive technologies)
3. Common barriers for PWDs
4. Benefits for all people (UXD principles)
5. Relevant standards
6. Relevant legislations
7. Components of digital accessibility
8. Introduction to WCAG 2.0/2.1

Needed materials:

1. W3C Recommendations. (2018). WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>
2. W3C Web Accessibility Initiative (WAI). (2018). How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
3. Victorian Government Australia. (2018). Digital Standards, Make content accessible - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
4. W3C Web Accessibility Initiative (WAI). (2018). Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
5. W3C Web Accessibility Initiative (WAI). (2018). W3C Accessibility Standards Overview - Retrieved from: <http://www.w3.org/WAI/standards-guidelines/>
6. W3C Web Accessibility Initiative (WAI). (2018). Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C - Retrieved from: <http://www.w3.org/WAI/>
7. E-learning materials

Teaching Methods / Planned forms / activities / teaching methods: Due to the nature of the module, students learn the theoretical part of the courses by themselves using e-platform, and after that students will participate in practical part of the course with wide a range of various practical exercises. Workshops (practical exercises) should take place in groups of up to 12 people. Students perform tasks and exercises individually or in teams.

Assessment plan: Checking and assessing achievements should be carried out systematically during the program implementation. The basic criterion for assessing educational achievements is the level of students' knowledge of the principles of Digital Accessibility standards, the assistive technology market, types of disabilities, specific needs and barriers for PWDs, and the ability to acquire professional information. Test methods should include: (1) an intermediate online test at the end of each unit, and (2) one final online test at the end of the course.

The method and form of the module credit: Completing intermediate online tests and final online test (on e-platform) – 100% of total mark.





Trainers recommendations: The practical part of the training should be carried out in the PC lab.

Balance of ECVET Credits: Stationary – 4 hours, e-learning (e-platform) – 16 hours, **Total – 20 hours. Total ECVET – 1.**

In case of an online only training: online training – 4 hours, e-learning – 16 hours. **Total – 20 hours. Total ECVET – 1.**

Managing Digital Accessibility

The field of education for which the course / module is offered: not specified

Target Groups: Web managers and editors, digital content authors, visual designers, PR and marketing professionals, VET teachers in the field of marketing, media communications, design and similar.

ECVET Credits: 1

Learning goals:

1. Acquainting with WCAG guidelines that are important for accessible web content.
2. To familiarize the learners how to convert WCAG standard into writing accessible web content (readable and understandable).
3. Acquiring the ability to create appropriate alt-text for non-text content (images, pictures, logos, buttons...).
4. Acquiring the ability to write concise transcripts and captions to images and multimedia.
5. Acquiring the ability to create proper links.
6. Acquiring the ability to prepare accessible documents and documents formats.
7. Acquiring the ability to prepare accessible tables.
8. Acquiring the ability to organize accessible web page.
9. Acquiring the ability to choose accessible web page titles.
10. Acquiring the ability to use appropriate headings.
11. Acquiring the ability to choose accessible colours and contrasts.
12. To familiarize the learners how to develop organizational policies on web accessibility.
13. To familiarize the learners how to identify key players in achieving an accessible website.

Learning outcomes:

The learner is able to:

K_01 – recognise WCAG 2.0/2.1 guidelines related to content management (**KM_01; KM_07**)

S_01 – apply digital accessibility guidelines to write accessible web content (readable and understandable) (**SM_02**)

S_02 – establish accessible structure of webpage (appropriate headings, titles and links; accessible colours and contrasts) (**SM_02**)

S_03 – prepare accessible images, multimedia and documents (writing appropriate alt-text, transcripts, captions etc.) (**SM_02**)

S_04 – formulate organizational policy on digital accessibility (**SM_04**)





S_05 - identify key players (people, departments) in achieving an accessible website (SM_03)

Form and types of activities: Workshops (stationary or online), e-learning, homework – portfolio.

Entry requirements: Basic IT knowledge, Education – university or college education or working experience at management position, Empathy and willingness to help people with disabilities, Management and organizational skills (planning, organizing, motivating, controlling).

Short description of the unit/module:

1. Introduction to Managing course (the role of non-technical persons in digital accessibility)
2. Accessible Web layout (appropriate titles, headings, links, colours and contrasts)
3. Readable and understandable Web content
4. Accessible multimedia and tables
5. Accessible documents
6. Organizational policy on digital accessibility

Needed materials:

1. Understanding WCAG: The World Wide Web Consortium (W3C) (2016). Understanding WCAG 2.0: A guide to understanding and implementing Web Content Accessibility Guidelines 2.0 - Retrieved from: <https://www.w3.org/TR/UNDERSTANDING-WCAG20/Overview.html>
2. W3C Web Accessibility Initiative (WAI). (2017). Images Concepts - Retrieved from: <https://www.w3.org/WAI/tutorials/images/>
3. W3C Web Accessibility Initiative (WAI). (2017). Tables Concepts - Retrieved from: <https://www.w3.org/WAI/tutorials/tables/>
4. W3C Web Accessibility Initiative (WAI). (2016). Developing Organizational Policies on Web Accessibility - Retrieved from: <https://www.w3.org/WAI/planning/org-policies/>
5. W3C Web Accessibility Initiative (WAI). (2018). Web Accessibility Policy and Legislation - Retrieved from: <https://www.w3.org/WAI/teach-advocate/accessibility-training/topics/#policy>
6. W3C Web Accessibility Initiative (WAI). (2018). Preliminary Check for Digital Accessibility - Retrieved from: <https://www.w3.org/WAI/teach-advocate/accessibility-training/topics/#check>

Teaching Methods / Planned forms / activities / teaching methods: Due to the nature of the course, various didactic methods should be used: (video) lectures method, presentation with explanation, project method, situational method. After learning theoretical knowledge, students should use it in practical exercises. Workshops should take place in groups of up to 12 people. Students perform tasks and exercises individually or in teams.

Assessment plan: Checking and assessing achievements should be carried out systematically during the program implementation. The basic criterion for assessing educational achievements is the level of students' understanding of the principles of managing digitally accessible content, including the needs of users with disabilities and the assistive technology market, and the ability to acquire professional information. Testing method should include written test (on e-learning platform) and a portfolio preparation. Participants will get homework/assignments on e-learning platform. They will need to prepare the portfolio from all assignments.





The method and form of the module credit: Completing online test (60 % of total mark), correct answers in portfolio (40 % of total mark).

Trainers recommendations: The practical part of the training should be carried out in the PC lab.

Balance of ECVET Credits: Stationary (workshops) - 8 hours, e-learning - 12 hours, **Total - 20 hours, Total ECVET - 1.**

In case of an online only training: online (workshops)- 8 hours, e-learning – 12 hours. **Total - 20 hours, Total ECVET - 1.**

Implementation and best practices for Digital Accessibility

The field of education for which the course / module is offered: Information Technology, Business Administration, Information Systems

Target Groups: Web managers, digital accessibility managers, digital accessibility specialist, VET trainers/teachers, organizations from public & private sectors, and similar.

ECVET Credits: 1

Learning goals:

1. Acquainting the knowledge about digital accessibility implementation.
2. Developing the ability to develop a digital accessibility implementation plan.
3. Acquainting the basic knowledge of authoring tools and content management systems.
4. Acquainting the basic knowledge of evaluation tools for checking digital accessibility.
5. Developing the ability to undertake and document preliminary checks for digital accessibility.
6. Developing the ability to improve the accessibility of an organization's existing website.
7. Acquainting learners with the implementation of the European Directive (EU 2016/2102).

Learning outcomes:

The learner is able to:

K_01 - describe the steps needed to develop an implementation plan for web accessibility (**KM_07**)

K_02 - describe the principles for selecting appropriate authoring and evaluation tools (**KM_07; KM_08**)

S_01 – develop a digital accessibility implementation plan on digital accessibility (**SM_04**)

S_02 - conduct preliminary check of websites for digital accessibility (**SM_05**)

S_03 - develop a document for preliminary checks for digital accessibility (**SM_05**)

S_04 – use WCAG to support practical implementation and testing (**SM_01**)

S_05 – select appropriate authoring and evaluation tools for accessible content (**SM_05**)

S_06 - improve the accessibility of an organization's existing website (**SM_06**)

Form and types of activities: Workshops (stationary or online), e-learning.





Entry Requirements: Basic IT knowledge, Empathy and willingness to help people with disabilities, Organizational skills (e.g. organizing, planning, goal setting), Analytical thinking.

Short description of the unit/module:

1. Digital Accessibility Implementation Plan
2. Preliminary check and selecting appropriate authoring tools
3. Implementing the European Web Accessibility Directive

Needed materials:

1. W3C Recommendations. (2018). WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>
2. W3C Web Accessibility Initiative (WAI). (2018). How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
3. Victorian Government Australia. (2018). Digital Standards, Make content accessible - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
4. W3C Web Accessibility Initiative (WAI). (2018). Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
5. W3C Web Accessibility Initiative (WAI). (2018). W3C Accessibility Standards Overview - Retrieved from: <http://www.w3.org/WAI/standards-guidelines/>
6. W3C Web Accessibility Initiative (WAI). (2018). Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C - Retrieved from: <http://www.w3.org/WAI/>
7. Implementation plan for web accessibility – Retrieved from: <https://www.w3.org/WAI/impl/expanded>
8. Evaluating Web Accessibility Overview – Retrieved from: <https://www.w3.org/WAI/test-evaluate/>
9. European Directive on the Accessibility of Websites and Mobile Applications of Public Sector Bodies (Directive (EU 2016/2102)- Retrieved from: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32016L2102>

Teaching Methods / Planned forms / activities / teaching methods: Due to the nature of the course, various didactic methods should be used: (video) lectures method, presentation with explanation, project method, situational method. After learning theoretical knowledge, students should use it in practical exercises. Workshops should take place in groups of up to 12 people. Students perform tasks and exercises individually or in teams.

Assessment plan: Checking and assessing achievements should be carried out systematically during the program implementation. The basic criterion for assessing educational achievements is the level of students' knowledge of the principles of a digital accessibility implementation plan, preliminary check, selecting appropriate authoring and evaluation tools, using WCAG to support practical implementation and testing. Testing methods should include 2 online tests.

The method and form of the module credit: Attendance at workshops and participation in practical sessions (20 % of total mark); two written tests on e-learning platform (80 % of total mark). There is an alternative option of doing a long written theoretical – practical examination on e-learning platform (100% of total mark).

Trainers recommendations: The practical part of the training should be carried out in the PC lab.





Balance of ECVET Credits: Stationary – 8 hours, e-learning – 12 hours, **Total – 20 hours, Total ECVET – 1.**

In case of an online only training: online – 4 hours, e-learning – 16 hours. **Total - 20 hours, Total ECVET – 1.**

3.1.7 Teaching content, detailed learning outcomes and methods of achieving them.

Teaching content will be developed within IO3 - developing innovative training modules.

3.1.8 A list of necessary teaching resources and materials.

The practical part of the training should be carried out in the PC lab. Every learner should have own learning station with PC and internet connection.

3.1.9 Literature.

1. E-learning materials
2. Understanding WCAG: The World Wide Web Consortium (W3C) (2016). Understanding WCAG 2.0: A guide to understanding and implementing Web Content Accessibility Guidelines 2.0 - Retrieved from: <https://www.w3.org/TR/UNDERSTANDING-WCAG20/Overview.html>
3. Victorian Government Australia. (2018). Digital Standards, Make content accessible - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
4. W3C Web Accessibility Initiative (WAI). (2018). How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
5. W3C Web Accessibility Initiative (WAI). (2018). Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
6. W3C Web Accessibility Initiative (WAI). (2018). Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C - Retrieved from: <http://www.w3.org/WAI/>
7. W3C Web Accessibility Initiative (WAI). (2018). W3C Accessibility Standards Overview - Retrieved from: <http://www.w3.org/WAI/standards-guidelines/>
8. W3C Web Accessibility Initiative (WAI). (2016). Developing Organizational Policies on Web Accessibility - Retrieved from: <https://www.w3.org/WAI/planning/org-policies/>
9. W3C Web Accessibility Initiative (WAI). (2017). Images Concepts - Retrieved from: <https://www.w3.org/WAI/tutorials/images/>
10. W3C Web Accessibility Initiative (WAI). (2017). Tables Concepts - Retrieved from: <https://www.w3.org/WAI/tutorials/tables/>
11. W3C Web Accessibility Initiative (WAI). (2018). Preliminary Check for Digital Accessibility - Retrieved from: <https://www.w3.org/WAI/teach-advocate/accessibility-training/topics/#check>
12. W3C Web Accessibility Initiative (WAI). (2018). Web Accessibility Policy and Legislation - Retrieved from: <https://www.w3.org/WAI/teach-advocate/accessibility-training/topics/#policy>
13. W3C Recommendations. (2018). WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>





3.2 Digital Accessibility Tester Training

Digital Accessibility Tester training will be focused on preparing the specialists who are able to evaluate and test the accessibility of existing web pages.

3.2.1 General objectives of the training.

The general objective of the training is to prepare specialists for testing and evaluating the websites of their organization or organization in which they work in terms of their digital availability. The total number of ECVET credits to be obtained during the training is 3 (1 ECVET ≈ 20 hours).

3.2.2 Education objectives for qualifications.

Symbols of the course effects and DIGITAL ACCESSIBILITY SKILLS are as follows:

KT_01 - Knowledge and understanding of Web Content Accessibility Guidelines (WCAG, 2018) and its principles (perceivable, operable, understandable, robust)

KT_02 - Knowledge of Web Accessibility Initiative Accessible Rich Internet Applications (WAI-ARIA, 2018)

KT_03 - Knowledge of User Agent Accessibility Guidelines (UAAG, 2018)

KT_04 - Knowledge of Authoring Tool Accessibility Guidelines (ATAG, 2018)

KT_05 - Knowledge of assisting technology e.g. Screen Reader, Dragon, Zoom and Colour contrast

KT_06 - Knowledge of different types of disabilities, understanding the needs of people with disabilities and older people, and barriers they experience

KT_07 - Knowledge of free available online tools for testing the accessibility of web pages

KT_08 - Knowledge of accessibility conformance evaluation

KT_09 - Deep understanding of digital accessibility and its domains, also on the humanitarian level

KT_10 - Knowledge of the relevant legislations of digital accessibility

ST_01 - Ability to use digital accessibility testing tools (Screen Readers, HTML-Checking Tools, Colour and Contrast Checkers, GUI Automation Tools, Readability Analyzers)

ST_02 - Ability to select evaluation tools for checking digital accessibility

ST_03 - Ability to undertake and document a preliminary check for digital accessibility

CT_01 - A sense of empathy

3.2.3 Introductory requirements.

ENTRY AND RECOMMENDED REQUIREMENTS are as follows: Knowledge of internet use, Openness to new technologies, Basic understanding of the needs of people with various disabilities, Basic IT knowledge, Understanding the basics of digital accessibility, Strong analytical skills, Ability to create clear bug report.

3.2.4 Duration, number of hours and organization of the training.

60 hours (Introduction to DA - 20 hours; Evaluation of DA – 40 hours).

3.2.5 E-learning.

In case of an on-site training in a combination with individual online learning: 40 hours (Introduction to DA - 16 hours; Evaluation of DA – 24 hours).





In case of an online only training: 40 hours (Introduction to DA - 16 hours; Evaluation of DA – 24 hours).

3.2.6 Teaching plan.

- Introduction to Digital Accessibility
- Evaluation of Digital Accessibility

Introduction to Digital Accessibility

The field of education for which the course / module is offered: not specified

Target Groups: Managers, decision makers, PR & marketing professionals, procurement, legal and policy advisors, organizations from public sectors, S&P makers, people who work with and for PWD, and similar.

ECVET Credits: 1

Learning goals:

1. To familiarize the learners with the basic principles and importance of digital accessibility.
2. To familiarize the learners with diversity of disabilities and related needs (assistive technologies).
3. Acquainting with the common barriers for PWDs.
4. Acquainting with the benefits for all people (UXD principles).
5. To familiarize the learners with the relevant standards.
6. To familiarize the learners with the relevant legislation.
7. Acquainting with the components of digital accessibility.
8. Introducing to WCAG 2.0 /2.1.

Learning outcomes:

The learner is able to:

K_01 - describe digital accessibility, its components and benefits for all people (**KT_09**)

K_02 - indicate digital accessibility legislations (**KT_10**)

K_03- distinguish different types of disabilities (**KT_06**)

K_04 - recognise the needs of people with disabilities and older people, and the barriers they experience (**KT_06**)

K_05 - recognise the assisting technology and the ways of its use (**KT_05**)

K_06 - recognise "Web Content Accessibility Guidelines" (WCAG, 2018) (**KT_01**)

K_07 - recognise "Web Accessibility Initiative Accessible Rich Internet Applications" (WAI-ARIA, 2018) (**KT_02**)

K_08 - recognise "User Agent Accessibility Guidelines" (UAAG, 2018) (**KT_03**)

K_09 - recognise "Authoring Tool Accessibility Guidelines" (ATAG, 2018) (**KT_04**)

K_10 - explain "Web Content Accessibility Guidelines" (WCAG, 2018) principles (perceivable, operable, understandable, robust) (**KT_01**)





C_01 - demonstrate a sense of empathy (CT_01)

Form and types of activities: Workshops (stationary or online), e-learning

Entry Requirements: Basic IT knowledge

Short description of the unit/module:

1. Overview of digital accessibility
2. Overview and Importance of digital accessibility
3. Diversity of disabilities and related needs (assistive technologies)
4. Common barriers for PWDs
5. Benefits for all people (UXD principles)
6. Relevant standards
7. Relevant legislations
8. Components of digital accessibility
9. Introduction to WCAG 2.0/2.1

Needed materials:

1. WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>
2. W3C Recommendations. (2018). WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>
3. W3C Web Accessibility Initiative (WAI). (2018). How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
4. Victorian Government Australia. (2018). Digital Standards, Make content accessible - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
5. W3C Web Accessibility Initiative (WAI). (2018). Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
6. W3C Web Accessibility Initiative (WAI). (2018). W3C Accessibility Standards Overview - Retrieved from: <http://www.w3.org/WAI/standards-guidelines/>
7. W3C Web Accessibility Initiative (WAI). (2018). Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C - Retrieved from: <http://www.w3.org/WAI/>
8. E-learning materials

Teaching Methods / Planned forms / activities / teaching methods: Due to the nature of the module, students learn the theoretical part of the courses by themselves using e-platform, and after that students will participate in practical part of the course with wide a range of various practical exercises. Workshops (practical exercises) should take place in groups of up to 12 people. Students perform tasks and exercises individually or in teams.

Assessment plan: Checking and assessing achievements should be carried out systematically during the program implementation. The basic criterion for assessing educational achievements is the level of students' knowledge of the principles of Digital Accessibility standards, the assistive technology market, types of disabilities, specific needs and





barriers for PWDs, and the ability to acquire professional information. Test methods should include: (1) an intermediate online test at the end of each unit, and (2) one final online test at the end of the course.

The method and form of the module credit: Completing intermediate online tests and a final online test (on e-platform) – 100% of total mark.

Trainers recommendations: The practical part of the training should be carried out in the PC lab.

Balance of ECVET Credits: Stationary – 4 hours, e-learning (e-platform) – 16 hours. **Total – 20 hours. Total ECVET – 1.**

In case of an online only training: online training – 4 hours, e-learning – 16 hours. **Total – 20 hours. Total ECVET – 1.**

Evaluation of Digital Accessibility

The field of education for which the course / module is offered: not specified

Target Groups: PR & marketing professionals, procurement, legal and policy advisors, organizations from public sectors, S&P makers, people who work with and for PWD, and similar.

ECVET Credits: 2

Learning goals:

1. Acquiring the knowledge on accessibility conformance evaluation.
2. To familiarize the learners with the relevant tools for testing accessibility of digital content.
3. Acquiring the ability to check digital content in terms of accessibility.
4. Acquiring the ability to use digital accessibility testing tools.
5. Acquiring the ability to prepare the bug report.

Learning outcomes:

The learner is able to:

K_01 – explain the accessibility conformance evaluation rules (**KT_08**)

K_02 – recognise tools for testing the accessibility of web pages (including open access online tools) (**KT_07**)

K_03 – describe digital accessibility, its components and benefits for all people (**KT_09**)

S_01 – apply digital accessibility testing tools (Screen Readers, HTML-Checking Tools, Colour and Contrast Checkers, GUI Automation Tools, Readability Analyzers) (**ST_01**)

S_02 – compare evaluation tools for checking digital accessibility (**ST_02**)

S_03 – evaluate and document a preliminary check for digital accessibility (**ST_03**)

C_01 - demonstrate a sense of empathy (**CT_01**)

Form and types of activities: Workshops (stationary or online), e-learning





Entry Requirements: Knowledge of internet use, Openness to new technologies, Basic understanding of the needs of people with various disabilities, Basic IT knowledge, Understanding the basics of digital accessibility, Strong analytical skills, Ability to create basic clear bug reports.

Short description of the unit/module:

1. Accessibility conformance evaluation
2. Online tools for testing the accessibility of web pages
3. Checking the content in terms of digital accessibility
4. Selecting evaluation tools for checking digital accessibility
5. Using digital accessibility testing tools
6. Preparing the bug report

Needed materials:

1. Contrast Ratio (2020) - Retrieved from: <https://contrast-ratio.com/>
2. Colour Contrast Check (2020) - Retrieved from: https://snook.ca/technical/colour_contrast/colour.html#fg=33FF33.bg=333333
3. Hemingway App (2020) - Retrieved from: <http://hemingwayapp.com/>
4. NVDA website (2020) - Retrieved from: <https://www.nvaccess.org/download/>
5. NVDA tutorial (2020) - Retrieved from: <https://webaim.org/articles/nvda/>
6. Readability Analyzer (2020) - Retrieved from: <https://datayze.com/readability-analyzer>
7. Readability Formulas (2020) - Retrieved from: <https://readabilityformulas.com/free-readability-formula-tests.php>
8. [VoiceOver tutorial](https://dequeuniversity.com/screenreaders/voiceover-keyboard-shortcuts) (2020) - Retrieved from: <https://dequeuniversity.com/screenreaders/voiceover-keyboard-shortcuts>
9. [WAVE Web Accessibility Tool](https://wave.webaim.org/) (2020) - Retrieved from: <https://wave.webaim.org/>
10. [WebAIM Contrast Checker Tool](https://webaim.org/resources/contrastchecker/) (2020) - Retrieved from: <https://webaim.org/resources/contrastchecker/>
11. Article on alternative text (2020) - Retrieved from: <https://webaim.org/techniques/alttext/>
12. Tutorial on image concepts (2020) - Retrieved from: <https://www.w3.org/WAI/tutorials/images/>
13. [Text alternatives](https://www.w3.org/WAI/WCAG21/quickref/?showtechniques=128%2C129#text-alternatives) (2020) - Retrieved from: <https://www.w3.org/WAI/WCAG21/quickref/?showtechniques=128%2C129#text-alternatives>
14. Time-based media alternatives. (2020) - Retrieved from: <https://www.w3.org/WAI/WCAG21/quickref/?showtechniques=128%2C129#time-based-media>
15. Different types of images (2020) - Retrieved from: <https://www.w3.org/WAI/tutorials/images/>
16. A decision tree (2020) - Retrieved from: <https://4syllables.com.au/articles/text-alternatives-decision-tree/>
17. [Good alt-text](https://webaim.org/techniques/alttext/) (2020) - Retrieved from: <https://webaim.org/techniques/alttext/>
18. Accessibility Developer Guide Tutorial (2020) - Retrieved from: <https://www.accessibility-developer-guide.com/knowledge/keyboard-only/browsing-websites/>
19. Accessibility Conformance Testing Rules (2020) - Retrieved from: <https://www.w3.org/TR/act-rules-format/>





20. Digital Accessibility Test Reports_ WCAG Conformance Levels (2020) - Retrieved from: http://digital-accessibility.eu/learn/pluginfile.php/613/mod_folder/content/0/Digital%20Accessibility%20Test%20Report%20WCAG%20Conformance%20Level%20A%20%2B%20individual%20solutions.docx?forcedownload=1
21. WCAG 2.1 Standard (2020) - Retrieved from: <https://www.w3.org/TR/WCAG21/>
22. How to Meet WCAG 2 (Quick Reference) (2020) - Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
23. Digital Standards, Make content accessible, VIC.GOV.AU (2020) - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html>
24. Introduction to Web Accessibility, W3C (2020) - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
25. W3C Accessibility Standards Overview (2020) - Retrieved from: <http://www.w3.org/WAI/standards-guidelines/>
26. Making the Web Accessible, Strategies, standards, and supporting resources_(2020) - Retrieved from: <http://www.w3.org/WAI/>

Teaching Methods / Planned forms / activities / teaching methods: Due to the nature of the module, students learn the theoretical part of the courses by themselves using e-platform, and after that students will participate in the practical part of the course with a wide range of various practical exercises. Workshops (practical exercises) should take place in groups of up to 12 people. Students perform tasks and exercises individually or in teams.

Assessment plan: Checking and assessing achievements should be carried out systematically during the program implementation. The basic criterion for assessing educational achievements is the level of students' skills of checking digital accessibility of a content. Testing methods should include online tests for e-learning and a practical test of ability to check the digital accessibility of a content consisting in the execution of a bug report and accessibility report.

The method and form of the module credit: Completing final online test (on e-platform) – 20% of total mark and completing the practical exam: evaluating the content and preparing the accessibility report (80% of total mark).

Trainers recommendations: The practical part of the training should be carried out in the PC lab.

Balance of ECVET Credits: Stationary – 16 hours, e-learning (e-platform) – 24 hours, **Total – 40 hours, Total ECVET – 2.**

In case of an online only training: online (workshops)– 16 hours, e-learning – 24 hours. **Total - 40 hours, Total ECVET – 2.**

3.2.7 Teaching content, detailed learning outcomes and methods of achieving them.

Teaching content will be developed within IO3 - developing innovative training modules.

3.2.8 A list of necessary teaching resources and materials.

The practical part of the training should be carried out in the PC lab. Every learner should have own learning station z with PC and internet connection.

3.2.9 Literature.

1. W3C Recommendations. (2018). WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>





2. W3C Web Accessibility Initiative (WAI). (2018). How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
3. Victorian Government Australia. (2018). Digital Standards, Make content accessible - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
4. W3C Web Accessibility Initiative (WAI). (2018). Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
5. W3C Web Accessibility Initiative (WAI). (2018). W3C Accessibility Standards Overview - Retrieved from: <http://www.w3.org/WAI/standards-guidelines/>
6. W3C Web Accessibility Initiative (WAI). (2018). Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C - Retrieved from: <http://www.w3.org/WAI/>
7. E-learning materials

3.3 Web Developer with expertise in Digital Accessibility Training

Web Developer with expertise in Digital Accessibility training will be focused on preparing the specialists who are able to develop web pages that are digitally accessible according to the WCAG standards.

3.3.1 General objectives of the training.

The general objective of the training is to prepare specialists for developing digital accessible websites of their organization or organization in which they work. The total number of ECVET points to be obtained during the training is 5 (1 ECVET ≈ 20 hours).

3.3.2 Education objectives for qualifications.

Symbols of the course effects and DIGITAL ACCESSIBILITY SKILLS are as follows:

KDv_01 - Knowledge and understanding of Web Content Accessibility Guidelines (WCAG, 2018), and its principles (perceivable, operable, understandable, robust)

KDv_02 - Knowledge of Web Accessibility Initiative Accessible Rich Internet Applications (WAI-ARIA, 2018)

KDv_03 - Knowledge of User Agent Accessibility Guidelines (UAAG, 2018)

KDv_04 - Knowledge of Authoring Tool Accessibility Guidelines (ATAG, 2018)

KDv_05 - Knowledge and understanding the needs of people with disabilities and older people, and barriers they experience

KDv_06 - Knowledge of accessible visual web design (and CSS)

KDv_07 - Knowledge of accessible page structuring and providing clear and consistent navigation and orientation options

KDv_08 - Deep understanding of digital accessibility and its domains, also on the humanitarian level

KDv_09 - Knowledge of the relevant legislations of digital accessibility

SDv_01 - Ability to ensure accessibility of all interactive elements from keyboard

SDv_02 - Programming accessible images, multimedia materials, tables and forms

SDv_03 - Ability to provide sufficient contrast between foreground and background

SDv_04 - Conveying Meaning through Colour



SDv_05 - Ensuring that interactive elements are easy to identify

SDv_06 - Ability to ensure that form elements include clearly associated labels

SDv_07 - Ability to use headings and spacing to group related content

SDv_08 - Ability to improve digital accessibility of an organization's existing website

SDv_09 - Ability to provide meaning for non-standard interactive elements

SDv_10 - Ability to write code that adapts to the user's technology

SDv_11 - Ability to reflect the reading order in the code order

CDv_01 - A sense of empathy

3.3.3 Introductory requirements.

ENTRY AND RECOMMENDED REQUIREMENTS are as follows: Knowledge in web development, or degree in computer science, Knowledge of web technologies/front end code (e.g. CSS, Java script and HTML).

3.3.4 Duration, number of hours and organization of the training.

100 hours (Introduction to DA – 20 hours; Web developing for DA – 80 hours).

3.3.5 E-learning.

In case of an on-site training in a combination with individual online learning: 64 hours (Introduction to DA - 16 hours; Web developing for DA – 48 hours).

In case of an online only training: 64 hours (Introduction to DA – 16 hours, Web developing for DA – 48 hours).

3.3.6 Teaching plan.

- Introduction to DA
- Web developing for DA

Introduction to Digital Accessibility

The field of education for which the course / module is offered – not specified

Target Groups - Web content authors, website developers, organizations from public sectors, people who work with and for PWDs and similar

ECVET Credits - 1

Learning goals -

1. To familiarize the learners with the basic principles and importance of digital accessibility.
2. To familiarize the learners with diversity of disabilities and related needs (assistive technologies).
3. Acquainting with the common barriers for PWDs.
4. Acquainting with the benefits for all people (UXD principles).
5. To familiarize the learners with the relevant standards.





6. To familiarize the learners with the relevant legislation.
7. Acquainting with the components of digital accessibility.
8. Introducing to WCAG 2.0 /2.1

Learning outcomes

The learner is able to:

K_01 - describe digital accessibility, its components and benefits for all people **(KDv_08)**

K_02 - indicate digital accessibility legislations **(KDv_09)**

K_03 - distinguish different types of disabilities **(KDv_05)**

K_04 - recognise the needs of people with disabilities and older people, and the barriers they experience **(KDv_05)**

K_05 - recognise “Web Content Accessibility Guidelines” (WCAG, 2018) **(KDv_01)**

K_06 - recognise “Web Accessibility Initiative Accessible Rich Internet Applications” (WAI-ARIA, 2018) **(KDv_02)**

K_07 - recognise “User Agent Accessibility Guidelines” (UAAG, 2018) **(KDv_03)**

K_08 - recognise “Authoring Tool Accessibility Guidelines” (ATAG, 2018) **(KDv_04)**

K_09 - explain “Web Content Accessibility Guidelines” (WCAG, 2018) principles (perceivable, operable, understandable, robust) **(KDv_01)**

C_01 - demonstrate a sense of empathy **(CDv_01)**

Form and types of activities: Workshops (stationary or online), e-learning

Entry Requirements: not specified

Short description of the unit/module :

1. Overview and Importance of digital accessibility
2. Diversity of disabilities and related needs (assistive technologies)
3. Common barriers for PWDs
4. Benefits for all people (UXD principles)
5. Relevant standards
6. Relevant legislations
7. Components of digital accessibility
8. Introduction to WCAG 2.0/2.1

Needed materials:

1. W3C Recommendations. (2018). WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>
2. W3C Web Accessibility Initiative (WAI). (2018). How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>





3. Victorian Government Australia. (2018). Digital Standards, Make content accessible - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
4. W3C Web Accessibility Initiative (WAI). (2018). Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
5. W3C Web Accessibility Initiative (WAI). (2018). W3C Accessibility Standards Overview - Retrieved from: <http://www.w3.org/WAI/standards-guidelines/>
6. W3C Web Accessibility Initiative (WAI). (2018). Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C - Retrieved from: <http://www.w3.org/WAI/>
7. E-learning materials

Teaching Methods / Planned forms / activities / teaching methods: Due to the nature of the module, students learn the theoretical part of the courses by themselves using e-platform, and after that students will participate in the practical part of the course with a wide range of various practical exercises. Workshops (practical exercises) should take place in groups of up to 12 people. Students perform tasks and exercises individually or in teams.

Assessment plan: Checking and assessing achievements should be carried out systematically during the program implementation. The basic criterion for assessing educational achievements is the level of students' knowledge of the principles of Digital Accessibility standards, the assistive technology market, types of disabilities, specific needs and barriers for PWDs, and the ability to acquire professional information. Test methods should include: (1) an intermediate online test at the end of each unit, and (2) one final online test at the end of the course.

The method and form of the module credit: Completing intermediate online tests and final online test (on e-platform) – 100% of total mark.

Trainers recommendations: The practical part of the training should be carried out in the PC lab.

Balance of ECVET Credits: Stationary – 4 hours, e-learning (e-platform) – 16 hours, **Total – 20 hours. Total ECVET – 1.**

In case of an online only training: online training – 4 hours, e-learning – 16 hours. **Total – 20 hours. Total ECVET – 1.**

3.4 Developing/programming for digital accessibility

The field of education for which the course / module is offered: Information Technology, Computer Science, Information Systems

Target Groups: Web and apps developers & IT teachers.

ECVET Credits: 4

Learning goals:

1. Understanding components of web accessibility (including authoring tools and user agents).
2. Acquainting with standards for web accessibility (e.g. WCAG), basic principles of digital accessibility and best practices for developing accessible web solutions).
3. To familiarize learners how to utilize WCAG principles, techniques and best practices to develop accessible layouts, forms, tables and other web content.





4. Acquainting with the accessibility requirements for visual web page design and incorporating accessibility requirements in the visual design and development of web pages (through CSS).
5. Acquainting with the technical accessibility requirements for images and multimedia and implementing appropriate text alternatives for a wide range of image-based content and multimedia.
6. To familiarize the learners with the necessity of structural relationships for understanding web pages and implementing semantic structure and links to aid understanding and navigation of web pages.
7. To familiarize the learners with the requirements for accessible website navigation and orientation and implementing accessible navigation elements and providing meaningful navigation across a website.
8. Acquainting with the requirements for accessible data tables and implementing accessible data tables.
9. Acquainting with the requirements for accessible web forms and implementing accessibility features of web forms.
10. To familiarize the learners with common barriers in scripts and implementation of basic accessibility scripting features.

Learning outcomes:

The learner is able to:

K_01 - describe digital accessibility, its components and benefits for all people (**KDv_08**)

K_02 - understand web accessibility standards, principles and best practices (based on Web Content Accessibility Guidelines - WCAG, Web Accessibility Initiative Accessible Rich Internet Applications - WAI-ARIA, User Agent Accessibility Guidelines - UAAG, Authoring Tool Accessibility Guidelines - ATAG, etc.) (**KDv_01; KDv_02; KDv_03; KDv_04; KDv_06**)

S_01 - structure an accessible page and provide clear and consistent navigation and orientation options (e.g. ability to use headings and spacing to group related content, ability to reflect the reading order in the code order) (**SDv_07; SDv_11**)

S_02 - ensure accessibility of all interactive elements on a web page (e.g. ensuring that interactive elements are easy to identify, ability to ensure accessibility of all interactive elements from a keyboard and assistive tools or technologies, ability to provide meaning for non-standard interactive elements) (**SDv_01; SDv_05; SDv_09**)

S_03 - programme accessible visual web design using CSS (e.g. conveying meaning through colour, ability to provide sufficient contrast between background and foreground, etc.) (**SDv_03; SDv_04**)

S_04 - develop web pages with accessible images, multimedia materials, tables and forms (e.g. ability to ensure that form elements include clearly associated labels) (**SDv_02; SDv_06**)

S_05 - utilize gained knowledge to improve digital accessibility of an existing organization's website (**SDv_08**)

S_06 - write programme code for web sites, which is suitable with DA standards and usable by different end user's tool or technology for web accessibility (**SDv_10**)

Form and types of activities: Lectures, workshops (stationary or online), e-learning

Entry Requirements: Knowledge in web development, or degree in computer science or similar; Advance knowledge of web technologies/front end code e.g. CSS, Java script and HTML.



Short description of the unit/module:

1. Programming Accessible Web Page structure
2. Programming Accessible Web Page Navigation and Orientation
3. Programming CSS for Accessible Web Page
4. Programming Accessible Web Images
5. Programming Accessible Multimedia Content
6. Programming Accessible HTML Data Tables
7. Programming Accessible Web Forms
8. Programming Accessible Web Pages Using Modern Frameworks (e.g. Bootstrap, Material Design, Vue, etc.)
9. Basics of Accessible Scripting

Needed materials:

1. W3C Recommendations. (2018). WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>
2. W3C Web Accessibility Initiative (WAI). (2018). How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
3. Victorian Government Australia. (2018). Digital Standards, Make content accessible - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
4. W3C Web Accessibility Initiative (WAI). (2018). Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
5. W3C Web Accessibility Initiative (WAI). (2018). W3C Accessibility Standards Overview - Retrieved from: <http://www.w3.org/WAI/standards-guidelines/>
6. W3C Web Accessibility Initiative (WAI). (2018). Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C - Retrieved from: <http://www.w3.org/WAI/>
7. Web Accessibility Tutorials Guidance on how to create websites that meet WCAG - Retrieved from: <https://www.w3.org/WAI/tutorials/>
8. Using ARIA - Retrieved from: <https://www.w3.org/TR/using-aria/>
9. Techniques for WCAG 2.1 - Retrieved from: <https://www.w3.org/WAI/WCAG21/Techniques/>
10. Build fast, responsive sites with Bootstrap - Retrieved from: <https://getbootstrap.com/>
11. Bootstrap 4 Tutorial - Retrieved from: <https://www.tutorialspoint.com/bootstrap4/index.htm>
12. Bootstrap 4 Tutorial - Retrieved from: <https://www.w3schools.com/bootstrap4/>
13. E-learning materials

Teaching Methods / Planned forms / activities / teaching methods: Due to the nature of the module, various didactic methods should be used: lecture method, presentation with explanation, project method, situational method. After learning theoretical knowledge, students should use it in practical exercises. Workshops should take place in groups of up to 12 people. Students perform tasks and exercises individually or in teams.

Assessment plan: Checking and assessing achievements should be carried out systematically during the program implementation. The basic criterion for assessing educational achievement is the level of knowledge of students about





the digital accessibility standards and the ability to use them in developing digital accessible websites. Test methods should include: (1) an intermediate online test at the end of each unit, and (2) one final online test at the end of the course.

The method and form of the module credit: Completing intermediate online tests and final online test (on e-platform) – 100% of total mark.

Trainers recommendations: The practical part of the training should be carried out in the PC lab.

Balance of ECVET Credits: Stationary – 32 hours, e-learning (e-platform) – 48 hours, **Total – 80 hours, Total ECVET – 4.**

In case of an online only training: online training – 32 hours, e-learning – 48 hours. **Total – 80 hours. Total ECVET – 4.**

3.4.1 Teaching content, detailed learning outcomes and methods of achieving them.

Teaching content will be developed within IO 3 developing innovative training modules.

3.4.2 A list of necessary teaching resources and materials.

The practical part of the training should be carried out in the PC lab. Every learner should have own learning station with PC and internet connection.

3.4.3 Literature.

1. W3C Recommendations. (2018). WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>
2. W3C Web Accessibility Initiative (WAI). (2018). How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
3. Victorian Government Australia. (2018). Digital Standards, Make content accessible - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
4. W3C Web Accessibility Initiative (WAI). (2018). Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
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6. W3C Web Accessibility Initiative (WAI). (2018). Making the Web Accessible, Strategies, standards, and
7. supporting resources to help you make the Web more accessible to people with disabilities. W3C - Retrieved from: <http://www.w3.org/WAI/>
8. Web Accessibility Tutorials Guidance on how to create websites that meet WCAG - Retrieved from: <https://www.w3.org/WAI/tutorials/>
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10. Techniques for WCAG 2.1 - Retrieved from: <https://www.w3.org/WAI/WCAG21/Techniques/>
11. Build fast, responsive sites with Bootstrap - Retrieved from: <https://getbootstrap.com/>
12. Bootstrap 4 Tutorial - Retrieved from: <https://www.tutorialspoint.com/bootstrap4/index.htm>
13. Bootstrap 4 Tutorial - Retrieved from: <https://www.w3schools.com/bootstrap4/>
14. E-learning materials.





3.5 Web Designer with expertise in Digital Accessibility Training

Web Designer with expertise in Digital Accessibility training will be focused on preparing the specialists who are able to design web pages that are digitally accessible according to the WCAG standards.

3.5.1 General objectives of the training.

The general objective of the training is to prepare specialists for designing digital accessible websites of their organization or organization in which they work. The total number of ECVET points to be obtained during the training is 5 (1 ECVET ≈ 20 hours).

3.5.2 Education objectives for qualifications.

Symbols of the course effects and DIGITAL ACCESSIBILITY SKILLS are as follows:

KDs_01 - Knowledge and understanding of Web Content Accessibility Guidelines (WCAG, 2018), and its principles (perceivable, operable, understandable, robust)

KDs_02 - Knowledge of Web Accessibility Initiative Accessible Rich Internet Applications (WAI-ARIA, 2018)

KDs_03 - Knowledge of User Agent Accessibility Guidelines (UAAG, 2018)

KDs_04 - Knowledge of Authoring Tool Accessibility Guidelines (ATAG, 2018)

KDs_05 - Knowledge and understanding the needs of people with disabilities and older people, and barriers they experience

KDs_06 - Deep understanding of digital accessibility and its domains, also on the humanitarian level

KDs_07 - Knowledge of the relevant legislations of digital accessibility

SDs_01 - Ability to create a web design with sufficient contrast between foreground and background

SDs_02 - Ability to provide easily identifiable feedback and controls for content that starts automatically

SDs_03 - Ability to provide easy to identify interactive elements

SDs_04 - Ability to provide clearly associated labels included to form elements

SDs_05 - Ability to use headings and spacing to group related content

SDs_06 - Ability to create designs for different viewport sizes

SDs_07 - Accessible visual web design (and CSS)

SDs_08 - Providing accessible web content, including accessible images, graphics, diagrams and multimedia alternatives in the design

SDs_09 - Conveying Meaning through Colour

SDs_10 - Supporting the ability to resize text

SDs_11 - Ability to provide legible and readable font styles

SDs_12 - Ability to provide clear and consistent navigation options

CDs_01 - A sense of empathy

3.5.3 Introductory requirements.

ENTRY AND RECOMMENDED REQUIREMENTS are as follows: Knowledge of ICT domains, Expert knowledge and skills in web design, and designing programs such as Adobe Photoshop, Illustrator etc., Knowledge of assisted technology (e.g. Screen Reader, Dragon NaturallySpeaking, Zoom and Colour contrast, JAWS, NVDA), Knowledge of web





technologies/front end code (e.g. CSS, Java script and HTML), Understanding basics of web accessibility, Graphic skills and creativity, Knowledge of graphics software, UX, Strong sense of aesthetics, Experience in creation of visual art.

3.5.4 Duration, number of hours and organization of the training.

100 hours (Introduction to DA – 20 hours; Web designing for DA – 80 hours).

3.5.5 E-learning.

In case of an on-site training in a combination with individual online learning: 60 hours (Introduction to DA - 16 hours; Web designing for DA – 44 hours).

In case of an online only training: 64 hours (Introduction to DA – 16 hours, Web designing for DA – 48 hours).

3.5.6 Teaching plan.

- Introduction to Digital Accessibility
- Web designing for Digital Accessibility

Introduction to Digital Accessibility

The field of education for which the course / module is offered: not specified

Target Groups: Web content authors, visual designers, organizations from public sectors, S&P makers, people who work with and for PWD and similar.

ECVET Credits: 1

Learning goals:

1. To familiarize the learners with the basic principles and importance of digital accessibility.
2. To familiarize the learners with diversity of disabilities and related needs (assistive technologies).
3. Acquainting with the common barriers for PWDs.
4. Acquainting with the benefits for all people (UXD principles).
5. To familiarize the learners with the relevant standards.
6. To familiarize the learners with the relevant legislation.
7. Acquainting with the components of digital accessibility.
8. Introducing to WCAG 2.0 /2.1.

Learning outcomes:

The learner is able to:

K_01 - describe digital accessibility, its components and benefits for all people (**KDs_06**)

K_02 - indicate digital accessibility legislations (**KDs_07**)

K_03 - distinguish different types of disabilities (**KDs_05**)

K_04 - recognise the needs of people with disabilities and older people, and the barriers they experience (**KDs_05**)





K_05 - recognise “Web Content Accessibility Guidelines” (WCAG, 2018) **(KDs_01)**

K_06 - recognise “Web Accessibility Initiative Accessible Rich Internet Applications” (WAI-ARIA, 2018) **(KDs_02)**

K_07 - recognise “User Agent Accessibility Guidelines” (UAAG, 2018) **(KDs_03)**

K_08 - recognise “Authoring Tool Accessibility Guidelines” (ATAG, 2018) **(KDs_04)**

K_09 - explain “Web Content Accessibility Guidelines” (WCAG, 2018) principles (perceivable, operable, understandable, robust) **(KDs_01)**

C_01 - demonstrate a sense of empathy **(CDs_01)**

Form and types of activities: Workshops (stationary or online), e-learning

Entry Requirements: not specified

Short description of the unit/module:

1. Overview and Importance of digital accessibility
2. Diversity of disabilities and related needs (assistive technologies)
3. Common barriers for PWDs
4. Benefits for all people (UXD principles)
5. Relevant standards
6. Relevant legislations
7. Components of digital accessibility
8. Introduction to WCAG 2.0/2.1

Needed materials:

1. W3C Recommendations. (2018). WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>
2. W3C Web Accessibility Initiative (WAI). (2018). How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
3. Victorian Government Australia. (2018). Digital Standards, Make content accessible - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
4. W3C Web Accessibility Initiative (WAI). (2018). Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
5. W3C Web Accessibility Initiative (WAI). (2018). W3C Accessibility Standards Overview - Retrieved from: <http://www.w3.org/WAI/standards-guidelines/>
6. W3C Web Accessibility Initiative (WAI). (2018). Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C - Retrieved from: <http://www.w3.org/WAI/>
7. E-learning materials

Teaching Methods / Planned forms / activities / teaching methods: Due to the nature of the module, students learn the theoretical part of the courses by themselves using e-platform, and after that students will participate in the





practical part of the course with a wide range of various practical exercises. Workshops (practical exercises) should take place in groups of up to 12 people. Students perform tasks and exercises individually or in teams.

Assessment plan: Checking and assessing achievements should be carried out systematically during the program implementation. The basic criterion for assessing educational achievements is the level of students' knowledge of the principles of Digital Accessibility standards, the assistive technology market, types of disabilities, specific needs and barriers for PWDs, and the ability to acquire professional information. Test methods should include: (1) an intermediate online test at the end of each unit, and (2) one final online test at the end of the course.

The method and form of the module credit: Completing intermediate online tests and final online test (on e-platform) – 100% of total mark.

Trainers recommendations: The practical part of the training should be carried out in the PC lab.

Balance of ECVET Credits: Stationary – 4 hours, e-learning (e-platform) – 16 hours. **Total – 20 hours. Total ECVET – 1.**

In case of an online only training: online training – 4 hours, e-learning – 16 hours. **Total – 20 hours. Total ECVET – 1.**

Web designing for digital accessibility

The field of education for which the course / module is offered: Information Technology, Computer Science, Web design, Graphic design.

Target Groups: Web designers, Visual designers and Visual designing teachers and similar.

ECVET Credits: 4

Learning goals:

1. Understanding components of digital accessibility (including authoring tools and user agents).
2. Acquainting with standards for web accessibility (e.g. WCAG), basic principles of digital accessibility and best practices for developing accessible web solutions).
3. To familiarize learners how to utilize WCAG principles, techniques and best practices to develop accessible visual elements.
4. Acquainting with the accessibility requirements for visual web page design and incorporating accessibility requirements in the visual design of web pages (through CSS).
5. Acquainting with the technical accessibility requirements for images and multimedia and implementing appropriate text alternatives for a wide range of image-based content and multimedia.
6. Acquainting with the requirements for the use of colour, use of contrast, use headings and spacing to group related content.
7. Familiarize the learner with the creation of designs for different viewpoint sizes.
8. Acquainting with the requirements for image and image alternatives in the web design.
9. To familiarize the learner with style headings, appropriate use of associated labels.

Learning outcomes:





The learner is able to:

K_01 - describe digital accessibility, its components and benefits for all people (**KDs_06**)

K_02 - understand web accessibility standards, principles and best practices (based on Web Content Accessibility Guidelines - WCAG, Web Accessibility Initiative Accessible Rich Internet Applications - WAI-ARIA, User Agent Accessibility Guidelines - UAAG, Authoring Tool Accessibility Guidelines - ATAG, etc.) (**KDs_01; KDs_02; KDs_03; KDs_04**)

S_01 - create accessible visual web design using CSS (e.g. conveying meaning through colour, provide sufficient contrast between foreground and background) (**SDs_01; SDs_09**)

S_02 - provide distinct styles for interactive elements, such as links and buttons, to make them easy to identify (e.g. change the appearance of links on mouse hover, keyboard focus, and touch-screen activation) (**SDs_03**)

S_03 - ensure that navigation across pages within a website has consistent naming, styling, and positioning and provide more than one method of website navigation (e.g. a site search, a site map etc.) (**SDs_11; SDs_12**)

S_04 - provide text alternatives (alt-text) for images taking into the purpose of images: informative, decorative, functional, images of text, complex images, diagrams, graphs, groups of images, image maps, in order to ensure that images can be understandable by people with various disabilities (e.g. using screen readers, using speech input software, browsing speech-enabled websites, mobile web pages and outside user agents, such as search engines) (**SDs_07; SDs_08**)

S_05 - design well-crafted, flexible pages that accommodate different text sizes while keeping its overall integrity enabling users to resize text on a web page up to 200 percent without loss of content or functionality, without requiring the use of assistive technology (**SDs_06; SDs_10**)

S_06 - use whitespace and proximity to make relationships between content more apparent (e.g. style headings to group content, reduce clutter) (**SDs_05**)

S_07 - provide feedback for interactions, such as confirming form submission, alerting the user when something goes wrong, or notifying the user of changes on the page (**SDs_02**)

S_08 - include images and media alternatives in the design (e.g. visible links to transcripts of audio; visible links to audio described versions of videos; text along with icons and graphical buttons; captions and descriptions for tables or complex graphs) (**SDs_04; SDs_07; SDs_08**).

Form and types of activities: Lectures, workshops (stationary or online), e-learning.

Entry Requirements: Extensive knowledge of ICT domains; Expert knowledge in web designing, or degree in computer science; Expert knowledge in creating wireframes, storyboards, user flows, process flows, and sitemap; Proficiency in web technologies/front end code e.g. CSS, Java script and HTML; Proficiency in Photoshop, Illustrator or other visual design and wire-framing tools; Knowledge of assisted technology e.g. Screen Reader, Dragon, Zoom and Colour contrast.

Short description of the unit/module:

1. Introduction to web accessibility
 - a. Components of web accessibility
 - b. Common non-compliance issues (page titles, headings, lists, alt text, ...)
2. WCAG principles
 - a. Principle 1: Developing perceivable web pages





- b. Principle 2: Developing operable web pages
 - c. Principle 3: Developing understandable web pages
 - d. Principle 4: Developing robust web pages
3. Designing accessible web pages
 - a. Accessibility aspects of visual design of websites
 - b. Use of colour and contrast in accessible web design
 - c. Techniques that enhance a site's readability, including the visual presentation
 - d. Using CSS for accessible web pages
 - e. Providing accessible web images, graphs, diagrams
 - f. Accessibility requirements for resizable text
 - g. Providing accessible typography and font styling
 4. Basics of accessible scripting and WAI-ARIA (Accessible Rich Internet Applications)
 5. Principles of conformance evaluation
 6. Web accessibility conformance evaluation tools (for testing and checking developed solutions for DA conformance)

Needed materials:

1. W3C Recommendations. (2018). WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>
2. W3C Web Accessibility Initiative (WAI). (2018). How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
3. Victorian Government Australia. (2018). Digital Standards, Make content accessible - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
4. W3C Web Accessibility Initiative (WAI). (2018). Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
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8. Web Accessibility Tutorials Guidance on how to create websites that meet WCAG - Retrieved from: <https://www.w3.org/WAI/tutorials/>
9. Techniques for WCAG 2.1 - Retrieved from: <https://www.w3.org/WAI/WCAG21/Techniques/>
10. Writing CSS with Accessibility in Mind, An introduction to web accessibility. Tips on how to improve the accessibility of your web sites and apps with CSS, Article by Manuel Matuzovic (Sep 18, 2017) - Retrieved from <https://medium.com/@matuzo/writing-css-with-accessibility-in-mind-8514a0007939#5661>
11. CSS Tutorial - Retrieved from: <https://www.w3schools.com/css>
12. E-learning materials





Teaching Methods / Planned forms / activities / teaching methods: Due to the nature of the module, various didactic methods should be used: lecture method, presentation with explanation, project method, situational method, e-learning. After learning theoretical knowledge, students should use it in practical exercises. Workshops should take place in groups of up to 12 people. Students perform tasks and exercises individually or in teams.

Assessment plan: Checking and assessing achievements should be carried out systematically during the program implementation. The basic criterion for assessing educational achievement is the level of knowledge of students about the digital accessibility standards and the ability to use them in designing digital accessible websites. Test methods should include: (1) an intermediate online test at the end of each unit, and (2) one final online test at the end of the course.

The method and form of the module credit: Completing intermediate online tests and final online test (on e-platform) – 100% of total mark.

Trainers recommendations: The practical part of the training should be carried out in the PC lab.

Balance of ECVET Credits: Stationary – 36 hours, e-learning – 44 hours, **Total – 80 hours. Total ECVET – 4.**

In case of an online only training: online training – 32 hours, e-learning – 48 hours. **Total – 80 hours. Total ECVET – 4.**

3.5.7 Teaching content, detailed learning outcomes and methods of achieving them.

Teaching content will be developed within IO 3 developing innovative training modules.

3.5.8 A list of necessary teaching resources and materials.

The practical part of the training should be carried out in the PC lab. Every learner should have own learning station with PC and internet connection.

3.5.9 Literature.

- 1) CSS Tutorial - Retrieved from: <https://www.w3schools.com/css>
- 2) Digital Standards, Make content accessible, VIC.GOV.AU - Retrieved from: <https://www.vic.gov.au/digitalstandards/design-build/make-content-accessible.html#>
- 3) E-learning materials.
- 4) How to Meet WCAG 2 (Quick Reference) – Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>
- 5) Introduction to Web Accessibility, W3C - Retrieved from: <http://www.w3.org/WAI/fundamentals/accessibility-intro/>
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- 8) W3C Accessibility Standards Overview - Retrieved from: <http://www.w3.org/WAI/standards-guidelines/>
- 9) WCAG 2.1 - Retrieved from: <https://www.w3.org/TR/WCAG21/>
- 10) Web Accessibility Tutorials Guidance on how to create websites that meet WCAG - Retrieved from: <https://www.w3.org/WAI/tutorials/>





- 11) Writing CSS with Accessibility in Mind, An introduction to web accessibility. Tips on how to improve the accessibility of your web sites and apps with CSS, Article by Manuel Matuzovic (Sep 18, 2017) - Retrieved from <https://medium.com/@matuzo/writing-css-with-accessibility-in-mind-8514a0007939#5661>

4 Conclusion

With the alignment of the curriculum and training modules with the European transparency instruments (ECVET) the transferability potential of the Project were applied. This will allow us to include our training and certification program under the umbrella of other credible European training certification institutions with wide networks of training and assessment providers through Europe in the continuation of the Project.

By our knowledge developed curricula are the first uniform digital accessibility training for different job roles in EU.

With the adoption of EU legislation in the field of web accessibility and mobile applications accessibility, different organizations in most EU countries, are facing this type of issue for the first time. Countries such as USA, Australia and Japan, have already adopted similar legislation few years ago. The necessity for this type of legislation now appears in the EU through the need for new knowledge among those, who are already involved in the process of creating or developing Web content (web developers, the designers, websites operators, web content writers etc.).

The existing curricula in this field of expertise currently do not contain knowledge on this type of issue, there is a need to develop new ones. In the meantime it will be necessary to provide a proper education for all existing experts in those fields. Experience from non-European countries, indicate that the new legislation will also impact on the creation of new jobs opportunities, associated with the accessibility of websites and mobile applications, such as Digital accessibility manager and Digital accessibility tester/auditor. In addition, it is expected that there will be increased need for additional training in the field of digital accessibility for websites and mobile application developers and designers (e.g. the Web developer with expertise in digital accessibility, Web designer with expertise in digital accessibility). With additional training experts will be able to cope with new demands on the labour market.

EU uniform training curriculum and certification program aim to better define what digital accessibility professionals are expected to know and increase the quality and consistency of the work performed by digital accessibility professionals. This will not only help individuals to add to their professional qualifications, but it will also help employers of digital accessibility professionals to assess digital accessibility competence.

IO2 -TRAINING CURRICULUM & CERTIFICATION METHODOLOGY aims at supporting opportunities for the continuous professional development of VET Trainers/Teachers/Mentors through the development of VET curriculum which will enable the VET providers and trainers to teach on how to implement digital accessibility.

Within IO2/A1 - Training curriculum Project Partners established the innovative curricula for four job roles trainings thanks to which the learners will be able to achieve not only new digital skills that are useful and desired in contemporary organizations but also certificates after completing the training, proving these skills.

Non-technical job roles trainings: Digital Accessibility Manager and Digital Accessibility Tester, will be offered to managers, decision makers, PR & marketing professionals, procurement, legal and policy advisors, organizations from public and public sectors, S&P makers, people who work with and for PWD.

Digital Accessibility Manager training will be focused on preparing the specialists who are able to manage and implement digital accessibility standards in their organizations, or in organizations they work for. Digital Accessibility Tester training will be focused on preparing the specialists who are able to evaluate and test the accessibility of existing web pages.

Technical job roles trainings: Web Developer with expertise in Digital Accessibility and Web Designer with expertise in Digital Accessibility, will be offered to Web developers and designers who want to achieve new skills in Digital Accessibility. The trainings will be focused on preparing the specialists who are able to develop and design web pages that are digitally accessible according to the WCAG standards.





The training modules/units are prepared in form of flipped learning. One part of the training will be held with the use of specially prepared e-learning materials which will be available for independent learning on the Moodle platform created for this purpose. The other part of the training will be held in the form of stationary or online workshops, at which learners will be performing practical tasks, using the knowledge they will acquire and will be improving their Digital Accessibility skills.

Training curriculum will be implemented in the ACCESSIBLE LEARNING PLATFORM as freely accessible materials.

5 References

Digital Standards, Make content accessible, VIC.GOV.AU

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Retrieved from: <http://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>

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