



DIGITAL ACCESSIBILITY

IO3 – Lesson Plans

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

Author (s): **Centre for Sustainable Development "HORIZONS", INUK Institute for Advanced Communication Management, University of Maribor, Siedlce University, STP Europa, Best Cybernetics**



Co-funded by the
Erasmus+ Programme
of the European Union





***Certified Digital Accessibility Training - project
Erasmus+ Key Action 2: Cooperation for innovation***

Publication date: 27 September 2019

Publication license: CC-BY-NC



AUTHORS

Name/Organisation name

Valentina Čufar, *INUK Inštitut za napredno upravljanje komunikacij*
Darja Ivanuša Kline, *INUK Inštitut za napredno upravljanje komunikacij*
Nataša Rebernik, *INUK Inštitut za napredno upravljanje komunikacij*
Narigona Jahiri, *INUK Inštitut za napredno upravljanje komunikacij*
Boštjan Šumak, *Faculty of Electrical Engineering and Computer Science, University of Maribor*
Andrej Šorgo, *Faculty of Electrical Engineering and Computer Science, University of Maribor*
Katja Kous, *Faculty of Electrical Engineering and Computer Science, University of Maribor*
Saša Kuhar, *Faculty of Electrical Engineering and Computer Science, University of Maribor*
Alen Rajšp, *Faculty of Electrical Engineering and Computer Science, University of Maribor*
Marek Szajczyk, *Siedlce University*
Mariusz Cielemecki, *Siedlce University*
Marzena Wójcik-Augustyniak, *Siedlce University*
Tomasz Wota, *Centrum Zrównowzonego Rozwoju HORYZONTY*
Marta Munoz, *Soluciones Tecno-Profesionales Consulting*
Raul Gonzalo, *Soluciones Tecno-Profesionales Consulting*
Nicole Georgogianni, *Nikoletta Georgogianni Best Cybernetics Single Member Private Company*
Gerolimos Zontos, *Nikoletta Georgogianni Best Cybernetics Single Member Private Company*
Dumitrita Szajczyk, *Centrum Zrównowzonego Rozwoju HORYZONTY*

PROJECT PARTNERS



The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein





1 Content

1	Content	2
2	Module 1: Introduction to Digital Accessibility	4
2.1	Lesson Plan – Overview and importance of Digital Accessibility	4
2.2	Lesson Plan - Diversity of disabilities and related needs (assistive technologies)	7
2.3	Lesson Plan – Common barriers for PWDs	9
2.4	Lesson Plan – Benefits for all people (UXD principles)	11
2.5	Lesson Plan - Relevant standards	13
2.6	Lesson Plan – Relevant legislations	15
2.7	Lesson Plan – Components of digital accessibility	18
2.8	Lesson Plan – Introduction to WCAG 2.0/2.1	20
3	Module 2: Managing Digital Accessibility	22
3.1	Introduction to Managing Course	22
3.2	Lesson Plan – Accessible Layout and Structure	24
3.3	Lesson Plan – Readable and Understandable Web Content	26
3.4	Lesson Plan – Accessible Multimedia and Tables	29
3.5	Lesson Plan – Accessible Documents	30
3.6	Lesson Plan – Organizational Policy	32
4	Module 3: Developing/programming Digital Accessibility	34
4.1	Lesson Plan – Programming Accessible Page Structure	34
4.2	Programming Accessible Site Navigation And Orientation	36
4.3	Lesson Plan – Programming CSS for Accessible Web Pages	39
4.4	Lesson Plan – Programming Accessible Web Image	42
4.5	Lesson Plan – Programming Accessible Multimedia Content	44
4.6	Lesson Plan – Programming Accessible HTML Tables	46
4.7	Lesson Plan – Programming Accessible Web Forms	49
4.8	Lesson Plan - Programming Accessible Web Pages Using Modern Web Frameworks	52
4.9	Lesson Plan – Basics of Accessible Scripting	53
5	Module 4: Designing for Digital Accessibility	55
5.1	Lesson Plan – Accessibility Aspects of Visual Design of Websites	55
5.2	Lesson Plan – Effective Use of Color and Contrast	58
5.3	Lesson Plan - Typography and Font Styling	62
5.4	Lesson Plan – Accessible CSS	64
5.5	Lesson Plan – Graphics and Images	68
6	Module 5: Implementation of Digital Accessibility	71
6.1	Lesson Plan – Digital Accessibility Implementation Plan	71





6.2	Lesson Plan – Preliminary Check for Web Accessibility Barriers	73	
6.3	Lesson Plan – Implementing the European Web Accessibility Directive		75
7	Module 6: Evaluation of Digital Accessibility	78	
7.1	Lesson Plan – Checking Digital Accessibility of the Content	78	
7.2	Lesson Plan – Using Digital Accessibility Testing Tools	80	
7.3	Lesson Plan – Accessibility Conformance Evaluation Process	82	
7.4	Lesson Plan – Preparing the Digital Accessibility Report	84	





2 Module 1: Introduction to Digital Accessibility

2.1 Lesson Plan – Overview and importance of Digital Accessibility

LESSON PLAN Ref: Digital Accessibility 1.1.1., Digital Accessibility 2.1.1., Digital Accessibility 3.1.1., Digital Accessibility 4.1.1.

COURSE Ref: Digital Accessibility 1, Digital Accessibility 2, Digital Accessibility 3, Digital Accessibility 4.

Course: **Digital Accessibility Manager/ Digital Accessibility Tester/**

Web developer with expertise in Digital Accessibility/

Web designer with expertise in Digital Accessibility

Unit / Module: **Introduction to Digital Accessibility**

Lesson Title: **Overview and importance of Digital Accessibility**

Lesson Duration:

Pre-Class Activities: 90 minutes

In-Class Activities: 60 minutes

Post-Class Activities: 30 minutes

Total: 3,0 hours (180 minutes)

Lesson Objectives:

To familiarize the learners with the digital accessibility and its importance.

Outline:

1. Digital accessibility definition.
2. The purpose of digital accessibility.
3. Responsibility for accessible web content.
4. The costs of digital accessibility.
5. The importance of digital accessibility in common life, society and work.
6. The pros and cons of digital accessibility.

Pre-Class Activities

Students Learning Resources at Home:

- [Introduction to Web Accessibility and W3C Standards](#),
- [Digital Accessibility as a Business Practice by Digital Education Strategies, The Chang School](#),
- [Web Accessibility](#), or/and http://resources.fahcsia.gov.au/videos/web_accessibility_video.mp3





Student Learning Activities at Home:

Students have to study the resources mentioned above and try to answer the following questions:

1. What is the purpose of digital accessibility.
2. Who is responsible for accessible web content.
3. What are the costs of digital accessibility.
4. What is the importance of digital accessibility in common life, society and work.
5. What are the pros and cons of digital accessibility.

In-Class Activities

Note: the trainer chooses any 2 exercises out of the 5 provided on Moodle.

0-20 minutes: Students discuss in teams on an issue of accessibility in the past, present and future.

0-20 minutes: Students identify basic standard principles of website design such as:

- 1) Co-ordination
- 2) Enforcement
- 3) Leadership
- 4) Consideration of access
- 5) Technical dimensions
- 6) Educational research
- 7) Social inclusion

20-40 minutes: Students work in small groups in order to work out:

- 1) rationale for organizations to address accessibility.
Group 1 - tangible benefits,
Group 2 - intangible benefits,
- 2) Risks for organizations of not addressing accessibility adequately
Group 1 – operational risks
Group 2 – strategic risks

20-40 minutes: Students work in small groups in order to work out benefits of web accessibility for users.

20-40 minutes: Students work on One-Minute Elevator Pitch.

Establishing a culture of accessibility in an organization requires buy-in from senior management. These managers may not always understand the implications of accessibility barriers on the company.

Using the knowledge students have gained to this point during the course, learners write an elevator pitch to convince a senior manager that accessibility is important to the company.

If they are not familiar with elevator pitches, they often unfold when the speaker, getting on the elevator, happen to run into a key senior person in the company, who typically spends his/her day running from meeting to meeting. They have





her/him as a captive audience for one minute while the elevator ascends. This is the only opportunity they will have to pitch their idea to this person, and if they succeed in convincing this person, she/he will support them in their effort.

Students' task in this activity is to convince one of the following people that digital accessibility is very important and they have a good idea that is sure to benefit the company.

Students in group consider different arguments to convince different people.

- President/Chief Executive Officer
- Director of Marketing
- IT Manager/Chief Information Officer
- General Manager
- Human Resource Director

40-60 minutes: Groups present the results of their work.

Post-class Activities

Students take the online test about the overview and importance of Digital Accessibility.

Assessment

Final test. In order to successfully pass the unit, the student has to pass the online quiz.

Materials / Equipment

- Flipchart/whiteboard and markers
- Projector and screen
- Laptop
- PowerPoint slides

References

- [Introduction to Web Accessibility, W3C](#)
- [Web Accessibility Perspectives - Compilation of 10 Topics/Videos](#)
- [The Business Case for Digital Accessibility.](#)





2.2 Lesson Plan - Diversity of disabilities and related needs (assistive technologies)

LESSON PLAN Ref: Digital Accessibility 1.1.2, Digital Accessibility 2.1.2., Digital Accessibility 3.1.2., Digital Accessibility 4.1.2.

COURSE Ref: Digital Accessibility 1, Digital Accessibility 2, Digital Accessibility 3, Digital Accessibility 4

Course: **Digital Accessibility Manager/ Digital Accessibility Tester/**

Web developer with expertise in Digital Accessibility/

Web designer with expertise in Digital Accessibility

Unit / Module: **Introduction to Digital Accessibility**

Lesson Title: **Diversity of disabilities and related needs (assistive technologies)**

Lesson Duration:

Pre-Class Activities: 60 minutes

In-Class Activities: 30 minutes

Post-Class Activities: 30 minutes

Total: 2,0 hours (120 minutes)

Lesson Objectives:

To familiarize the learners with different types of disabilities, the needs of people with disabilities and older people, the assistive technologies and the ways of its use.

Outline:

1. Disability definitions.
2. The types of disabilities.
3. 'Invisible disabilities'.
4. Age-related impairments.
5. The special needs of elderly and PWDs.
6. Assistive technology definition.
7. The examples of assistive technology.

Pre-Class Activities

Student Learning Resources at Home:

- [Disability](#)
- [What is Disability?](#)
- [Digital Accessibility as a Business Practice by Digital Education Strategies, The Chang School](#)





- [The Dos and Don'ts of Disability](#)
- [Meeting the Needs of Ageing Web Users](#)
- [Types of Assisitive Technology](#)

Student Learning Activities at Home

Students have to study the resources mentioned above and try to answer the following questions:

1. What is disability.
2. What are selected types of disabilities and related to them needs.
3. What are the digital barriers for people with various disabilities and older people.
4. What kind of assistive technologies are related to different types of disabilities.

In-Class Activities

0-15 minutes: Students, in small groups draw topics and each group works to identify needs in relation to a specific disability that affect access to the Web.

- Option1: two groups of learners and topics:
 - Group 1: auditory, cognitive, neurological,
 - Group 2: physical, speech, visual.
- Option 2: three groups of learners and topics:
 - Group 1: auditory, cognitive,
 - Group 2: speech, visual
 - Group 3: neurological, physical.

15-30 minutes: Groups present the results of their work.

Post-Class Activities

Students should watch video on, for example, How sign language innovators are bringing music to the deaf, available at: https://www.youtube.com/watch?v=EuD2iNVMS_4

Students take the online test about selected types of disabilities and related to them needs (assistive technologies).

Assessment

Final test. In order to successfully pass the unit, the student has to pass the online quiz.

Materials / Equipment



Co-funded by the
Erasmus+ Programme
of the European Union





Flipchart/whiteboard and markers

Projector and screen

Laptop

PowerPoint slides

References

1. [Disabilities: Definition, Types and Models of Disability](#)
2. [5-2 Type of Disability and Age of Onset](#)
3. [J. Lazar, D.F. Goldstein, A. Taylor, Ensuring Digital Accessibility through Process and Policy](#)
4. [Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities.W3C](#)

2.3 Lesson Plan – Common barriers for PWDs

LESSON PLAN Ref: Digital Accessibility 1.1.3, Digital Accessibility 2.1.3., Digital Accessibility 3.1.3., Digital Accessibility 4.1.3.

COURSE Ref: Digital Accessibility 1, Digital Accessibility 2, Digital Accessibility 3, Digital Accessibility 4

Course: **Digital Accessibility Manager/ Digital Accessibility Tester/**

Web developer with expertise in Digital Accessibility/

Web designer with expertise in Digital Accessibility

Unit / Module: **Introduction to Digital Accessibility**

Lesson Title: **Common barriers for PWDs**

Lesson Duration

Pre-Class Activities: 60 minutes

In-Class Activities: 30 minutes

Post-Class Activities: 30 minutes

Total: 2,0 hours (120 minutes)

Lesson Objectives

Acquainting with the barriers (especially digital barriers) that people with disabilities and the elderly face in their everyday lives.





Outline:

1. The most common barriers for people with various types of disabilities and older people.
2. The effects of digital barriers in current life.
3. The solutions for removing digital barriers for PWDs and older people in country/ society/ work.

Pre-Class Activities

Student Learning Resources at Home:

- [International Classification of Functioning, Disability and Health](#)
- [Common Barriers to Participation Experienced by People with Disabilities](#)
- [The Everyday Barriers for People with Disabilities](#)
- [Diverse Abilities and Barriers](#)
- [Digital Accessibility as a Business Practice in a Digital Education Strategy, The Chang School](#)

Student Learning Activities at Home:

Students have to study the resources mentioned above and try to answer the following questions:

1. What are the most common barriers for people with various types of disabilities and older people.
2. What are the effects of digital barriers in current life.
3. What are the solutions for removing digital barriers for PWDs and older people in country/ society/ work.

In-Class Activities

Note: the trainer chooses any 1 exercise out of the 2 provided on Moodle.

0-15 minutes: Students work in small groups in order to identify the groups of people without disabilities who also benefit from Web accessibility:

- people using mobile phones, smart watches, and other devices with small screens,
- older people with changing abilities due to ageing,
- people with “temporary disabilities” such as a broken arm or lost glasses,
- people with “situational limitations” such as in bright sunlight or in an environment where they cannot listen to audio,
- people using a slow Internet connection, or who have limited or expensive bandwidth.

0-15 minutes: Students work in subgroups or individually in order to explain how the barriers listed below impede the integration of people with disabilities.

- Attitudinal





- Communication
- Physical
- Policy
- Programmatic
- Social
- Transportation
- Digital

15-30 minutes: Groups present the results of their work.

Post-class Activities

Students take the online test about the overcoming specific common and digital barriers for selected disabilities in their common life, society and work.

Assessment

Final test. In order to successfully pass the unit, the student has to pass the online quiz.

Materials / Equipment

- Flipchart/whiteboard and markers
- Projector and screen
- Laptop
- PowerPoint slides

References

- [Older people spoke about barriers to participating in their communities](#)
- [Disabled facing technology barriers using common gadgets](#)
- [Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C](#)

2.4 Lesson Plan – Benefits for all people (UXD principles)

LESSON PLAN Ref: Digital Accessibility 1.1.4, Digital Accessibility 2.1.4, Digital Accessibility 3.1.4, Digital Accessibility 4.1.4

COURSE Ref: Digital Accessibility 1, Digital Accessibility 2, Digital Accessibility 3, Digital Accessibility 4

Course: **Digital Accessibility Manager/ Digital Accessibility Tester/**

Web developer with expertise in Digital Accessibility/





Web designer with expertise in Digital Accessibility

Unit / Module: **Introduction to Digital Accessibility**

Lesson Title: **Benefits for all people (UXD principles)**

Lesson Duration

Pre-Class Activities: 60 minutes

In-Class Activities: 30 minutes

Post-Class Activities: 30 minutes

Total: **2,0 hours (120 minutes)**

Lesson Objectives

Acquainting with the UXD and UID principles and the benefits of digital accessibility for all people.

Outline:

1. UXD and UID definitions and differences
2. UXD principles
3. The benefits for all people from making websites accessible

Pre-Class Activities

Student Learning Resources at Home:

- [UXD: What is UX?](#)
- [What is the difference between UI and UX?](#)
- [Digital Accessibility as a Business Practice by Digital Education Strategies, The Chang School](#)
- [The 5 Key UX Design Principles You Need To Know](#)
- [7 UX Principles for Creating a Great Website](#)
- [The 7 Factors that Influence User Experience](#)
- [User Experience \(UX\) Design](#)
- [The Difference Between UX And UI Design - A Layman's Guide. The main differences between UX and UI.](#)

Student Learning Activities at Home

Students have to study the resources mentioned above and try to answer the following questions:

1. What is UXD?
2. What is the difference between UXD and UID?





3. What are UXD principles?
4. Who is UXD addressed to?
5. What are the benefits for all people from making websites accessible?
6. Why is UXD important in current life?

In-Class Activities

0-15 minutes: Students working in subgroups or individually, think on the benefits of using the 5 Key Principles of User Experience Design:

- Hierarchy
- Consistency
- Confirmation
- User Control
- Accessibility

15-30 minutes: Students explain briefly the benefits of using the 5 Key Principles of User Experience Design.

Post-class Activities

Students take the online test about the UXD principles and benefits for all people.

Assessment

Final test. In order to successfully pass the unit, the student has to pass the online quiz.

Materials / Equipment

- Laptop
- PowerPoint slides

References

- [Making the Web Accessible: Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities.W3C](#)

2.5 Lesson Plan - Relevant standards

LESSON PLAN Ref: Digital Accessibility 1.1.5, Digital Accessibility 2.1.5, Digital Accessibility 3.1.5, Digital Accessibility 4.1.5

COURSE Ref: Digital Accessibility 1, Digital Accessibility 2, Digital Accessibility 3, Digital Accessibility 4





Course: **Digital Accessibility Manager/ Digital Accessibility Tester/**

Web developer with expertise in Digital Accessibility/

Web designer with expertise in Digital Accessibility

Unit / Module: **Introduction to Digital Accessibility**

Lesson Title: **Relevant standards**

Lesson Duration

Pre-Class Activities: 150 minutes

In-Class Activities: 0 minutes

Post-Class Activities: 30 minutes

Total: 3,0 hours (180 minutes)

Lesson Objectives

To familiarize the learners with the relevant standards of Digital Accessibility, as: “Web Content Accessibility Guidelines” (WCAG, 2018), “User Agent Accessibility Guidelines” (UAAG, 2018), “Authoring Tool Accessibility Guidelines” (ATAG, 2018), “Web Accessibility Initiative Accessible Rich Internet Applications” (WAI-ARIA, 2018).

Outline:

1. Digital Accessibility standards.
2. The structure of Web Content Accessibility Guidelines (WCAG).
3. User Agent Accessibility Guidelines (UAAG).
4. Authoring Tool Accessibility Guidelines (ATAG).
5. Web Accessibility Initiative - Accessible Rich Internet Applications (WAI-ARIA).

Pre-Class Activities

Student Learning Resources at Home:

- [WAI - ARIA](#)
- [Web Content Accessibility Guidelines](#)
- [Authoring Tool Accessibility Guidelines](#)
- [User Agent Accessibility Guidelines](#)

Student Learning Activities at Home

Students have to study the resources mentioned above and try to answer the following questions:

1. What are digital accessibility standards.





2. What is the structure of Web Content Accessibility Guidelines (WCAG).
3. What is User Agent Accessibility Guidelines (UAAG) about.
4. What is Authoring Tool Accessibility Guidelines (ATAG) about.
5. What is Web Accessibility Initiative - Accessible Rich Internet Applications (WAI-ARIA) about.

In-Class Activities

-

Post-class Activities

Students take the online test about the relevant to digital accessibility standards.

Assessment:

Final test. In order to successfully pass the unit, the student has to pass the online quiz.

Materials / Equipment

- Laptop
- PowerPoint slides

References

- [How to Meet WCAG 2 \(Quick Reference\)](#)
- [Digital Standards, Make content accessible](#)
- [Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C](#)

2.6 Lesson Plan – Relevant legislations

LESSON PLAN Ref: Digital Accessibility 1.1.6, Digital Accessibility 2.1.6, Digital Accessibility 3.1.6, Digital Accessibility 4.1.6

COURSE Ref: Digital Accessibility 1, Digital Accessibility 2, Digital Accessibility 3, Digital Accessibility 4

Course: **Digital Accessibility Manager/ Digital Accessibility Tester/**

Web developer with expertise in Digital Accessibility/

Web designer with expertise in Digital Accessibility

Unit / Module: **Introduction to Digital Accessibility**

Lesson Title: **Relevant legislations**





Lesson Duration

Pre-Class Activities: 120 minutes

In-Class Activities: 30 minutes

Post-Class Activities: 30 minutes

Total: 3,0 hours (180 minutes)

Lesson Objectives

To familiarize the learners with the relevant political and legislative framework for digital accessibility, as well as with the requirements for accessible websites and mobile applications according to the [European Directive on the Accessibility of Websites and Mobile Applications of Public Sector Bodies \(Directive \(EU 2016/2102\)\)](#).

Outline:

1. Global and European political and legislative framework for web accessibility
2. Universal Declaration of Human Rights
3. Convention on the Rights of Persons with Disabilities
4. European Disability Strategy
5. EU Directive on the Accessibility of Websites and Mobile Applications
6. EU Accessibility Act

Pre-Class Activities

Student Learning Resources at Home:

- [Universal Declaration of Human Rights](#)
- [Convention on the Rights of Persons with Disabilities – Articles](#)
- [European Disability Strategy](#)
- [Web Accessibility](#)
- [What is the European Web Accessibility Directive?](#)
- [European Directive on the Accessibility of Websites and Mobile Applications of Public Sector Bodies \(Directive \(EU 2016/2102\)\)](#)
- [The European Accessibility Act \(EAA\)](#)

Student Learning Activities at Home

Students have to study the resources mentioned above and try to answer the following questions:





1. What are the main global and what the main European political and legislative documents that represent the framework for digital accessibility?
2. What is the EU Web Accessibility Directive?
3. To whom and to what does the EU Web Accessibility Directive apply?
4. What are the main requirements for websites and mobile applications set in the EU Web Accessibility Directive?
5. When does the directive take effect? Which are the dates when specific measures for websites and mobile applications enter into force?
6. What measures has the European Commission taken to facilitate the implementation of the EU Web Accessibility Directive?

In-Class Activities

Note: the trainer chooses any 1 exercise out of the 3 provided on Moodle.

0–15 minutes: Students discuss in teams what the EU Web Accessibility Directive is and why it was published.

0–15 minutes: Each student answers the following questions:

- To which entities does the EU Web Accessibility Directive apply? They prepare a few examples.
- To which entities does the EU Web Accessibility Directive not apply? They prepare a few examples.

0–15 minutes: Students answer the following questions:

- What is the role of the WCAG accessibility standard in the framework of the EU Web Accessibility Directive?
- What is the new harmonized web accessibility standard EN 301 549 and why does EU need it in addition to the existing WCAG standards?

15–30 minutes: Students compare and discuss their answers in teams.

Post-class Activities

Students take the online test about the relevant legislation.

Assessment:

Final test. In order to successfully pass the unit, the student has to pass the online quiz.

Materials / Equipment

- Laptop





- PowerPoint slides

References

- [Universal Declaration of Human Rights](#)
- [Convention on the Rights of Persons with Disabilities – Articles](#)
- [European Disability Strategy](#)
- [Web Accessibility](#)
- [What is the European Web Accessibility Directive?](#)
- [Everything You Need to Know About the EU Web Accessibility Directive](#)
- [European Directive on the Accessibility of Websites and Mobile Applications of Public Sector Bodies \(Directive \(EU 2016/2102\)](#)
- [The European Accessibility Act \(EAA\)](#)
- [Standard EN 301 549 V2.1.2 \(2018-08\)](#)

2.7 Lesson Plan – Components of digital accessibility

LESSON PLAN Ref: Digital Accessibility 1.1.7, Digital Accessibility 2.1.7, Digital Accessibility 3.1.7, Digital Accessibility 4.1.7

COURSE Ref: Digital Accessibility 1, Digital Accessibility 2, Digital Accessibility 3, Digital Accessibility 4

Course: **Digital Accessibility Manager/ Digital Accessibility Tester/**

Web developer with expertise in Digital Accessibility/

Web designer with expertise in Digital Accessibility

Unit / Module: **Introduction to Digital Accessibility**

Lesson Title: **Components of digital accessibility**

Lesson Duration

Pre-Class Activities: 60 minutes

In-Class Activities: 30 minutes

Post-Class Activities: 30 minutes

Total: 2,0 hours (120 minutes)

Lesson Objectives

Acquainting with the components of digital accessibility.





Outline:

1. The components of digital accessibility.
2. The relations between components of digital accessibility.
3. The implementation cycle of digital accessibility components.
4. How improvements in specific components can substantially improve web accessibility.

Pre-Class Activities

Student Learning Resources at Home:

- [W3C Web Accessibility Initiative WAI \(2018\): Essential Components of Web Accessibility. Introduction](#)

Student Learning Activities at Home

Students have to study the resources mentioned above and try to answer the following questions:

1. What are essential components of digital accessibility?
2. What are the relations between them?
3. How to improve web accessibility?

In-Class Activities

0-15 minutes: Students, in small groups, read the following list of [essential components](#) of web accessibility. They consider and justify how the component affects web accessibility.

- Content
- Web browsers, media players, and other “user agents”,
- Assistive technology,
- Users’ knowledge, experiences,
- Developers,
- Authoring tools,
- Evaluation tools.

15-30 minutes: Groups present the results of their work.

Post-class Activities:

Students take the online test about the selected components of digital accessibility.

Assessment





Final test. In order to successfully pass the unit, the student has to pass the online quiz.

Materials / Equipment

- Laptop
- PowerPoint slides

References

- [Digital Standards, Make content accessible](#)
- [W3C Accessibility Standards Overview](#)
- [Making the Web Accessible, Strategies, standards, and supporting resources to help you make the Web more accessible to people with disabilities. W3C](#)

2.8 Lesson Plan – Introduction to WCAG 2.0/2.1

LESSON PLAN Ref: Digital Accessibility 1.1.8, Digital Accessibility 2.1.8, Digital Accessibility 3.1.8, Digital Accessibility 4.1.8

COURSE Ref: Digital Accessibility 1, Digital Accessibility 2, Digital Accessibility 3, Digital Accessibility 4

Course: **Digital Accessibility Manager/ Digital Accessibility Tester/**

Web developer with expertise in Digital Accessibility/

Web designer with expertise in Digital Accessibility

Unit / Module: **Introduction to Digital Accessibility**

Lesson Title: **Introduction to WCAG 2.0/2.1**

Lesson Duration

Pre-Class Activities: 120 minutes

In-Class Activities: 30 minutes

Post-Class Activities: 30 minutes

Total: **3,0 hours (180 minutes)**

Lesson Objectives

Introducing to the “Web Content Accessibility Guidelines” (WCAG, 2018) principles (perceivable, operable, understandable, robust).

Outline:

1. The main differences between WCAG 2.1 and 2.0.





2. The ways of making web content perceivable.
3. The ways of making web content operable.
4. The ways of making web content understandable.
5. The ways of making web content robust.

Pre-Class Activities

Student Learning Resources at Home:

- [How WAI Develops Accessibility Standards through the W3C Process](#)
- [Web Content Accessibility Guidelines \(WCAG\) Overview. Introduction](#)
- [Web Content Accessibility Guidelines \(WCAG\) Overview. WCAG 2.0, 2.1](#)
- [Comparison with WCAG 2.0](#)
- [WCAG 2 Layers of Guidance](#)
- [How to Meet WCAG \(Quick Reference\)](#)
- [Understanding the Four Principles of Accessibility](#)
- [Web Content Accessibility Guidelines \(WCAG\)](#)
- [Introduction to Understanding WCAG 2.0](#)

Student Learning Activities at Home

Students have to study the resources mentioned above and try to answer the following questions:

1. What are the main differences between WCAG 2.1 and 2.0.
2. What are the ways of making web content perceivable.
3. What are the ways of making web content operable.
4. What are the ways of making web content understandable.
5. What are the ways of making web content robust.

In-Class Activities

0-15 minutes: Students work in small groups or individually in order to write a short justification (100-150 words) for each of the following rules:

- Perceivable
- Operable
- Understandable
- Robust

15-30 minutes: Students present the results of their work.

Post-class Activities





Students take the online test about the WCAG 2.0/ 2.1 principles.

Assessment

Final test. In order to successfully pass the unit, the student has to pass the online quiz.

Materials / Equipment

- Flipchart/whiteboard and markers
- Projector and screen
- Laptop
- PowerPoint slides.

References

Primary resources:

- [Web Content Accessibility Guidelines \(WCAG\) Overview](#) - an overview of WCAG and the related documentation
- [Understanding the Four Principles of Accessibility](#) in Introduction to Understanding WCAG 2
- [The WCAG 2 Documents](#) - describes the different WCAG 2 technical documents, to help know where to go for different types of information
- [How to Meet WCAG 2 \(Quick Reference\)](#) - a customizable quick reference to WCAG 2 requirements and techniques

Additional resources:

- [Web Content Accessibility Guidelines \(WCAG\) 2.0](#) - formal technical standard (W3C Recommendation)
- [Understanding WCAG 2.0](#) - a guide to understanding and implementing Web Content Accessibility Guidelines 2.0
- [Techniques for WCAG 2.0](#) - techniques and failures for Web Content Accessibility Guidelines 2.0
- [WCAG 2.1](#)
- [Basic Principles for Web Accessibility](#)

3 Module 2: Managing Digital Accessibility

3.1 Introduction to Managing Course

LESSON PLAN Ref: Digital Accessibility 1.2.1.

COURSE Ref: Digital Accessibility 1

Course: Digital Accessibility Manager





Unit / Module: Managing Digital Accessibility

Lesson Title: Introduction to Managing Course

Lesson Duration:

Pre-Class Activities: 25 minutes

In-Class Activities: 45 minutes

Post-Class Activities: 20 minutes

Total: 2 hours (90 minutes)*

*(In case of an online only training some activities cannot be performed the same way as in a real-life teaching environment. Therefore, they should be shifted to the pre-class activities accordingly and the participants complete them individually at home.)

Lesson Objectives:

- Acquainting the students with Accessibility principles and WCAG guidelines that are important for the accessibility of web content.

Pre-Class Activities:

Student Learning Resources at Home:

- [What is WCAG, ATAG, UAAG, ARIA, WebVTT, and TTML?](#)
- [Web Content Accessibility Guidelines \(WCAG\) 2.1](#)

Student Learning Activities at Home:

- Watch the video [Accessible vs. Inaccessible - Can You Hear the Difference?](#) and try to answer the following questions:
 1. Who is responsible for each accessibility issue mentioned? Web developer, web designer, project manager, web editor, content writer or someone else?
 2. How could you as a content writer, content editor or accessibility manager contribute to the solution of the mentioned issues?

In-Class Activities:

0 - 10 minutes: Students work in teams. They discuss why non-technical employees (PR, marketing, managers, web content writers, web editors...) should gain knowledge about digital accessibility. Teams present their opinion; group discussion.

10 – 20 minutes: Students work in teams. Each team selects one accessibility principle from WCAG standards, that you have learned already in the previous module [Introduction to WCAG 2.0/2.1](#) (POUR - Perceivable, Operable, Understandable, Robust). Each team checks [WCAG 2.1. at a Glance](#) and prepares a mind map of things that non-technical employees (content creators, web editors, etc.) can do to ensure those criteria. Presentation and discussion.

20 – 35 minutes: Students work in teams. Each team selects one website:





- [Suzanne Collins Books website](#)
- [Peta organisation website](#)
- [Creative Europa website](#)
- [Stackoverflow website](#)

Each team checks the selected website for accessibility errors regarding WCAG 2.1. standards with a [WAVE Web Accessibility Evaluation tool](#). Each team prepares the list of errors and possible improvements, that can be made by non-technical employees (web editors or content creators) and errors and possible improvements, that can be made solely by technical staff (web developer, designer etc.). They should write down also possible errors that were not detected by the automatic evaluation tool. Presentation and discussion.

35– 45 minutes: Summary.

Post-class Activities:

Short online test, finalizing and uploading documents/answering the questions online.

Assessment:

- Uploaded all the answers of pre-class activities.
- Short test

Materials / Equipment:

- Computer
- E-materials from the Moodle

References:

- [Essential Components of Web Accessibility](#)
- [W3C Accessibility Standards Overview](#)
- [WAVE Web Accessibility Evaluation tool](#).
- [Introduction to WCAG 2.0/2.1](#)
- [WCAG 2.1. at a Glance](#)
- [Accessible vs. Inaccessible - Can you Hear the Difference?](#)

3.2 Lesson Plan – Accessible Layout and Structure

LESSON PLAN Ref: Digital Accessibility 1.2.2

COURSE Ref: Digital Accessibility 1

Course: Digital Accessibility Manager





Unit / Module: Managing Digital Accessibility

Lesson Title: Accessible Layout and structure

Lesson Duration:

Pre-Class Activities: 60 minutes

In-Class Activities: 90 minutes

Post-Class Activities: 30 minutes

Total: 4 hours (180 minutes)*

*(In case of an online only training some activities cannot be performed the same way as in a real-life teaching environment. Therefore, they should be shifted to the pre-class activities accordingly and the participants complete them individually at home.)

Lesson Objectives:

- Acquiring the ability to organize accessible web pages and documents.
- Acquiring the ability to choose accessible web page titles.
- Acquiring the ability to use appropriate headings.
- Acquiring the ability to create proper links.
- Acquiring the ability to choose accessible colors and contrasts.

Outline:

- Why is this important?
- Accessible Structure (headings, titles)
- Accessible Font and Spacing
- Accessible Links and Hyperlinks
- Accessible colors and contrasts

Pre-Class Activities:

Student Learning Resources at Home:

- Read:
 - [Digital Accessibility toolkit](#) (page 24 and 26)
 - [Accessible structure](#)
 - [Accessible links](#)
- Check out webpage [Accessibility Requirements for People with Low Vision](#).
- Try our different colors and contrasts and check it with contrast checker (e.g. [contrast checker](#)).

Student Learning Activities at Home:

- Go through all the resources that can be found on Moodle.





In-Class Activities:

0 – 20 minutes: [Page structure](#) – why is page structure important? Students work in groups. Each group should make a list of reasons and present it. Discussion (add if something is missing). **Moodle: exercise 1**

20 – 35 minutes: Headings, paragraphs, structure: What have they learned at home? Discussion on headings and paragraphs.

35 – 50 minutes: Students get a text which they should structure and add meaningful headings. Group work – showing their examples and correcting them. Each group presents the best example from the group. **Moodle: exercise 2**

50 – 65 minutes: Students work in groups. They should prepare guidelines on how to provide accessible layout when writing accessible content. They can use any resource from Moodle or internet. 5 topics we should get an answer on: Font type and size, Spacing, Color and contrast, Emphasizing (bold, italics, underline; capitalization), and Writing appropriate links.

Moodle: exercise 3

65 - 80 minutes: Students work individually on a document. They need to change the font (to be accessible), adjust the spacing, margins and borders, add accessible links. If they have any problems, they can help each other. **Moodle: exercise 4**

80 – 90 minutes: Summary.

Post-class Activities:

Short test (Name: Test 1), finalizing and uploading documents/answering the questions online.

Assessment:

- Upload all the exercises from the stationary workshops.
- Short online test.

Materials / Equipment:

- Computer
- Moodle materials

References:

- [Accessibility Requirements for People with Low Vision](#)
- [Digital Accessibility toolkit](#)
- [Providing Structure in Web Pages and Documents](#)
- [Contrast checker 1](#)
- [Contrast checker 2](#)
- [WebAIM-Web accessibility in mind-Links and Hypertext](#)

3.3 Lesson Plan – Readable and Understandable Web Content

LESSON PLAN Ref: Digital Accessibility 1.2.3

COURSE Ref: Digital Accessibility 1





Course: Digital Accessibility Manager

Unit / Module: Managing Digital Accessibility

Lesson Title: Readable and Understandable Web Content

Lesson Duration:

Pre-Class Activities: 60 minutes

In-Class Activities: 90 minutes

Post-Class Activities: 30 minutes

Total: 4 hours (180 minutes)*

*(In case of an online only training some activities cannot be performed the same way as in a real-life teaching environment. Therefore, they should be shifted to the pre-class activities accordingly and the participants complete them individually at home.)

Lesson Objectives:

- To familiarize the learners how to convert WCAG standard into writing accessible web content (readable and understandable).

Outline:

- Understanding WCAG 3.1
- Why is this important?
- Easy to read level
- Readable content (Language, Unusual words, Abbreviations, reading level)

Pre-Class Activities:

Student Learning Resources at Home:

Read:

- [WCAG 3.1](#)
- [Check Making written information easier to understand for people with learning disabilities](#)
- [Checklist for easy to read \(web\) text](#)

Watch a video:

- [Screen Reader Demo for Digital Accessibility](#)

Student Learning Activities at Home:

Students should learn some basic information on accessible web content and write questions if they do not understand something. Those questions can be addressed at the beginning of the in-class activities.

In-Class Activities:





0 – 15 minutes: WCAG connected to web content. Discussion – what have they learned at home? Only text web pages (pros and cons). What would be better than just a text page? (Optional)

15 – 35 minutes: Students write a short easy-to-read-text. They can help themselves with any resources. **Moodle: exercise 1**

35 – 50 minutes: Students share their written texts, check them and give each other feedback regarding reading level.

Moodle: exercise 1

50 – 65 minutes: Students first discuss what a glossary is and why it is important. After that everyone makes a glossary for at least one item from their text. **Moodle: exercise 2**

65 – 85 minutes: Students work in teams. Discussion on accessible content: Language, language parts, unusual words, abbreviations and reading level. They can use any resources from the internet. Each team should prepare guidelines on how to provide accessible content (at least from one of the listed content). **Moodle: exercise 3**

85 – 90 minutes: Summary.

Post-class Activities:

Short test (Name: Test 2), finalizing and uploading documents/answering the questions online.

Assessment:

- Upload documents that were prepared during lesson.
- Short test

Materials / Equipment:

- Computer
- E-materials from the Moodle

References:

- [Making written information easier to understand for people with learning disabilities](#)
- [Understandable Content \(video\)](#)





3.4 Lesson Plan – Accessible Multimedia and Tables

LESSON PLAN Ref: Digital Accessibility 1.2.4

COURSE Ref: Digital Accessibility 1

Course: Digital Accessibility Manager

Unit / Module: Managing Digital Accessibility

Lesson Title: Accessible Multimedia and Tables

Lesson Duration:

Pre-Class Activities: 60 minutes

In-Class Activities: 90 minutes

Post-Class Activities: 30 minutes

Total: 4 hours (180 minutes)*

*(In case of an online only training some activities cannot be performed the same way as in a real-life teaching environment. Therefore, they should be shifted to the pre-class activities accordingly and the participants complete them individually at home.)

Lesson Objectives:

- Acquiring the ability to write concise transcripts and captions to images and multimedia.
- Acquiring the ability to prepare accessible tables.

Pre-Class Activities:

Student Learning Resources at Home:

Read:

- [Types of images](#)
- [Alternative text](#)
- [Text alternatives – a decision tree](#)
- [Accessible Tables](#)
- Summary on how to prepare Tables in Microsoft Word (uploaded to the Moodle)

Watch the video:

- [Accessible Audiovisual Media](#)

Student Learning Activities at Home:

- Read all the resources and summary and watch the video.

In-Class Activities:

0 – 10 minutes: Images - discussion about alt-text, image name, image description (what have they learnt at home).





10 – 25 minutes: Exercise (alt-text, description – for different kind of images): students individually write an alternative texts for all images and descriptions if they are needed. **Moodle: exercise 1**

25 – 40 minutes: Work in teams and go through all the answers and find the best version of alt-text and image description. Give each other feedback. **Moodle: exercise 1**

40 – 50 minutes: Students watch [an inaccessible video](#). They should find out if the video is accessible or not, what could be change to make video accessible, what is problematic in a video. They could work in teams or individually. **Moodle: exercise 2**

50 – 60 minutes: Discussion on accessible video (captions, transcripts). Presentations of apps that could help you with writing transcripts (pros and cons). (Optional)

60 – 70 minutes: Students work in teams and discuss accessible tables. They should answer the following questions: How does an accessible table look like? What parts of the tables can be problematic? Why are complex tables? **Moodle: exercise 3**

70 – 85 minutes: Students get a document with inaccessible tables. They should transform them into accessible versions. Students work individually, but can help each other. **Moodle: exercise 4**

85 – 90 minutes: Summary.

Post-class Activities:

The online test on accessible multimedia and tables.

Assessment:

Short online test (Test 3) and finalizing and uploading documents/answering the questions online.

Materials / Equipment:

- PowerPoint and/or Word document with different kind of images.
- Computer
- E-materials form the Moodle

References:

- [Accessible Images](#)
- [Accessible Audiovisual Media \(video\)](#)
- [Accessible tables](#)

3.5 Lesson Plan – Accessible Documents

LESSON PLAN Ref: Digital Accessibility 1.2.5

COURSE Ref: Digital Accessibility 1

Course: Digital Accessibility Manager

Unit / Module: Managing Digital Accessibility

Lesson Title: Accessible Documents





Lesson Duration:

Pre-Class Activities: 60 minutes

In-Class Activities: 90 minutes

Post-Class Activities: 30 minutes

Total: 4 hours (180 minutes)*

*(In case of an online only training some activities cannot be performed the same way as in a real-life teaching environment. Therefore, they should be shifted to the pre-class activities accordingly and the participants complete them individually at home.)

Lesson Objectives:

- Acquiring the ability to prepare accessible documents and documents formats.
- Acquiring the ability to prepare accessible social media posts.

Pre-Class Activities:

Student Learning Resources at Home:

Read:

- A document on [how to make Microsoft Word documents accessible](#) (uploaded on Moodle)
- A summary uploaded on Moodle

Student Learning Activities at Home:

- Read the resources and think about the obstacles that a content writer can face, when preparing an accessible PDF or Word document.

In-Class Activities:

0 – 10 minutes: Discussion on document accessibility (which format is the most accessible, how to provide document accessibility (optional).

10 – 20 minutes: Summary of the previous topics (accessible layout, content, multimedia and tables). (Optional)

20 – 50 minutes: Students download the document from Moodle and try to make it accessible. Also they should run an accessibility checker and try to correct the remaining mistakes. They can also help each other and use all the resources from the Moodle and internet. **Moodle: exercise 1**

50 – 65 minutes: Students convert the document into an accessible version of PDF. They can also try to use Pave to check for accessibility of the PDF. **Moodle: exercise 2**

65– 80 minutes: Students prepare an accessible post for social media. They can try to upload it to different social media (e. g. Facebook, Instagram, Twitter) to see what accessibility features those social media platforms offer. After that they should give each other feedback on social media posts. They can present the post in front of the class and everyone can give feedback, or work in pairs/teams and give each other feedback inside small groups. **Moodle: exercise 3**

80 – 90 minutes: Summary.





Post-class Activities:

Students take the online test about accessible documents.

Assessment:

Short online test (Test 4) and finalizing and uploading documents/answering the questions online.

Materials / Equipment:

- Inaccessible Word document
- Summary of the course
- Computer
- E-materials from the Moodle

References:

- [Digital Accessibility Toolkit](#)
- [Make your Word documents accessible to people with disabilities](#)
- [Accessibility video training for Microsoft Office](#)
- [Office Accessibility Center - Resources for people with disabilities](#)
- [Accessible LibreOffice documents](#)
- [What are DAISY talking books?](#)
- [Accessible PDF](#)
- [Checklist for conformance with WCAG](#)
- [Accessible Social Media Guide](#)

3.6 Lesson Plan – Organizational Policy

LESSON PLAN Ref: Digital Accessibility 1.2.6

COURSE Ref: Digital Accessibility 1

Course: Digital Accessibility Manager

Unit / Module: Managing Digital Accessibility

Lesson Title: Organizational policy

Lesson Duration:

Pre-Class Activities: 25 minutes

In-Class Activities: 45 minutes

Post-Class Activities: 20 minutes

Total: 2 hours (90 minutes)*





*(In case of an online only training some activities cannot be performed the same way as in a real-life teaching environment. Therefore, they should be shifted to the pre-class activities accordingly and the participants complete them individually at home.)

Lesson Objectives:

To acquaint learners with the organisational web accessibility policy, how it is structured, and what basic principles it should follow.

Outline:

- Organisational web accessibility policy.
- Monitoring, reviewing and maintaining organisational policy on web accessibility.
- Strategic approach to web accessibility.

Pre-Class Activities:

Student Learning Resources at Home:

- [Developing Organizational Policies on Web Accessibility](#)
- [Making Your Organisation's Information Accessible for All](#)
- [Web Accessibility Policy: Do's and Don'ts](#)

Student Learning Activities at Home:

After reading the resources mentioned above students should be able to answer the following questions:

- What is an organisational web accessibility policy and how do you think it should be integrated in the organisation?
- What are the basic principles for designing a good organisational web accessibility policy?
- What types of digital properties and components can a web accessibility policy encompass?

In-Class Activities:

0 – 15 minutes: Students work in teams. They discuss what an organisational web accessibility policy is, what are its main principles and how it should in their view be integrated into an organisational framework. Presentation and discussion.

15 – 25 minutes: Students individually prepare a draft of a web accessibility policy for their organisation. Students compare their drafts in teams and discuss the structure and the information that should be included.

25 – 35 minutes: Students discuss in teams what is an accessibility statement and how it complements organisational policy.

35 – 45 minutes: Overview and Summary.

Post-class Activities:

Students take the online test about the organizational policy.

Assessment:

Students take the online test about the organizational policy.

Materials / Equipment:

- Laptop.





- PPT slides.

References:

- [W3C Planning and Managing](#)
- [W3C Implementation Plan for Web Accessibility](#)
- [Organizational web accessibility policy](#)
- [W3C Web Accessibility Initiative](#)

4 Module 3: Developing/programming Digital Accessibility

4.1 Lesson Plan – Programming Accessible Page Structure

LESSON PLAN Ref: Digital Accessibility 2.3.1

COURSE Ref: Digital Accessibility 2

Course: **Digital Accessibility Web Developer**

Unit / Module: Developing-programming for DA

Lesson Title: Programming accessible page structure

Lesson Duration:

Pre-Class Activities: 4

In-Class Activities: 3

Post-Class Activities: 1

Total: 8

Lesson Objectives:

In order to achieve an accessible web page, the page structure has to be properly adapted and programmed. Well-structured content allows more efficient navigation and processing as the content on the web page can more easily be found and prioritized, the users with screen readers can skip to main content and navigate to sections that are important, keyboard users can navigate more efficiently, etc. Moreover, a good page structure results in better indexation by search engines.

This lesson will focus on defining page regions by using HTML5 elements and WAI-ARIA roles (header, footer, navigation, content, etc.) and on labeling regions of a web page (again by using WAI-ARIA). Headings in web pages have to be nested by their level and must not skip stages. The best practice is to associate headings with their page region, as in this way the regions can easily be identified by all users. Content too should be marked up semantically using HTML5 elements, such as <article>, <section>, <p>, , , <blockquote>, <cite>. As the order of content in the source code can be changed with CSS, the developers must make sure the DOM order matches the visual order.

Outline:

- Page regions and regions labeling





- Headings and content structure
- DOM Order

Pre-Class Activities:

Student Learning Resources at Home:

- [Page structure concepts](#) (W3C tutorial)

Techniques for WCAG 2.0

- [Using ARIA landmarks to identify regions of a page](#)
- [Using role=heading to identify headings](#)
- [Using aria-labelledby to name regions and landmarks](#)
- [Using the region role to identify a region of the page](#)
- [Using semantic elements to mark up the structure](#)
- [Using semantic markup to mark emphasized or special text](#)
- [Organizing a page using headings](#)
- [Using h1-h6 to identify headings](#)

WAI-ARIA

- [Documentation on WAI-ARIA](#)
- [Wai-ARIA landmark roles](#)

Student Learning Activities at Home:

Students have to study the resources mentioned above and try to answer the following questions:

1. With which techniques can accessible page structure be achieved?
2. What is WAI-ARIA and what is it used for?
3. When should heading ranks not change depending on the ranks in the content area?
4. Name 10 HTML5 elements that can be used in order to achieve an accessible page structure?
5. How can an HTML4 web page become accessible?

In-Class Activities:

2 types of practical work

- Students try to navigate on an inaccessible and accessible web page where content is hidden (to simulate visual impairment) using only a screen reader. They have to compare the two pages visually (where content is not hidden) and semantically (in the code).
- Students are given an example of web page source code and have to identify the improvements that should be made in order to achieve an accessible page structure, including:





- Headings
- Page regions
- Content structure
- Regions labeling

Post-class Activities:

- Post class quiz (on learning platform) based on theoretical questions derived from learning resources and practical fill-in exercises based on exercises conducted in class.
- Finalizing and uploading documents/answering the questions on the learning platform.

Assessment:

In order to successfully pass the unit, the student has to pass the quiz (50% of theoretical questions and 50% of practical questions).

Materials / Equipment:

- Projector and screen
- Laptop

References:

- [Page Structure Concepts](#)
- [Visual design and CSS — Day 2 Session 2](#)
- [Introduction to Focus](#)
- [Semantics and Accessibility: Heading Structure](#)

4.2 Programming Accessible Site Navigation And Orientation

LESSON PLAN Ref: Digital Accessibility 2.3.2

COURSE Ref: Digital Accessibility 2

Course: **Digital Accessibility Web Developer**

Unit / Module: Developing-programming for DA

Lesson Title: Programming accessible site navigation and orientation

Lesson Duration:

Pre-Class Activities: 4

In-Class Activities: 4

Post-Class Activities: 1

Total: 9





Lesson Objectives:

The structure of the website is reflected via the navigation. Menus enable access to website functionalities, therefore there is an important part that needs to be addressed carefully in order to enable efficient navigation and orientation to users with different disabilities.

Navigational elements (such as menus) play a crucial role in web accessibility, therefore the including of menu structure, styling, drop-down menus, responsible menus and menus in web applications will be presented. Furthermore, the importance of accessible website orientation will be presented and later elaborated on 4 aspects: (1) enabling multiple ways to locate content on a web page, (2) enabling consistent navigation on a web page, (3) ensuring that the purpose of links is clear, and (4) providing clear information on user's current position.

Outline:

- Introduction to page navigation and orientation
- Connection to WCAG
- Connection to WAI-ARIA
- Programming menus: Styling
 - Navigation styling
 - Menu structure
 - Drop-down menus
 - Breadcrumbs
 - Menus in web applications
- Providing clear orientation:
 - Page titles
 - Location
 - Link purpose (in context)
 - Multiple ways
- Known failures for links and menus
- Navigation with keyboard
- Practical examples of accessible page structure

Pre-Class Activities:

Student Learning Resources at Home:

Web orientation:

- [WCAG 2.4.2: Page titled](#)
- [WCAG 2.4.4: Link purpose](#) (in context) and [WCAG 2.4.9: Link purpose \(link only\)](#)
- [WCAG 2.4.6: Headings and labels](#)





- [WCAG 2.4.8: Location](#)

Accessible menus:

- [W3C tutorial on menus](#)
- [Navigation programming techniques](#)
- [Programming buttons](#)
- [Building accessible menu systems](#)

Accessible navigation:

- [WCAG 2.4.1: Bypass blocks](#)
- [WCAG 2.4.5: Multiple ways](#)
- [WCAG 2.4.3: Focus order](#)
- [WCAG 2.4.7: Focus visible](#)
- Programming [link focus](#), [read more links](#), and [bypass blocks](#) (skip links)

Student Learning Activities at Home:

Students should study the references above and should try to answer the following questions:

1. Which HTML elements should be used to properly mark and program the menus?
2. With what coding techniques can we achieve accessible styling of menus?
3. In what case should drop-down menus be used and how should they be programmed? In case drop-down menus are used, what additional navigation should be enabled?
4. What techniques can be used to provide keyboard functionality in web applications?
5. How can multiple navigation ways be achieved?
6. What must a website include for the user to know his/her location
7. What are repeated blocks and how can a programmer enable skipping?

In-Class Activities:

3 types of practical work

- Students test an inaccessible and an accessible menu where content is hidden (to simulate visual impairment) using only a screen reader. They have to compare the two pages visually (where content is not hidden) and semantically (in the code).
- Students test a page without skip links and with skip links. They have to compare the two pages visually and in terms of easiness of navigation with a keyboard.
- Students are given an example of web page source code and have to:
 - Add skip links to the page
 - Design a menu both visually and semantically correct.





Post-class Activities:

- Post class quiz (on learning platform) based on theoretical questions derived from learning resources and practical fill-in exercises based on exercises conducted in class.
- Finalizing and uploading documents/answering the questions on the learning platform.

Assessment:

In order to successfully pass the unit, the student has to pass the quiz (50% of theoretical questions and 50% of practical questions).

Materials / Equipment:

- Projector and screen
- Laptop

References:

- [Menu Concepts](#)
- [Overall learning objectives](#)
- [Navigation](#)
- [Start with the keyboard](#)

4.3 Lesson Plan – Programming CSS for Accessible Web Pages

LESSON PLAN Ref: Digital Accessibility 2.3.3

COURSE Ref: Digital Accessibility 2

Course: **Digital Accessibility Web Developer**

Unit / Module: Developing-programming for DA

Lesson Title: Programming CSS for accessible web pages

Lesson Duration:

Pre-Class Activities: 3

In-Class Activities: 5

Post-Class Activities: 1

Total: 9

Lesson Objectives:

Description: CSS defines how content is presented to the user, which plays a crucial part in accessible web. However, most damage for accessibility is done with redefining styles and positions with CSS (e.g. text reflows according to screen until one





fixes its width in CSS). This lesson focuses on both, best practices in CSS to develop accessible web pages as well as bad practices that developers need to avoid.

Outline:

- CSS techniques:
 - Color coding
 - Font size, line height, and length, justification
 - Order of elements in pages
 - Using percentages, relative measurements, scaling
 - Media queries (prefers-reduced-motion, inverted-colors, prefers-contrast, etc.)
- Bad practices
 - Using markup for styling
 - Invisible images
 - Text in images

Pre-Class Activities:

Student Learning Resources at Home:

W3C.org:

- [Accessibility Features of CSS](#)
- [WCAG 2.0 1.4.1 Use of Color success criterion](#)
- [WCAG 2.0 1.8.1 Visual Presentation success criterion](#)

Other:

- [Accessible CSS](#)
- [Writing CSS with Accessibility in Mind](#)
- [CSS and JavaScript accessibility best practices](#)
- [Using Media Queries for Accessibility](#)
- [Create a design and CSS that supports users with different needs](#)
- [Designing for Inclusion with Media Queries](#)

Student Learning Activities at Home:

Students should study the references above and should try to answer the following questions:

1. Which style sheets take precedence: browser defined or externally defined?
2. What are the primary benefits of using CSS?
3. What can CSS be used for?





4. What are the benefits of following success criterion 1.4.1 Use of color?
5. What is the maximum number of characters in a single line of a block of text?
6. To what size should text of a website be resized without breaking the design of the website?
7. Does the maximum width of a line refer to Uniform Resource Identifiers (URIs) and Uniform Resource Locators (URLs) of a website?

In-Class Activities:

2 types of practical work

- Students measuring the contrast ratio of a given website (according to WCAG [1.4.3 Contrast \(Minimum\)](#) and [WCAG 1.4.6 Contrast \(Enhanced\)](#))
- Students identify and improve the CSS of a given website (source code) according to the success criterion: 1.4.8 Visual Presentation

Post-class Activities:

- Post class quiz (on learning platform) based on theoretical questions derived from learning resources and practical fill-in exercises based on exercises conducted in class.
- Finalizing and uploading documents/answering the questions on the learning platform.

Assessment:

In order to successfully pass the unit, the student has to pass the quiz (50% of theoretical questions and 50% of practical questions).

Materials / Equipment:

- Projector and screen
- Laptop

References:

- [Accessibility Features of CSS](#)
- [CSS Techniques for WCAG 2.0](#)
- [Media Queries Level 5](#)
- [Contrast Ratio Tool](#)
- [Accessibility visualization toolkit](#)
- [Chrome Vision Simulator](#)





4.4 Lesson Plan – Programming Accessible Web Image

LESSON PLAN Ref: Digital Accessibility 2.3.4

COURSE Ref: Digital Accessibility 2

Course: **Digital Accessibility Web Developer**

Unit / Module: Developing-programming for DA

Lesson Title: Programming accessible Web images

Lesson Duration:

Pre-Class Activities: 4 hours

In-Class Activities: 3 hour

Post-Class Activities: 1 hour

Total: 8 hours

Lesson Objectives:

The images are an important part of any web page. They usually present important and also additional information. Therefore, they should be accessible for all web users, including the users who use assistive technology to interact with the web page. An accessible image is an image with an alternative text presentation.

Outline:

- How People with Disabilities Interact with Images
- Why is this important?
- Providing an accessible image

Pre-Class Activities:

The student has to:

- study the following literature
 - [Guideline 1.1 Text Alternatives](#)
 - [Understanding Success Criterion 1.1.1: Non-text Content](#)
 - [Images Tutorial](#)
 - [Accessible Images](#)
 - [Alternative Text](#)
 - [Images](#)
- watch the video
 - [Implementing Accessible Workplace Tech: Website Images](#)
 - [Screen reader alt attribute accessibility test](#)





Student Learning Activities at Home:

Students have to study the literature and videos mentioned above and try to answer the following questions:

1. What is the principle to which guideline Text Alternatives belong to?
2. What is the description of success criterion 1.1.1: Non-text Content?
3. Why is this success criterion important?
4. List the other success criteria related to success criterion 1.1.1: Non-text Content.
5. What is the classification of different types of images based on their purpose?
6. Write down the alternative text for different types of images.

In-Class Activities:

4 types of exercise:

- Exercise 1: Students “read” the information on the website (including the information presented with inaccessible image) using the screen reader, and they try to answer the questions.
- Exercise 2: Students get the HTML source for insert accessible images. They have to find mistakes and correct them.
- Exercise 3: Students get the images, and they have to prepare the HTML source to insert the image with an alternative text.
- Exercise 4: Students get the project, and they have to provide an accessible website with accessible images.

Post-class Activities:

- Post class quiz (on learning platform) based on theoretical questions derived from learning resources and practical fill-in exercises based on exercises conducted in class.
- Finalizing and uploading documents/answering the questions on the learning platform.

Assessment:

In order to successfully pass the unit, the student has to pass the quiz (50% of theoretical questions and 50% of practical questions).

Materials / Equipment:

- Projector and screen
- Laptop
- Paper and pen
- Whiteboard and markers





References:

- [Guideline 1.1 Text Alternatives](#)
- [Understanding Success Criterion 1.1.1: Non-text Content](#)
- [Images Concepts](#)
- [Accessible Images](#)
- [Alternative Text](#)
- [Web Accessibility: Images require alternative text](#)

4.5 Lesson Plan – Programming Accessible Multimedia Content

LESSON PLAN Ref: Digital Accessibility 2.3.5

COURSE Ref: Digital Accessibility 2

Course: **Digital Accessibility Web Developer**

Unit / Module: Developing-programming for DA

Lesson Title: Programming accessible Multimedia content

Lesson Duration:

Pre-Class Activities: 4 hours

In-Class Activities: 4 hour

Post-Class Activities: 1 hour

Total: 9 hours

Lesson Objectives:

This lesson will show how to develop and include accessible multimedia content (such as video and audio) on the web pages.

Outline:

- How People with Disabilities Interact with Multimedia content
- Why is this important (audio and video)?
- Providing an accessible multimedia

Pre-Class Activities:

The student has to:

- study the following literature





- [Web Content Accessibility Guidelines \(WCAG\) 2.1](#)
 - [Making Audio and Video Media Accessible](#)
 - [Captions, Transcripts, and Audio Descriptions](#)
 - [Multimedia Accessibility: Is it important?](#)
-
- watch the video
 - [Making Videos Accessible](#)

Student Learning Activities at Home:

Students have to study the literature and video mentioned above, and try to answer the following questions:

1. Which guideline describes how to create accessible multimedia content?
2. Make a list and describe all success criteria related to accessible multimedia content. Try to separate them by recording type (Prerecorded, Live).
3. What is the definition of “Captions” and “Subtitles”?
4. What is the difference between the “Captions” and “Subtitles”?
5. What does mean “Basic transcripts”, “Descriptive transcripts” and “Interactive transcripts”?
6. Who usually uses the transcripts and who needs the “Descriptive transcripts” to understand the content?
7. Describe steps to create an accessible video for people who are both deaf and blind.

In-Class Activities:

5 types of exercise:

- Exercise 1 (Work in pairs): Students watch the video and discuss if the video is marked as accessible.
- Exercise 2: Students receive the video, and they have to write the audio description.
- Exercise 3: Students select one video published on YouTube, and they have to add the subtitles to the existing YouTube video.
- Exercise 4: Students record their own videos and upload them to their private YouTube channel. They have to write and add Captions to the video.
- Exercise 5: Students receive the project. They have to preparer the accessible recording in Exercise 4 with Able Player and include it on the project website.

Post-class Activities:

- Post class quiz (on learning platform) based on theoretical questions derived from learning resources and practical fill-in exercises based on exercises conducted in class.
- Finalizing and uploading documents/answering the questions on the learning platform.

Assessment:

In order to successfully pass the unit, the student has to pass the quiz (50% of theoretical questions and 50% of practical questions).





Materials / Equipment:

- Projector and screen
- Laptop
- Paper and pen
- Whiteboard and markers

References:

- [Web Content Accessibility Guidelines \(WCAG\) 2.1](#)
- [Making Audio and Video Media Accessible](#)
- [Captions, Transcripts, and Audio Descriptions](#)
- [Multimedia Accessibility: Is it important?](#)
- [Multimedia Accessibility](#)
- [Web Accessibility Perspectives Videos: Explore the Impact and Benefits for Everyone](#)
- [Making Videos Accessible](#)
- [Creating Accessible Video](#)
- [Creating Accessible Videos](#)

4.6 Lesson Plan – Programming Accessible HTML Tables

LESSON PLAN Ref: Digital Accessibility 2.3.6

COURSE Ref: Digital Accessibility 2

Course: **Digital Accessibility Web Developer**

Unit / Module: Developing-programming for DA

Lesson Title: Programming accessible HTML tables

Lesson Duration:

Pre-Class Activities: 3 hour

In-Class Activities: 4 hours

Post-Class Activities: 1 hours

Total: **8 hours**

Lesson Objectives:

HTML data tables are used to organize data with a logical relationship in grids. HTML tables without structural markup to differentiate and properly link between header and data cells, create accessibility barriers. Relying on visual cues alone is not sufficient to create an accessible table. Accessible tables need HTML markup that indicates header cells and data cells and defines their relationship. Assistive technologies use this information to provide context to users.





This lesson will demonstrate how to program appropriate structural markup code for HTML tables (header and data cells and their relationships). Header cells must be marked up with <th>, and data cells with <td> to make tables accessible. For more complex tables, explicit associations may be needed using scope, id, and headers attributes.

Learning goals: Acquainting learners with the requirements for accessible data tables and implementing accessible data tables.

Learning outcomes: After passing this lesson, the learner will be able to develop web pages with accessible tables.

Pre-Class Activities:

Have students get acquainted with the materials on the found at moodle. Students should find more information on introduction to digital accessibility:

- HTML tables
 - The role of HTML tables
 - HTML Markup basics
- [Tutorials about accessible data tables](#)
- Techniques for meeting WCAG Criterion
 - [Using table markup to present tabular information](#)
 - [Using id and headers attributes to associate data cells with header cells in data tables](#)
 - [Using the scope attribute to associate header cells and data cells in the data table](#)
 - [Using the summary attribute of the table element to give an overview of data tables](#)
 - [Using caption elements to associate data table captions with data tables](#)
 - [Failure of Success Criterion 1.3.1 due to using <th> elements, caption elements, or non-empty summary attributes in layout tables](#)
- Other Useful Resources
 - [Tables for Data in HTML](#)
 - [Creating Accessible HTML Tables Without Knowing HTML](#)
 - [Markup tables appropriately](#)
 - [How to build an accessible & responsive HTML table](#)
 - [Responsive Table with Semantics Retained by ARIA](#)

Student Learning Activities at Home:

Students have to study the literature and videos mentioned above, and try to answer the following questions:

1. How are users navigating through HTML table data by using accessibility tools (e.g. screen readers)?
2. What is an accessible HTML data table?
3. What HTML markup is necessary to be included when programming a table in order to make the HTML tables accessible?





4. What extra attributes can be used when programming more complex HTML tables (e.g. tables with two-headers, multi-headers) and what is the purpose of these attributes?
5. Why is the success criteria Info and Relationships 1.3.1 important for developing accessible HTML tables and which techniques can be applied?

In-Class Activities:

0 - 30 minutes: Presentation of key aspects of material read through during pre-class with the Q&A session to answer any potential questions and disperse any uncertainties or doubts about the subject material.

30 - 45 minutes: HTML tables - discussion about the data tables' presentation in Web browsers and the navigation through the data using different accessibility tools (e.g. screen readers)

45 - 75 minutes: Exercise 1 - Test inaccessible HTML Table using a screen reader - students are presented with different HTML tables (non-accessible, simple vs complex) and they need find and read the data from tables using the screenreader)

75 - 105 minutes: Exercise 2- Test accessible HTML Table using a screen reader - students are presented with different HTML tables (accessible, simple vs complex) and they need find and read the data from tables using the screenreader)

105 - 120 minutes: Introducing the markup elements and attributes for programming accessible data tables.

120 - 165 minutes: Exercise 3: Make an HTML table accessible - students need to modify the HTML program code for given HTML tables in order to improve the tables' accessibility and test the accessibility of the tables.

165 - 210 minutes: Exercise 4: Build a table with headers spanning multiple rows or columns - students need to develop a more complex accessible HTML data table

210 - 240 minutes: Summary

Post-class Activities:

- Post class quiz (on learning platform) based on theoretical questions derived from learning resources and practical fill-in exercises based on exercises conducted in class.
- Finalizing and uploading documents/answering the questions on the learning platform.

Assessment:

Assessment of the student's knowledge take form of a online quizz and the student passess after achieving certain treshold. The quizz will containt theoretical questions (50%) as well as practical questions (50%).

Materials / Equipment:

- Presentation for in-class of the lesson
- Online materials on moodle in form of web pages, power point presentations
- PC with software compatible with the presentation
- Accessibility tools (e.g. screenreader)
- Projector or screen
- Whiteboard (optional)



References:

- [Web Content Accessibility Guidelines \(WCAG\) 2.1](#)
- [Tables Concepts](#)
- E-learning materials

4.7 Lesson Plan – Programming Accessible Web Forms

LESSON PLAN Ref: Digital Accessibility 2.3.7

COURSE Ref: Digital Accessibility 2

Course: **Digital Accessibility Web Developer**

Unit / Module: Developing-programming for DA

Lesson Title: Programming accessible Web Forms

Lesson Duration:

Pre-Class Activities: 4 hours

In-Class Activities: 5 hours

Post-Class Activities: 1 hours

Total: **10 hours**

Lesson Objectives:

This lesson will show how to programm accessible web forms, which are commonly used for user interaction on websites and web applications.

Learning goals: Acquainting learners with the requirements for accessible web forms and implementing accessibility features of web forms.

Learning outcomes: After passing this lesson, the learner will be able to develop web pages with accessible forms (e.g. to ensure that form elements include clearly associated labels).

Pre-Class Activities:

Have students got acquainted with the materials on the found at moodle. Students should find more information on introduction to digital accessibility:

- Web FormsPage
 - [HTML Forms](#)
 - [HTML Form Elements](#)
 - [HTML Input Types](#)
 - [HTML Input Attributes](#)
- Accessibility of Web Forms





- Developing accessible Web Forms
 - [Form concepts](#)
 - [Labeling Controls](#)
 - [Grouping Controls](#)
 - [Form Instructions](#)
 - [Validating Input](#)
 - [User Notifications](#)
 - [Multi-Page Forms](#)
 - [Custom controls](#)
- WCAG Success Criterion for Web Forms
 - [1.3.1 Info and Relationships](#)
 - [2.4.6 Headings and Labels](#)
 - [3.3.1 Error Identifications](#)
 - [3.3.2 Labels or Instructions](#)
 - [3.3.3 Error Suggestion](#)
 - [4.1.2 Name, Role, Value](#)
- Techniques for meeting WCAG Criterion

Student Learning Activities at Home:

Students have to study the literature and videos mentioned above, and try to answer the following questions:

1. How are users navigating through HTML forms data by using accessibility tools (e.g. screen readers)?
2. What is an accessible HTML web form?
3. What HTML markup is necessary to be included when programming a form in order to make the HTML form accessible?
4. What extra attributes can be used when programming more complex HTML forms?
5. Why and how is accessibility of web forms important for users with different disabilities?
6. How is web form's accessibility related to the 1.3.1 Info and Relationships Success Criteria?
7. How is web form's accessibility related to the 2.4.6 Headings and Labels?
8. How is web form's accessibility related to the 3.3.2 Labels or Instructions Success Criteria?
9. How is web form's accessibility related to the 4.1.2 Name, Role, Value Success Criteria?

In-Class Activities:

0 - 30 minutes: Presentation of key aspects of material read through during pre-class with the Q&A session to answer any potential questions and disperse any uncertainties or doubts about the subject material.





30 - 45 minutes: HTML forms - discussion about the input elements presentation in Web browsers and the navigation through the form elements using different accessibility tools (e.g. screen readers)

45 - 75 minutes: Exercise 1: Test inaccessible Web Form using a screen reader - students are presented with different HTML forms and they need fill out and submit the forms by using accessibility tools.

75 - 105 minutes: Exercise 2- Test accessible Web Form using a screen reader - students are presented with different HTML forms (accessible, simple vs complex) and they need complete and submit the form

105 - 135 minutes: Introducing the markup elements and attributes for programming accessible HTML Forms.

135 - 180 minutes: Exercise 3: Make an Web Form accessible - students need to modify the HTML program code for given Web Form in order to improve the form's accessibility and test the accessibility of the developed form.

180 - 225 minutes: Exercise 4: Provide instructions to users on how to complete web forms to improve accessibility - students need add HTML code for allowing the Web browser to validate the input and to provide instructions on how to correctly fill ou the form

225 - 270 minutes: Exercise 5: Implement Web Form validation for improving the accessibility - students need add HTML code for allowing the Web browser to validate the input and to provide instructions on how to correctly fill ou the form

270 - 300 minutes: Summary

Post-class Activities:

- Post class quiz (on learning platform) based on theoretical questions derived from learning resources and practical fill-in exercises based on exercises conducted in class.
- Finalizing and uploading documents/answering the questions on the learning platform.

Assessment:

Assessment of the student's knowledge take form of a online quizz and the student passess after achieving certain treshold. The quizz will containt theoretical questions (50%) as well as practical questions (50%).

Materials / Equipment:

- Presentation for in-class of the lesson
- Online materials on moodle in form of web pages, power point presentations
- PC with software compatible with the presentation
- Accessibility tools (e.g. screenreader)
- Projector or screen
- Whiteboard (optional)

References:

- [Web Content Accessibility Guidelines \(WCAG\) 2.1](#)
- [Forms Concepts](#)
- E-learning materials





4.8 Lesson Plan - Programming Accessible Web Pages Using Modern Web Frameworks

LESSON PLAN Ref: Digital Accessibility 2.3.8

COURSE Ref: Digital Accessibility 2

Course: **Digital Accessibility Web Developer**

Unit / Module: Developing-programming for DA

Lesson Title: Programming accessible web pages using modern web frameworks (e.g. Bootstrap, Material Design, Vue, etc.)

Lesson Duration:

Pre-Class Activities: 4 hours

In-Class Activities: 4 hours

Post-Class Activities: 1 hours

Total: **9 hours**

Lesson Objectives:

This lesson will show how to use modern Web Frameworks (e.g. Bootstrap) for developing accessible web pages.

Outline:

- Modern Web Frameworks for developing web pages and conformance with WCAG standards
- Developing accessible Web pages with:
- Bootstrap

Pre-Class Activities:

Student Learning Resources at Home:

- [Introduction](#)
- [Accessibility](#)
- [Bootstrap 4 Tutorial](#)
- [Bootstrap 4 Tutorial](#)

Student Learning Activities at Home:

Student reads the source materials.

In-Class Activities:

- Short presentation on modern JavaScript web frameworks
- Exercises:
 - Creating Screen Reader Only Content





- Creating Accessible Carousel Using Bootstrap
- Adjusting Bootstrap CSS to be WCAG compliant
- Creating Accessible Modal Prompt Using Bootstrap

Post-class Activities:

- Post class quiz (on learning platform) based on theoretical questions derived from learning resources and practical fill-in exercises based on exercises conducted in class.
- Finalizing and uploading documents/answering the questions on the learning platform.

Assessment:

Post class quiz that evaluates the student if he has suitable knowledge from the thematic.

Materials / Equipment:

- PC with internet connection, projector, screen

References:

- [Accessibility](#)
- [8 Tips for Improving Bootstrap Accessibility](#)
- [Introduction](#)
- [Bootstrap 4 Tutorial](#)
- [Bootstrap 4 Tutorial](#)

4.9 Lesson Plan – Basics of Accessible Scripting

LESSON PLAN Ref: Digital Accessibility 2.3.9

COURSE Ref: Digital Accessibility 2

Course: **Digital Accessibility Web Developer**

Unit / Module: Developing-programming for DA

Lesson Title: Basics of accessible scripting

Lesson Duration:

Pre-Class Activities: 4 hours

In-Class Activities: 5 hour

Post-Class Activities: 1 hours

Total: **10 hours**

Lesson Objectives:



Co-funded by the
Erasmus+ Programme
of the European Union





This lesson will demonstrate how to use Client-side Scripting Techniques in accordance with WCAG

Outline:

- Timing techniques
- Validation techniques
- Keyboard techniques
- Content manipulation techniques

Pre-Class Activities:

Student Learning Resources at Home:

- [Client-side Scripting Techniques for WCAG 2.0](#)
- [Introduction](#)
- [Accessible JavaScript](#)
- [Introduction to ARIA - Accessible Rich Internet Applications](#)

Student Learning Activities at Home:

Student reads the source materials.

In-Class Activities:

- Short presentation on accessible scripting techniques
- Exercises:
 - Saving and Recalling (Form) Data From Local Storage
 - Managing Time Limits
 - Element and link focus

Post-class Activities:

- Post class quiz (on learning platform) based on theoretical questions derived from learning resources and practical fill-in exercises based on exercises conducted in class.
- Finalizing and uploading documents/answering the questions on the learning platform.

Assessment:

Post class quiz that evaluates the student if he has suitable knowledge from the thematic.

Materials / Equipment:

- PC with internet connection, projector, screen





References:

- [SCR1: Allowing the user to extend the default time limit](#)
- [Introduction](#)
- [Accessible JavaScript](#)
- [Introduction to ARIA - Accessible Rich Internet Applications](#)

5 Module 4: Designing for Digital Accessibility

5.1 Lesson Plan – Accessibility Aspects of Visual Design of Websites

LESSON PLAN Ref: Digital Accessibility 3.4.1

COURSE Ref: Digital Accessibility 3

Course: **Digital Accessibility Designing**

Unit / Module: Designing for DA

Lesson Title: Accessibility aspects of visual design of websites

Lesson Duration:

Pre-Class Activities: 2

In-Class Activities: 2

Post-Class Activities: 2 (online quiz, practical activity)

Total: 6

Lesson Objectives:

This lesson gives a basic understanding of the core design principles that apply to accessible web design. It establishes the criteria for evaluating the quality of websites, introduces to accessible web design standards that will enable web accessibility designers to create web sites whose content is accessible to all users, regardless of their physical or cognitive abilities, their technological requirements or their cultural background, education and experience.

Learning goals: Acquainting learners with the principles and requirements for accessible web page design.

Learning outcomes: After passing this lesson, the learner will be able to make the user interface design and visual design more accessible.

Outline:

- Provide sufficient contrast between foreground and background
- Color use
- Ensure that interactive elements are easy to identify
- Navigation options





- Form elements
- Feedback for interactions
- Use of headings
- Image and media alternatives
- Controls for content that starts automatically

Pre-Class Activities:

Student Learning Resources at Home:

(W3C Tutorial)

- [Contrast \(Minimum\) 1.4.3, \(Understanding 1.4.3\)](#)
- [Use of Color 1.4.1, \(Understanding 1.4.1\)](#)
- [Focus Visible 2.4.7, \(Understanding 2.4.7\)](#)
- [Consistent Navigation 3.2.3, \(Understanding 3.2.3\)](#)
- [Labels or Instructions 3.3.2, \(Understanding 3.3.2\)](#)
- [Error Identification 3.3.1, \(Understanding 3.3.1\)](#)
- [Headings and Labels 2.4.6, \(Understanding 2.4.6\)](#)

Student Learning Activities at Home:

Students have to study the resources mentioned above and try to answer the following questions:

1. What is accessibility in web design?
2. What are accessibility features of a web site?
3. What are the three basic colors that monitors transmit?
4. How many different colors are there in the web-safe palette?
5. How many colors can be referenced by name (e.g., "red") in HTML 4.01?

In-Class Activities:

Practical activity 1

- Learners are invited to watch the video on [Accessible web design](#).
- After watching the video learners should prepare a list of the basic elements that they should take into consideration to make the user interface design and visual design more accessible to people with disabilities.
- Presentation in class and group discussion.

Practical activity

- Learners are invited to explore and evaluate inaccessible designed web pages.
- For this activity learners shall use a screen reader (e.g. [NVDA](#), list of [browser commands in NVDA](#), [VoiceOver](#))
- They write a short report (1 page max) on the web design accessibility issues they identified.





- They present their observations and give feedback on how the web is experienced by people with disabilities.

Post-class Activities:

Learners are provided with a one page web site and shall work on the user interface desing. Students should write CSS code from scratch.

Assessment:

In order to successfully pass the unit, the student has to pass the quiz (50% of theoretical questions and 50% of practical questions).

Materials / Equipment:

- Projector and screen
- Laptop

References:

- [Web Accessibility Initiative, Accessibility Principles](#)
- [Web Accessibility Initiative, Tips for designing](#)
- [Web Accessibility Initiative, Tutorials](#)
- [Web Accessibility Initiative, How people with disabilities use the web](#)





5.2 Lesson Plan – Effective Use of Color and Contrast

LESSON PLAN Ref: Digital Accessibility 3.4.2

COURSE Ref: Digital Accessibility 3

Course: **Digital Accessibility Designing**

Unit / Module: Designing for DA

Lesson Title: **EFFECTIVE USE OF COLOR AND CONTRAST**

Lesson Duration:

Pre-Class Activities: 2

In-Class Activities: 3

Post-Class Activities: 2 (online quiz, practical activity)

Total: 7

Lesson Objectives:

The objective of this lesson is to provide learners with a general understanding of the role that color plays in effective accessible web design. Avoiding use of color to convey essential information ensures that the information is accessible to those who can't reliably discriminate between colors. This group includes people with blindness and color blindness, but it also includes people using monochrome monitors and handheld computers with green screens.

Learning goals: Acquainting learners with the requirements for accessible use of colour in web design

Learning outcomes: At the completion of this lesson, the learner will be able to:

- explain the basic concepts related to using color and the web
- identify and make use of color related tools online
- identify accessibility concerns related to color and implement key strategies to make sites accessible to people who are color blind.

Outline:

- Color coding
- Color contrast
- Contrast ratio
- Contrast enhanced
- Visual presentation

Pre-Class Activities:

Pre-class activity 1

Student Learning Resources at Home





Learners shall study the following resources at home:

Color Theory in Accessible web design

- [Understanding Success Criterion 1.4.1: Use of Color](#)
- [Understanding Success Criterion 1.4.3: Contrast \(Minimum\)](#)
- [Understanding Success Criterion 1.4.6: Contrast \(Enhanced\)](#)
- [Understanding Success Criterion 1.4.8: Visual Presentation](#)
- [Visual Disabilities – Designing for Color-blindness](#)
- [Contrast and Color Accessibility](#)
- [The Color system](#)
- [Color Theory](#) (Primary, secondary and tertiary colors)
- [Color Combinations](#), Monochromatic, complimentary, triadic (color triads), analogous color schemes

The Standards

WCAG 2.0 Guidelines

- [Guideline 1.4.1 Use of Color](#)
- [Guideline 1.4.3 Contrast \(Minimum\)](#)

Additional resources on the topic

- [Colour Contrast Analyser \(for Windows or Mac\)](#)
- [WebAIM Color Contrast Checker](#)
- [Colorzilla](#)

After reading the resources learners shall answer the following questions which will be discussed in class with the instructor:

1. What should be the percentages of colors used on a web site?
2. Which is the minimum color contrast that should be used on webpages (minimum/enhanced)?
3. What is the definition of monochromatic colors? What is one pro and one con for using monochromatic colors on a web site?
4. What is color contrast on accessibility?
5. How do you fix the color contrast on accessibility?
6. What is an acceptable contrast ratio?
7. Are the majority of people we refer to as color blind unable to see any color at all? **Explain.**
8. According to the [WebAIM site](#), what is the key to designing sites that are accessible to people who are color blind?
9. What are high contrast colors on the color wheel?
10. What is the best font color for text on a white background screen?





Pre-class activity 2

Learners shall prepare a presentation on use of color and contrast with concrete examples

Learners shall compose a presentation explaining in their own words what they have learned about the importance of effective use of color and contrast in accessible web design.

- Their intended audience is their colleagues/students and instructor in class.
- They should summarize what they feel to be the most important points about this topic.
- Their presentation should be long enough to contain the relevant information (**maximum 15 minutes**).

In this presentation they should:

- explain why and how the use of color and contrast is an important aspect especially for blind people
- provide examples or real cases of ways in which inaccessibility may impact people on their life
- provide examples of assistive technology present potential technological barriers.

In-Class Activities:

Practical activity 1

Measuring contrast ratio and improving

Learners work individually. They are invited to download on their local drive a concrete example of web page. The aim of the activity is to measure the contrast ratios of content.

- They shall identify the bad contrast ratios and manually change the colors so that they are [WCAG 1.4.3](#) compliant. They are provided with the CSS styles.
- They shall present in class the problems identified and method to improve contrast ratio.

Practical activity 2

Learners work individually. They shall download the example and prepare the website so that the [WCAG 1.4.8 Visual Presentation \(AAA\)](#) success criterion is fulfilled. They are provided with the CSS styles.

Learners shall make sure, as per Guidelines, that:

1. Foreground and background colors can be selected by the user.
2. Width is no more than 80 characters or glyphs (40 for Chinese, Japanese and Korean).
3. Text is not justified (aligned to both the left and the right margins).
4. Line spacing (leading) is at least space-and-a-half within paragraphs, and paragraph spacing is at least 1.5 times larger than the line spacing.
5. Text can be resized without assistive technology up to 200 percent in a way that does not require the user to scroll horizontally to read a line of text on a full-screen window.

Practical activity 3

Selecting a Color Scheme

Learners shall work in three groups. They are invited to:





1) Select one of the following potential clients:

- Retail store
- Language learning center
- Architectural design office
- Medical center

2) Consider the business promoting goals of the client (e.g. brand identity raising, increasing sales, services presentation etc) as well as the brand identity the client wants to promote.

3) Use the [Color Scheme Designer](#) to select an entire color scheme for the client they selected.

4) Prepare a list of the colors they would use and present in class what type of color scheme they selected (e.g. monochromatic, analogous) and justify why they have made this choice for this imaginary client.

Post-class Activities:

Learners shall design the web site of the imaginary client selected in classroom from scratch using the color scheme they have chosen and presented in classroom.

Assessment:

In order to successfully pass the unit, the student has to pass the quiz (50% of theoretical questions and 50% of practical questions).

Materials / Equipment:

- Projector and screen
- Laptop

Further References

1. [Accessible Use of Colour in Web Design](#)
2. [Colors with Good Contrast](#)
3. [Video Tutorial: Meeting Contrast Requirements](#)
4. [Video tutorial: How I do an accessibility check](#)





5.3 Lesson Plan - Typography and Font Styling

LESSON PLAN Ref: Digital Accessibility 3.4.3

COURSE Ref: Digital Accessibility 3

Course: **Digital Accessibility Designing**

Unit / Module: Designing for DA

Lesson Title: **Typography and Font Styling**

Lesson Duration:

Pre-Class Activities: 3

In-Class Activities: 3

Post-Class Activities: 2 (online quiz, practical activity)

Total: 8

Lesson Objectives:

Font style is the foundation of accessible visual reading experiences, so choosing a legible and readable font style for people with poor vision, learning disabilities, aphasia, dyslexia or low adult literacy is of utmost importance. The objective of this lesson is to present the principles of font accessibility and teach how to control font and other typographical styles.

Learning goals:

- Acquainting learners with the requirements for accessible fonts in web design.

Learning outcomes:

At the completion of this lesson, the learner will be able to:

- Select basic, simple, easily-readable fonts
- Ensure sufficient contrast between the text and the background
- Use font variations
- Specify font size
- Blinking and moving text

Outline:

- Accessibility Principles related to typography and font styling

Pre-Class Activities:

Pre-class activity 1

Student Learning Resources at Home

Learners shall study the following resources at home:

- [Visual presentation](#)





- [Understanding Success Criterion 1.4.8: Visual Presentation](#)
- [How to meet Visual Presentation](#)
- [Understanding Success Criterion 1.4.12: Text Spacing](#)
- [How to meet Text Spacing](#)

Learners shall watch the following videos:

- [Customizable text](#)
- [Clear layout and design](#)

Pre-class activity 2

After reading the resources learners shall answer the following questions which will be discussed in class with the instructor:

1. Which font is best for accessibility?
2. What makes a font easy to read?
3. What is the description of success criterion 1.4.12: Text Spacing and why is this success criterion important?
4. List other success criteria related to appropriate selection of typography and fonts.
5. What is the maximum number of characters in a single line of a block of text

Pre-class activity 3

Learners shall investigate, identify and list main accessibility issues connected to the use of color and fonts on a [bad example of inaccessible website](#).

They shall then prepare a list of actions they would apply to make the website accessible by referencing the standards and techniques applied.

Finally learners shall prepare a presentation long enough to contain the relevant information (**maximum 15 minutes**).

In this presentation learners should:

- Provide the accessibility issues they identified for the use of color and fonts.
- Explain how this issues will impact the navigation of a disabled person.
- Present the techniques that need to be applied for web accessibility conformance.

In-Class Activities:

Practical activity 1

- Learners shall work in teams.
- Each team shall research the free website builders for the design template category “Portfolio”: [Wix](#) and [Weebly](#).
- Each group shall discuss, report and present in class the criteria required to design their own portfolio-based website in terms of aesthetics (colors, typography, fonts, text spacing, general structure and layout) and accessibility.





- Learners shall find individually a website they believe meets the criteria / requirements they have listed and presented.

Practical activity 2

- Learners shall work individually.
- Learners are provided with an example from the instructor. They shall identify the problematic typography and manually change font style, text spacing, color contrast so as to be compliant with WCAG.
- Learners are also provided with the CSS styles.
- Learners shall present in class the issues they have identified and the techniques used to improve the web pages.

Practical activity 3

- Learners work individually. They design one page portfolio website applying all accessibility standards both on use of colors, typography style and text formatting.
- Learners are divided in three groups. Each team selects the one page web portfolio designed by another learner. Team members check the webpage for accessibility without using tools and software. Each team prepares the list of errors identified and suggestions on possible improvements. Presentation of the results by each team and group discussion.

Post-class Activities:

Students are given the materials from practical in-class activity 3 so they can work furthermore. Students should provide an accessible website with accessible colors, typography style and text formatting at the end of the activity.

Assessment:

In order to successfully pass the unit, the student has to pass the quiz (50% of theoretical questions and 50% of practical questions).

Materials / Equipment:

- Projector and screen
- Laptop
- Paper and pen
- Whiteboard and markers

Further References

1. [World Wide Web Consortium \(W3C\) Recommendation, Fonts](#), Retrieved December 30, 2015.

5.4 Lesson Plan – Accessible CSS

LESSON PLAN Ref: Digital Accessibility 3.4.4





COURSE Ref: Digital Accessibility 3

Course: **Digital Accessibility Designing**

Unit / Module: Designing for DA

Lesson Title: Accessible CSS

Lesson Duration:

Pre-Class Activities: 2

In-Class Activities: 3

Post-Class Activities: 3 (online quiz, practical activities)

Total: 8

Lesson Objectives:

CSS is used to style the content and control how the information is displayed to the user, which is essential in accessible web. The objective of this lesson is to provide learners with the standards and techniques that will enable them to alter color, fonts, order and spacing of the content, using text in images.

Learning goals: After the completion of this lesson, the learner will be able to:

Learning outcomes:

- Increase font size
- Set line height
- Align text to the left or right
- Define paragraph widths
- Use content in pseudo elements cautiously
- Fallback for property values with incomplete support
- Use techniques to hide text from everyone
- Hide content visually
- Skip links
- Hide content semantically
- Achieve the minimum contrast ratio
- Measure contrast ratio
- Avoid using colors alone as visual cues
- Take care of order
- Work with focus styles





- Differentiating between keyboard and mouse users

Outline:

- Color coding
- Font size, line height, length
- Order of elements in pages
- Using percentages, relative measurements, scaling
- Focus

Pre-Class Activities:

Pre-class activity 1

Student Learning Resources at Home

The learner has to study the following literature related to the accessibility features of CSS, the techniques, the approaches and practices that will help a web designers to write more accessible CSS. The resources provided are technical documents covering both basic concepts and well-known properties of CSS and complicated topics connected to accessible styles.

From World Wide Web Consortium (W3C)

- [Accessibility Features of CSS \(W3C\)](#)
- [CSS Techniques for WCAG 2.1](#)
- [Visual Presentation: Understanding Success Criterion 1.4.8](#)

From WebAim, [Accessible CSS](#)

Other resources:

- [Writing CSS with Accessibility in Mind](#)
- [Accessible styles](#)
- [CSS Accessibility Best practices](#)

Learners have to watch the following videos

- Manuel Matuzovic: [Writing CSS with Accessibility in Mind](#) ,CSSConf Budapest 2017
- Watch a video of Khaled Musa, an accessibility-focused academic technologist at the University of Minnesota, explain how [screen reader users navigate by headings](#).
- [Styling with ARIA](#) from Udacity courses
- [Don't convey info with color alone](#) from Udacity courses

After reading the resources learners shall answer the following questions which will be discussed in class with the instructor:

1. What is meant by accessibility in terms of CSS?
2. What are the benefits of using CSS?





3. What should be considered when formatting text in CSS? Learners shall make a list of the standards for success criterion 1.4.1 Use of color already covered in previous lesson.
4. What should be considered when using colors?

Pre-class activity 2

Learners have to study the [Before and After Demonstration](#) from W3C so as to be aware of web accessibility and at the same time find practical examples. After examining the examples, they shall prepare a Presentation with the accessibility barriers identified in the demo and the features and analysis on how those barriers were confronted.

In-Class Activities:

Practical activity 1

Learners shall first **work in teams**

- (a) Learners are divided into three groups.
- (b) They are invited to visit a bad example in terms of accessibility (e.g. [Yvette's Bridal & Formal](#)).
- (c) Each team shall identify the accessibility barriers, the errors connected to use of colors and contrast, text spacing, images, headings structure, layout tables, alternative texts.
- (d) Each team make a Presentation in class of the findings.
- (e) Group discussion

Learners shall **work individually**

The learners are invited (individually) to evaluate the website through the Web Accessibility Evaluation Tool [WAVE](#).

Group discussion

- Learners are invited to compare the issues identified by the class teams with those reported from the Evaluation tool [WAVE](#)
- Learners shall also discuss techniques required to improve the simple website.

Practical activity 2

Learners shall **work individually**

- Learners are invited to work individually on focus styles.
- They are provided with a page where buttons don't currently have focus styles, making them pretty much useless to a keyboard user. With their new CSS knowledge, they shall try using to give these buttons interesting focus states.
- Learners are provided with the project, unzip it on their local drive and work on the CSS styles provided.

Practical activity 3

Learners shall **work individually**

- Learners are invited to work individually on color contrast.





- They are provided with a page where they shall add a solution for contrast audit.
- They shall update the blog page and add a screen reader example.
- Learners are provided with the project, unzip it on their local drive and work on the CSS styles provided.

Post-class Activities:

Students are given the materials from practical in-class activities so they can work furthermore. Students should write CSS code from scratch for inclass practical activity 1 and 2.

Assessment:

In order to successfully pass the unit, the student has to pass the quiz (50% of theoretical questions and 50% of practical questions).

Materials / Equipment:

- Projector and screen
- Laptop

5.5 Lesson Plan – Graphics and Images

LESSON PLAN Ref: Digital Accessibility 3.4.5

COURSE Ref: Digital Accessibility 3

Course: **Digital Accessibility Designing**

Unit / Module: Designing for DA

Lesson Title: GRAPHICS AND IMAGES

Lesson Duration:

Pre-Class Activities: 2

In-Class Activities: 3

Post-Class Activities: 2 (online quiz, practical activities)

Total: 7

Lesson Objectives:

Information graphics, such as charts, diagrams, image maps, are widespread used in web pages. Those graphical elements as such won't be grasped by blind people unless they are explained and described with text. The same applies also for people who are visually impaired (colour blindness), the meaning of the graphics may not be able easily perceivable.

The objective of this lesson is to provide web designers with practices, methods and techniques to use and create accessible graphics and images.





Learning goals: Learners will learn how to meet the WCAG accessibility guidelines relating to non-text content on a web page and particularly accessible images and graphics. They will learn how to use HTML and CSS to describe images appropriately and what techniques and methods they shall apply in case that short text alternative is not possible.

Learning outcomes: At the completion of this lesson, the learner will have a clear understanding of the issues connected to accessible images and graphics and will be able to include accessible images and graphs on a web page.

Outline:

- Accessible images
- Accessible graphics
- Complex images

Pre-Class Activities:

Pre-class activity 1

Student Learning Resources at Home

The learner has to study the following literature related to the accessibility of images and graphs

WCAG, [Guideline 1.1 Text Alternatives](#)

WCAG, [Understanding Success Criterion 1.1.1: Non-text Content](#)

W3C, [Images Tutorial](#)

WebAim, [Accessible Images](#)

WebAim, [Alternative Text](#)

Yale University, [Images](#)

User Story, [Describes the value of text alternatives to a blind user](#)

Tools for Accessible graphs

- [Highcharts](#), [Highcharts Accessibility Demos](#)
- [Fizz](#)
- [An Alt Decision Tree](#)
- WebAim, [Longdesc Test Cases](#), September 2015

Learners shall watch the following videos:

- [Implementing Accessible Workplace Tech: Website Images](#)
- [Watch the video of Gian Wild](#) - on how to ensure that images are both accessible and usable for disabled people.

Pre-Class Activity 2

Learners shall try to answer the following questions which will be discussed in class with the instructor:

- How do screen readers read images?
- What is an alternative text?
- Why do we need image descriptions?





- What is the classification of different types of images based on their function and purpose?
- What should image ALT text say?
- When creating accessible images in digital content what must be present?
- How do I make a graph accessible?

In-Class Activities:

Practical activity 1

- Learners shall work individually.
- Learners shall identify Complex Images and add Alternative text.
- Learners are provided with a set of complex images, unzip them on their local computer.
- They shall (1) identify the type of complex images provided, (2) write down what the image is presenting, (3) prepare the HTML code to insert the image with an alternative text.
- Finally each learner shall present the solution developed and review the results in class with the instructor.
- Group discussion on other potential better solution.

Practical activity 2

- Learners shall work individually.
- Learners are provided from the instructor with a set of images.
- They shall choose the most appropriate alt text for the image provided based on the context.

Practical activity 3

- Learners shall work individually.
- Learners shall add complex images with alternative text to a website.
- Learners are provided with a set of images and the project
- At the end of the exercise they shall test accessibility by running a screen reader.

Post-class Activities:

Students are given the materials from practical in-class activity 3 so they can work furthermore. Students should provide an accessible website with accessible images at the end of the activity.

Assessment:

In order to successfully pass the unit, the student has to pass the quiz (50% of theoretical questions and 50% of practical questions).

Materials / Equipment:

- Projector and screen





- Laptop
- Paper and pen
- Whiteboard and markers

References:

- <https://www.w3.org/TR/WCAG21/#text-alternatives>
- <https://www.w3.org/WAI/WCAG21/Understanding/non-text-content.html>
- <https://www.w3.org/WAI/tutorials/images/>
- <https://webaim.org/techniques/images/>
- <https://webaim.org/techniques/alttext>

6 Module 5: Implementation of Digital Accessibility

6.1 Lesson Plan – Digital Accessibility Implementation Plan

LESSON PLAN Ref: Digital Accessibility 1.5.1

COURSE Ref: Digital Accessibility 1

Course: Digital Accessibility Manager

Unit / Module: Implementation of digital accessibility

Lesson Title: Digital Accessibility Implementation Plan

Lesson Duration:

Pre-Class Activities: 150 minutes

In-Class Activities: 90 minutes

Post-Class Activities: 30 minutes

Total: 6 hours (270 minutes)*

*(In case of an online only training some activities cannot be performed the same way as in a real-life teaching environment. Therefore, they should be shifted to the pre-class activities accordingly and the participants should complete them individually at home.)

Lesson Objectives:

To familiarize the learners with the digital accessibility implementation plan, how to design it, and what are the implementation steps needed for achieving digital accessibility in their organization.

Outline:

- Digital accessibility implementation plan.
- Implementation steps for digital accessibility in practice.

Pre-Class Activities:





Student Learning Resources at Home:

- [W3C Planning and Managing](#)
- [W3C Implementation Plan for Web Accessibility](#)
-

Student Learning Activities at Home:

- Students should read thoroughly all [the 4 phases of implementing web accessibility](#) into organizational culture as introduced by W3C Web Accessibility Initiative.
- Students should get acquainted with each of the steps of the [Implementation Plan for Web Accessibility](#).

After reading the resources mentioned above students should respond to the following questions:

1. What is an implementation plan for web accessibility and which steps should it consider?
2. Review each of the steps and think, how they could apply to your organization and your job role?
3. Which document does the implementation plan complement and how?

In-Class Activities:

0 – 15 minutes: Students work in teams. They prepare a roadmap for the implementation of web accessibility in a selected organization and present it to other teams.

15 – 30 minutes: Students work in teams. They should try to answer the following question:

- Does the implementation of web accessibility apply only to web developers? If not, which profiles in the organization could build up a good web accessibility implementation team?

Students compare and discuss their answers in teams.

30 – 60 minutes: Students think of their current position at the organization they work for and answer the following questions:

- How does web accessibility fall into your job description?
- If your organization builds a team responsible for the implementation of web accessibility, which role would you take on, and what would be your responsibilities.

60 – 80 minutes: Students compare and discuss their answers in teams.

80 – 90 minutes: Overview and Summary.

Post-class Activities:

Student take the online test about the implementation plan.

Assessment:

Final test. In order to successfully pass the unit, the student has to pass the online quiz.

Materials / Equipment:

- Laptop.
- PPT slides.

References:





- [W3C Planning and Managing](#)
- [W3C Implementation Plan for Web Accessibility](#)
- [Organizational web accessibility policy](#)
- [W3C Web Accessibility Initiative](#)

6.2 Lesson Plan – Preliminary Check for Web Accessibility Barriers

LESSON PLAN Ref: Digital Accessibility 1.5.2

COURSE Ref: Digital Accessibility 1

Course: Digital Accessibility Manager

Unit / Module: Implementation of digital accessibility

Lesson Title: Preliminary Check for Web Accessibility Barriers

Lesson Duration:

Pre-Class Activities: 135 minutes

In-Class Activities: 180 minutes

Post-Class Activities: 45 minutes

Total: 8 hours (360 minutes)*

*(In case of an online only training some activities cannot be performed the same way as in a real-life teaching environment. Therefore, they should be shifted to the pre-class activities accordingly and the participants should complete them individually at home.)

Lesson Objectives:

To familiarize the learners with with the web accessibility preliminary check and acquaint them with an overall overview of processes, requirements, procedures, and tools for conducting quality web accessibility evaluation using tools, experts, and user experience.

Outline:

- Web accessibility evaluation.
- Web accessibility preliminary check.
- Evaluation with web accessibility evaluation tools.

Evaluation with users.

Pre-Class Activities:

Student Learning Resources at Home:

- [Evaluating Web Accessibility Overview](#)
- [Easy Checks – A First Review of Web Accessibility](#)





- [Selecting Web Accessibility Evaluation Tools](#)
- [Web Accessibility Evaluation Tools List](#)
- [Using a Screen Reader](#)
- [Conformance Evaluation and Reports Overview](#)
- [Involving Users in Evaluating Web Accessibility](#)
- [Using Combined Expertise to Evaluate Web Accessibility](#)
- [WAVE Web Accessibility Evaluation Tool](#)
- [Download NVDA screen reader](#)
- [Using NVDA to Evaluate Web Accessibility](#)
- [Screen Reader Basics: NVDA - video](#)
- [Using VoiceOver to Evaluate Web Accessibility](#)
- [Screen Reader Basics: VoiceOver – video](#)

Student Learning Activities at Home:

- Students should read thoroughly all [the 4 phases of implementing web accessibility](#) into organizational culture as introduced by W3C Web Accessibility Initiative.
- Students should get acquainted with each of the steps of the [Implementation Plan for Web Accessibility](#).

After studying the resources mentioned above students should respond to the following questions:

- What is a preliminary check for web accessibility? How often should it be conducted?
- Make a list of website elements that usually need to be reviewed for web accessibility during the initial/preliminary check.

In-Class Activities:

0 – 25 minutes: Students work in teams. They prepare a list of website elements (in groups) that are usually reviewed during a preliminary check. They discuss further steps towards a comprehensive website accessibility compliance after the preliminary check has been done and the main accessibility issues identified.

25 – 80 minutes: Students work in teams. They need to download WAVE – Web Accessibility Evaluation Tool and get familiar with it. They are asked to test it on a selected website and discuss the errors identified.

80 –100 minutes: Students answer the following questions regarding the previous task: Which website elements did the tool review? How many errors did it find? What accessibility barriers cannot be identified by such automatic tools?

100 – 160 minutes: Students work individually. They are asked to use the screen reader that they had downloaded and tested at the beginning of the lesson (NVDA or VoiceOver). They are asked to try it out to get an idea of how blind and visually impaired perceive the web and get the information provided by the web. After completing these tasks, they answer the following questions and discuss them in teams:

- Did you understand the web content?
- Have you identified any barriers to accessibility of the web content?

160 – 180 minutes: Overview and Summary.

Post-class Activities:

Students take the online test about the preliminary check.



**Assessment:**

Students take the online test about the preliminary check.

Materials / Equipment:

- Laptop.
- PPT slides.

References:

- [Easy Checks – A First Review of Web Accessibility - video](#)
- [Evaluation Tools Overview - video](#)
- [Involving Users in Web Accessibility Overview - video](#)
- [10 Best Screen Readers for Blind People](#)
- [10 Free Screen Readers for Blind or Visually Impaired Users](#)

6.3 Lesson Plan – Implementing the European Web Accessibility Directive

LESSON PLAN Ref: Digital Accessibility 1.5.3

COURSE Ref: Digital Accessibility 1

Course: Digital Accessibility Manager

Unit / Module: Implementation of digital accessibility

Lesson Title: Implementing the European Web Accessibility Directive

Lesson Duration:

Pre-Class Activities: 150 minutes

In-Class Activities: 90 minutes

Post-Class Activities: 30 minutes

Total: 6 hours (270 minutes)*

*(In case of an online only training some activities cannot be performed the same way as in a real-life teaching environment. Therefore, they should be shifted to the pre-class activities accordingly and the participants should complete them individually at home.)

Lesson Objectives:

To familiarize the learners with the implementation of the European Directive (EU 2016/2102), how to prepare an Accessibility statement, the WCAG conformance levels and the methodology for achieving WCAG compliance at different levels.

Outline:

- European Directive (EU 2016/2102);
- Accessibility statement;





- WCAG conformance levels;
- WCAG compliance methodology.

Pre-Class Activities:

Student Learning Resources at Home:

- [European Commission – Web accessibility](#)
- [European Directive on the Accessibility of Websites and Mobile Applications of Public Sector Bodies \(Directive \(EU 2016/2102\)\)](#)
- [Developing an Accessibility Statement](#)
- [WCAG 2.1](#)
- [WCAG 2 Checklist](#)
- [How to Write an Accessibility Statement](#)
- [What Not to Include in Your Web Accessibility Statement.](#)
- [Example of Minimal Accessibility Statement](#)
- [Example of Complete Accessibility Statement](#)
- [Model Accessibility Statement by the European Commission](#)
[Screen Reader Basics: VoiceOver – video](#)

Student Learning Activities at Home:

Students should:

- read the [European Directive on the Accessibility of Websites and Mobile Applications of Public Sector Bodies \(Directive \(EU 2016/2102\)\)](#), specifically Article 1 and find which are the exceptions regarding accessibility compliance.
- get acquainted with accessibility statement by reading the following articles: [Developing an Accessibility Statement](#) and [How to Write an Accessibility Statement](#), and [What Not to Include in Your Web Accessibility Statement](#).
- check the [Model Accessibility Statement by the European Commission](#).
- read thoroughly the [WCAG 2.1](#) requirements and the [WCAG 2 Checklist](#).

After studying the resources mentioned above students should respond to the following questions:

- 1) To whom and what does European Directive on the Accessibility of Websites and Mobile Applications of Public Sector Bodies (Directive (EU 2016/2102)) apply?
- 2) What are the exceptions regarding accessibility compliance according to the European Directive (Directive (EU 2016/2102))?
- 3) What is an accessibility statement and which information should it include?
- 4) What conformance levels does WCAG encompass? List a few requirements for each of the WCAG conformance levels.

In-Class Activities:

0 – 20 minutes: Students work in teams. They are asked to choose a public website and analyse which parts of the website should be compliant with accessibility and which could be an exception according to the European Directive on the Accessibility of Websites and Mobile Applications of Public Sector Bodies (Directive (EU 2016/2102))?





20 – 35 minutes: Students discuss and compare their answers in teams.

35 – 65 minutes: Students use one of the automated tools for accessibility testing and their own manual testing skills to assess if the selected website is compliant with accessibility and to which of the WCAG conformance levels does it comply.

65 – 80 minutes: Students work individually. They are asked to prepare a sample of a public accessibility statement and compare it in teams.

80– 90 minutes: Overview and Summary.

Post-class Activities:

Students take the online test about implementing the European Web Accessibility Directive.

Assessment:

Students take the online test about implementing the European Web Accessibility Directive.

Final test for Digital Accessibility Managers training. In order to successfully pass the training, the student has to pass the online quiz.

Materials / Equipment:

- Laptop.
- PPT slides.

References:

- [Accessibility Statement Generator](#)
- [What are the Levels of WCAG Compliance?](#)





7 Module 6: Evaluation of Digital Accessibility

7.1 Lesson Plan – Checking Digital Accessibility of the Content

LESSON PLAN Ref: Digital Accessibility 4.6.1

COURSE Ref: Digital Accessibility 4

Course: Digital Accessibility Tester

Unit / Module: Evaluation of Digital Accessibility

Lesson Title: Checking Digital Accessibility of the Content

Lesson Duration:

- Pre-class: 3 hours
- In class: 3 hours
- Post-class: 1 hours

Lesson Objectives:

First lesson of the Evaluation module aims to build on the student's experience of browsing the Internet. Objective of this lesson is to acquaint the student with the aspects of digital accessibility that can be observed without any tools or ability to understand website's code.

Pre-class Activities:

Pre-class portion of this lesson consists of 4 distinct sections:

- Alt-text of images
- Alternatives for time based media
- Navigation of the website, including keyboard-only navigation
- Operability of the website in the aspect of customizable user experience

Student Learning Resources at Home:

For student's convenience, 5 obligatory activities in this lesson aim to present them with above mentioned sections in summarized form, that can be expanded at their own pace by visiting the following external materials:

[WCAG Quick Reference](#), sections 1 (without 1.3) and 2 (without 2.5)

[WebAIM article on alternative text](#)

[W3C tutorial on image concepts](#)

[Decision tree for writing and assessment of alt-text](#)

[Accessibility Developer Guide Tutorial on keyboard navigation](#)

Student is also asked to prepare for in-class activities by practicing keyboard-only navigation.

In class Activities:





By default, in class activities in this module **should include discussion on the subject of pre-class activities**. On some occasions, pre-class activities inform the student that they should form an opinion on a pre-selected subject or perform an exercise that will be discussed in class, but all pre-class activities should be touched upon. It is therefore imperative for the trainer to know them and their corresponding materials. This discussion is necessary in order to assess student's state of knowledge before proceeding with the workshop-style exercises, it is also an opportunity for the trainer to correct and help the students.

There are two pre-planned exercises for this lesson.

Exercise 1 aims to teach the student how to write appropriate alt-text for various images. Knowing how to write the alt text for images is an important aspect of recognizing inappropriate alt-text, which is crucial for the accessibility testing of the content. Access to the Moodle platform is required in order to begin this exercise.

Exercise 2 aims to reshape the student's understanding of navigability and expectation they should have while testing the website's accessibility.

Post-class Activities:

There are no post-class non-assessment centred activities planned for this lesson.

Assessment:

Quiz on the platform that serves as a **self-evaluation tool for the students only**. Trainer might check this in order to assess student's problems, but should not include it in any way in the final assessment.

Materials/Equipment (for in class activities):

- Both trainer and students should have an access to the Internet and Moodle platform.
- Projector

References:

- [Article on alternative text](#)
- [Tutorial on image concepts](#)
- [Time-based media alternatives.](#)
- [A decision tree](#)
- [Accessibility Developer Guide Tutorial](#)
- [Considering the User Perspective](#)
- [Best Fonts To Use for Website Accessibility](#)
- [Text alternatives](#)
- [Different types of images](#)
- [Good alt-text](#)





7.2 Lesson Plan – Using Digital Accessibility Testing Tools

LESSON PLAN Ref: Digital Accessibility 4.6.2

COURSE Ref: Digital Accessibility 4

Course: Digital Accessibility Tester

Unit / Module: Evaluation of Digital Accessibility

Lesson Title: Using Digital Accessibility Testing Tools

Lesson Duration:

- Pre-class: 6 hours
- In class: 8 hours
- Post-class: 3 hours

Lesson Objectives:

Second lesson of the Evaluation module aims to introduce usage of tools in the accessibility testing. Objective of this lesson is to acquaint the student with various tools that can extend their testing capabilities into technical field without presenting a requirement of advanced technical knowledge.

Pre-class Activities:

Pre-class portion of this lesson consists of 4 distinct sections:

- Language complexity and methods of language simplification;
- Basics of using the screen reader;
- Basic approach to automated testing and learning how to use automated evaluation tools;
- Learning about contrast and color checkers, and how to expand testing experience by implementing color blindness simulation.

Student Learning Resources at Home:

For student's convenience, 5 obligatory activities in this lesson aim to present them with above mentioned sections in summarized form, that can be expanded at their own pace by visiting the following external materials:

[Hemingway App tutorial and introduction to language simplification](#)

[Readability Formulas tool with the inclusion of explaining the readability scores on various scales and how to interpret them](#)

[NVDA tutorial](#) or [VoiceOver tutorial](#)

Student is also asked to try using the tools before the in class activities in order to familiarize themselves with the tool and form an opinion for in class discussion. It includes exercises and practice on the subject of:

- Using the language simplification tools and readability analyzers and forming opinion on their effects
- Using basic functionality of screen reader of their choice
- Using automated evaluation tools and viewing the websites through their perspective

In class Activities:

By default, in class activities in this module **should include discussion on the subject of pre-class activities**. On some occasions, pre-class activities inform the student that they should form an opinion on a pre-selected subject or perform an





exercise that will be discussed in class, but all pre-class activities should be touched upon. It is therefore imperative for the trainer to know them and their corresponding materials. This discussion is necessary in order to assess student's state of knowledge before proceeding with the workshop-style exercises, it is also an opportunity for the trainer to correct and help the students.

There are four pre-planned exercises for this lesson.

Exercise 1 and 2 revolve around language simplification and its boundaries. In exercise 1, students try to actively simplify short portion of literary text, in exercise 2 - a news story.

The point of these exercises is to distinguish between what kind of text can and should be simplified, and text that can be simplified, but can be controversial in simplified form. For example, literary work as a form of artistic expression might lose its aesthetic or emotional appeal, while simplifying a quote might change its meaning and works against the idea of quotation in general (stating a quote word for word) and can even lead to legal litigation problems.

Exercise 3 serves as a further practice of using a screen reader. To be proficient at using the screen reader, student must practice and introduce more advanced navigation options. This skill is crucial for student's ability to test content and its organization and presentation and therefore it should be thoroughly practiced under trainer's supervision.

Exercise 4 aims to imprint in the student the ability to find, and use various automated evaluation tools and interpret their findings. In pre-class activity, student was introduced to one tool, but it is important that they use more than one tools to compare their findings. Under trainer supervision, students should visit various online tools and find the ones that are good.

Note: many automated evaluation tools are old and outdated or do not provide any substantial feedback. List of online tools maintained by W3C presented in the activity tries to showcase that problem. After this activity student should know how to search for and select the tools on their own.

Post-class Activities:

Post-class activity tries to expand on the student's understanding of observable and unobservable inaccessibility, presenting them with a demo of the same content implemented in the wrong and in the right way.

Assessment:

Quiz on the platform that serves as a **self-evaluation tool for the students only**. Trainer might check this in order to assess student's problems, but should not include it in any way in the final assessment.

Materials/Equipment (for in class activities):

- Both trainer and students should have an access to a computer (1 per person), Internet and Moodle platform.
- Both trainer and students should have screen reader of their choice installed on their computers.
- Projector

References:

- [Hemingway App](#)
- [Readability Analyzer](#)
- [Readability Formulas](#)
- [Non-visual access to technology](#)
- [NVDA tutorial](#)
- [VoiceOver Keyboard Shortcuts on a Mac](#)
- [WAVE Web Accessibility Tool](#)





- [Web Accessibility Checker.](#)
- [WebAIM Contrast Checker Tool](#)
- [Coblis -color blindness simulator](#)
- [Web Accessibility Evaluation Tools List](#)
- [The Before and After Demonstration](#)
- [Page Structure Concepts](#)
- [Colors with Good Contrast](#)
- [Contrast Ratio](#)
- [Colour Contrast Check](#)
- [NVDA website](#)
- [VoiceOver tutorial](#)

7.3 Lesson Plan – Accessibility Conformance Evaluation Process

LESSON PLAN Ref: Digital Accessibility 4.6.3

COURSE Ref: Digital Accessibility 4

Course: Digital Accessibility Tester

Unit / Module: Evaluation of Digital Accessibility

Lesson Title: Accessibility Conformance Evaluation Process

Lesson Duration:

- Pre-class: 2 hours
- In class: 3 hours
- Post-class: 1 hour

Lesson Objectives:

Third lesson of the Evaluation module introduces the student to the concept of presenting their findings to other parties, like an employer, or clients. Objective of this lesson is to acquaint the student with basic understanding of clear accessibility report formats and basic understanding of how accessibility conformance testing rules work and how it can affect their report if they try to omit using various tools.

Pre-class Activities:

Pre-class portion of this lesson consists of 3 distinct sections:

- Accessibility report and its relation to bug report
- Structure of accessibility report
- Accessibility Conformance Testing Rules

Student Learning Resources at Home:





For student's convenience, 3 obligatory activities in this lesson aim to present them with above mentioned sections in summarized form, that can be expanded at their own pace by visiting the following external materials:

[W3C Template for Accessibility Evaluation Reports](#)

[Accessibility Conformance Testing Rules](#)

In class Activities:

By default, in class activities in this module **should include discussion on the subject of pre-class activities**. On some occasions, pre-class activities inform the student that they should form an opinion on a pre-selected subject or perform an exercise that will be discussed in class, but all pre-class activities should be touched upon. It is therefore imperative for the trainer to know them and their corresponding materials. This discussion is necessary in order to assess student's state of knowledge before proceeding with the workshop-style exercises, it is also an opportunity for the trainer to correct and help the students.

This in-class activity is focused on helping the students prepare the structure of the report to the needs of a client or an employer. Main talking points include:

- **How students view the reports as they are now.** How would they approach filing a report? Do they need help in understanding the report or its structure?
- **Discussion on possible improvements**, including applying some edits to the report templates. Student's feedback is crucial, but when applying changes, keep in mind that no content should be removed from the current report template. It can be reshaped, but must be functionally identical.
- **Organizing by WCAG vs organizing detailed findings.** What is the best way to organize observations inside the report? Can the two be combined in a clear way?
- **Thinking about the future.** Can the students envision themselves preparing their own report template from scratch, and modify it to various needs?

As a general rule in accessibility report creation, it is common practice to present only issues that exist - without a need to present the whole spectrum of WCAG rules that are not violated. Report templates provided in the pre-class activity can be therefore viewed as a template from which rows can be substraced, if corresponding guidelines are not violated.

Post-class Activities:

Post class activity for this lesson serves as a preamble to lesson 4. Student is asked to visit a website that they are familiar with and apply their knowledge of testing to that website using a WCAG level A report template. This work is not assessed by the trainer by default, its purpose is to indicate to the student the advancement of their knowledge, or lack thereof. If student finds problem areas, they are asked to review previous lessons, before moving forward.

Assessment:

Quiz on the platform that serves as a **self-evaluation tool for the students only**. Trainer might check this in order to assess student's problems, but should not include it in any way in the final assessment.

Moreover, self-assessment takes form of post-class activity done outside of the platform.

Materials/Equipment (for in class activities):

- Both trainer and students should have an access to the Internet and Moodle platform.
- Projector

References:





- [How to Meet WCAG \(Quick Reference\)](#)
- [Template for Accessibility Evaluation Reports](#)
- [Accessibility Conformance Testing \(ACT\) Rules](#)

7.4 Lesson Plan – Preparing the Digital Accessibility Report

LESSON PLAN Ref: Digital Accessibility 4.6.4

COURSE Ref: Digital Accessibility 4

Course: Digital Accessibility Tester

Unit / Module: Evaluation of Digital Accessibility

Lesson Title: Preparing the Digital Accessibility Report

Lesson Duration:

- Pre-class: 4 hours
- In class: 2 hour
- Post-class: 4 hours

Lesson Objectives:

Fourth lesson of the Evaluation module aims to use student's previously acquired knowledge in an environment simulating conditions expected in accessibility tester profession. Objective of this lesson is to acquaint the student with the basic workflow of accessibility tester and at the end, assess their capability of working in that profession.

Pre-class Activities:

Pre-class portion of this lesson asks the student to prepare 3 accessibility reports (WCAG level A) on 3 various websites that are considered the most commonly visited in their respective fields. This activity expects from the student to apply their previously acquired knowledge to less familiar environment. Student is expected to have their reports prepared for the in-class portion of this lesson.

In class Activities:

By default, in class activities in this module **should include discussion on the subject of pre-class activities**. On some occasions, pre-class activities inform the student that they should form an opinion on a pre-selected subject or perform an exercise that will be discussed in class, but all pre-class activities should be touched upon. It is therefore imperative for the trainer to know them and their corresponding materials. This discussion is necessary in order to assess student's state of knowledge before proceeding with the workshop-style exercises, it is also an opportunity for the trainer to correct and help the students.

In this lesson, talking points revolve around student's pre-class work. This is a good opportunity to review the state of student's knowledge and capability for independent work - both extremely crucial for work of an accessibility tester. Depending on student's performance, trainer should redirect them to previous content or additional materials sections before they proceed forward, when necessary.

Post-class Activities:

There are no post-class non-assessment centered activities planned for this lesson.





Assessment:

Quiz on the platform that serves as a **self-evaluation tool for the students only**. Trainer might check this in order to assess student's problems, but should not include it in any way in the final assessment.

For the purpose of assessment, students make a final test and prepare accessibility reports based on their testing of a website (in english) linked in the assignment page **OR** a website of similar complexity and size (5 to 10 webpages) provided by the trainer (in the native language of the students).

Assessment for this lesson serves the purpose of final exam.

The following criteria for evaluating a digital accessibility report will be used:

- Completeness of the report (correctness of the report structure, presentation of the tester's profile, presentation of the test process, technical specification of the computer used for testing, use of literature) - **max. 10 points**.
- Selection of appropriate testing tools (selection of updated tools, use of at least three tools, the ability to fully use selected tools, recommendation to use tools after improving the website) - **max. 15 points**.
- Correct execution of automatic tests with the use of selected tools (correct analysis of the obtained results, explanation of discrepancies between the results, correct verification of the contrast of website elements, performing the test at least for the AA level) - **max. 50 points**.
- Correctly performed manual tests (presentation of the test execution method, correct test execution, explanation of errors verified by the test, execution of at least 2 manual tests) - **max. 20 points**.
- Correctness of the formulation of conclusions regarding the tests performed (presentation of significant comments on the tested website, justification of the assessment, formulation of a recommendation in accordance with [section 1 of the annex to implementing decision 2018/1523](#) - **max.5 points**.

The maximum number of points that can be obtained is **100 points**. To pass this module, student have to accumulate points total equal to or greater than 51 points.

Reports that will achieve 51 or more points are deemed sufficient and their authors officially pass this module. However, reports may be assessed on the following scale:

51-60 points - sufficient

61-70 points sufficient plus

71-80 points good

81-90 points

> 90 points - very good

If the assessment of their work in other modules allows, they will be eligible to receive certificate of completion of the course.

Materials/Equipment (for in class activities):

- Both trainer and students should have an access to the Internet and Moodle platform.
- Projector

References:

- [How to Meet WCAG \(Quick Reference\)](#)





- [Template for Accessibility Evaluation Reports](#)

