# Strategically Inclusive E-Learning Design: Student Handout

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## Module Instructions

Pages 1-3 are intended for the instructor and provide information and context for the resources, including information to provide to the learners in the learning management system (LMS) or verbally. Pages 4-9 are for the discussion forum/synchronous activity, and page 10 is the accessibility activity for the lesson. Pages 4-10 are created to be distributed to students. Italic text identifies information for the learners.

### Overview

Strategically inclusive e-learning design involves designer recognition of the diversity of needs, experiences, interests, strengths, prior knowledge, skills, and backgrounds that learners bring to a learning experience. This recognition of learner diversity is then used to inform the planning and implementation of the instruction. In this way, the instructional design and teaching aim to support learners individually while also making personalization possible at scale. Attending to learner diversity as an integral part of the design process is about incorporating flexibility and accessibility from the beginning of instructional planning to mitigate potential barriers to learning and elevate all learners' unique contributions. Accessibility is the foundation of inclusive e-learning design, as students will be limited in their ability to engage, persist, and ultimately meet their learning goals if they cannot access the learning materials. Addressing accessibility and development of learner expertise, Universal Design for Learning (UDL) is a curriculum design framework that will be examined to identify ways to plan e-learning that is more inclusive.

### Objectives

By the end of this module, learners will be able to:

1. Discuss how designers can attend to diverse online learner needs.
2. Identify components of the Universal Design for Learning framework.
3. Connect UDL guidelines to web content accessibility considerations.
4. Describe accessible educational material.
5. Describe inclusive e-learning design practices that support learner self-regulation, cognition, and engagement.
6. Identify two reasons why online course designers and teachers should incorporate accessibility practices.
7. Apply techniques for addressing accessibility issues in Microsoft Word/Google Docs.

### Week 1 – Designing for Diverse Online Learners

#### Introductory Video

*View “*[*Designing Strategically for Diverse Learning*](https://hdl.handle.net/10657/13994)*” (21:41; Gronseth, 2022). This presentation features the main components of the UDL framework and explains how UDL can be used to inform strategic instructional design that attends to diverse learner needs.*

Note: To take a closer look at the UDL Guidelines, visit CAST (2018), listed in the references on page 3. This website can be included to support students’ understanding.

#### Reading

*Read “*[*Inclusive Design for Online and Blended Courses: Connecting Web Content Accessibility Guidelines and Universal Design for Learning*](https://journals.calstate.edu/er/article/view/2845/2488)*” (Gronseth, 2018, 9 pgs.).*

*Inclusive design for online and blended courses connects the Web Content Accessibility Guidelines (WCAG) and UDL framework to address learner variability as an intentional part of course design. Inclusive design fosters expanded options in how learners access learning materials, engage in learning experiences, and demonstrate the knowledge and skills they have learned. This paper describes the practical applications of WCAG and UDL for the design and facilitation of inclusive online and blended courses in the post-secondary setting.*

#### “Applying UDL” Discussion

*Participate in the “Applying UDL” discussion via either of the following options:*

* *Option A: Synchronous session*
* *Option B: Asynchronous via Blackboard Discussion Board [update to appropriate LMS]*

##### Option A: Synchronous session

*Come to the synchronous session on [Fill-in scheduled day/time] in Microsoft Teams [update to correct platform]. After a brief welcome, we’ll do a breakout activity. The session will wrap up with time for sharing out of key takeaways from the breakout groups and an opportunity for questions relating to the topics discussed.*

* Welcome (5 min.)
* Explanation of discussion activity (10 min.)
* Breakout groups (30 min.)
  + Scenario discussion (25 min.)
  + Three key takeaways (5 min.)
* Whole group share-out (10 min.)
* Questions and closing remarks (5 min.)

##### Option B: Asynchronous Forum

*In the asynchronous format, your task will be to consider a provided scenario, complete an initial posting to the associated Blackboard Discussion Board forum [update to appropriate LMS], and then complete at least two reply postings to others. First, work through either the sixth-grade math lesson or the industry scenario in the Student Handout. After you review your selected scenario, work through Steps 1 and 2. Summarize your thoughts on these first two steps in about one to two paragraphs. Then, choose and work through two prompts from Steps 3, 4, and 5. Summarize your ideas in relation to these areas in about a paragraph or two. Post your two to four paragraphs as your initial post on the forum. Post two or more reply postings to other learners’ posts. Try to extend, compare, contrast, or offer resources related to their ideas in these reply postings. The discussion will be open for postings through the end of the week.*

### Week 2 – Accessible Educational Materials

#### Introductory Video

*View the workshop on “*[*How to Make Online Teaching Accessible and Inclusive*](https://teachonline.ca/webinar/how-make-online-teaching-accessible-and-inclusive)*” (1:18:09; Gronseth, 2020), which illustrates applications of accessibility practices and UDL. The session describes how to recognize access barriers, offers practical steps for designing accessible online course materials, and recommends ideas for how to enact inclusive strategies. There is a Q&A portion at its conclusion.*

#### Reading

*Read “*[*Accessibility in Online Courses*](http://dx.doi.org/10.1007/s11528-021-00624-6)*” (Baldwin & Ching, 2021, 12 pgs.).*

*This article synthesizes best practices for web content accessibility alongside a discussion of UDL considerations to strategically design online learning experiences that increase learning, engagement, and equity. The article builds upon the foundational reading from last week and highlights practical ways to implement accessibility guidelines into online course design. Be sure to check out the Online Course Accessibility Checklist included in the Appendix of the article.*

#### “Accessibility Checks” Activity

*Download (or make a copy of) the activity handout and complete the three items as described. Recall that this course’s “Activity” component is designed to be exploratory and will be graded mainly on a completion criterion. You should spend about 1-2 hours exploring and reflecting on this activity.*

#### References

Baldwin, S. J., & Ching, Y-H. (2021). Accessibility in online courses: A review of national and statewide evaluation instruments. *TechTrends*, *65*(5), 731-742. <http://dx.doi.org/10.1007/s11528-021-00624-6>

Center for Applied Special Technology (CAST). (2018). *Universal design for learning guidelines version 2.2 [graphic organizer]*. CAST. <https://udlguidelines.cast.org/>

Gronseth, S. (2018). Inclusive design for online and blended courses: Connecting web content accessibility guidelines and universal design for learning. *Educational Renaissance*, *7*, 14-22. <https://journals.calstate.edu/er/article/view/2845/2488>

## “Applying UDL” Discussion: Sixth-grade Math Scenario

### Scenario Details

*This scenario was authored by Michael Molitor, Digital Learning Specialist, Houston, TX, and used with permission under CC BY-SA 4.0*.

At Middle School X, the sixth-grade math department is lesson planning for next week to teach triangles in an online format and wants to improve the lesson created last year by applying Universal Design for Learning (UDL) practices. In the following exercise, your group will find ways to integrate UDL practices to enhance the quality of the lesson.

Here is the lesson the department used last year:

Triangles

**Student Outcome:**

In the following lesson, students will gain knowledge about the isosceles, scalene, and equilateral triangles and distinguish the difference between them. They will measure the sides of the triangles and the angles to determine the degrees of the triangles. Students will have the opportunity to recognize these triangles and draw them.

**Concepts:**

Students will learn about the isosceles, scalene, and equilateral triangles and distinguish their differences.

**Materials:**

Hand out the paper, rulers, protractors, and pencils.

**Objectives:**

1. Students will be able to tell what an isosceles, scalene, and equilateral triangle looks like.
2. Students will be able to measure the sides of a triangle.
3. Students will be able to measure the triangle's angles to determine the degrees of the triangles.

**Procedure:**

1. Ask the students what they know about triangles.
2. Discuss what a triangle is and what it is made up of.
3. We will discuss what an isosceles, scalene, and equilateral triangle is.
4. I will demonstrate to the students how to draw these triangles and measure the degrees of the different angles using the protractor.
5. Now, the students will draw their triangles using their knowledge of our discussion.

**Activity:**

Students draw different types of triangles. A demonstration will be shown of how to draw these triangles, and then the students will have the opportunity to draw the triangles themselves.

**Evaluation:**

Ask the students to correctly identify what an isosceles, scalene, and equilateral triangle looks like. Given a worksheet, students will correctly identify the different types of triangles. Using their protractor, students will be able to measure the degree of angles of the triangles.

**Names:**

### Step-by-Step Discussion

Refer to the UDL Guidelines (CAST, 2018).

*Synchronous Format:* Complete Steps 1 and 2 as a group and then discuss one or more areas within Steps 3, 4, 5 as breakout time allows.

*Asynchronous Format:* Write an individual initial post in which you summarize your thoughts relating to Steps 1 and 2 (1-2 paragraphs) and describe two ideas in relation to any of the areas within Steps 3, 4, and 5 (about a paragraph). Reply to at least two other students, in either scenario forum, as follow-ups in which you extend, compare, contrast, or offer resources that relate to their ideas.

#### Step 1: Discuss the Key Outcomes

1. What are the main goals of this instruction/training?
2. What aspects of these goals are required for all learners?
3. What aspects of these goals can potentially vary in options for practice/demonstration of understanding/skill?

#### Step 2: Consider differing learner needs

1. Describe the target learners for this instruction/training.
2. In what ways might this group of learners differ?
3. Are there any potential barriers that learners in this group may encounter that could inhibit their success in this instruction/training?

#### Step 3: Ensure access/accessibility

Discuss one or more areas, as time allows.

1. Engagement: In what ways can learner choice, autonomy, connection to the target content, and safety be incorporated into the design of the planned instruction/training?
2. Representation: What accessibility considerations should be incorporated into the development of the materials? In what ways could the content be communicated through varied means or enable learners to customize its display?
3. Action & Expression: What aspects of the instruction/training will involve physical action? How can varied methods of response and navigation be supported as part of the design of the instructional activities?

#### Step 4: Build learner expertise

Discuss one or more areas, as time allows.

1. Engagement: In what ways could the instruction/training support the sustaining of student effort and persistence (such as connecting the target content to their interests/goals, providing appropriate challenge/difficulty, social learning, formative feedback, etc.)?
2. Representation: How could language be planned for and supported in the instruction/training (such as specific vocabulary/notations/symbols, English proficiency, varied means of representation, etc.)?
3. Action & Expression: In what ways might assessment (formative, summative) be varied through the use of different media, formats, scaffolding, tools, etc.?

#### Step 5: Optimize internalization

Discuss one or more areas, as time allows.

1. Engagement: In what ways could the instruction/training support learner empowerment, motivation, positive classroom climate, self-assessment/self-reflection, and self-direction?
2. Representation: How could the instruction/training connect target content with learner background knowledge/prior experience? How could information processing be supported in the design (e.g., identifying patterns/relationships, visualization, manipulatives, multi-sensory, training transfer/generalization, etc.)?
3. Action & Expression: In what ways could the instruction/training support learner goal-setting and self-monitoring of their learning?

### Key Takeaway Ideas

Identify three key takeaway ideas from the group’s discussion.

1.

2.

3.

## “Applying UDL” Discussion: Industry Scenario

### Scenario Details

*This scenario was authored by Martha Lopez, Instructional Designer, Houston, TX**, and used with permission under CC BY-SA 4.0*.

"Safety #1" is a multinational company that offers building and grounds maintenance services for US University facilities. After restructuring the human resources department, the new director of professional development (PD) found an alarming and growing number of errors reported during “Hot Work” (which involves any riveting, welding, flame cutting, or other fire or spark-producing operations). The investigation shows that such errors lie in competency gaps in personnel; therefore, the PD director decided to hire your team as learning design consultants to review the current training program, identify improvements, and transform it into an effective tool for competency development.

You are provided with some important details about "Safety #1" employees –

* The company has more than 4000 employees across the country distributed in almost all states. It also has small offices abroad to offer services to US campuses in Puerto Rico, Qatar, Costa Rica, Italy, France, and Japan. As a good practice, they hire local personnel to contribute to the local economy. Approximately 50% of all employees must demonstrate competency in performing hot work.
* Although maintenance jobs are often associated with physical strength, the company has invested in technology that has reduced the "strength" requirement to increase diversity in the workplace. Thus, employment decisions company-wide should be based upon job-related reasons regardless of an applicant's race, color, religion, sex, sexual orientation, gender identity, age, national origin, disability, marital status, genetic information, protected veteran status, or any other protected status.
* Not all “hot work” employees are technology-savvy, and they have to share the computers available for training within their company branch location.

**Overview of the previous hot work training course**

* The course has been offered in a two-part format, with the first part online and the second part face-to-face. The total duration has been 60 hours, distributed across two consecutive workweeks.
* The HR department has selected subject-matter experts from within the organization to act as instructors and offer the training to the different branches’ employees.
* The first part of the course (approximately 44 hours) is theoretical and offered in an online format. This part of the training is organized by chapters; each chapter has a few PowerPoint slides with images and text, videos recorded in 2005, and written assessments to verify the knowledge acquired.
* The second part of the training (about 16 hours) is in a face-to-face, hands-on format. The trainees go to a warehouse location rented for training purposes. They engage in structured practice exercises under the supervision of the instructor. At the end of each practice session, they are assessed for competency. Some branches are having issues finding proper locations for hands-on training, and the PD director would like your team to provide additional ideas on how to conduct this portion of the training in ways that can facilitate learner competency despite physical location constraints.

**Names:**

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#### Step 1: Discuss the Key Outcomes

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1. Engagement: In what ways can learner choice, autonomy, connection to the target content, and safety be incorporated into the design of the planned instruction/training?
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Key Takeaway Ideas

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## “Accessibility Checks” Activity

### About this Activity

****The National Center on Accessible Educational Materials (or “AEM Center”) is the primary resource for expertise on creating and using accessible educational materials and technologies that are supportive of learners with varied disabilities. The AEM Center is also now part of CAST, the organization for the UDL guidelines. In this activity, you will become familiar with the AEM Center, learn about how to check online learning materials for common accessibility considerations, and practice applying some accessibility techniques on a digital document. Turn in this completed activity via the Blackboard submission entry.

### Activity Instructions

1. Visit the [AEM Center website](https://www.cast.org/impact/universal-design-for-learning-udl). Explore the site and then answer the questions below.
   1. *What does it mean for an educational material to be “accessible”?*
   2. *What are two reasons why online course designers and teachers should incorporate accessibility practices into their courses?*
2. Then, visit [Designing for Accessibility with POUR](https://aem.cast.org/create/designing-accessibility-pour) website and explore the materials in this section of the website. Identify three takeaways that you think are important to remember.
3. Now, visit the [Creating Accessible Documents website](https://aem.cast.org/create/creating-accessible-documents) and read through the page, view the [video playlist](https://www.youtube.com/playlist?list=PLgtNP6aow70u-nADphT4_0OEb2E5o_CNI), and/or check out the [document accessibility handout](https://cast1984.sharepoint.com/:b:/s/AEMTeam/EV_YOlebb0tIohscc2FgVwMBisSlimiG79ZfR9ufRBha4Q?e=Z63GEl). Then, apply the techniques to address accessibility issues in either the [Microsoft Word practice document](https://cast1984.sharepoint.com/:w:/s/AEMTeam/EWC6iruxHKNNskuuy5jGXikBkSAU1-7iPXJeQR4J6HLQ1A?e=EQr2pG) or [Google Docs practice document](https://docs.google.com/document/d/14GvFocYHTav3oTXl555YGfC6LPEvnzEmOZR6V17k1eI/edit?usp=sharing). The three fixes you need to complete are:
   1. Improve the heading structure.
   2. Include descriptive hyperlinks that make sense out of context.
   3. Add alternative text to the images.
4. When you finish, you can check your document against the “After” documents with either [Microsoft Word "After" checker](https://cast1984.sharepoint.com/:w:/s/AEMTeam/ERf2Fw6_kbtMqu23o0_9e7sBSX6cfPnf_7GxeYJTjqjmsg?e=HQOBRA) or [Google Docs "After" checker](https://docs.google.com/document/d/1rD4okEUCCo8dsnkyDFrliYRGVAMK5lc0yCZ4Vrew0Nk/edit?usp=sharing). You could also use an accessibility checker, such as the one built-in to Office or the Grackle add-on for Google Suite to see if it how it stands up to their accessibility checks. (Note: You do not need to submit your practice document.)
5. As a final question for this activity, reflect on the AEM Center website exploration and the practice document fixes. What specifically do you commit to doing as a creator of online learning materials now and in the future to ensure that you are proactively supporting accessibility?