Professional Development Institute

Flex Course Syllabus

Embracing Technology to Empower Students with Special Needs (K-12)

PDI Course Number: 140T02

UCSD Course Number: EDUC42374

Course Timeline

Participants have one year to complete the course. Participants must spend a minimum of three weeks in this course.

Course Description

Do you have students with diverse learning needs and disabilities? Are you looking for ways to use technology to empower your special needs students? This online course is designed to help K-12 teachers use technology to meet the diverse learning needs of students with special needs and disabilities. The course begins with a discussion on the critical role technology plays in special education and how teachers must break the cycle of inaccessibility students with special needs face. Differentiated instruction and Universal Design for Learning are explored as teaching strategies for meeting the various needs of students. Teachers will learn about digital accessibility and be provided with many practical strategies for creating accessible learning materials for students. From there, teachers are provided with various technology tools that can be used to support students with challenges in verbal expression, communication, written expression, reading comprehension, math, and executive function. Teachers will also learn how to create a sensory-friendly environment for students with sensory processing disorder as well as learn about strategies and tools for teaching social-emotional learning to students with special needs. Finally, teachers are provided with tips for keeping students safe online and tools for promoting digital citizenship. By the end of the course, teachers will have a deep understanding of how to create accessible classroom content and become more familiar with technology tools to empower students with special needs.

Educational Outcomes

1. Teachers will learn the important role technology plays in special education.
2. Teachers will learn about Open Educational Resources (OER), how OER makes learning more accessible for students, and where to find OER.
3. Teachers will be introduced to the CALM and the PALM initiatives for purchasing and selecting accessible learning materials, as well as how to vet new educational materials for accessibility using the POUR principles.
4. Teachers will learn about the different types of differentiation (content, process, product, and learning environment). Teachers will also be introduced to technology tools that can be used throughout the differentiation process.
5. Teachers will understand the three guiding principles of Universal Design for Learning (UDL) and how to connect technology to UDL.
6. Teachers will understand the importance of fostering an inclusive classroom culture and learn how to use technology tools (Flip, Google Forms, Class Dojo) to support it.
7. Teachers will learn about digital accessibility, the standards for achieving digital accessibility, and how to use the POUR principles for creating and designing accessible learning materials.
8. Teachers will learn practical strategies for creating and evaluating accessible classroom content.
9. Teachers will learn the federal definition of assistive technology, an approach to re-envision the term, as well as a framework for selecting assistive technology to meet students' needs.
10. Teachers will learn several technology tools for improving verbal expression, including tools for improving articulation, expressive language, and dialogue and engaging in conversations.
11. Teachers will learn about augmentative and alternative communication (AAC) as well as the different types of AAC devices and apps. Teachers will also learn how to use an online communication board, create their own communication board, and explore strategies for supporting AAC users.
12. Teachers will learn the different characteristics of students who have difficulty with reading and explore different technology tools that can assist including tools for reducing clutter, enabling reading preferences, optical character recognition (OCR), and engaging emerging and reluctant readers.
13. Teachers will explore several technology tools to support written expression, including digital graphic organizers and dictation tools to support writing, spelling, grammar, and word prediction tools, as well as story tools to assist expression.
14. Teachers will learn about various math tools to support students with math challenges including creating engaging math flashcards with Quizlet, tools to make math digital and accessible, and using Edpuzzle to increase instruction time.
15. Teachers will learn how to use Google Calendar to help students manage time, Google Keep to help students manage tasks, and explore several apps to help students limit distractions and maintain focus.
16. Teachers will learn how to use Wakelet to manage information.
17. Teachers will explore several technology tools to support students in learning new information, including audio-synced notes, Quizlet flashcards, and interactive

whiteboards and screencasting. Teachers will also explore learning games to improve cognitive skills.

18. Teachers will learn about sensory processing disorder (SPD) and the types of sensory processing challenges that affect students. Teachers will also learn many strategies for modifying the classroom to create a sensory-friendly environment and explore many sensory-processing apps.

19. Teachers will learn the definition of social-emotional learning (SEL) and strategies for incorporating SEL with special needs students. Teachers will also explore several technology tools and apps for teaching SEL skills and strategies.

20. Teachers will learn about virtual reality (VR), the three types of VR that exist, and how VR benefits students with special needs. Teachers will also be introduced to several VR apps to use in the classroom.

21. Teachers will learn about the risks of Internet access for students with special needs, learn strategies for keeping students safe online, and explore several resources for promoting digital citizenship and safety.

Instructional Media

- Online Discussions
- Online Engagement
- Online Collaboration
- Instructor Feedback
- Instructor Interaction
- Online Resources and Websites
- Supplemental Instructional Materials
- Printable Classroom Resources

Evaluation

- Test #1 (5% of final grade)
- Test #2 (5% of final grade)
- Test #3 (5% of final grade)
- Test #4 (5% of final grade)
- Test #5 (5% of final grade)
- Autobiography and Goals for the Course (10% of final grade)
- Article/Video Reflection (15% of final grade)
- Course Collaboration/Share Ideas with the Class (10% of final grade)
- Cumulative Assignment/Project: Examine a Lesson Plan for Accessibility (20% of final grade)
- Culminating Practicum (20% of final grade)

Topical Outline

Unit One

- Technology, Open Educational Resources, and Breaking the Cycle of Inaccessibility
- Differentiated Instruction and UDL
- Creating a Culture of Inclusivity with Technology's Help
- **Assignment #1**
  Write an autobiography including information about yourself, your grade level and what you specifically hope to learn about using technology to support students with special needs and disabilities in your classroom. Your autobiography should be a minimum of three paragraphs.
- **Test #1**

Unit Two

- Digital Accessibility
- Making Classroom Content Accessible
- Evaluating Classroom Content for Accessibility
- **Assignment #2**
  As an educator, it is important to be aware of the research, studies, and professional work done in the field. In the course, you will find an article and video that are relevant to the specific course content. Read the article and then write an essay with your thoughts.
- **Test #2**

Unit Three

- What is Assistive Technology?
- Technology to Improve Verbal Expression
- Augmentative and Alternative Communication Apps and Devices
- **Assignment #3**
  Online Discussion Board Participation/Engagement: Please post a tip, strategy, or idea that specifically relates to effectively using technology to support students with special needs and disabilities in your classroom and will make a difference to other teachers in their own classrooms. Your assignment should be a minimum of three paragraphs and detailed enough for another teacher to easily follow. This is a great opportunity to share and collaborate with other teachers at your grade level around the country. Take time to review and respond to other postings that are relevant to your classroom population in order to gain effective ideas to use immediately in your classroom
- **Test #3**

Unit Four

- Technology to Improve Reading Comprehension

- Technology to Support Written Expression
- Technology to Support Students with Math Challenges
- **Test #4**

Unit Five

- Technology to Improve Executive Functioning
- Technology to Support Learning New Information & Practicing Cognitive Skills
- Creating a Sensory Friendly Classroom
- **Test #5**

Unit Six

- Bringing Social Emotional Learning into Your Inclusive Classroom
- How Virtual Reality Supports Students with Special Needs
- Keeping Students Safe Online
- **Assignment #4**
  Take an existing lesson you are planning to use (or have used) in class and examine it through the lens of the POUR principles for accessibility. Is your lesson plan perceivable, operable, understandable, and robust? Are there any accessibility issues? If so, what are they? What can you do to modify the lesson to make it more accessible for students? Next, write a minimum three-paragraph reflection on your modification plan. Each paragraph should be written in no less than five detailed sentences. Provide the title, grade level, and disability/challenges the lesson plan modification is aimed toward. Your reflection must include answers to the following questions. To obtain full credit, be sure to follow all the parameters and answer all questions as set forth in Assignment 4.
- **Assignment #5**
  The culminating practicum is a three-step process. (1) In the first assignment, you were asked what goals you had and what you hoped to learn from the course. Think back to your original goals for this course. Write a minimum two-paragraph reflection specifically describing how what you learned can be used to help you reach those goal(s). (2) Next, write a minimum three-paragraph plan that specifically describes the ways in which you intend to implement a particular strategy you learned in this course into your own teaching situation. (3) Last, write a minimum two-paragraph reflection describing a student you have or have had in the past. Then, discuss how the strategies you learned in this course will specifically benefit that student as you put your plan into action.

Bibliography

Allcoat D., & von Mühlenen A. (2018). Learning in virtual reality: Effects on performance, emotion and engagement. *Research in Learning Technology*, *26*. https://doi.org/10.25304/rlt.v26.2140

Anderson, K. M. (2007). "Tips for teaching: Differentiating instruction to include all students." *Preventing School Failure, 51*(3), pgs. 49-54.

American Printing House. (n.d.). *Large Print Guidelines*. https://www.aph.org/resources/large-print-guidelines/

American Speech-Language-Hearing Association. (n.d.). *Augmentative and Alternative Communication (AAC)*. ASHA. https://www.asha.org/public/speech/disorders/aac/

Arky, B. (2022, April 14). *Sensory Processing Issues Explained*. Child Mind Institute. Retrieved September 15, 2022, from https://childmind.org/article/sensory-processing-issues-explained/

Barker, R. M., Akaba, S., Brady, N. C., & Thiemann-Bourque, K. (2013). Support for AAC Use in Preschool, and Growth in Language Skills, for Young Children with Developmental Disabilities [Abstract]. *Augmentative and Alternative Communication*, *29*(4), 334–346. https://doi.org/10.3109/07434618.2013.848933

Bennett, L. (2019, July 1). *Utah study finds most K-12 websites difficult to use for disabled community*. Deseret News. https://www.deseret.com/2019/3/10/20667944/utah-study-finds-most-k-12-websites-difficult-to-use-for-disabled-community

Boroson, B. L. (2016, June 1). *Autism Spectrum Disorder in the Inclusive Classroom, 2nd Edition: How to Reach & Teach Students with ASD* (2nd Second Edition, None ed.). Teaching Strategies.

Bugaj, C. (2018). *The New Assistive Tech: Make Learning Awesome for All!* International Society for Technology in Education.

Bureau of Internet Accessibility. (2019, May 16). *History of the Web Content Accessibility Guidelines (WCAG)*. https://www.boia.org/blog/history-of-the-web-content-accessibility-guidelines-wcag

Butrymowicz, S., & Mader, J. (2020, March 30). *Low academic expectations and poor support for special education students are 'hurting their future.'* The Hechinger Report. https://hechingerreport.org/low-academic-expectations-poor-support-special-education-students-hurting-future/

CAST (2018). Universal Design for Learning Guidelines version 2.2. Retrieved from https://udlguidelines.cast.org/

CAST. (2022, March 31). *Decision-Making & Accessible Formats*. AEM Center. https://aem.cast.org/acquire/decision-making-accessible-formats

Collaborative for Academic, Social, and Emotional Learning (CASEL). (2021*a*). "What is the CASEL Framework." Retrieved 21 Dec 2021 from https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/

Davis, C. (2020, November 20). *5 Ways EdTech Helps Students With Special Needs in the Classroom*. ViewSonic Library. https://www.viewsonic.com/library/education/5-ways-edtech-helps-students-special-needs/

DeNisco, A. (2015). "Social-emotional learning enhances special ed and beyond." Retrieved 06 April 2021 https://www.districtadministration.com/article/social-emotional-learning-enhances-special-ed-and-beyond

Forward, M. L. (2015, October 29). *U.S. Department of Education Launches Campaign to Encourage Schools to #GoOpen with Educational Resources | The Open Education Consortium*. Open Education Consortium. https://www.oeconsortium.org/2015/10/goopenused/

Gilmour, A. F. (2022, January 25). *Has Inclusion Gone Too Far?* Education Next. https://www.educationnext.org/has-inclusion-gone-too-far-weighing-effects-students-with-disabilities-peers-teachers/

Green, J. L. (2018, May 30). *Assistive Technology in Special Education: Resources to Support Literacy, Communication, and Learning Differences* (3rd ed.). Routledge.

Gresham, F.M. (2018). *Effective Interventions for Social-Emotional Learning.* New York, NY: The Guilford Press.

Hergott, J. (2020). *Effects of Special Education and Feeling of Inclusion*. https://nwcommons.nwciowa.edu/cgi/viewcontent.cgi?article=1206&context=education_masters

Hollingshead, A., Zabala, J., & Carson, J. (2021, April 13). *The SETT Framework and Evaluating Assistive Technology Remotely*. Council for Exceptional Children. https://exceptionalchildren.org/blog/sett-framework-and-evaluating-assistive-technology-remotely#:%7E:text=The%20premise%20of%20the%20SETT,in%20the%20tasks%20in%20the

Individuals with Disabilities Education Act. (2017a, May 3). *Sec. 300.5 Assistive technology device*. Individuals With Disabilities Education Act. https://sites.ed.gov/idea/regs/b/a/300.5

Individuals with Disabilities Education Act. (2017b, May 3). *Sec. 300.6 Assistive technology service*. Individuals With Disabilities Education Act. https://sites.ed.gov/idea/regs/b/a/300.6

Kearns, J., & Kleinert, J. (2019). *How peers can support AAC use by students with significant communication needs (TIPS Series: Tip #1)*. Minneapolis, MN: University of Minnesota, TIES Center. https://publications.ici.umn.edu/ties/communicative-competence-tips/how-peers-can-support-aac-use-by-students-with-significant-communication-needs

Lindsey, L., & Mattson, K. (2021). *Digital Citizenship Framework PK-12 Curricular Guidance*. Edvolve Dig Cit Doctors. https://www.teachdigcit.com/uploads/8/5/7/6/8576959/edvolve.dc.curricularframework.pdf

Longfellow, L. (2019). "Universal Design for Learning (UDL) and Differentiation." Retrieved 01 Dec. 2020 from https://inclusiveeducationplanning.com.au/uncategorized/universal-design-for-learning-udl-and-differentiation/

Lynch, M. (2017, January 20). *Are teachers ready for virtual reality in the classroom?* Retrieved December 07, 2020, from https://www.theedadvocate.org/teachers-ready-virtual-reality-classroom/

Mathewson, T. G. (2020, March 30). *Using virtual reality to help students with disabilities*. The Hechinger Report. Retrieved September 30, 2022, from https://hechingerreport.org/using-virtual-reality-to-help-students-with-disabilities/

Miller, E. (2020). "The 5 Essentials Elements of an Incredibly Effective Social Story." Retrieved 28 Dec 2021 from https://llatherapy.org/the-5-essential-elements-of-an-incredibly-effective-social-story/

Morin, A. (n.d.). *What Is Universal Design for Learning?* Understood. https://www.understood.org/en/articles/universal-design-for-learning-what-it-is-and-how-it-works

National Center for Education Statistics. (2021, May). *COE - Students With Disabilities*. https://nces.ed.gov/programs/coe/indicator/cgg

National Center on Accessible Educational Materials. (2022, January 24). *Operable: Provide options for navigation*. AEM Center. https://aem.cast.org/create/operable

Office of Educational Technology. (2022, January 27). *Open Education*. Office of Educational Technology. https://tech.ed.gov/open/

Papanastasiou, G., Drigas, A., Skianis, C., Lytras, M., & Papanastasiou, E. (2018). Virtual and augmented reality effects on K-12, higher and tertiary education students' twenty-first century skills. *Virtual Reality*, *23*(4), 425–436. https://doi.org/10.1007/s10055-018-0363-2

Pathways.org. (2022, May 26). *Learn Sensory Integration Basics | Sensory Integration Tools*. Retrieved September 13, 2022, from https://pathways.org/topics-of-development/sensory/#:%7E:text=Sensory%20integration%20is%20the%20process,the%20texture%20of%20the%20food

Perkins School for the Blind. (2022, August 3). *VR for VI: How Visually Impaired Students Can Use Virtual Reality*. Retrieved September 30, 2022, from https://www.perkins.org/resource/vr-vi-how-visually-impaired-students-can-use-virtual-reality/

Powell, F., Kerr, E., & Moody, J. (2021, August 17). *14 Ways to Cut Your Textbook Costs*. US News. https://www.usnews.com/education/best-colleges/paying-for-college/slideshows/ways-to-cut-your-textbook-costs

Raising Children Network. (2020). "Social Stories." Retrieved 28 Dec 2021 from https://raisingchildren.net.au/autism/therapies-guide/social-stories

Rava, J., Shattuck, P., Rast, J., & Roux, A. (2016, November 14). The Prevalence and Correlates of Involvement in the Criminal Justice System Among Youth on the Autism Spectrum. *Journal of Autism and Developmental Disorders*, *47*(2), 340–346. https://doi.org/10.1007/s10803-016-2958-3

Rimm-Kaufman, S., & Sandilos, L. (2015, March 9). *Improving students' relationships with teachers*. American Psychological Association. https://www.apa.org/education-career/k12/relationships

SeeWriteHear. (2020, October 15). *What is Accessibility: An Introduction*. https://www.seewritehear.com/learn/what-is-accessibility/

Southgate, E. (2018). *Immersive virtual reality, children and school education: A literature review for teachers*. *DICE Report Series Number 6*. Newcastle: DICE Research. Retrieved from https://ericasouthgateonline.files.wordpress.com/2018/06/southgate_2018_immersive_vr_literature_review_for_teachers.pdf

Web Accessibility Initiative. (2019, January 9). *Designing for Web Accessibility – Tips for Getting Started*. Web Accessibility Initiative (WAI). https://www.w3.org/WAI/tips/designing/

Web Accessibility Initiative. (2022, March 31). *Introduction to Web Accessibility*. Web Accessibility Initiative (WAI). https://www.w3.org/WAI/fundamentals/accessibility-intro/

U.S. Department of Health and Human Services. (2020). What is Mental Health?" Retrieved 13 Jan. 2022 from https://www.mentalhealth.gov/basics/what-is-mental-health

World Health Organization. (2018). "Mental health: strengthening our response." Retrieved 13 Jan. 2022 from https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response

Yale Poorvu Center for Teaching and Learning. (n.d.). *Inclusive Classroom Climate*. https://poorvucenter.yale.edu/ClassClimates

Zook, C. (2017, September 7). *Infographic: Textbook Costs Skyrocket 812% in 35 Years*. Applied-Educational-Systems. https://www.aeseducation.com/blog/infographic-the-skyrocketing-cost-of-textbooks-for-schools-students