LTEC 3100: New Horizons for Learning Technologies in STEM

University of North Texas
Online Course, 3 credits

Course Instructor

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Course Description

We live in a world where technology, and the engineering that makes that technology possible, plays an increasingly integral role in our everyday lives. In LTEC 3000, you learned about the relationship of technology and its STEM enablers: science, technology, engineering, and math. In 3100 we look to the future to explore how new technologies such as the Metaverse, Web3 in which Cryptocurrencies and Blockchain are essential, and 5G and Quantum Computing are or quickly will be changing how we live. The future is about disruption; dramatic changes brought about by digital technologies.

The canonical example of a technology disruption is in the music industry. Twenty years ago, we went to a store, purchased a CD made of polycarbonate plastic coated with a thin layer of aluminum or sometimes gold that reflects the laser that is used to read it, went home and popped the disk into a CD player. Then in 2001, Apple disrupted the CD industry when it released the Internet-based iTunes music library; people downloaded a digital track to their handheld iPod. The ease-of-use and convenience of obtaining music virtually instantly made CDs obsolete! But, Spotify – which started in 2006 – disrupted the music download industry when it made it even easier to listen to music by streaming it over the Internet, to the smartphone that you already owned. No download needed!

Virtually every industry and every organization in that industry is undergoing a disruptive, "digital transformation." In 3100, then, we will put these disruptive, digital transformations under a "microscope" in order to better understand the role that STEM is playing and better understand the impact they are having and will continue to have on our lives.

Course Platform

This course takes place 100% online using Canvas (https://unt.instructure.com) as its main platform, although other media and tools may be incorporated based on class needs.

Course Objectives

Upon successful completion of this course, learners will be able to *(numbered in order of presentation)*:

1. Define and give examples of disruptive and digital transformations that are impacting our lives.
2. Identify the role that economics plays in your examples of disruptive and digital transformations.
3. Identify the role that STEM is playing in your examples of disruptive and digital transformations.
4. Explain the role that the advancement of the computing power plays in enabling new horizons in LT and STEM.
5. Identify some of the impacts that Machine Learning may have on cradle to grave education.
6. Identify some new opportunities enabled by the emerging technologies explored in this course that are on the horizon in STEM.
7. Describe career options in Science, Technology, Engineering, and Mathematics, or in the economic areas that directly affect STEM opportunities.

Prerequisites

There are no required prerequisites for this course.

Required Texts

There are no required textbooks for this class. Because of the nature of the course, current literature will be used and is embedded in every module.

Assignments

Changes in the assignment requirements or due dates may be announced at later dates in Canvas (Announcements). Therefore, reading the course announcements is required. It is the student's responsibility to keep up with these updates and to have all assignments ready on time.

Module	Assignments	Due Date
1	- Introduction (10 points) - Discussion (10 points) - Quiz (10 points)	January 22, 2024

2	• Infographic (30 points) • Quiz (10 points)	January 29, 2024
3	• Discussion (10 points) • Quiz (10 points)	February 5, 2024
4	• Discussion (10 points) • Quiz (10 points)	February 12, 2024
5	• Presentation (40 points) • Quiz (10 points)	February 19, 2024
6	• Discussion (10 points) • Quiz (10 points)	February 26, 2024
7	• Video (40 points) • Quiz (10 points)	March 7, 2024
8	• Letter to Loved One (30 points) • Quiz (10 points)	March 25, 2024
9	• Discussion (10 points) • Quiz (10 points)	April 1, 2024
10	• Discussion (10 points)	April 8, 2024
11	• Infographic (40 points)	April 15, 2024
12	• Discussion (10 points) • Quiz (10 points)	April 22, 2024
13	• Discussion (10 points) • Quiz (10 points)	April 29, 2024
14	• Discussion (10 points) • Reflection (10 points)	May 6, 2024

Grading Scale

- A = 90 - 100% (360 – 400 points)
- B = 80 - 89% (320– 359 points)
- C = 70 - 79% (280– 319 points)
- D = 60 – 69% (240 – 279 points)
- F = Below 60% (below 239 points)

Late Assignment Policy

All course-related assignments are expected to be submitted on time. **Ten percent (10 %)** of the grade will be deducted for each day the assignment is late, unless the student has made prior arrangements with the instructor. Assignments received more than three days after the due date will not be accepted. **If you have a valid reason for missing assignment deadlines, please contact the instructor in advance.**

- 1 day late: 10% deduction
- 2 days late: 20% deduction
- 3 days late: 30% deduction
- More than 3 days late**:** No work will be accepted and a grade of zero will be given.

Medical Emergencies

If you have a medical emergency that will prevent you from completing the course as scheduled, you MUST notify your instructor at the time of your medical problem. Requests for a grade of incomplete or to drop the course should come at the time of the medical emergency and must be supported by a letter from your physician indicating that your medical situation will NOT permit you to work at your computer in order to submit your assignments as scheduled.

Requests based on a medical emergency cannot be granted after the medical emergency except in the rarest cases when prior communication was not possible. All requests for a grade of incomplete must be initiated by the student and meet standard university policy as outlined in the Incomplete Grade Information section below.

Incomplete Grade Information

The department complies with university policy regarding the assignment of an Incomplete Grade in any course. Please see http://registrar.unt.edu/grades/incompletes for information.

Plagiarism

Under all circumstances, you are bound by the UNT policies on academic dishonesty and cheating. Any materials you have used or adapted must be fully credited and the original author and location fully cited. Any verified act of plagiarism, no matter how seemingly-small or inconsequential, will result in an F in the course (subject to appeal based on a finding of plagiarism) and possible additional sanctions by the University. The UNT Dean of Students requires official reporting of all instances of plagiarism.

All works submitted for credit must be original works created by the student uniquely for the class. Any exceptions to this (e.g., collaborative work or a variation of something submitted to another course) must be documented and approved by the instructor in advance. It is considered inappropriate and unethical, particularly at the graduate level, to make duplicate submissions of a single work for credit in multiple classes, unless specifically requested by the instructor. Work submitted at the graduate level is expected to demonstrate higher-order thinking skills and be of significantly higher quality than work produced at the undergraduate level. You are encouraged to become familiar with the university's Student Standards of Academic Integrity policy: https://policy.unt.edu/policy/06-003

Of particular interest are the following terms:

Cheating – intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise. The term academic exercise includes all forms of work submitted for credit or hours.

Plagiarism – the deliberate adoption or reproduction of ideas, words, or statements of another person or of oneself in a prior work as one's own current work without acknowledgement.

Fabrication – intentional and unauthorized falsification or invention of any information or citation in an academic exercise.

Facilitating academic dishonesty – intentionally or knowingly helping or attempting to help another to violate a provision of the institutional code of academic integrity.

Copyright Notice:
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Course Participation

Students are expected to participate in all class activities and to submit assignments on time. If students have any problems with Canvas, they are to contact Student Helpdesk for assistance and the instructor immediately. Students are expected to conduct themselves professionally. Professionalism includes, but is not limited to, the following:
- Participating in class activities in a positive manner
- Turning in assignments on time
- Completing assignments without spelling and grammatical errors
- Treating class members and colleagues with respect

Network Etiquette

- Don't use all caps. It is the equivalent of screaming.
- Use clear subject lines.
- Don't use abbreviations or acronyms unless the entire class knows them.
- Be sensitive and reflective to what others are saying.
- Think before you hit the post (enter/reply) button.
- Don't flame - These are outbursts of extreme emotion or opinion.
- Don't use offensive language.
- Be forgiving. Anyone can make a mistake.
- Keep the dialog collegial and professional.

Electronic mail

A university-assigned student email account is the official means of communication with all students. Students are responsible for all information sent to them via this university-assigned email account. If a student chooses to forward their University email account or to use some other email account, he or she is still responsible for all information sent to the official UNT email account.

Students with Disabilities

University of North Texas recognizes its responsibility for creating an institutional climate in which students with disabilities can thrive. In accordance with university policy, if you have a documented disability and require accommodations to obtain equal access in this course, please contact the instructor at the beginning of the semester or when given an assignment for which an accommodation is required. Students with disabilities must verify their eligibility through the Office of Student Disability Services.