Foundations of Learning Technologies in STEM
LTEC 3000.020/.026
Course Syllabus - Spring 2020
Jan. 13th – May 10th

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Office Hours: By appointment only. Please send me email through Canvas to set up either an electronic or face-to-face appointment.

Objectives:
Foundations of Learning Technologies in STEM was designed to help you view technology as an adaptive system which is made of tools, processes, and applied knowledge that is responsive to human needs and desires. Technology is a reaction to the opportunities and challenges people face; it is used for problem solving and extending human capabilities. The text will help you learn about problem solving and the engineering design process. Additionally, you will learn about the connections between technology and engineering and learn about managing, organizing, and assessing the impact of technology. You will also learn about testing, communicating, and evaluating solutions that are designed to solve human problems. After reading the text and completing the activities, you will become familiar with a variety of technological tools, systems, and processes and the ways these are applied across STEM Disciplines. By studying the course material, you will learn about the connections between Science, Technology, Engineering, and Mathematics, discover a variety of careers in STEM, learn about research, and apply technology tools. After completing this course, you should be able to successfully complete the following tasks:

1.) Define technology and its uses in STEM,
2.) Apply the steps in the engineering design process,
3.) Describe career options in Science, Technology, Engineering, and Mathematics,
4.) Explain the impact of technology on society,
5.) Analyze problems and design a technology-based solution,
6.) Explain the advantages and disadvantages of technology and engineering from a personal perspective: lifestyle, employment, and individual control,
7.) Explain technological systems and processes,
8.) Describe the interrelationship between Science, Technology, Engineering, and Mathematics in STEM,
9.) Describe the difference between basic and applied research, and
10.) Conduct a qualitative interview (qualitative – applied research) and present the findings with narrative and visuals.

Required Materials:

Foundations of Engineering & Technology, 7th Edition

By: Dr. R. Thomas Wright, Dr. Greg J. Strimel, and Dr. Michael E. Grubbs
ISBN: 978-1-63126-886-1
Copyright: 2019

You can purchase the textbook from the UNT Bookstore. In addition, you will need access to Canvas, UNT's Learning Management System. Please see the following urls for additional information: https://it.unt.edu/techtour4 for information on Canvas, and http://it.unt.edu/help-desk-information for browser requirements, plug-ins, and Internet Access.

Course Format:

This course is completely online (100% online). The content will be delivered through Canvas. You will be required to purchase a book, read it, and complete hands-on activities, article summaries, assignments, and discussions that cover the course content. These mandatory activities will help you understand the use of information technology across STEM fields, evaluate the design of technological systems, learn problem-solving strategies, think critically about issues, and enhance your knowledge of the engineering design process. You will learn to use the tools and techniques of professionals in Learning Technologies, and you should plan to actively engage in the course by posting meaningful opinions and completing all assignments. Your posts should cover processes, tools, and procedures that address the use of information technology in professional settings.

Netiquette:

This course is taught exclusively online; it covers technology and its use across STEM fields, so you will be required to demonstrate technology using behaviors that support appropriate professional and personal productivity. Please review and follow the guidance in the resources below for appropriate etiquette on the Internet or netiquette:

- https://www.youtube.com/watch?v=6dRoclqDJh0
- http://www.ic.sunysb.edu/Class/che326ff/discussion_board/etiquette.pdf
- https://online.uwc.edu/academics/how-online-education-works
- http://blogs.onlineeducation.touro.edu/15-rules-netiquette-online-discussion-boards/

Course Grading:

There is no make-up work. All content is delivered online, and all course assignments must be submitted by the due date. ***No grades will be dropped*** in this course. Your grades will be weighted as follows:

Activity	Percentage of the Grade
(2) Article Summaries (200 points)	19.6%
(6) Discussion Posts and Responses to two Classmates for each post (150 points)	14.7%
(5) Assignments: Career Options in STEM (100 points) Design Solution Challenge (100 points) Problem-Solving Strategies (100 points) Equipment Experiments (100 points) Term Project Research/Qualitative Interview (200 points)	58.8%
(14) End of Chapter Posttest: For chapters 1,2,4,5,6,7,8,9,10,13,21,25,29,30 (70 points)	6.9%
Total Points: **1020**	**100%**
(3) Class Chats in Canvas	(Extra Credit 2 pts. each for a total of 6 points)

Course Grading Scale:

The grading scale is as follows:

A - 90% and above

B - 80-89%

C - 70-79%

D - 60-69%

F - 0-59%

Course Information LTEC 3000.020/.026:

It is to your advantage to read the assigned material and complete the required activities each week. This will help you better learn the material and keep you from falling behind. You should plan to spend 1-2 hours each day on this class. Please plan your schedule accordingly. All activities are due on the dates specified, unless there is an email message or announcement from me altering the dates. You should check your email and announcements daily, and reply in Canvas promptly.

If you are unfamiliar with Canvas, please review the student guide on your home page. To get additional assistance, contact the UNT Helpdesk by email (helpdesk@unt.edu) or phone (940-565-2324) for answers to your questions.

A course schedule is available for you. Click schedule on the home page to see a course schedule of readings and due dates. Feel free to print the schedule to get a listing of this semester's readings and course activities. You may also view the author's PowerPoint Presentations for the chapters. These notes are a good preview, summary, or companion guide with your readings. They are found in each learning module.

Class Assignments and Activities:

Six discussion posts, two article summaries, and five assignments are required. Each assignment is worth a total of 100 points, with the research/qualitative interview assignment accounting for 200 points. The specifications and due dates for each assignment can be found inside the learning modules. I expect you to complete the assignments yourself and submit them on or before the posted due date. I must have ***your completed work by 11:00pm on the due date specified. You will lose 20 points per day for each day your work is late. This can be a significant reduction, so plan to get your work in on time.***

Three Class Chat dates have been scheduled. These sessions will permit you to ask questions and synchronously participate in discussions with your classmates. The sessions are not mandatory, but they will provide you with the opportunity to ask questions and share information you have learned. Please attend the chats in Canvas to ask questions and respond to questions. We have some interesting readings, so the chats should be informative and interesting, and you'll have the opportunity to add your insight.

The content of each chat will be available in Canvas. The dates for the chats are **Jan.15th, Feb. 19th, and April 15th from 8:00pm - 9:00pm**. The chats should be informative and enjoyable because of the content. Attending and adding meaningful content to the discussion will be worth 2 points of extra credit for each chat session.

Discussion Postings:

For every discussion you post, you will need to answer the question(s) presented and respond to at least two of your classmates. Posting and responding to two of your classmates is a required part of the course. These communication activities are listed under the discussions tool, and they should be completed **during the week we read the chapter associated with the question**. Postings made at any other time, including the end of the semester will not be graded. Your posts should be meaningful. This means it should contribute to the course discussion. Simple phrases are not encouraged: "Great post!" and "Good work!" are not considered meaningful discussion posts. While a long essay is not the goal, a meaningful post of 50-75 words has these characteristics:

1. Disagrees respectfully with an alternative perspective,
2. Makes a comment that synthesizes comments by others,

3. Explains an alternative point-of-view,
4. Summarizes an observation that takes into account several different perspectives as they relate to a common theme, or
5. Encourages another person to elaborate or further explain a statement that has been made.

Class Supplies:

You must access Canvas regularly with your EUID and password to complete course material. You should use https://unt.instructure.com to login to the course. Click on your course number (LTEC 3000.020/.026 – Spring 2020). Please make sure you backup your assignments, so you have copies of everything you send me. After submitting your work, check your email or your grades in Canvas for feedback. Feel free to contact me via e-mail through Canvas to ask questions, and please give me 48 hours to respond. I will make every effort to respond to your questions as quickly as I can.

Cheating:

Cheating and plagiarism are forms of academic dishonesty. The definitions and disciplinary actions for these offenses are defined in the *UNT Policy Manual 06.003 please see (https://policy.unt.edu/policy/06-003).*

"Plagiarism and cheating refer to the use of unauthorized books, notes, or otherwise securing help in a test; copying tests, assignments, reports, or term papers; representing the work of another as one's own; collaborating, without authority, with another student during an examination or in preparing academic work; or otherwise practice scholastic dishonesty."

"Academic dishonesty matters may first be considered by the faculty member who may assign penalties such as failing, reduction or changing of a grade in a test, course, assignment, or other academic work, denial of a degree and/or performing additional academic work not required of other students in the course. If the student does not accept the decision of the faculty member, he/she may have his/her case heard by the academic department chairperson or head for review of his/her case. If the student does not accept the decision of the academic department chairperson, he/she may then follow the normal appeal procedures listed in Disciplinary Procedures." See https://deanofstudents.unt.edu/conduct.

EEO/ADA Statement:

The University of North Texas does not discriminate on the basis of race, color, religion, sex, age, national origin, gender, or veteran status in its educational programs, activities, admissions, or employment policies. Questions or complaints should be directed to the Equal Opportunity Office (940) 565-2456. TDD access is available through Relay Texas 1-800-735-2989 (TDD Callers).

The University of North Texas does not discriminate on the basis of an individual's disability, and it complies with Section 504 and Public Law 101-336 (Americans with Disabilities Act) in its admissions, accessibility, treatment, and employment practices. ADA Policy

The University of North Texas is on record as being committed to both the spirit and letter of federal equal opportunity legislation. Reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. Federal legislation (The Americans with Disabilities Act (ADA)) pursuant to section 504 of the Rehabilitation Act renews UNT's commitment to providing disabled Americans with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. **Students are responsible for** informing faculty members of their need for an accommodation by providing authorized documentation through designated administrative channels – specifically the UNT Office of Disability Accommodation. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found here: http://disability.unt.edu. You may visit the Office of Disability Accommodation in Sage Hall (Suite 167) by appointment on M-F from 8:00am - 5:00pm M-F, or call the office at (940) 565-4323.

By law, UNT provides academic adjustments and auxiliary aids to individuals with disabilities who are otherwise qualified to meet the institution's academic and employment requirements. Please see your instructor outside of class and make arrangements with the ADA Office for situations requiring special accommodations.

Expectations of Students:

1. **Class Preparation and Participation.** You should read the chapters and work on activities each week. See the electronic course calendar to see required weekly readings and activities.

2. **Appropriate Materials.** You should back-up your work, and adhere to deadlines listed in the electronic course calendar.

3. **Class Attention.** You should check the course your daily to keep abreast of any changes, special announcements, and course-related information.

4. **Assignments and Discussion Postings.** You should complete all assignments, blog entries, and discussion posts and submit them for grading on their due dates. For your convenience, all course requirements have been entered and you may work ahead of the schedule.

NOTE ABOUT MEDICAL EMERGENCIES: If you have a medical emergency that will prevent you from completing the course as scheduled, you MUST notify me. "An Incomplete Grade ("I") is a non-punitive grade given only during the last one-fourth of a term/semester and only if a student (1) is passing the course and (2) has a justifiable and documented reason, beyond the control of the student (such as serious illness or military service), for not completing the work on schedule. The student must arrange with the instructor to finish the course at a later

date by completing specific requirements. These requirements must be listed on a Request for Grade of Incomplete form signed by the instructor, student, and department chair; and also entered on the grade roster by the instructor. Grades of "I" assigned to an undergraduate course at the end of the Fall 2007 semester and later, will default to "F" unless the instructor has designated a different automatic grade." Source: https://registrar.unt.edu/grades/incompletes

***Add/Drop Policy*:** The department adheres to the add/drop schedule established and published by the UNT Office of the Registrar. See the Student Financial Services Website for information on refunds and deadlines: https://sfs.unt.edu/class-drop-and-withdrawal-refunds.

Spring 2020 Regular Session (REG)

Last day to withdraw for 100% refund	Jan. 12th
First Class Day	Jan. 13th
Last day to withdraw for 80% refund	Jan. 17th
Last day to withdraw for 70% refund, Census Date, Last day to Drop for full refund	Jan. 27th
Last day to withdraw for 50% refund	Feb. 3rd
Last day to withdraw for 25% refund	Feb. 10th
No refunds for a withdrawal	Feb. 11th

Important Notice for F-1 Students taking Distance Education Courses - Federal Regulation

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the Electronic Code of Federal Regulations website at

http://www.ecfr.gov/. The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An on-line or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no on-line or distance education classes may be considered to count toward a student's full course of study requirement.

University of North Texas Compliance

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must

be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course.

If such an on-campus activity is required, it is the student's responsibility to do the following:

(1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.

(2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (https://international.unt.edu/content/international-student-scholar-services, telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.

Proposed Course Schedule

Week(s)	Chapters You Should Read	Focal Points and Activities (Asg. = Assignment)	Points
#1 Jan. 13 – 17	FET= Foundations of Engineering & Technology Chapters **1** & **2** (pp. 4 – 31)	Introduction – Tell us about yourself in Discussion Posting #1 Due 1/16/2020 Technology and Engineering Connected by Math and Science Chat #1 Due 1/15/2020 -- 8:00pm – 9:00pm CT Look for Chat information posted in the course Posttest Activity #1 Due on 1/17/2020	25 points 2 points extra credit **10 points chapter posttest activity**
#2 Jan. 21 – 24 (Jan 20th MLK Holiday)	FET= Chapters 3, **4**, & **5** (pp. 32-93)	Technology, Problem-Solving and Engineering Design Asg. #1 Due 1/23/2020 (Career Options in STEM) Posttest Activity #2 Due on 1/24/2020	Asg. #1 100 points **10 points chapter posttest activity**
#3 Jan. 27 – 31	FET= Chapters **6**, **7**, & **8** (pp. 94-151)	Creating, Evaluating, and Communicating Design Solutions Discussion Posting #2 Due 1/30/2020 Asg. #2 Due 1/30/2020 (Design Challenge) Posttest Activity #3 Due on 1/31/2020	25 points 100 points **15 points chapter posttest activity**
#4 Feb. 3 – Feb. 7	FET= Chapters **9** &**10** (pp. 152-191)	Technology as a System that includes IPO (Input, Processing & Output) Asg. #3 Due 2/06/2020 (Problem-Solving Strategies) Posttest Activity #4 Due on 2/07/2020	100 points **10 points chapter posttest activity**
#5 & #6 Feb. 10 – Feb. 21	FET= Chapters 11,12, **13** & 14 (pp. 192-277)	Technological Processes, Feedback, and Ways to Process Resources Discussion Posting #3 Due 2/13/2020 Posttest Activity #5 Due on 2/21/2020 Chat #2 Due 2/19/2020 8:00 -9:00pm CT	25 points **5 points chapter posttest activity** 2 points extra credit
#7 & #8 Feb. 24 – Mar. 6	FET= Chapters 18, **21**, **25** & **29** (pp. 342-367, 420-449, 530-551 & 636-651)	Architecture and Civil Engineering to Meet the Needs of People, Spotlight on Medical Technologies, Communicating Information and Ideas Appropriately, and A Societal View of Technology and Engineering Discussion Posting #4 Due 2/27/2020 Asg. #4 Due 3/5/2020 (Equipment Experiments) Posttest Activity #6 Due on 3/6/2020	25 points 100 points **15 points chapter posttest activity**

#9 Mar. 9 - 13 (Spring Break)	Review prior readings and course work	Technology as a Human Endeavor for Productivity, Accuracy, Entertainment/Leisure, Education, and Opportunity	
#10 & #11 Mar. 16 – 27	FET= Chapters **30** (pp. 652-667) & 32 (pp. 684-703)	Technology and Engineering from a Personal Lens & Organizing and Managing Technological Enterprises Discussion Posting #5 3/19/2020 Posttest Activity #7 Due on 3/20/2020	25 points **5 points chapter posttest activity**
#12 & #13 Mar. 30 – April 10	FET= Chapters 31 (pp. 670-681) & 33 (pp. 706-715)	Assessing the Impact of Technology Article Summary #1 Due 4/03/2020 Discussion Posting #6 4/09/2020	100 points 25 points
#14 #15 & #16 Apr. 13 - May 1	Review prior readings and coursework Wrap Up	Chat #3 4/15/2020 8:00pm – 9:00pm CT Assignment #5 Due on 4/16/2020 (Term Project Research/Qualitative Interview) Article Summary #2 Due 4/17/2020	2 points extra credit 200 points 100 points extra credit
May 2 – 8 Final Exams			**1020 points + 6 Extra Credit**