

EDT 5319: Innovative Digital Design Technologies

Spring 2014 Syllabus

Course Information

Class meeting time: Thursdays, 5:30 - 8:20 p.m.
Classroom: Education Building, Room 201
Section: 001 / CRN: 27098

Course Instructor

Daniel Tillman, Ph.D., Assistant Professor of Educational Technology
Office: Education Building, Room 201
Email: datillman@utep.edu
Office hours: Thursdays, 2:30 – 4:30 PM, and by appointment

Email is the best way to contact me. Please send all your queries regarding the course to my UTEP Email (datillman@utep.edu). Use of the Blackboard mailing system to reach me is not recommended. I answer emails within 24 hours. Please include “EDT 5319” in your subject line.

Course Definition

EDT 5319 Innovative Digital Design Technologies (2-1). How to identify and incorporate new and emerging technologies into formal and informal education; using innovative computer-based design and simulation applications to produce virtual and physical multimedia; software, design tools, and measuring devices for advanced assessment.

Course Description

This course will introduce students to innovative digital design technologies that have implications for education and educational research. The three primary themes of the class are: (1) How to identify and incorporate new and emerging technologies into formal and informal education. (2) Employing innovative computer-based design and simulation applications to produce virtual and physical multimedia. (3) Software, design tools, and measuring devices for advanced assessment. All three themes will be examined from both a development (i.e., production and distribution) perspective as well as a research (i.e., mixed-methods assessment and evaluation) perspective. Each student in this course will create an original project connecting educational theory with an R&D initiative employing innovative digital design technologies.

Course Objectives

By the end of the class, students should be able to:

- 1) Understand how to design technology-rich lessons (NSTE-T 2a, 2b, MTTS 2)

- 2) Develop skills in using word processing, spreadsheet, presentation and publishing tools to improve productivity and instruction (NSTE-T¹ 3a, 3c, MTTS² 1, 4)
- 3) Develop knowledge and skills in using Web 2.0 tools for instruction (NSTE-T 1d, 3a, 3d, MTTS 3)
- 4) Understand how to use technology tools for continuing professional development. (NSTE-T 5a, 5c, MTTS 2)

¹ National Educational Technology Standards for Teachers, Second Edition, 2008 ISTE (International society for Technology in Education), www.iste.org.

² The Texas State Board of Educator Certification standards for a “Master Technology Teacher.” <http://www.sbec.state.tx.us/sbeconline/mtp/mtt/standards.pdf>

Late Assignments

Late assignments are accepted, but 10% will be deducted for each week.

Bonus points

Sometimes volunteers will be given the option to help fellow students who are having difficulty with classwork. When this occurs, the volunteers will receive bonus points at the discretion of the instructor.

Class Attendance

Attendance and participation in class sessions are required. If a student has to miss a class due to an emergency, a notice to the instructor is required as soon as possible. The instructor may request proper documentation, such as doctor’s notes, as justification. If you are absent from class three or more times, you may be dropped from the course (see UTEP student handbook for details).

Time Commitment

The standard workload for a university course requires a minimum of two hours of study time for every class hour. All course work, both in and outside class, should be of high quality and reflect your development as an aspiring education professional.

Course Requirements

Students are expected to adhere to a social contract of common decency. Academic cheating will not be tolerated.

Course Schedule Changes

The course instructor reserves the right to adjust the course syllabus or modify assignments as needed, and will give you ample notice prior to any changes.

Technical Assistance

If you have technical problems, please contact the UTEP Helpdesk: M-F: 7AM-8PM, Sat: 9AM-1PM, Sun: 12-4PM. On-campus phones: 915-747-5257 Off-campus phones: 915-747-4357. If you are on-campus, you may also visit the ATLAS lab located within the Undergraduate Learning Center or the Technology Support Center in Room 300, Library.

Disabled Student Statement

Section 504 of the Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, states that if a student needs an accommodation then the Center for Accommodations and Support Services (CASS) located at UTEP needs to be contacted. If you have a condition, which may affect your ability to perform successfully in this course, you are encouraged to discuss this in confidence with the instructor and/or the director of the Center for Accommodations and Support Services (CASS). You may call 915-747-5148 for general information about the American with Disabilities Act (ADA) and the rights that you have as a UTEP student with a disability. Individuals with disabilities have the right to equal access and opportunity. It is the student's responsibility to contact the instructor and the Center for Accommodations and Support Services (CASS) at The University of Texas at El Paso.

Academic dishonesty statement

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying data on lab reports.

Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another person's as ones' own. And, collusion involves collaborating with another person to commit any academically dishonest act. More information about scholastic dishonesty can be found on this site.

<http://admin.utep.edu/Default.aspx?PageContentID=2084&tabid=30292>

Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. Violations will be taken seriously and will be referred to the Dean of Students Office for possible disciplinary action.

Course Readings

There are no required textbooks for this course. Course materials will be posted on Dropbox for you to download. Read required readings and prepare for discussion in class.

Assignments

Daily hand-in (15 points)

Each class session begins with turning in your daily hand-in. The daily hand-in is collected at the beginning of class; a daily hand-in received after the beginning of class will receive half credit. Daily hand-ins will not be accepted via email or after the end of the class period unless approval has been obtained from the instructor. The daily hand-in should include your name and the date, and then a single sentence or a single question related to the topic of educational technology.

Weekly assignments (35 points)

Each week, students will be given an assignment to practice the skills or reflect on the ideas taught in class. Instructions on weekly assignments will be provided in class and posted online afterwards. It is important that students complete weekly assignments in a timely manner. Missing one or two weekly assignments will drastically decrease your chance to get a desirable grade in this class.

Unless instructed otherwise, weekly assignments are due prior to the beginning of Tuesday's class. Weekly assignments should use the following naming format: *YourLastName_YourFirstName.filetype* (Example: *Tillman_Daniel.jpg*)

Midterm exam (15 points)

A midterm exam will test students on the content that was taught in the first half of the semester. The midterm will be primarily open-ended short essay questions.

Final project (20 points)

The final project will be a culmination of the work you did in the weekly assignments. So long as you complete all of the weekly assignments then you should not have any difficulties with the final project. The final project will include: (1) a digital component (i.e., an original digital multimedia production), (2) a live component (i.e., a presentation on project impacts), and (3) a reflective component (a written document articulating and illustrating results). You will present the live component in class, and submit the digital component as well as the reflective component via your Dropbox account.

Final exam (15 points)

In the last week, a final exam will test students on content taught in the first and second half of the semester. The final exam will be primarily open-ended short essay questions.

Grading

A: 90-100 points / B: 80-89 points / C: 70-79 points / D: 60-69 points / F: 0-59 points

Course Schedule

Week	Class	Assignment Due	Discussion Topic
1	1/22/2013	In-class assignment due.	Overview of syllabus, defining design technologies.
2	1/29/2014	Assignment 1 due.	Design technologies in schools.
3	2/5/2014	Assignment 2 due.	Design technologies in the classroom.
4	2/12/2014	Assignment 3 due.	Design technologies and teachers.
5	2/19/2014	Assignment 4 due.	Design technologies and students
6	2/26/2014	Assignment 5 due.	Design technologies historically.
7	3/5/2014	Assignment 6 due. Midterm exam due.	Contemporary design technologies.
8	3/12/2014	<i>Spring Break.</i>	
9	3/19/2014	Assignment 7 due.	Design technologies theories.
10	3/26/2014	Assignment 8 due.	Design technologies in informal settings.
11	4/2/2014	Assignment 9 due.	Innovative design technologies.
12	4/9/2014	Assignment 10 due.	Resistance to design technologies.
13	4/16/2014	Assignment 11 due.	Design technologies action research.
14	4/23/2014	Assignment 12 due.	Design technologies in teacher education.
15	4/30/2014	Final Project due.	Design technologies in higher education.
16	5/7/2014	Final exam due.	Design technologies topics synthesis.

Rubric for Assignments

Level	<i>Standard to be achieved for performance at a specified level.</i>
A	Fully achieves the goals and objectives of the assignment, has made accurate observations, drawn insightful conclusions or extensions, and shows clear understanding of concepts. Communicates effectively.
B	Addresses all aspects of assignment, but goals and objectives may not be fully met. Student displays understanding of main concepts, although some less important ideas may not be in place. Results may be incomplete or not clearly presented.
C	Important goals or objectives of the assignment are not met. Work may need redirection. Gaps in conceptual understanding are present. Student's approach to assignment may lead away from assignment completion. Attempts communication.
D	Goals and objectives of the assignment are not met. Shows little or no evidence of appropriate reasoning. Presents fragmented understanding of concepts. Presents erroneous or extraneous conclusions.
F	Does not attempt assignment.

Student learning outcomes and assessment

The course's learning outcomes will require the student to acquire throughout the semester new knowledge and skills pertaining to design technologies, and then build upon them. The following table provides a list of outcomes for the course.

Student learning outcomes	Assessment
<i>By the end of course, the student will be able to:</i>	<i>To evaluate these outcomes, the faculty member will use the following assessment procedures:</i>
Understand the history of design technologies, important models and frameworks in technology integration, and national and state standards of educational technology.	Class discussion, weekly assignments, and final project.
Improve skills in using word processing program to enhance productivity.	Class exercises, weekly assignments, and midterm exam.
Improve skills in using presentation program to enhance productivity.	Class exercises, weekly assignments, and midterm exam.
Know how to produce newsletters, brochures, and flyers using desktop publishing program.	Class exercises, weekly assignments, and midterm exam.
Improve skills in using spreadsheet to manage and analyze data related to teaching.	Class exercises, weekly assignments, and midterm exam.
Understand important Web 2.0 concepts and tools.	Class exercises, discussions, weekly assignments, and final project.
Know how to use blogs and understand its educational applications.	Class exercises, discussions, weekly assignments, and final project.
Know how to use content aggregation tools to stay updated with topics of interest.	Class exercises, discussions, weekly assignments, and final project.
Know how to use online collaborative tools to create and share documents with peers.	Class exercises, discussions, weekly assignments, and final project.
Know how to create digital story telling using photo-sharing tools.	Class exercises, discussions, and weekly assignments.
Know how to create a comprehensive class website to enhance instructional productivity.	Class exercises, discussions, and weekly assignments.
Know how to organize Internet resources using social bookmarking tools.	Class exercises, discussions, and weekly assignments.
Improve skills in designing lessons that integrate design technologies.	Final project.

APPENDIX A: TExES Competencies Addressed during Course

Here is the list of TExES Competencies that this class will address --

DOMAIN I—TECHNOLOGY APPLICATIONS CORE

Competency 001. The teacher knows technology terminology and concepts; the appropriate use of hardware, software, and digital files; and how to acquire, analyze, and evaluate digital information.

Competency 002. The teacher knows how to use technology tools to solve problems, evaluate results, and communicate information in a variety of formats for diverse audiences.

Competency 003. The teacher knows how to plan, organize, deliver, and evaluate instruction that effectively utilizes current technology for teaching the Technology Applications Texas Essential Knowledge and Skills (TEKS) for all students.

DOMAIN II—DIGITAL GRAPHICS/ANIMATION AND DESKTOP PUBLISHING

Competency 004. The teacher demonstrates knowledge of the principles of design and their application to digital graphics/animation products.

Competency 005. The teacher demonstrates knowledge of principles of typography and page design and knows how to use technology tools to create desktop publishing products.

Competency 006. The teacher knows how to use graphics, animation, and desktop publishing software to produce products that convey a specified message to an intended audience.

DOMAIN III—VIDEO TECHNOLOGY AND MULTIMEDIA

Competency 007. The teacher knows how to produce and distribute digital video and multimedia products.

Competency 008. The teacher demonstrates knowledge of strategies and techniques used in the preproduction, production, and postproduction of video products.

Competency 009. The teacher knows how to design, produce, and distribute multimedia products.

DOMAIN IV—WEBMASTERING

Competency 010. The teacher demonstrates knowledge of strategies and techniques for Web site administration.

Competency 011. The teacher knows principles of Web page design and uses a variety of tools and techniques to design and troubleshoot Web pages for a diverse audience.

Competency 012. The teacher knows how to use Web pages to communicate and interact effectively with others.

APPENDIX B: TEA Test Frameworks Addressed during Course

Here is the list of TEA Test Framework for Generalist EC-6 that this class will address --

10 Competency 009 (Reading, Inquiry, and Research)

The teacher understands the importance of research and inquiry skills to students' academic success and provides students with instruction that promotes their acquisition and effective use of those study skills in the content areas.

The beginning teacher:

A. Teaches students to develop open-ended research questions and a plan (e.g. timeline) to locate, retrieve, and record information from a range of content-area, narrative, and expository texts

B. Selects and uses instructional strategies to help students comprehend abstract content and ideas in written materials (e.g., manipulatives, examples, graphic organizers)

C. Selects and uses instructional strategies to teach students to interpret information presented in various formats (e.g., maps, tables, graphs) and how to locate, retrieve, and record information from technologies, print resources, and experts

D. Selects and uses instructional strategies to help students understand study and inquiry skills across the curriculum (e.g., brainstorming; generating questions and topics; using text organizers; taking notes; outlining; drawing conclusions; applying critical-thinking skills; previewing; setting purposes for reading; locating, organizing, evaluating, and communicating information; summarizing information; selecting relevant sources of information; using multiple sources of information; recognizing identifying features of sources, including primary and secondary sources; interpreting and using graphic sources of information) and knows the significance of organizing information from multiple sources for student learning and achievement

E. Knows grade-level expectations for study and inquiry skills in the Texas Essential Knowledge and Skills (TEKS) (e.g. in kindergarten, use pictures in conjunction with writing to document research; in fifth-sixth grade, refine research through use of secondary questions)

F. Provides instruction to develop a topic sentence, summarize findings, and use evidence to support conclusions

G. Understands how to foster collaboration with peers, families, and with other professionals to promote all students' ability to develop effective research and comprehension skills in the content areas

13 Competency 012 (Viewing and Representing)

The teacher understands skills for interpreting, analyzing, evaluating, and producing visual images and messages in various media, including electronic, and provides students with opportunities to develop skills in this area.

The beginning teacher:

A. Knows grade-level expectations for viewing and representing visual images and messages as described in the Texas Essential Knowledge and Skills (TEKS)

B. Understands and teaches the characteristics and functions of different types of media (e.g., film, print) and knows how different types of media influence and inform

C. Teaches students to compare and contrast print, visual, and electronic media, including levels of formality and informality (e.g. email, Web-based news article, blogs)

D. Teaches students to evaluate how visual image makers (e.g., illustrators, documentary filmmakers, political cartoonists, news photographers) represent messages and meanings, and provides students with opportunities to interpret and evaluate visual images in various media

E. Knows how to teach students to analyze visual image makers' choices (e.g., style, elements, media) and evaluate how those choices help represent or extend meaning

F. Provides students with opportunities to interpret events and ideas based on information from maps, charts, graphics, video segments, and technology presentations and to use media to compare ideas and points of view

G. Knows steps and procedures for teaching students to produce visual images and messages with various meanings to communicate with others

H. Teaches students how to select, organize, and produce visuals to complement and extend meanings

I. Provides students with opportunities to use technology for producing various types of communications (e.g., class newspapers, multimedia reports, video reports) and helps students analyze how language, medium, and presentation contribute to the message

J. Understands how to foster collaboration with families and with other professionals to promote students' development of media literacy

Competency 014 (Mathematics Instruction)

The teacher understands how students learn mathematical skills and uses that knowledge to plan, organize, and implement instruction and assess learning.

The beginning teacher:

A. Plans appropriate instructional activities for all students by applying research-based theories and principles of learning mathematics

B. Employs instructional strategies that build on the linguistic, cultural, and socioeconomic diversity of students and that relate to students' lives and communities

C. Plans and provides developmentally appropriate instruction that establishes transitions between concrete, symbolic, and abstract representations of mathematical knowledge and that builds on students' strengths and addresses their needs

D. Understands how manipulatives and technological tools can be used appropriately to assist students in developing, comprehending, and applying mathematical concepts

E. Creates a learning environment that motivates all students and actively engages them in the learning process by using a variety of interesting, challenging, and worthwhile mathematical tasks in individual, small-group, and large-group settings

F. Uses a variety of tools (e.g., counters, standard and nonstandard units of measure, rulers, protractors, scales, stopwatches, measuring containers, money, calculators, software) to strengthen students' mathematical understanding

G. Implements a variety of instructional methods and tasks that promote students' ability to do the mathematics described in the Texas Essential Knowledge and Skills (TEKS)

H. Develops clear learning goals to plan, deliver, assess, and reevaluate instruction based on the mathematics in the Texas Essential Knowledge and Skills (TEKS)

I. Helps students make connections between mathematics and the real world, as well as between mathematics and other disciplines such as art, music, science, social science, and business

J. Uses a variety of questioning strategies to encourage mathematical discourse and to help students analyze and evaluate their mathematical thinking

K. Uses a variety of formal and informal assessments and scoring procedures to evaluate mathematical understanding, common misconceptions, and error patterns

L. Understands the relationship between assessment and instruction and knows how to evaluate assessment results to design, monitor, and modify instruction to improve mathematical learning for all students, including English-language learners

M. Understands the purpose, characteristics, and uses of various assessments in mathematics, including formative and summative assessments

N. Understands how mathematics is used in a variety of careers and professions and plans instruction that demonstrates how mathematics is used in the workplace

Competency 016 (Patterns and Algebra)

The teacher understands concepts related to patterns, relations, functions, and algebraic reasoning.

The beginning teacher:

A. Illustrates relations and functions using concrete models, tables, graphs, and symbolic and verbal representations, including real-world applications

B. Demonstrates an understanding of the concept of linear function using concrete models, tables, graphs, and symbolic and verbal representations

C. Understands how to use algebraic concepts and reasoning to investigate patterns, make generalizations, formulate mathematical models, make predictions, and validate results

D. Formulates implicit and explicit rules to describe and construct sequences verbally, numerically, graphically, and symbolically

E. Knows how to identify, extend, and create patterns using concrete models, figures, numbers, and algebraic expressions

F. Uses properties, graphs, linear and nonlinear functions, and applications of relations and functions to analyze, model, and solve problems in mathematical and real-world situations

G. Translates problem-solving situations into expressions and equations involving variables and unknowns

H. Models and solves problems, including those involving proportional reasoning, using concrete, numeric, tabular, graphic, and algebraic methods (e.g., using ratios and percent with fractions and decimals)

I. Determines the linear function that best models a set of data

J. Understands and describes the concepts of and relationships among variables, expressions, equations, inequalities, and systems in order to analyze, model, and solve problems

K. Applies algebraic methods to demonstrate an understanding of whole numbers using any of the four basic operations

Competency 019 (Mathematical Processes)

The teacher understands mathematical processes and knows how to reason mathematically, solve mathematical problems, and make mathematical connections within and outside of mathematics.

The beginning teacher:

A. Understands the role of logical reasoning in mathematics and uses formal and informal reasoning to explore, investigate, and justify mathematical ideas

B. Applies correct mathematical reasoning to derive valid conclusions from a set of premises

C. Applies principles of inductive reasoning to make conjectures and uses deductive methods to evaluate the validity of conjectures

D. Evaluates the reasonableness of a solution to a given problem

E. Understands connections among concepts, procedures, and equivalent representations in areas of mathematics (e.g., algebra, geometry)

F. Recognizes that a mathematical problem can be solved in a variety of ways and selects an appropriate strategy for a given problem

G. Expresses mathematical statements using developmentally appropriate language, Standard English, mathematical language, and symbolic mathematics

H. Communicates mathematical ideas using a variety of representations (e.g., numeric, verbal, graphic,

pictorial, symbolic, concrete)

I. Demonstrates an understanding of the use of visual media such as graphs, tables, diagrams, and animations to communicate mathematical information

J. Demonstrates an understanding of estimation, including the use of compatible numbers, and evaluates its appropriate uses

K. Knows how to use mathematical manipulatives and a wide range of appropriate technological tools to develop and explore mathematical concepts and ideas

L. Demonstrates knowledge of the history and evolution of mathematical concepts, procedures, and ideas

M. Recognizes the contributions that different cultures have made to the field of mathematics and the impact of mathematics on society and cultures

N. Demonstrates an understanding of financial literacy concepts and their application as it relates to teaching students (e.g., describes the basic purpose of financial institutions, distinguishes the difference between gross and net income, identifies various savings options, defines different types of taxes, identifies the advantages and disadvantages of different methods of payments savings and credit uses and responsibilities)

O. Applies mathematics to model and solve problems to manage financial resources effectively for lifetime financial security as it relates to teaching students (e.g., distinguishes between fixed and variable expenses, calculates profit in a given situation, develops a system for keeping and using financial records, describes actions that might be taken to develop and balance a budget when expenses exceed income)

Competency 025 (Lab Processes, Equipment, and Safety)

The teacher understands how to manage learning activities, tools, materials, equipment, and technologies to ensure the safety of all students.

The beginning teacher:

A. Understands safety regulations and guidelines for science facilities and science instruction

B. Knows procedures for and sources of information regarding the appropriate handling, use, disposal, care, and maintenance of chemicals, materials, specimens, and equipment

C. Knows procedures for the safe handling and ethical care and treatment of organisms and specimens

D. Selects and safely uses appropriate tools, technologies, materials, and equipment needed for instructional activities

E. Understands concepts of precision, accuracy, and error with regard to reading and recording numerical data from a scientific instrument

F. Understands how to gather, organize, display, and communicate data in a variety of ways (e.g., charts, tables, graphs, diagrams, written reports, oral presentations)

G. Understands the international system of measurement (i.e., metric system) and performs unit conversions within measurement systems including the use of non-standard units