

Innovation in Technology
EL 4371/COMM 4350/EEL 5330

[Small Class Subs for EL 4330]

Syllabus (Draft)

Fall 2021

Tuesdays 12:00 noon – 2:50 PM

Class Meets in:

E-106 in UTEP Classroom Building 100 (C-100)

– also known as E 100 E-Lead Studios

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Overview: This course develops design skills for advanced students in engineering and computer science, building on the students' technical knowledge to help them identify and find novel solutions for difficult design problems. To do this, the course enables students to improve their innovation skills and to understand the role of innovation in technology-based enterprises. Working with the innovation techniques of Liberating Structures as a central theme, the course integrates improvisation and story-telling to build creativity. Students will apply these techniques to develop mobile applications, and, more broadly, ideas for technology-based business and public-sector start-ups. Students will also develop perspective on how design affects translation to commerce or other use.

Texts:

- www.liberatingstructures.com

About the Course: This course is appropriate for students in the College of Engineering, in the College of Liberal Arts (especially Communications), and the College of Business Administration. Students will build upon the foundations of their respective disciplines to develop advanced skills in system design that enhance their capacity both to develop systems that meet users' needs and to interact effectively with other members of cross-functional teams.

The class will meet one afternoon a week in the studios at the designated time in goldmine. Class sessions will include improvisation games and exercises, development of story-telling skills, and learning and application of techniques from the catalog of liberating structures.

Project assignments will include proposing new mobile applications and proposing new technology-based business and public-sector start-ups. Short daily writing assignments will also be required. The final exam will consist of project presentations. Graduate students will conduct and write a report on an in-depth project analyzing student reflections from the course.

About the Instructor: Cole Joslyn received a Ph.D. in Engineering Education from Purdue University and is a UTEP alum. His research emphasizes humanizing engineering education, particularly 1) increasing Latinx students' sense of belonging in engineering by a) integrating holistic, socio-culturally responsive practices and Latinx cultural assets and values into educational success strategies, and b) understanding how Latinx students experience values conflicts and exploring how to help them reconcile those conflicts; 2) promoting student growth/development in multiple dimensions; 3) reconciling the social and technical nature of engineering. He has worked as an engineer in the manufacturing industry, a pastor in full-time ministry, and a high school teacher. Likes motorcycles and skateboarding.

Outcomes

Upon successful completion of this course, students will be able to demonstrate accomplishments of knowledge and comprehension, application and analysis, and synthesis and evaluation:

1. Knowledge and Comprehension

Explain the elements and applications of the following principles and techniques useful in the design of technology:

- Liberating structures
- Basic principles of improvisation
- Basic principles of story-telling

2. Application and Analysis

Apply the following skills to developing and defining system requirements:

- Improvisation
- Story-telling
- Critical thinking: 1-2-4-all, heard seen respected, TRIZ, simple ethnography, critical uncertainties, 15% solutions, group-normal process
- Creativity: Altering clichés, brainwriting (6-3-5), six hats, association, lateral thinking, random words, talking pictures, RoarStack, new-useful-feasible test, PINC Filter, morning pages

Apply the following skills to the communication of system design:

- Presenting a project pitch

3. Synthesis and Evaluation

Demonstrate balanced understanding of system design requirement by completing the following projects:

- Write a report proposing an innovative mobile application
- Write a report proposing an innovative business or public-sector start-up

Standards of Conduct. You are expected to conduct yourself in a professional and courteous manner, as prescribed by the UTEP Standards of Conduct. Graded work, such as homework and tests, is to be completed independently and should be unmistakably your own work, although you may discuss your project with other students in a general way. You may not represent as your own work material that is transcribed or copied from another person, book, or any other source, e.g., a Web page. The instructor is required to—and will— report academic dishonesty and any other violation of the Standards of Conduct to the Dean of Students.

Disabilities. If you have a disability and need classroom accommodations, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

Assignments. Reading and homework assignments will be announced in class. If you miss a class, it is your responsibility to find out what you missed. You should expect to spend at least seven hours per week outside of class on reading and homework. Everything will either be submitted on blackboard or in person if told so.

Grading. This course does not have examinations. The semester grade will be based on a combination on class participation, daily writing assignments, homework assignments, project assignments, and project presentations. The percentages are as follows:

- 20% Class participation
- 20% Morning-page and course-reflection writing assignments
- 20% Mobile application development project report
- 30% Start-up development project report
- 10% Final project presentations