

Spring 2020 - STEM 4043/5023 Creativity and Innovation - T/TH - 9:30-10:45 - Tentative Schedule

*Please keep in mind that this is a tentative schedule. Please check the <http://www.uastem.com> website for updates.

Week 1

Tuesday, January 14

- Introductions and Syllabus Review
- Video – [The ‘T’ and the ‘E’ in STEM](#)
- Assignment 1 – Using Simple Tools and Materials – Catapult Design (Due – 1-30)
- Assignment – [Create a TinkerCAD account](#) and complete measuring packet
- Reading: Chapter 3 – ‘T’ and ‘E’ in STEM in The Overlooked STEM Imperatives – Complete reading review

Thursday, January 16

- Reading Review
- Creativity (Torrance Creativity Test), Fluency and Flexibility
- Continue Catapult Design
- Reading: Chapter 1 – Learn in STEAM Makers: Fostering Creativity & Innovation in the Elementary Classroom

Week 2

Tuesday, January 21

- Reading Review
- Tool Usage and Material Selection
- Reading: [Safer Tool Usage: Enhancing the Technology and Engineering in Elementary Classrooms](#)

Thursday, January 23

- Complete Catapult Design
- Assignment – Complete the Geometric Creatures Design Challenge on Pg. 13 in the Children’s Engineering Book (you may choose your own shapes).
- Reading: Getting Started With Simple Mechanisms – pages 45- 51 in Children’s Engineering: Beyond the Basics

Week 3– Computer Lab

Tuesday, January 28

- Using CorelDRAW & CO2 Laser – The Basics – Designing a Project to be Cut or Engraved on the VersaLASER
- Assignment – redesign your Geometric Creature using CorelDRAW

Thursday, January 30

- Catapult Design Due
- Using CorelDRAW & CO2 Laser
- Complete Geometric Creature redesign using CorelDRAW & CO2 Laser
- Assignment – This is Not a Box - Paper Engineering Design Challenge Assignment (Due February 13)

Week 4 – Computer Lab

Tuesday, February 4

- Using CorelDRAW - <https://www.coreldraw.com/en/pages/raster-to-vector/>

Thursday, February 6 – No Class – Children’s Engineering Conference – Roanoke, VA

- 3D Printing Technology Design Challenge (Due March 3)
- Assignment – Working with TinkerCAD

Week 5 – Computer Lab

Tuesday, February 11

- Working with TinkerCAD – exporting .STL files
- Using Cura 3D Printing Slicing Software
- [3D Printing Technology Design Challenge](#)

Thursday, February 13

- This is Not a Box - Paper Engineering Design Challenge Presentations
- LittleBits STEAM Design Challenge – Doodle Wizard
- The Frugal Teacher STEAM Design Challenge (Due February 27)

Week 6

Tuesday, February 18

- LittleBits STEAM Design Challenge – The Launcher
- The Frugal Teacher STEAM Design Challenge – Development
- Team selection/assignment
- Project development
- Complete 3D Printing Technology Design Challenge

Thursday, February 20

- 3D Printing Design Challenge Presentations
- Frugal Teacher STEM Challenge Project Development

Week 7

Tuesday, February 25

- Frugal Teacher STEM Challenge Project Development

Thursday, February 27

- Frugal Teacher STEM Challenge Presentations
- Introduction to Magnetic Levitation Design Challenge (Due March 10) – [Moving Along the Tracks Unit](#)

Week 8

Tuesday, March 3

- Magnetic Levitation Design Challenge

Thursday, March 5

- Magnetic Levitation Design Challenge

Week 9

Tuesday, March 10

- Magnetic Levitation Project Due - MagLev Race
- Introduction to Makey Makey and [Scratch Programming](#)

Thursday, March 12 – No Class – International Technology & Engineering Educators Association (ITEEA Conference) – Baltimore, MD

- Homework: Read Ch. 1 – Getting Started (pgs. 1-24) in the Learn to Program with Scratch book. You will need to set up a [Scratch account](#) and complete each of the activities. Then customize your game with your own Sprites and Costumes. Be prepared to demonstrate your ‘pong’ game to the class on Tuesday.

Week 10

Tuesday, March 17

- MaKey MaKey Design Challenge – Due March 31
- Makey Makey and [Scratch Programming](#)

Thursday, March 19

Week 11 - March 23-27 – No Class – Spring Break

Week 12

Tuesday, March 31 – iPad Cart

- Makey Makey and [Scratch Programming](#)

Thursday, April 2 – iPad Cart

- Makey Makey Design Challenge Presentations
- Assignment: Engineering a Play Design Challenge
- The influence of theatre experiences in academic and social and emotional learning

Week 13

Tuesday, April 7 – iPad Cart

- Engineering a Play Design Challenge - Storyboard and script development
- Engineering a Play - Puppet Pal Prototype Development

Thursday, April 9 – iPad Cart

- Engineering a Play Design Challenge – Puppet Pal Prototype Videos Due

Week 14

Tuesday, April 14

- Introduction to textile design – basic sewing practices

Thursday, April 16

- Introduction to textile design – basic sewing practices

Week 15

Tuesday, April 21

- Introduction to Robotics and Drones Programming Challenges

Thursday, April 23

- Robotics, Drones, and Programming Design Challenges

Week 16

Tuesday, April 28

- Robotics, Drones, and Programming Design Challenges

Thursday, April 30

- Robotics, Drones, and Programming Design Challenges

Final Exam

Thursday, May 7, 2020 – 8:00 – 10:00 - STEM Champion Portfolio and Presentation