**New York City College of Technology**
Entertainment Technology Department
300 Jay Street, Room V-203 Brooklyn, NY 11201
(718) 260-5588 http://www.entertainmenttechnology.org/

## ENT-3310 Monster Shop, Section D258, Fall 2019

Pre-requisites: ENT 2140 Basic Welding, ENT 2200 Entertainment Drafting II
Professor: John McCullough
Office: V203
Email: jmccullough@citytech.cuny.edu
Office Hours: Thursdays, 2:30-4:30pm or by appointment

## Class Meeting Time:

Tuesdays, 2:30-5:00pm, Room V124

## Course Description:

Special uses of plastics and metals in the fabrication of stage scenery and scenery elements. The major emphasis will be placed on the forming and shaping of various plastics, molds and casting, problems of safety and toxicity and the selection and use of metals.

## Required Texts:

*Making Things Move* by Dustyn Roberts ISBN: 978-0071741675

### Recommended Reading:

*Mechanical Design for the Stage* by Alan Hendrickson ISBN: 978-0240806310
*507 Mechanical Movements* by Henry T. Brown ISBN: 978-1614275183

## Required Equipment:

Pitsco Laser-cut Basswood T-Bot II Hydraulic Arm Pitsco Part #34110
Pencil, sharpie, 25' tape measure, flashlight/headlamp, multitool, paper (loose leaf or notebook), notebook/binder (to organize your notes, handouts, and homework)
**NOTE: You are required to bring your equipment to every class meeting!**

## Attendance/Promptness:

If you have a legitimate reason for missing a class/assignment or if you will be late, you must contact me (see above) before class begins. Class will start promptly at 2:30pm.

**Grades:**

Your grade will be determined as follows:

| | |
|---|---|
| Labs | 25% |
| Homework | 10% |
| Quizzes | 15% |
| Project 1 Concept Sketches | 10% |
| Project 1 Final Submission | 10% |
| Project 2 Concept Presentation | 10% |
| Project 2 Prototype | 10% |
| Project 2 Demonstration | 10% |

NOTE: If you miss a quiz or test due to an unexcused absence, you will receive a zero for that test or quiz. Quizzes are typically given to ensure that you do the reading, and may contain questions not covered in class. Do the reading!

| ENT-3410 Stage Rigging and Mechanics Course Outline | | | |
|---|---|---|---|
| **Date** | **Day** | **Topic** | **Homework Due** |
| 8/27 | T | Class Intro – The Design Process and Simple Machines | |
| 9/3 | T | Quiz: Design Process and Simple Machines<br>Metalworking | Purchase all class materials and books<br>HW1 – Machine Research |
| 9/10 | T | Hardware and Fasteners | LAB: Ironworker and Bender |
| 9/17 | T | Quiz: Metalworking and Fasteners<br>Actuator Basics | LAB: Ironworker and Tapping |
| 9/24 | T | Control Basics | LAB: Machine Kit Complete |
| 10/1 | T | **NO CLASS** | |
| 10/8 | T | **NO CLASS** | |
| 10/15 | T | Quiz: Actuators and Control<br>Prototyping | LAB: System Schematics |
| 10/22 | T | Evaluating Designs<br>Assign Project 1 | LAB: Prototype<br>HW2 – Choosing Components |
| 10/29 | T | Present Project 1 Concept Sketches | Project 1 Concept Sketches |
| 11/5 | T | Lab Day – Project 1 | |
| 11/12 | T | Lab Day – Project 1 | |
| 11/19 | T | Present Project 1<br>Assign Project 2 | Project 1 Final Submission |
| 11/26 | T | Present Project 2 Concept Sketches | Concept Sketches |
| 12/3 | T | Lab Day – Project 2 | |
| 12/10 | T | Lab Day – Project 2 | Project 2 Prototype DUE by End of Class |
| 12/17 | T | Final Project Demonstration Day | HW3 – Self Evaluation |
| Note: Schedule is always subject to change | | | |

## Learning Outcomes

| **After taking this class, the student will be able to...** | **This will be demonstrated by...** |
|---|---|
| • Identify simple machines | Labs, homework, final project |
| • Identify the forces at work in simple mechanisms (analyze existing mechanisms and calculate based on design needs) | Homework, quizzes |
| • Define and follow the design process | Homework, projects, quizzes |
| • Research solutions to technical problems | Homework |
| • Build simple mechanisms in wood, plastic and metal | Labs, projects |
| • Choose materials and methods to solve a problem including:<br>  ○ Hardware<br>  ○ Bearings<br>  ○ Actuators<br>  ○ Structure | Labs, projects, homework, quizzes |