**STATE UNIVERSITY OF NEW YORK**
**COLLEGE OF TECHNOLOGY**
**CANTON, NEW YORK**


# MASTER SYLLABUS

## COURSE NUMBER – COURSE NAME
## MKTX 477 – Mechatronics Capstone I

**Created by: Rashid Aidun, Ph.D.**

**Updated by: J. Miles Canino, Ph.D., Dr. Lucas Craig (Fall 2021)**

**Canino School of Engineering Technology**

**Department: Mechatronics Technology**

**Semester/Year: Fall 2022**

**A.** **TITLE**: Mechatronics Capstone I

**B.** **COURSE NUMBER:** MKTX 477

**C.** **CREDIT HOURS: (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)**

**# Credit Hours:** 2
**# Lecture Hours:** 1 **per week**
**# Lab Hours:** **per week**
**Other:** 2 hours recitation **per week**

**Course Length:** 15 **Weeks**

**D.** **WRITING INTENSIVE COURSE**: Yes ☒ No ☐

**E.** **GER CATEGORY: None:** ☒ **Yes:** GER
***If course satisfies more than one*:** GER

**F.** **SEMESTER(S) OFFERED: Fall** ☒ **Spring** ☐ **Fall & Spring** ☐

**G.** **COURSE DESCRIPTION:**

This is the first of a two course sequence for Mechatronics Capstone Project where students address open-ended problems.

**H.** **PRE-REQUISITES: None** ☐ **Yes** ☒ **If yes, list below:**

Senior standing in Mechatronics Engineering Technology program or permission of instructor.

**CO-REQUISITES: None** ☒ **Yes** ☐ **If yes, list below:**

## I. STUDENT LEARNING OUTCOMES: (*see key below*)

By the end of this course, the student will be able to:

| ***Course Student Learning Outcome [SLO]*** | ***Program Student Learning Outcome [PSLO]*** | ***GER*** *[If Applicable]* | ***ISLO & SUBSETS*** | |
|---|---|---|---|---|
| Function on a multidisciplinary team | d, f | | 1-Comm Skills<br>5-Ind, Prof, Disc, Know Skills<br>4-Soc Respons | O<br>T<br>Subsets<br>Subsets |
| Design, develop, process, manage, and document the phases of a project | b, c, g | | 1-Comm Skills<br>2-Crit Think<br>3-Found Skills | W<br>CA<br>IA<br>IM |
| Perform basic research | k, h | | 2-Crit Think<br>3-Found Skills<br>ISLO | CA<br>IA<br>PS<br>IM |
| Solve complex problems in a clear and systematic way | a, e | | 1-Comm Skills<br>2-Crit Think<br>ISLO | W<br>CA<br>IA<br>PS |
| Apply essential techniques, skills, and modern engineering tools | a | | 5-Ind, Prof, Disc, Know Skills<br>2-Crit Think<br>ISLO | CA<br>IA<br>PS<br>Subsets |
| Conduct experiments and collect/analyze/interpret data | b | | 2-Crit Think<br>5-Ind, Prof, Disc, Know Skills<br>3-Found Skills | CA<br>IA<br>IM<br>PS |
| Write technical reports and present them | g | | 5-Ind, Prof, Disc, Know Skills<br>1-Comm Skills<br>ISLO | W<br>Subsets<br>Subsets<br>Subsets |

| **KEY** | **Institutional Student Learning Outcomes [ISLO 1 – 5]** |
|---|---|
| **ISLO #** | **ISLO & Subsets** |
| **1** | **Communication Skills**<br>Oral [O], Written [W] |
| **2** | **Critical Thinking**<br>*Critical Analysis [CA] , Inquiry & Analysis [IA] , Problem Solving [PS]* |
| **3** | **Foundational Skills**<br>*Information Management [IM], Quantitative Lit,/Reasoning [QTR]* |
| **4** | **Social Responsibility**<br>*Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]* |
| **5** | **Industry, Professional, Discipline Specific Knowledge and Skills** |

**J. APPLIED LEARNING COMPONENT:** Yes ☒ No ☐

If YES, select one or more of the following categories:

- ☐ Classroom/Lab
- ☐ Internship
- ☐ Clinical Placement
- ☐ Practicum
- ☐ Service Learning
- ☐ Community Service
- ☐ Civic Engagement
- ☒ Creative Works/Senior Project
- ☒ Research
- ☐ Entrepreneurship (program, class, project)

**K. TEXTS:**

N/A

**L. REFERENCES:**

N/A

**M. EQUIPMENT: None ☒ Needed:**

**N. GRADING METHOD:** A-F

**O. SUGGESTED MEASUREMENT CRITERIA/METHODS:**

- **Project team reports: (Project proposal; progress reports)**
- **Proposal presentation**

**P. DETAILED COURSE OUTLINE:**

**I. Problem Investigation**
**II. Preliminary Literature Review**
**III. Preliminary Proposal**
**IV. Preliminary Proposal Presentation**
**V. Full Literature Review**
**VI. First Proposal with Budget and Timeline**
**VII. Proposal Revision.**
**VIII. Proposal Presentation**

**Q. LABORATORY OUTLINE: None ☒ Yes ☐**