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

MASTER SYLLABUS

MECH 477 – Capstone II

For available course numbers, contact the Registrar's Office at registrar@canton.edu

CIP Code: 14.1901

For assistance determining CIP Code, please refer to this webpage
https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55
or reach out to Sarah Todd at todds@canton.edu

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Updated by: Cullen Haskins

School: Canino School of Engineering Technology
Department: Mechanical Engineering Technology
Implementation Semester/Year: Spring 2026

A. TITLE: Capstone II

B. COURSE NUMBER: MECH 477

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

# Credit Hours per Week	**3**
# Lecture Hours per Week	**3**
# Lab Hours per Week	**0**
Other per Week	**0**

D. WRITING INTENSIVE COURSE:

Yes	
No	X

E. GER CATEGORY: N/A

F. SEMESTER(S) OFFERED:

Fall	
Spring	X
Fall and Spring	

G. COURSE DESCRIPTION:

This is the second semester course in the senior design project process that builds upon work completed in MECH 377. Students continue the design process started in the previous course by developing and testing a product from their proposed concept design. Design for Performance, Cost, Manufacture, Assembly, Reliability, and Sustainability evaluations are utilized to refine the product for final production. Product support activities, including developing a design report and project portfolio, ensure design knowledge is retained, and the product supported beyond the end of the course. Students present their design work for review at multiple points throughout the course.

H. PRE-REQUISITES: MECH 377
CO-REQUISITES:

I. STUDENT LEARNING OUTCOMES:

Course Student Learning Outcome [SLO]	Program Student Learning Outcome [PSLO]	GER	ISLO & Subsets
a. Develop, evaluate, refine, patch, and produce/prototype a product	SO 2		2. Critical Thinking [CA, IA, & PS] 5. Industry, Professional, Discipline Specific Knowledge and Skills

b. Perform research supporting product development	SO 3		3. Foundational Skills [IM & QTR]
c. Perform analysis and/or experiments supporting product development	SO 1 an SO 4		2. Critical Thinking [CA, IA, & PS] 5. Industry, Professional, Discipline Specific Knowledge and Skills
d. Document and present product	SO 3		1. Communication [W & O]
e. Function effectively as a team member	SO 5		4. Social Responsibility [T]

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

J. APPLIED LEARNING COMPONENT:

Yes	X
No	

If yes, select [X] one or more of the following categories:

Classroom / Lab	X	Community Service	
Internship		Civic Engagement	
Clinical Practicum		Creative Works/Senior Project	X
Practicum		Research	X
Service Learning		Entrepreneurship [program, class, project]	

K. TEXTS: N/A

L. REFERENCES:

Hoffman, Harvey. The Engineering Capstone Course: Fundamentals for Students and Instructors. New York: Springer, 2014

Ullman, David. The Mechanical Design Process

M. EQUIPMENT: N/A

N. GRADING METHOD: A-F

O. SUGGESTED MEASUREMENT CRITERIA/METHODS:

- Product DFX
  - Individual
- Project Final Report
  - Overall
  - Individual Contribution
- Project Portfolio
- Project Presentations
  - Design Reviews
  - Scholarly Activities
  - Industrial Advisory Board
    - Oral
    - Engineering Competence
- Faculty Assessment of Engineering Competence
  - Individual
- Individual Weekly Plans
- Student Self- and Peer-Assessments

P. DETAILED COURSE OUTLINE:

See Laboratory Outline

Q. LABORATORY OUTLINE:

General Timeline:

1. Week 1: Design For Performance
2. Week 2: Design For Sustainability
3. Week 3: Design For Cost
4. Week 4: Design For Manufacture
5. Week 5: Design For Assembly
6. Week 6: Design For Reliability
7. Week 7: Design Review
8. Week 8: Prototyping, Assembly, and Testing*
9. Week 9: Refine and Patch
10. Week 10: Refine and Patch
11. Week 11: Scholarly Activities Presentation
12. Week 12: Final Assembly, Testing, and Data Collection
13. Week 13: Design Report[+]
14. Week 14: Portfolio
15. Week 15: Final Product Presentation to Industrial Advisory Board

* Note – depending on the type of project, it is likely that each stage may require prototypes and testing (whether analytical or physical).

[+] Best practice is to develop the project report outline early in the project and to update it regularly as the design state progresses.