

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



MASTER SYLLABUS

MECH 102 – PARAMETRIC MODELING

CIP Code: 14.1901

For assistance determining CIP Code, please refer to this webpage

<https://nces.ed.gov/ipeds/cipcode/browse.aspx?v=55>

or reach out to Sarah Todd at todds@canton.edu

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Updated by: N/A

**CANINO SCHOOL OF ENGINEERING TECHNOLOGY
MECHANICAL ENGINEERING TECHNOLOGY
Implementation date/January 2026**

A. TITLE: PARAMETRIC MODELING

B. COURSE NUMBER: MECH 102

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

Credit Hours: 2

Lecture Hours ____ per Week

Lab Hours _4_ Week (2x at 2 hours each)

Other ____ per Week

Course Length (# of Weeks): 15

D. WRITING INTENSIVE COURSE: No

E. GER CATEGORY:

Does course satisfy more than one GER category? If so, which one?

F. SEMESTER(S) OFFERED: (*Spring*)

G. COURSE DESCRIPTION:

This course is an introduction to parametric design. The course will cover parametric modeling fundamentals, solid geometry concepts, fundamentals of parametric constraints, geometric construction tools, use of symmetrical features, advanced 3D construction tools, sheet metal tools, and basic assembly modeling. Software implementation of the skills learned in MECH 101 and the creation of industry-accepted drawing sets will be covered as well.

H. PRE-REQUISITES: ENGS 101

CO-REQUISITES: none

I. STUDENT LEARNING OUTCOMES:

<u>Course Student Learning Outcome [SLO]</u>	<u>PSLO</u>	<u>GER</u>	<u>ISLO</u>
a. Communicate ideas clearly and easily with parametric modeling software	1.		W
b. Create accurate parametric models based on drawings and physical objects or parts			5
c. Employ industry-accepted dimensioning practice with parametric software tools			5
d. Correctly locate and orient orthographic, section, and auxiliary views on drawing sheets			5

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

J. APPLIED LEARNING COMPONENT: Yes X No

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

Classroom/Lab X
 Internship
 Clinical Practicum
 Practicum
 Service Learning
 Community Service

Civic Engagement
 Creative Works/Senior Project
 Research
 Entrepreneurship
 (program, class, project)

K. TEXTS: <https://www.sdcpublications.com/Textbooks/Parametric-Modeling-Autodesk-Inventor-2022/ISBN/978-1-63057-422-2/>

L. REFERENCES: N/A

M. EQUIPMENT: Computer lab

N. GRADING METHOD: A-F

O. SUGGESTED MEASUREMENT CRITERIA/METHODS:

Homework/Labs
 Quizzes
 Exams

P. DETAILED COURSE OUTLINE:

See Lab Outline

Q. LABORATORY OUTLINE:

1. Week 1
 - a. Getting Started
 - b. Parametric Modeling Fundamentals
2. Week 2
 - a. Constructive Solid Geometry Concepts
 - b. Constructive Solid Geometry Concepts
3. Week 3
 - a. Model History Tree
 - b. Model History Tree
4. Week 4
 - a. Parametric Constraint Fundamentals
 - b. Parametric Constraint Fundamentals
5. Week 5
 - a. Geometric Construction Tools
 - b. Geometric Construction Tools
6. Week 6
 - a. Parent/Child Relationships and the BORN Technique
 - b. Parent/Child Relationships and the BORN Technique
7. Week 7
 - a. Review
 - b. Exam 1
8. Week 8
 - a. Part Drawings and 3D Model-Based Definition
 - b. Part Drawings and 3D Model-Based Definition
9. Week 9
 - a. Datum Features and Auxiliary Views
 - b. Datum Features and Auxiliary Views
10. Week 10
 - a. Symmetric Features in Designs
 - b. Symmetric Features in Designs
11. Week 11
 - a. Advanced 3D Construction Tools
 - b. Advanced 3D Construction Tools
12. Week 12
 - a. Sheet Metal Designs
 - b. Sheet Metal Designs
13. Week 13
 - a. Assembly Modeling – Putting It All Together
 - b. Assembly Modeling – Putting It All Together
14. Week 14
 - a. Assembly Modeling – Putting It All Together
 - b. Review
15. Exam 2