

# PLTW Computer Integrated Manufacturing (CIM)

Course #7802

[PLTW Engineering Video](#)



## CONTACT

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## What is Technology Education?

The NHS Department of Technology & Engineering Education empowers students to step into the role of an engineer, computer scientist, or technical specialist, adopt a problem-solving mindset, and make the leap from dreamers to doers. Courses engage students in compelling, real-world challenges that help them develop in-demand, transportable skills like collaboration, critical thinking, and communication.

This course builds upon the computer solid modeling skills developed in PLTW Design & Drawing for Production. Students will use computer controlled rapid prototyping and CNC equipment to solve problems by constructing actual models of their three dimensional designs. Students will also be introduced to the fundamentals of robotics and how this equipment is used in an automated manufacturing environment. Students will evaluate their design solutions using various techniques of analysis, and make appropriate modifications before producing their prototypes. Students apply knowledge gained throughout the course in a capstone project to build a manufacturing system. CNC Technologies including 3D Ultimaker printers, a Gantry Shopbot router, an Intelitek Milling machine, and a Trotec Laser Cutter/Engraver will bring the products to life for student testing and analysis.

## ABOUT

## TOPICS

- Computer Modeling – using a three-dimensional, solid modeling software package with mass property analysis.
- CNC Equipment – understanding machine tools and their operating and programming aspects.
- CAM Software – converting computer generated geometry into a program to drive CNC machine tools.
- Robotics – using a robot for materials handling and assembly operations.
- Flexible Manufacturing Systems – students working in teams to design manufacturing work cells and tabletop factory simulations.
- The course will be taught using demonstration and discussion combined with individual and team-centered project based learning.

## ELIGIBILITY

ALL Students in Grades 10 - 12 can challenge this course provided they meet the prerequisites: *Algebra I* and *PLTW Design & Drawing for Production*.

Students can earn three credits from Rochester Institute of Technology (RIT) by earning an 85% or better and are successful on the end-of-year RIT PLTW assessment. Cost for the three credit course is approximately \$225.

