



Division of Science, Technology, Engineering, and Mathematics

Computer Aided Design Certificate

This program prepares students to demonstrate an array of MassBay Community College graduation competencies and gain employment as a drafter or a CNC programmer in the mechanical, manufacturing or architecture industries. By completing all program requirements, the program provides students with skills to use a variety of CAD software and advanced manufacturing tools.

Successful graduates of the program will be able to:

1. Understand and apply fundamentals of the design process to implementing design solutions while proficiently using CAD software such as SolidWorks and Revit.
2. Gather and analyze system requirements relevant to mechanical and architectural design/redesign and develop and document solutions with professional drawings that satisfies given parameters including convenience, feasibility, manufacturability, and safety.
3. Understand the needs of all team stakeholders and deliver requirements in a timely fashion while working on team projects.
4. Apply analytical reasoning, creative processes, and knowledge of CAD technology to resolve design issues.
5. Understand and extrapolate data and specifications from technical resources and standards for application on drawings and project documentation.
6. Produce and present detailed engineering sketches, CAD drawings, and project reports.
7. Consider effectiveness, efficiency, sustainability and manufacturability in all design solutions
8. Critically read and evaluate research about engineering innovation, tools, and application.
9. Identify and discuss contemporary issues related to engineering challenges facing the world.
10. Develop professional documentation such as detailed 2D and 3D engineering drawings through CAD/CAM tools, 3D Models as proof of concept using additive manufacturing technologies, reverse engineer products using 3D scanning technologies and reports using productivity software.