



Division of Science, Technology, Engineering, and Mathematics

Associates in Science in Engineering Design

This program prepares students to demonstrate the full array of MassBay Community College graduation competencies and gain employment as a drafter / designer in mechanical, architecture or manufacturing industries or a sales representative for technological equipment. The program provides students with skills to use computer-aided design (CAD) and advanced manufacturing tools as well as analyze design challenges and propose effective solutions.

Successful graduates will be able to:

1. Understand and apply knowledge of pre-calculus and 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.