

the cad academy®

P R E S E N T S

DESIGN FOR ENGINEERING ACADEMY

SolidWorks is your tool. This completes your solution!



Customizable two year engineering program featuring
CAD/CAM/CNC which culminates with student certification

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Students turning ideas into working products!



Overview

Design for Engineering Academy is a customizable two year engineering program featuring CAD/CAM/CNC which culminates with student certification. DFEA enables instructors to effectively teach engineering design + manufacturing applications using SolidWorks. DFEA prepares students for engineering school + career opportunities in mechanical design and manufacturing. Teaching solid modeling, manufacturing concepts and automated production has never been this easy. DFEA offers customizable programs for Middle Schools, High Schools and Post-Secondary Institutions.

Top 10 Program Benefits:

1. Two year flexible use engineering program
2. Students realize industry + SolidWorks certification
3. SolidWorks integrated CAM + Design for Manufacturing software
4. CAD + CAM + CNC + Machine Control training realized
5. Self-paced learning approach
6. Student projects were developed to meet the demands of today's engineering community
7. New engineering instructors are effective from day one
8. Immediately deployable as online course
9. Students build portfolio for career + education advancement
10. Improve student design competition performance for TSA, SKILLS USA, F1

What's Included:

- Two year flexible use engineering program
- SolidWorks CSWA + CSWP Training Program (100+ exercises)
- CAMWorks - SolidWorks integrated CAM software
- CAM Training Program
- Design for Manufacturing Pro Software (Validation of Design Manufacturability)
- Engineering Projects Putting Designs into Project Applications (Ex. F1 + CO2)
- Design for Manufacturing Concepts Curriculum
- Manufacturing + Automation Resources
- Milling + Turning Projects for Mill, Lathe and Router
- CAD + CAM + CNC + Machine Control Training
- Extreme Engineering Collection from the Discovery Channel

Instructor Resources include:

Lesson Plans, Reading Assignments, PPTs, Videos, Lab Exercises, Handouts + Exams

SolidWorks Training + Certification

DFEA provides a complete library suite of the very best in SolidWorks self-paced instruction. The suite includes Core Concepts, Drawings, 3D Skills, Advanced Parts, Advanced Assemblies, Sheet Metal Design and Update Training.

The SolidWorks Certification Study Course is a comprehensive review of topics covered in Certified SolidWorks

Associate and Certified SolidWorks Professional exams. The course begins by providing an overview of the certification exam. The student is then presented with sample problems which map to certification exam requirements including basic + advanced part and assembly design. Additional topics include but are not limited to: in-context design; drawing views and COSMOSXpress stress simulation.

Get Prepared and Get Certified!

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ADDA Industry Certification

DFEA has partnered with the American Design Drafting Association (ADDA) to provide academic institutions a certification program with a proven methodology for effective measurement of academic program, instructor and student industry competencies. Certification programs are available for the areas of architecture, mechanical, civil as well as general drafting and design, not on their knowledge of a particular software program. ADDA Certification empowers students by authenticating their capabilities to colleges, universities and prospective employers. The ADDA is recognized as the premier design drafting certification program

by many organization including: U.S. Department of Labor; U.S. Department of Education; and ASME - American Society of Mechanical Engineers. It is supported by major U.S. Industries and governmental groups including: Boeing Corporation; NASA and U.S. Corp of Engineers.

DFEA program includes the ADDA Certification Test Guides for academic mapping and instructor preparation. Instructor or Academic Program Certification would enable the school or instructor to proctor student certification exams.

Engineering Design and Manufacturing Applications

2 Year Program

The Design for Engineering Academy builds foundational design skills for students by starting with the most basic sketching applications and ends with advanced assemblies and automated manufacturing

machining projects. This rigorous two year program fits at a high school level and at the community and technical college level. The DFEA training program includes instructional videos on each facet of design and manufacturing and culminates with challenging projects that students keep in a portfolio to present to employers or admissions to engineering schools.

YEAR ONE - First Semester

1. Sketching in SolidWorks
2. Basic Features of SolidWorks
3. Intermediate Modeling Concepts
4. Design for Manufacturing
5. Part Analysis and Material Properties

YEAR ONE - Second Semester

1. Reverse Engineering
2. Introduction to CNC
3. School Specific Machine Characteristics
4. Basic CAMWorks Operation
5. Assemblies in SolidWorks

YEAR TWO - First Semester

1. Communication with Drawings
2. Advanced Views and Annotations
3. Design Libraries
4. CNC Review
5. Basic CNC Machining with CAMWorks

YEAR TWO - Second Semester

1. Tool Paths
2. CNC Lathe
3. Review for SolidWorks CSWA Examination
4. Review for ADDA Mechanical Industry Certification Exam
5. Examination Administration

Automated Manufacturing

Computer Aided Manufacturing

Machining made easy! CAMWorks is an easy to use intuitive solids based CAM solution that helps manufacturers increase productivity and profitability through best-in-class technologies and adaptable automation tools that maximize machining efficiencies. CAMWorks seamless integration within SolidWorks allows for instant changes from the part to the model and thereby eliminates time consuming CAM system rework due to design updates. CAMWorks thus enabling true associative machining. CAMWorks helps manufacturers across aerospace, automotive, electronics and medical industries optimize and evolve their automation process.

Minimize Efforts! CAMWorks eliminates the drudgery of CNC programming with Intelligent Machining through automation. CAMWorks automates the generation of tool paths based on a knowledge based database. CAMWorks eliminates hours of complex programming through Automatic Feature Recognition (AFR) that automatically defines prismatic machinable features, while the TechDBTM (Technology Database) defines machining operations to automatically generate accurate toolpaths at the click of a button for turning, 2.5 axis, 3 axis, 4 axis and 5 axis machining. Integrated projects provide experience in milling, turning, router and plasma cutting technologies. CAMWorks imports popular file formats including: STEP, IGS and Parasolid files for tool path generation and simulation

REALIZED Engineering Education

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Machining

CNC Program (K-12 + Post Secondary + Technical School): The goal of this curriculum is to teach how to program and operate a Computer Numerical Control (CNC) milling machine.

Intended for persons with a technical background but little or no machining experience, it bridges the gap between what those with a technical education know and what they need to learn to make prototype and short-production run parts on a Vertical Milling Center (VMC).

Top 10 Benefits:

1. Designed for engineers
2. Close the gap between idea and practice
3. 2D Mill, 3D Mill, Lathe
4. A Haas Technical Education Center (HTEC) Partner
5. CNC Safety, setups, planning, processes, cutting speeds and feed, tool selection
6. Haas operating instructions and videos
7. Used by leading universities and secondary schools
8. Help students compete in design and build competitions such as S.A.E. Formula race, Technology Student Association, and Department of Energy Solar Challenge
9. Practical, hands-on, real-world
10. A concise guide to understanding, programming, and operating CNC mills and lathes



www.dfeacademy.com

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Certified
Gold
Product



Solution
Partner

800.561.7051