

# ADVANCED MANUFACTURING

## INTRODUCTION TO ADVANCED MANUFACTURING CERTIFIED PRODUCTION TECHNICIAN

Local manufacturers, and SUNY Ulster, have partnered together to create a pipeline of skilled workers to meet the hiring needs of manufacturing employers and to prepare local job seekers with the skills needed to get self-sufficient jobs in manufacturing. This program consists of four individual certificate modules: Safety Certificate, Manufacturing Processes and Production Certificate, Quality Practices and Measurement Certificate, and Maintenance Awareness Certificate. Approved by New York State Bureau of Veterans Education for payment of VA Education Benefits.

Price includes fees.

DCB 1786-11	M	3/5-5/14	6-9pm	SRC	\$853
No class 3/12					
MFG 101	M/W	1/22-5/16	10am-noon	KSU	\$853
No class 3/12 & 14					
DCB 1786-12	M/W	1/22-5/16	10am-noon	KSU	\$853
No class 3/12 & 14					

Class time above does not include assessments. Students will schedule assessments with proctor. Course price includes four assessments. Any additional assessments that students need will be \$65 each.

## INDUSTRIAL TECHNOLOGY: MANUFACTURING TECHNOLOGY CERTIFICATE

36 credits

This certificate program prepares individuals to enter the manufacturing workforce by teaching basic skills needed in the use of lathes and milling machines, while also providing the educational background for those students who want to continue into a second year of study in Industrial Technology: Manufacturing or Industrial Design.

## FUNDAMENTALS OF ELECTRICITY

This is an algebra-based Electricity Fundamentals course. The expected students are those in the manufacturing technician training program. Topics covered will include 'What is Electricity', Ohm's Law, Watt's Law, Power and Energy, Series, Parallel, and Combination Circuits, Wire Size and Ampacity, Magnetism and Inductors, Alternating Current, Capacitors, Three-phase power, Motors, and Troubleshooting. This course includes a lab component. Prerequisite: MAT 115. Price includes fees.

MFG102-51	M	1/22-5/16	5-8pm	SRC	\$603
DCB 2182-01	M	1/22-5/16	5-8pm	SRC	\$603

No class 3/12

The DCB course is a non-credit option for the 3-credit MFG course. Students will be expected to do all homework assignments and quizzes but no grade will be awarded.

## INTRODUCTION TO PROGRAMMABLE LOGIC CONTROLLERS (PLCs)

This course will provide the fundamentals of a programmable logic controller (PLC). Hands-on instruction and industrial-type applications of PLCs requiring relay ladder logic control and a study of automated manufacturing and the functions of PLCs in an industrial environment will be provided. Topics include components of a PLC, memory organization, discrete I/O, numbering systems, logic gates, Boolean algebra, relay ladder logic, timers, counters, word level logic and troubleshooting. *Approved for 45 PDHs.*

Prerequisite: MAT 115 or higher. Required textbooks: Programmable Logic Controllers (ISBN: 9352602129) and LogixPro PLC Lab Manual with CD-ROM (ISBN: 0077477995). Price includes fees.

MFG 115-51	W	1/22-5/16	5-8pm	SRC	\$603
DCB 2155-02	W	1/22-5/16	5-8pm	SRC	\$603

The DCB course is a non-credit option for the 3-credit MFG course. Students will be expected to do all homework assignments and quizzes but no grade will be awarded. For assistance in selecting a course, please contact SUNY Ulster at 845-802-7171.

## MECHATRONICS FUNDAMENTALS

This four-course program is intended for students with some manufacturing skills or applicable military skills and prepares graduates for entry-level positions in local manufacturing companies that utilize automated, computer controlled production systems.

DCB 2073-06 See individual course schedules below. KSU \$796

Contact Barbara Reer at reerb@sunyulster.edu or 845-802-7171 to learn how you can tailor specific programs for your employees.

## MATHEMATICS FOR MANUFACTURING

Strengthen mathematic skills needed for the set-up and operation of machine tools and computer numerical control (CNC) programming. Mathematical operations including fractions, exponents, basic algebra and trigonometry will be reviewed. Prerequisite: Basic Mathematics.

Instructor: R. Eckmann

DCB 2064-04 T 1/30-3/6 6:30-8:30pm KSU \$199

## INTRODUCTION TO BLUEPRINT READING

Participants will learn to identify the essential details and interpret the dimensions and tolerances found on engineering drawings. Actual blueprints for hands-on study will be available. This hands-on program will enable participants to accurately and effectively use blueprints to obtain the information they need to do the jobs. Course is geared for machine operators, quality control inspectors, shop supervisors, metalworking manufacturing personnel, engineering managers, and other manufacturing persons interested in learning to read manufacturing prints or updating their knowledge in this area. Prerequisite: Basic Mathematics. Instructor: R. Engle

DCB 1259-09 R 3/22-4/26 6:30-8:30pm KSU \$249

## ELECTRICAL THEORY I BASICS

Learn electrical theory basics for a variety of professional fields including the manufacturing field. Course will cover basic electrical distribution, identifying and selecting electrical equipment, sizing wires and overcurrent protection, and introduction to the National Electrical Code, installing wires and conduit, theory of series and parallel circuits and measuring voltage and current. This course includes a lab component.

DCB 1947-32 W 3/21-4/18 4:30-7:30pm KSU \$199

## ELECTRICAL THEORY II

This course continues on where Electrical I leaves off and is geared towards those in an advanced manufacturing career pathway. This course includes a lab component. Prerequisite: Electrical Theory I Basics or equivalent.

DCB 2135-02 W 4/25-5/16 4:30-7:30pm KSU \$199



# ADVANCED MANUFACTURING

## DRAFTING / AUTOCAD / 3D PRINTING



### DRAFTING FUNDAMENTALS I

The topics covered in this course are geometric construction and orthographic projection. The topics covered are taught using AutoCAD 2017. Special emphasis is placed on using the software to complete the assignments. **Instructor: S. Ligotino**

DCB 2136-02 T/R 1/23-3/16 1-3pm SRC \$299

### DRAFTING FUNDAMENTALS II

This course expands on topics covered in the first course. Additional topics covered are sections and conventions, and isometric drawings. Special emphasis is placed on using the software to complete the assignments. Prerequisite: Drafting Fundamentals I.

**Instructor: S. Ligotino**

DCB 2137-02 T/R 3/20-5/1 1-3pm SRC \$299

### SOLIDWORKS FUNDAMENTALS

This is an introductory course to the SolidWorks software. Students will be introduced to the following topics: design intent, sketching, solid modeling, assembly, white space layout, dimensioning and STL file creation. Students should be able to create and modify sketches, create solid modeled parts, Join parts together in assemblies, create working drawings for parts and generate STL files used for printing on 3D printers. Prerequisite: Basic computer skills.

DCB 2036-03 M 1/22-2/26 noon-4:30pm SRC \$349

No class 2/19

## MACHINING & PRODUCTION I

105 hours

Hands-on study of machine shop practices in this course, includes the care of precision instruments, maintenance of lathes and milling machines, operation of lathe controls, filing, deburring, polishing, use of digital readout, use of micrometer, dial indicators, and pitch micrometers.

**This course will be offered in Fall 2018.**

## MACHINING & PRODUCTION II

105 hours

Advanced functions of a lathe and milling machine, including use of hand and precision tools required for operation, are presented in this course. Prerequisites: IND 141 or equivalent experience

**This course will be offered in Fall 2018.**

## ENGINEERING

### INTRO TO DIGITAL LOGIC

This course covers the fundamentals of digital logic. Students will study combinational and sequential circuits. Karnaugh maps and Boolean algebra will be covered as ways of simplifying logic circuits. Feedback will be used to introduce gates with memory such as various types of flip flops and latches. Throughout the course there will be an emphasis on grouping together fundamental building blocks (NAND, NOR, etc.) into higher level components such as registers, adders and multiplexers. The laboratory will focus on the design and construction of digital circuits. This course will be taught as a hybrid course. Attendance of lecture on T/R is optional. Lecture content will be available online. Labs mandatory.

ENR214	T/R	1/22-5/16	8:40-10am	SRC
	M	1/22-5/16	1:15-4pm	SRC
DCB 2199-01	T/R	1/22-5/16	8:40-10am	SRC
	M	1/22-5/16	1:15-4pm	SRC



### WELDING CERTIFICATION COURSE

This entry level course will provide the training necessary to sit for the American Welding Society (AWS) shielded metal arc welding entry level certification. Includes instruction in welding safety and health, drawing and welding symbol interpretation, shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux cored arc welding, gas tungsten arc welding (GTAW), thermal cutting, plasma arc welding (PAC), and welding inspection and testing. Tuition includes personal welding equipment and materials.

WW112-0220CT T/R 2/20-5/3 6-9pm CT \$1,499



### AWS STRUCTURAL WELDING EXAM

AWS D 1.1 structural steel, 1" groove weld, 3G and/or 4G Positions. **Proctor: C. Hubert, AWS CWI**

Exam fee is \$175 per position, maximum of two.

WWExam-0502CT S	5/2	8:30am-3pm	CT	\$175
WWExam-0602CT S	6/2	8:30am-3pm	CT	\$175

### CERTIFIED SOLIDWORKS® ASSOCIATES PROGRAM

Helping you to design better products, SolidWorks®, a 3D CAD software will be a more productive program to use. Ulster BOCES will provide you with an 85-hour computer lab setting to conquer the intricacies of this powerful design tool. **This course will be offered in Fall 2018.**

### CNC MACHINE OPERATOR

This is a 96-hour class providing students with entry level CNC (Computer Numerical Control) machine operating skills. The first 12 hours gives the student an introduction to machining including shop safety, blueprint reading; precision measurement and inspection.

**This course will be offered in Fall 2018.**

### MASTERCAM® ENTRY LEVEL CERTIFICATION

Validate your skills and increase your value in the workplace by training to become certified in Mastercam®, the industry's leading CAM system.

**This course will be offered in Fall 2018.**

### MASTERCAM® PROFESSIONAL LEVEL CERTIFICATION

The Mastercam® Professional Level Certification is a reliable validation of your skills, knowledge, and the application of Mastercam® functionality within a set amount of time. A student should attain the Mastercam® Associate Level Certification before taking the practical Professional Level Certification exam. **This course will be offered in Fall 2018.**

### G-CODE PROGRAMMING

This 40-hour course is designed for the experienced manual machinist who seeks to learn how to write G-Code programs to control the operation of CNC machines. Basic shop math, computer skills, and machining experience required. Please bring a calculator with trigonometric functions to class. **This course will be offered in Fall 2018.**