

ADVANCED MANUFACTURING AND DESIGN, ADVANCED MANUFACTURING AND 3D PROTOTYPING - CERTIFICATE



ETCA

Knight Campus, Warwick only

To enroll in this certificate program, students must have successfully completed the Manufacturing and Design certificate concentration (ETCI). See Manufacturing and Design (<https://catalog.ccri.edu/programs-study/physics-engineering/engineering-systems-technology-certificate-introduction-cnc-manufacturing-concentration/>) for more information.

Today modern manufacturing depends upon the use of computers, robots, CNC and 3D-printing technology and digital technology and PLCs. This program builds on the basic skills and knowledge developed in the Manufacturing and Design certificate (ETCI). The certificate will increase CNC programming skills and introduce the concepts of rapid prototyping, digital direct manufacturing and the use of 3D-laser scanning and 3D-printing. The courses will make extensive use of 3D-modeling with SolidWorks, tool control with G and M codes and MasterCam. Students will also develop a basic understanding of digital systems and the programming of PLCs. The final course is a capstone course, requiring 140 hours of an industry practicum or internship.

The certificate can be completed in one spring semester and one summer session. The accelerated version requires attending classes four days a week. The combination of the two certificates, ETCI and ETCA, can be applied toward the Advanced Manufacturing and Design A.S. degree without a loss of credit.

Note: Many courses require prerequisites, corequisites and/or testing. See course descriptions for details (<https://catalog.ccri.edu/course-descriptions/>).

Certificate Requirements

Code	Title	Hours
ETCN 2100	Computer Aided Manufacturing ¹	3
ETCN 2200	CNC Machining II ¹	3
ETCN 2300	3D-Modeling and Prototyping	3
ETCN 2500	Computer Numerical Control (CNC) Practicum/ Capstone	4
ETEE 1800	Introduction to Digital Systems	3
ETME 1010	Robotics and Control	3
Subtotal		19
Total Hours		19

¹ Seven-and-a-half week course

Recommended Course Sequence (Accelerated Version)

Course	Title	Hours
Year 1		
Semester 1		
Spring semester:		
ETCN 2100	Computer Aided Manufacturing ¹	3
ETCN 2200	CNC Machining II ¹	3
ETCN 2300	3D-Modeling and Prototyping	3
ETEE 1800	Introduction to Digital Systems	3
ETME 1010	Robotics and Control	3
	Hours	15
Summer Session		
ETCN 2500	Computer Numerical Control (CNC) Practicum/ Capstone	4
	Hours	4
	Total Hours	19

¹ Seven-and-a-half week course