



Flexible, self-paced programs with open start dates:

Manual

- Entry-level Turning, Milling, and Blueprint Reading
- Advanced Planning, Set-up, and Operation



CNC

- Basic CNC Set-up and Programming
- Advanced Programming

Drafting and Design

- SOLIDWORKS
- AutoCAD
- Fixture Design

Equipment Set

FANUC ROBODRILL

DOOSAN Lynx

JET Manual Machine Tools



Machine Tool Lab Hours

M, F 7:30 am – 3:30 pm

T, W, Th 7:30 am – 7:30 pm





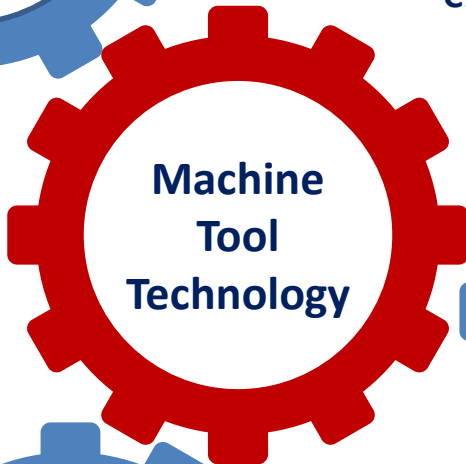
INTRO TO MACHINING	ZMTT 105
BASIC MACHINE TOOLS	ZMTT 110
BLUEPRINT READING	ZMTT 132
TURNING TECHNOLOGY I	ZMTT 157
TURNING TECHNOLOGY II	ZMTT 225
MILLING TECHNOLOGY I	ZMTT 158
MILLING TECHNOLOGY II	ZMTT 212
GRINDING TECHNOLOGY	ZMTT 221

Contact Judy Vecchio at 610.372.4721, ext. 5716 or jvecchio@racc.edu for details.

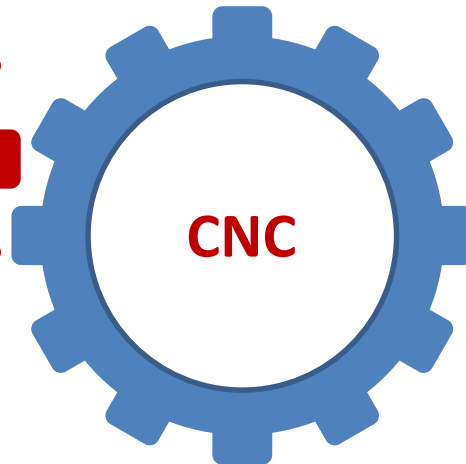


Manual

CNC PROGRAMMING	ZMTT 180
CNC MILL LEVEL I	ZMTT 185
CNC MILL LEVEL II	ZMTT 272
ADVANCED CNC TURNING	ZMTT 276
CAM PROGRAMMING	ZMTT 288



**Machine
Tool
Technology**



CNC



**Drafting
Design**

SOLIDWORKS	ZMTT 107
AUTOCAD	ZMTT 310
FIXTURE DESIGN	ZMTT 265



Manual Machining

INTRODUCTION TO MACHINING

ZMTT-105 (75 hours)

\$1,695 (textbook additional)

Theoretical and practical aspects of shop safety, hand tools, precision layout, precision measuring instruments, taps, dies, files, reamers, and identification and use of appropriate materials to manufacture parts.

BASIC MACHINE TOOLS

ZMTT-110 (75 hours)

\$1,695 (textbook additional)

Basic operations of the drill press, pedestal grinder and band saw.

BLUEPRINT READING

ZMTT-132 (75 hours)

\$1,695 (textbook additional)

Teaches necessary skills to interpret part drawings. Emphasis will be placed on stimulating the students' creativity and the ability to visualize the drawn object. This course will start with simple part drawings and advance to more complex part drawings.

TURNING TECHNOLOGY LEVEL I

ZMTT – 157 (75 hours)

\$1,695 (textbook additional)

Knowledge, practical learning experience and accident prevention awareness required to perform conventional lathe job planning, set-up and operation. Aspects of conventional, carbide and other tooling materials selection, preparation, and usage.

MILLING TECHNOLOGY LEVEL I

ZMTT-158 (75 hours)

\$1,695 (textbook additional)

Knowledge and skills necessary to identify and safely use various milling cutters and other tools that are adapted to milling machines. This course covers conventional milling machine parts and controls, the function of each part and control and techniques to operate the machines safely and with a high degree of accuracy.

TURNING TECHNOLOGY LEVEL II

ZMTT-225 (75 hours)

\$1,695 (textbook additional)

Knowledge, practical learning experience and accident prevention awareness required to perform advanced conventional lathe job planning, set-up and operation. Aspects of conventional, carbide and other tooling materials selection, preparation, and usage will be covered.

MILLING TECHNOLOGY LEVEL II

ZMTT-212 (75 hours)

\$1,695 (textbook additional)

Knowledge and skills necessary to identify and safely use various milling cutters and other tools that are adaptable to milling machines. Students learn to set up work pieces to be properly machined.



Manual Machining *(continued)*

GRINDING TECHNOLOGY

ZMTT-221 (75 hours)

\$1,695 (textbook additional)

Teaches theoretical and the practical skills development in precision grinding operations. Students will learn to safely use a surface grinder, applying various techniques to make metal parts to blueprint specifications.

Drafting and Design

ENGINEERING GRAPHICS WITH SOLIDWORKS

ZMTT-107 (45 hours)

\$1,195

Learn to use SOLIDWORKS to draw 3D part models, 2D part drawings, parametric parts, part assemblies and basic simulation. Exercises include sketching, extruding parts, editing parts, moving assemblies and SimulationXpress. Students will learn the foundational skills of SOLIDWORKS. SOLIDWORKS 2015

AutoCAD

ZMTT 310 (36 hours)

\$825

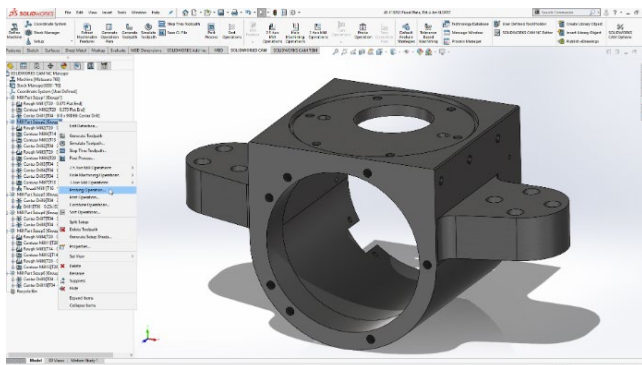
For the new user who needs comprehensive training in AutoCAD, edit and publish drawings with AutoCAD. No previous CAD experience necessary. Drafting, design or engineering experience a plus. Prerequisite: Working knowledge of the Windows-based operating system. AutoCAD 2018

FIXTURE DESIGN

ZMTT-265 (45 hours)

\$1,195 (textbook additional)

Teaches CAD software design of production ready jigs and fixtures. Design features and methods will be discussed.





CNC

CNC PROGRAMMING

ZMTT-180 (75 hours)

\$1,695 (textbook additional)

Introduction to “G” and “M” code programming for Milling and Turning. Teaches theory designed to successfully start programming CNC Mills and Turning Centers. This program is recommended for the student who wants to further their knowledge in CNC Programming.

CNC MILL LEVEL I

ZMTT-185 (75 hours)

\$1,795 (textbook additional)

Teaches FANUC “G” and “M” code programming along with set-up and operation of CNC Milling Centers. Designed by FANUC to teach CNC Programming, Set-up and Operation for Machining Centers.



CNC MILLING II

ZMTT-272 (75 hours)

\$1,695 (textbook additional)

Designed by FANUC to teach FANUC MACRO Programming.

ADVANCED CNC TURNING

ZMTT-276 (75 hours)

\$1,795 (textbook additional)

Designed by FANUC to teach “G” and “M” code programming along with setup and operation of CNC Turning Centers.

CAM PROGRAMMING

ZMTT-288 (75 hours)

\$1,695 (textbook additional)

Teaches skills of Computer Aided Manufacturing (CAM) programming using MasterCAM software. Students will learn how to create 2D mill, 3D mill and lathe part geometries and toolpaths. Students will also use the software to create CNC part programs and verify their toolpaths.

