QUINSIGAMOND COMMUNITY COLLEGE
REQUEST FOR COURSE-EQUIVALENCY CREDIT
ARTICULATION REVIEW FORM

Thank you for your interest in partnering with Quinsigamond Community College.
Please answer the items below as completely as possible. Should you need assistance, do not hesitate to call our office at (508) 854-4439.

Title of Sponsoring Agency's Course: MNT 210 Equivalency

☐ Summarize the overall goal of this course and attach a syllabus:

This course introduces the essential concepts of computer numerical control (CNC) and its impact on manufacturing and productivity. The course focuses on manual programming of different types of CNC systems, with a strong emphasis on the understanding of G and M codes used in current applications. Students learn to write a variety of part programs for both milling and turning operations.

☐ Briefly summarize the objectives of this course and attach supporting materials:

To gain a working knowledge of:

- CNC milling technology
- CNC turning technology
- Orientation to CNC programming

Upon successful completion of this course, students should be able to:

1. Understand and respect the safety procedure associated with machines to prevent shop safety hazards, and achieve Basic OSHA certificate
2. Accurately measure length, concentricity, straightness, flatness and angularity and demonstrate proper use of calipers, micrometers and dial indicators
3. Identify common methods of measurement conversions
4. Accurately explain the tooling and materials used on the lathe and demonstrate proper set up and safe performance of facing, turning, drilling, boring, reaming, tapping, recessing, and threading operations on the lathe
5. Accurately explain the tooling and materials used on the vertical CNC milling machine and demonstrate the proper set up and safe performance of drilling, tapping, up-milling, down-milling, plunge cutting, countersinking, counterboring, and slotting operations on the vertical milling machine
6. Classify types of saws and describe their uses
7. Apply geometric knowledge and blue print reading skills learned previously into programming problems
8. Gain proficiency in the application and selection of safe and effective programming methodology
9. Attain a ready level standard in the operation of the CNC control interface
10. Apply basic and advanced math skills in the development of a CNC program
11. Demonstrate learning of machine tool feeds and speeds
12. Correctly produce parts according to drawings dimensioned per industry standards

13. Quote / estimate for a basic machined components as it applies to company profits

☐ Summarize the academic proficiencies, outcome and/or competencies of the course and attach supporting materials:

Blue Print Reading: Students learn how to read and interpret technical drawings (blueprints). They gain a fundamental understanding of the critical role the technical drawing plays with respect to work process, quality control and a product's critical features.

Metrology: Attain a basic level of competency in the use of precision measurement tools that will allow them to monitor and validate the production outputs related to the precision parts making process. Students gain a solid foundation of knowledge and skill in performing measurements and calculations. The student learns to use precision measurement tools, such as steel rule, tape measure, protractor, micrometer, height gage, calipers and dial indicators. Students gain proficiency selecting the proper tools for inspecting parts and in preparing quality control inspection reports.

GD&T: Present an overview of Geometric Dimensioning and Tolerancing to familiarize the student on its use and application on the shop floor. The materials are based on the ASME Y14.5 – 2009 standard. This prepares the student for the OJT (On The Job Training) that follows this initial orientation.

Safety: Students learn the fundamentals of machine shop safety. Students learn the importance of recognizing critical safety features related to the equipment they will ultimately work with. They will be oriented to location of exits, fire extinguishers, fire blankets, eye wash stations, emergency stops and panic buttons. The training covers the importance of ear and eye protection. Students are oriented to the requirements of injury and accident reporting. A safety test is used to assure that the student has successfully absorbed the material and training. Upon successful completion of the safety test, students receive the OSHA 10 Hour Card.

☐ Describe instructional methods, i.e. how the content of the material is presented, learning activities, etc.:

Instructor led lectures, self-paced training software modules, internet-based special training segments, Powerpoint presentations.

☐ Describe the amount of classroom time the student spends gaining course competencies, i.e. lecture hours/week, field trips, homework, observations, etc.:

Lecture and In Class Activity:
45 hours

Out of Class Activity:
90 hours related OJT

Lab:
45 hours related OJT

☐ Describe assessment methods:

Students will be tested for proficiency after completing basic shop mathematics, blueprint reading and following each instructor led, self-paced hands-on module. Students also must demonstrate concept and skill apprehension by making a 2-D mold and then making a chess pawn on the lathe.

Blueprint test	20%
Math quiz	5%
Metrology Practical/Test	25%
GD&T Test	20%
OSHA Safety quiz	10%
Programming project	10%
Attendance	10%

☐ Describe Course Materials Used (include text, publisher, edition):

Building Math ISBN 978-0825164149
Ultimate GD&T Pocket Guide, ISBN: 978-0-924520-23-5 Item 4070 (Publisher: Effective Training Inc.; 2nd edition)
Tool handouts

Instructor's Name: Matt Healy Phone: 508-831-7020

Instructor's Credentials or Expertise (attach resume):

Completed by: _____ **Date:** _____