

# UNOH UNIVERSITY OF NORTHWESTERN OHIO

## Articulation Agreement between College of Applied Technologies and

Institution: Tri Star Career Compact

To take advantage of this agreement, the student should:

- Contact the Admission Office at the University of Northwestern Ohio for a formal admissions application to the university (419)998-3120.
- Pick up the Articulation Application from Education Relations Representative or your high school counselor. You can also call the University at (419) 998-8889 and have the application form mailed or e-mailed to you.
- The form should be taken to the high school where it should be completed and approved by the student's instructor and counselor. The student will also be required to sign the form stating the he or she has had the necessary training and has met the attached learning outcomes.
- After the form has been signed by the student, approved by the student's instructor and counselor, and the Tri Star Career Compact's chief administrator signs the form, it should be mailed to Shawnaa Roob at the University of Northwestern Ohio.
- After the materials are reviewed by University personnel, the student will be notified if advanced credit has been awarded.

### COURSE AND CREDITS FOR ADVANCED PLACEMENT

#### RA 110 – Automation Mechanical (6 credits)

Graduate of a Robotics and Automation program with a "B" or better grades. The attached learning outcomes must have been met. Awarded credit will be reflected on the students' transcript after completion of the first term.

#### RA 120 – Automation Electrical (6 credits)

Graduate of a Robotics and Automation with Electrical program with a "B" or better grades. The attached learning outcomes must have been met. Awarded credit will be reflected on the students' transcript after completion of the first term.



### Robotics & Automation RA 110 Learning Outcomes

**Students are required to meet the following learning outcomes to receive articulation for RA 110 – Automation Mechanical at the University of Northwestern Ohio.**

Knowledge of robotics and automation is required. Students applying for articulation should meet the following learning outcomes:

1. Experience with disassembly, repair and reassembly of robot mechanical unit.
2. Understand rigging procedures and proper use of equipment.
3. Ability to properly master/calibrate a robot.
4. Ability to repair/replace a robot wiring harness.
5. Ability to remove and reinstall robot end-of-arm tooling.
6. Ability to perform scheduled preventive maintenance on a robot.
7. Ability to measure and set backlash on gear assemblies
8. Identify different types of bearings.
9. Demonstrate the ability to remove and install various types of bearings.
10. Drill and tap a hole for a specified screw.
11. Demonstrate the ability to properly use a torque wrench..
12. Use a micrometer, a Vernier caliper, and a dial indicator to take measurements.
13. Demonstrate the ability to remove and install motor shaft couplings.
14. Demonstrate and use the appropriate Personal Protective Equipment in the shop area.

**Articulation Application Form**  
**College of Applied Technologies**  
**Robotics and Automation Technology Program**

Enrollment application must be on file for this form to be processed.  
Articulation agreement must also be in place.

<b>Section I</b>	
Student Name:	Date:
UNOH Start Date:	UNOH Student Number:
High School/Career Center:	
School Address:	
City/State/ZIP:	
School Phone Number:	Graduation Date from High School:
School Contact Person:	

<b>Section II and course information: To be completed by high school personnel</b>
The above student has demonstrated proficiency by receiving a "B" or better for both years in the content for the course listed below. Please explain how the student received course information Ex: worksheets, testing, hands-on tasks etc.
<hr/> <hr/> <hr/>
<b>This institution has taught the attached required UNOH learning outcomes</b>
Instructor Signature: _____ Date: _____
Administrator Signature: _____ Date: _____
<b>I meet the UNOH learning outcomes (attached) required to receive articulation credit.</b>
Student Signature: _____ Date: _____

Please return this form to:  
 University of Northwestern Ohio  
 Attn: Shawna Roob, Admissions  
 1441 North Cable Road  
 Lima, OH 45805

The below course has been reviewed by the above signatures and is recommended for proficiency credit. Credit will be recorded on the student's transcript showing the credit given for the course.			
Robotics and Automation Technology Course Articulation			
<u>UNOH Course Number</u>	<u>UNOH Course Title</u>	H. S. Course/Program Title (As it will appear on transcript)	Final Grade
RA 110	Automation Mechanical (6 credit hours)		
RA 120	Automation Electrical (6 credit hours)		

### ARTICULATED COURSES, CREDITS AND REQUIREMENTS

Courses & Credits	Requirements
<b>Robotics and Automation</b> RA110 – Automation Mechanical (6 credits)	Graduate of a <b>two-year Robotics &amp; Automation</b> program with a B or better in both years of Robotics courses and meet the learning outcomes.
<b>RA120 – Automation Electrical (6 credits)</b>	Graduate of a Robotics and Automation with Electrical program with a “B” or better grade in both years of Robotics courses and meet the learning outcomes.

### CATALOG DESCRIPTIONS

#### Robotics & Automation Course:

#### **RA110 – Automation Mechanical (6 credits)**

This course is designed to give students a full understanding of the basic maintenance principles and concepts used in industrial production equipment. With practical application students will earn the skills necessary to perform lubrication processes, repairs on various types of mechanical systems and how to troubleshoot system failures. Students will learn the proper use of measuring devices, hand and power tools, fasteners, and various materials used in today's industry.

#### **RA120 – Automation Electrical (6 credits)**

This course covers the basic principles of electricity, magnetism, and electronics. Basic operation of the complete electrical system is taught. Students will learn the difference between AC and DC circuits and the laws that apply. Proper operation and understanding of solenoids, relays, single phase, and three phase systems and the National Electric Code (NEC) will be covered. A strong emphasis is placed on wiring diagram comprehension. Students will study diagnosis, troubleshooting, repair and maintenance of the entire robotics and automation systems.