

Robotics  
8/22/22  
252563

# UNOH UNIVERSITY OF NORTHWESTERN OHIO

## Articulation Agreement

between

College of Applied Technologies

and

Institution: Eastern Center for Arts and Technology

Address: 3075 Terwood Rd

Willow Grove, PA 19090

Phone: 215-784-4800

### Robotics and Automation Technology

The University of Northwestern Ohio believes that many high schools and career centers have extensive course work in technical areas that give students a solid foundation for college study. Students who have these technical skills may be granted college credit for their proficiencies.

A partnership agreement between the university and the high schools and career centers is appropriate to recognize and reward those graduates who have acquired the skills for proficiency credit in our Robotics RA110 – Automation Mechanical course. The university will grant advanced placement to high school graduates who fulfill course requirements agreed to in this document.

#### The advantages to advanced placement:

- There will be no expense to the student
- It will reduce the total tuition expense, book fees, and housing costs for your college program.
- It will reduce the time necessary for completion of the program.

The decision on advanced placement will be determined by the following University of Northwestern Ohio authorized personnel: Provost / Vice President for Academic Affairs and the College Registrar.

Awarded credit to a student will be decided on an individual basis. Awarded credit will be reflected on the students' transcript after completion of the first term.

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 myself or your high school counselor. You can also call the University at (419) 998-3120 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 school's chief administrator signs the form, it should be mailed to Admissions Office 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.

#### **CATALOG DESCRIPTIONS OF COURSES LISTED**

##### **Robotics and Automation Technology 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.

- All Articulation Agreements will be revaluated every five years, to assure all students are getting, and have the necessary information to have credit granted to them.
- All schools desiring to articulate classes with the University of Northwestern Ohio must meet the attached learning outcomes for RA110 – Automation Mechanical.
- If an educational deficiency pattern is detected with a specific high school or career center, said school will have the opportunity to work with UNOH to remedy the concern.

*University of Northwestern Ohio, 1441 N. Cable Rd., Lima, OH 45805  
Office Phone: 419-998-3120 Fax: 419-998-3139*

# UNOH UNIVERSITY OF NORTHWESTERN OHIO

## 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.

We, the undersigned representative of the cooperating University and high school/career centers, agree that a student completing career and technical education training in select applied technology courses may be eligible for advanced placement credit. Guidelines for acceptance of that credit are covered in this document.

University of Northwestern Ohio  
Institution  
[Signature]  
Provost/Vice President for Academic  
Affairs  
8/22/2022  
Date

Eastern Center for HAs and Technology  
Institution  
[Signature]  
Superintendent/Director  
8/1/2022  
Date

Return agreement to:

The University of Northwestern Ohio  
Attention: Admissions  
1441 N. Cable Rd.  
Lima, OH 45805  
419-998-3120