Western Technical College

10442111 Advanced Robotic Fabrication

Course Outcome Summary

Course Information

Description	Students build upon their knowledge by learning offline programming, positioning fixtures and tooling, seam tracking, vision systems, and develop a fully functional weld program.
Career Cluster	Manufacturing
Instructional Level	Associate Degree Courses
Total Credits	2
Total Hours	54

Textbooks

No textbook required.

Course Competencies

1. Investigate system setup options.

Learning Objectives

1.a. Explore various options for pendant display
1.b. Explore security levels
1.c. Explore various system setup options

2. Use variables and structured language to direct program flow.

Learning Objectives

2.a. Understand what a variable is
2.b. Differentiate between different types of variable
2.c. Understand the application of different types of variables to programming
2.d. Identify different logic structures
2.e. Identify how a given structure directs program flow
2.f. Identify how variables are utilized in logic structures

3. Perform weave welds.

Learning Objectives

3.a. Analyze the characteristics of a weave weld

3.b. Understand periodic motion
3.c. Explore the interface for configuring "schedules" or "conditions"
3.d. Investigate the effects of changing wave parameters on the quality of the weld

4. Define frames

Learning Objectives

4.a. Understand the geometry of cubes and planes
4.b. Relate prior knowledge of coordinate systems to formulate a custom coordinate system
4.c. Explore interface for configuring custom coordinate system; "frame"
4.d. Explore how variables and logic structures can be combined with frames to minimize programming

5. Write and call macros.

Learning Objectives

5.a. Define a macro
5.b. Explore syntax of saving macro programs
5.c. Explore configuration of system to allow macro usage
5.d. Utilize calling macros and regular programs

6. Use searching or constants to shift weld locations.

Learning Objectives

6.a. Explore special variables: "position variables" or "position registers"
6.b. Explore I/O system
6.c. Explore moving data from one memory location to another using variables
6.d. Apply "searching" to locate variable location parts
6.e. Apply shifting to parts that have been found to move during a "search"
6.f. Apply shifting with variables and logic structures to make regularly spaced welds from one programmed weld
6.g. Investigate configuring shifting
6.h. Investigate configuring searching

7. Perform multipass welds.

Learning Objectives

7.a. Apply weaving to multipass welding
7.b. Apply searching and shifting to multipass welding
7.c. Explore configuring seam tracking
7.d. Use feedback from seam tracking to drive shifting and weaving