

# **New Horizons Regional Education Center High School Welding Program 2022-2023**

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Office hours: 7:00 – 3:00  
Course: 8672, 8673, 8674

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## **Grading:**

Employability Skills: 34%  
Competencies: 33%  
Related Instruction: 33%

## **Grade Scale:**

A 90 - 100  
B 80 - 89  
C 70 - 79  
D 60 - 69  
F 0 - 59

## WELDING 1

The welding program fosters the developmental skills listed below.

The student:

- Maintains appropriate personal appearance.
- Uses time wisely.
- Maintains a neat and clean work area.
- Follows instructions.
- Attends regularly and on time.
- Takes proper care of tools, equipment and facilities.
- Communicates effectively.
- Solves problems using a mix of logic and intuition appropriate to the situation.

## Competencies for welding:

### FIRST NINE WEEKS

1. Identify and follow general shop, personal safety, and first aid rules.  
**Oxyfuel Cutting (OAC)**
2. Change cylinders; set up oxyacetylene equipment for operation; pressure test for leaks; turn on, light, and adjust torch; and shut down equipment.
3. Operate manual oxyfuel cutting equipment.
4. Operate automatic oxyfuel cutting equipment.
5. Perform straight cutting.
6. Perform bevel cutting.
7. Perform shape cutting.  
**Shielded Metal Arc Welding (SMAW)**
8. Make fillet welds in the horizontal (2F) position using E6010 electrodes. Sizes- 1/4, 3/8, 1/2.
9. Make fillet welds in the horizontal (2F) position using E7024 electrodes. Sizes- 1/4, 3/8, 1/2.  
**Related Instruction**
10. Reading a ruler.
11. Welding theory and terminology.
12. Employability skills.
13. OSHA 10

### SECOND NINE WEEKS

- Air Carbon Arc Cutting (ACE)**
14. Operate manual air cutting equipment.
15. Perform metal removal operations.  
**Shielded Metal Arc Welding (SMAW)**
16. Make fillet welds in the vertical (3F) position using E6010 electrodes. Sizes- 1/4, 3/8, 1/2.
17. Make fillet welds in the overhead (4F) position using E6010 electrodes. Sizes- 1/4, 3/8, 1/2.  
**Related Instruction**
18. Welding theory and terminology.
19. Employability skills.
20. Interpret welding symbols.

### THIRD NINE WEEKS

- Plasma Arc Cutting (PAC)**
21. Set up manual air cutting operations.
22. Operate plasma arc cutting operations.
23. Perform shape cutting operations.

### **Shielded Metal Arc Welding (SMAW)**

24. Make fillet welds in the horizontal position (**2F**) using E7018 electrode. Sizes- 1\4, 3\8, 1\2.
25. Make fillet welds in the vertical position (**3F**) using E7018 electrode. Sizes- 1\4, 3\8, 1\2.
26. Make fillet welds in the overhead position (**4F**) using E7018 electrode. Sizes- 1\4, 3\8, 1\2.

#### **Related Instruction**

27. Employability skills training.
28. Welding theory and terminology.
29. Practical problems in math.
30. Interpret basic elements of a drawing.

### FOURTH NINE WEEKS

### **Gas Metal Arc Welding (GMAW)**

31. Make fillet welds in the horizontal position (**2F**) using 70 S wire. Sizes 1\4, 3\8, 1\2.
32. Make fillet welds in the vertical position (**3F**) using 70 S wire. Sizes 1\4, 3\8, 1\2.
33. Make fillet welds in the overhead position (**4F**) using 70 S wire. Sizes 1\4, 3\8, 1\2.
34. Make fillet welds in the horizontal position (**2F**) using **Mig Aluminum Wire**. Sizes- 1\4, 3\8, 1\2.

#### **Flux Core Arc Welding**

35. Make fillet welds in the horizontal position (**2F**) using 71 S wire. Sizes- 1\4, 3\8, 1\2.
36. Make fillet welds in the vertical position (**3F**) using 71 S wire. Sizes- 1\4, 3\8, 1\2.
37. Make fillet welds in the overhead position (**4F**) using 71 S wire. Sizes- 1\4, 3\8, 1\2.

#### **Related Instruction**

38. Employability skills training.
39. Welding theory, terminology and NOCTI Certification.

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## **WELDING 2**

The welding program fosters the developmental skills listed below.

The student:

- Maintains appropriate personal appearance.
- Uses time wisely.
- Maintains a neat and clean work area.
- Follows instructions.
- Attends regularly and on time.
- Takes proper care of tools, equipment and facilities.
- Communicates effectively.
- Solves problems using a mix of logic and intuition appropriate to the situation.

Competencies for welding: AWS Certification

#### FIFTH NINE WEEKS

##### **Shielded Metal Arc Welding (SMAW)**

40. Make groove welds in the 2G position using E7018 electrodes.
41. Make groove welds in the 3G position using E7018 electrodes.
42. Perform qualification test for 2G and 3G groove welds.

##### **Related Instruction**

43. Employability skills training.
44. Welding theory, terminology

#### SIXTH NINE WEEKS

##### **Shielded Metal Arc Welding (SMAW)**

45. Make groove welds in the over head 4G position using E7018 electrodes.
46. Perform qualification test for 4G groove welds.

##### **Gas Metal Arc Welding (GMAW)**

47. Make groove welds in the 1G and 2G positions.
48. Perform qualification test for 2G groove welds.

##### **Flux Core Arc Welding (FCAW)**

49. Make groove welds in the 2G position.
50. Perform qualification test for 2G groove welds.

##### **Related Instruction**

51. Employability skills training.
52. Welding theory, terminology

#### SEVENTH NINE WEEKS

##### **Flux Core Arc Welding (FCAW)**

53. Make groove welds in the vertical 3G position.
  54. Perform qualification test for vertical 3G groove welds.
- Gas Tungsten Arc Welding (TIG)**
55. Make fillet welds on carbon steel in the horizontal 2F position.
  56. Make fillet welds on carbon steel in the vertical 3F position.
  57. Make fillet welds on carbon steel in the over head 4F position.
  58. Perform qualification test for 2F, 3F and 4F fillet (**TIG**) welds using carbon steel.
  59. Make groove welds on carbon steel in the 2G, 3G and 4G positions.

**Related Instruction**

60. Employability skills training.
61. Welding theory, terminology

**EIGHTH NINE WEEKS**

**Gas Tungsten Arc Welding (TIG)**

62. Make fillet welds on aluminum in the 2F, 3F and 4F position.
63. Make groove welds on aluminum in the 2G, 3G and 4G position.

**Additional Training**

Each student is required to complete their assignments in a timely fashion and because of the nature of welding will not progress forward until they complete each skill level. You will be given an opportunity to make up test on a case by case basis.

**Attendance:** See page 5 and 6 of the student handbook.

**Student Organizations:**

Skills USA

American Welding Society (AWS)

**Credentialing/Licensing:**

NOCTI certificate 1<sup>st</sup> year

OSHA 10 certificate 1st year

AWS Certification 2<sup>nd</sup> year

**Class Fees:** See student hand out. Total prices vary per student needs.