

INTRODUCTION TO WELDING 2026-2027

COURSE SYLLABUS

Teacher Information

Teacher: Miss. Martinez

Room Number: 304

COURSE INFORMATION

Course: Introduction to Welding

Course Length: 2 Semesters / 4 Nine-Week Grading Periods

Credit: 1 Credit

Grade Levels: 9–12

Primary Curriculum Resource:

NCCER Core Curriculum: Introductory Craft Skills, Sixth Edition

Pearson / NCCER (Textbook Provided in Classroom)

COURSE DESCRIPTION

Introduction to Welding introduces students to the construction and welding industries through foundational craft skills and introductory welding concepts. Students will develop knowledge of workplace safety, personal protective equipment, construction math, hand and power tools, construction drawings, materials handling, communication, employability skills, and basic welding concepts.

Students will learn through classroom instruction, demonstrations, videos, assignments, projects, and hands-on activities when available. Shop activities will focus on developing safe work habits, proper tool use, measurement, material preparation, and introductory welding skills.

The course is designed to help students understand the expectations, safety practices, and foundational skills necessary for success in welding and other skilled trades.

GRADING

Category	Weight
Daily Grades	40%
Test Grades	40%
Quizzes & Projects	20%
Total	100%

Daily Grades: Classwork, bell ringers, notes, worksheets, activities, demonstrations, participation, practice activities, and shop preparation.

Tests: Unit tests after every chapter, safety assessments, written assessments, and practical assessments.

Quizzes & Projects: Quizzes, research assignments, welding projects, construction-skills projects, presentations, and major course projects.

TEKS / COURSE CONTENT & PACING GUIDE

GRADING PERIOD 1 – CONSTRUCTION FOUNDATIONS & SAFETY

Weeks 1–9

Topics

- Introduction to the construction and welding industries
- Career opportunities in welding and skilled trades
- Workplace expectations and employability skills
- Construction site and shop safety
- Personal protective equipment (PPE)
- Hazard recognition
- Fire prevention and emergency procedures
- Basic hand tools
- Tool identification and proper use
- Introduction to materials
- Basic measurement
- Introduction to construction math

Core Curriculum Focus

- **Module 00100:** Build Your Future in Construction
- **Module 00101:** Basic Safety

- **Module 00102:** Introduction to Construction Math
- **Module 00103:** Introduction to Hand Tools

Grading Period Project: Safety & Tool Identification Project

GRADING PERIOD 2 – TOOLS, MATERIALS & CONSTRUCTION SKILLS

Weeks 10–18

Topics

- Power tools and their proper use
- Tool maintenance
- Materials handling
- Metal identification
- Measuring and layout
- Fractions, decimals, and basic calculations
- Reading measurements
- Introduction to construction drawings
- Symbols and basic drawings
- Basic rigging concepts
- Workplace communication
- Teamwork and professionalism

Core Curriculum Focus

- **Module 00104:** Introduction to Power Tools
- **Module 00105:** Introduction to Construction Drawings
- **Module 00106:** Introduction to Basic Rigging
- **Module 00107:** Basic Communication Skills
- **Module 00109:** Introduction to Materials Handling

Semester 1 Project: Construction Skills & Materials Project

SEMESTER 2

GRADING PERIOD 3 – INTRODUCTION TO WELDING

Weeks 19–27

Topics

- Introduction to welding and metalworking
- Welding careers and industry applications

- Welding terminology
- Welding equipment identification
- Welding machine safety
- Electrical safety
- Welding hazards
- Fire prevention
- Proper PPE for welding
- Welding helmets and lens shades
- Welding gloves and protective clothing
- Welding safety glasses
- Leather footwear and protective clothing
- Metal preparation
- Basic joint types
- Welding positions
- Introduction to weld quality
- Basic welding setup and procedures

Hands-On Focus

When shop activities are available, students may practice:

- Proper PPE inspection
- Equipment identification
- Safe workstation setup
- Metal preparation
- Basic welding practice
- Weld bead practice
- Joint preparation
- Cleaning and inspecting welds

TEKS / Curriculum Focus: Core safety, tools, materials handling, employability, and introductory welding skills.

Grading Period Project: Introductory Welding Skills Project

GRADING PERIOD 4 – WELDING APPLICATIONS & CAREER SKILLS

Weeks 28–36

Topics

- Basic welding processes
- Welding equipment and accessories
- Welding symbols

- Reading basic welding drawings
- Measurement and layout
- Joint design
- Weld inspection
- Common welding defects
- Quality control
- Shop organization
- Materials handling
- Workplace communication
- Employability skills
- Resume and career preparation
- Welding career pathways
- Industry expectations
- Review of safety and foundational welding skills

Hands-On Focus

When appropriate and available, students may complete introductory projects that demonstrate:

- Safe equipment setup
- Proper PPE use
- Measurement and layout
- Material preparation
- Basic welding techniques
- Weld inspection
- Proper cleanup and tool storage

Final Project: Welding Skills & Career Portfolio

CLASS EXPECTATIONS

Students are expected to:

- **Arrive on time and be prepared to learn.**
- Bring all required instructional materials to class.
- **Absolutely NO cell phones or communication devices** are permitted during class unless specifically authorized by the teacher for an instructional purpose.
- Keep cell phones, smartwatches, earbuds, headphones, tablets, and other personal communication devices **turned off and put away** according to campus and district procedures.
- Participate in classroom instruction, demonstrations, activities, projects, and shop activities when available.
- Follow directions the **first time they are given.**
- Complete and submit assignments on time.

- Follow all safety procedures.
- Wear the required PPE and appropriate clothing.
- Treat tools, equipment, materials, classmates, and facilities with respect.
- Use appropriate language and demonstrate professional workplace behavior.
- Work cooperatively with classmates.
- Keep the classroom and work areas clean and organized.
- Return tools and equipment to their proper locations.
- Report damaged equipment, unsafe conditions, or injuries immediately.
- Never operate equipment without proper instruction and teacher approval.
- Demonstrate honesty and academic integrity.
- Take responsibility for behavior, assignments, and learning.

CELL PHONE & COMMUNICATION DEVICE POLICY

This classroom is a **cell-phone-free learning environment**.

Students may not use, hold, check, text, record, photograph, or communicate through personal electronic devices during class.

This includes, but is not limited to:

- Cell phones
- Smartwatches
- Earbuds/headphones
- Tablets
- Personal gaming devices
- Other personal communication devices

Absolutely no cell phones or personal communication devices are permitted during shop activities.

Failure to follow this expectation will result in consequences in accordance with campus and district policies.

INSTRUCTIONAL MATERIALS

Students are expected to bring the following materials to **every class**:

- **Writing utensil** — pencil or pen
- **Fully charged Chromebook**
- Any additional materials requested by the teacher

Students are responsible for bringing their required materials and ensuring their Chromebook is **charged and ready for use at the beginning of class.**

REQUIRED WELDING CLOTHING & PPE

Because welding and shop activities involve heat, sparks, metal, tools, and other hazards, students must follow all clothing and PPE requirements.

Students Must Wear:

- **Closed-toe leather shoes or boots**
- **Cotton long-sleeve shirt**
- **Long pants that provide appropriate coverage (Absolutely no frays or holes)**
- **No jewelry**
- **Hair secured and kept out of the face**
- **Safety glasses**

Important:

Safety glasses will be provided by the school/classroom.

Additional protective equipment required for shop activities will be **provided when students are working in the shop**, as appropriate.

Additional PPE may include:

- Welding helmet
- Welding gloves
- Welding jacket or other protective clothing
- Hearing protection
- Face shields
- Other PPE required for a specific activity

Students who are not dressed appropriately for a shop activity may be required to complete an alternative classroom assignment and **may not be permitted to participate in the hands-on activity.**

SAFETY

Safety is the **number one priority** in Introduction to Welding.

Students will receive safety instruction before participating in any welding, shop, equipment, or hands-on activity. Safety instruction will follow the principles presented in the *NCCER Core Curriculum: Introductory Craft Skills, Fifth Edition*, including hazard recognition, proper PPE, safe work practices, tool safety, and emergency procedures. The NCCER Core curriculum specifically includes a Basic Safety module covering safe workplace procedures and PPE.

Students are expected to:

- Follow all teacher directions and safety procedures.
- Wear all required PPE.
- Wear appropriate clothing and footwear.
- Keep hair secured and away from the face and equipment.
- Remove all jewelry before shop activities.
- Use tools and equipment only after receiving proper instruction.
- Never operate welding equipment without teacher permission.
- Maintain a clean and organized work area.
- Be aware of sparks, heat, sharp edges, electrical hazards, and other shop hazards.
- Follow proper fire prevention procedures.
- Know the location of emergency equipment and exits.
- Report unsafe conditions, damaged equipment, or injuries immediately.
- Never engage in horseplay or unsafe behavior.
- Follow all shop cleanup procedures.

Students who fail to follow safety procedures may be removed from the activity and assigned an alternative learning activity. Additional consequences may apply according to campus and district policies.

SHOP EXPECTATIONS

When students are working in the shop, they are expected to demonstrate professional behavior.

Students must:

1. Enter the shop only when instructed.
2. Have all required PPE properly worn before beginning work.
3. Listen to safety instructions and demonstrations.
4. Keep hands and tools away from operating equipment unless instructed.
5. Maintain a clean and organized workstation.
6. Keep walkways and work areas clear.
7. Use tools and equipment for their intended purpose.
8. Ask for help when unsure how to use equipment.
9. Report damaged or malfunctioning equipment immediately.
10. Clean and return tools and equipment when finished.
11. Follow all classroom and shop safety procedures.

Horseplay, intentional misuse of equipment, or unsafe behavior will not be tolerated.

CORE CURRICULUM ALIGNMENT

This course is primarily based on the **NCCER Core Curriculum: Introductory Craft Skills, Fifth Edition**. The Fifth Edition includes foundational modules covering construction careers, safety, construction math, hand tools, power tools, construction drawings, basic rigging, communication, employability skills, and materials handling.

Core Modules Covered

Module 00100: Build Your Future in Construction

Module 00101: Basic Safety

Module 00102: Introduction to Construction Math

Module 00103: Introduction to Hand Tools

Module 00104: Introduction to Power Tools

Module 00105: Introduction to Construction Drawings

Module 00106: Introduction to Basic Rigging

Module 00107: Basic Communication Skills

Module 00108: Basic Employability Skills

Module 00109: Introduction to Materials Handling

The course supplements these foundational skills with introductory welding concepts, welding safety, PPE, metal preparation, equipment identification, basic welding practices, and career exploration.

COURSE GOALS

By the end of the course, students should be able to:

- Demonstrate proper workplace and shop safety.
- Identify and correctly use common hand and power tools.
- Perform basic construction math and measurements.
- Read basic construction and welding drawings.
- Identify common construction and welding materials.
- Explain basic welding terminology and processes.
- Identify welding equipment and PPE.
- Demonstrate proper welding clothing and PPE requirements.
- Explain basic welding hazards and prevention methods.
- Demonstrate professional workplace behavior.
- Maintain a clean and organized work area.
- Communicate effectively in a construction/shop environment.

- Explore careers and educational opportunities in welding and skilled trades.
- Demonstrate safe work habits appropriate for future training and employment.

CAREER & EMPLOYABILITY SKILLS

Students will be introduced to career opportunities in:

- Welding
- Metal fabrication
- Construction
- Manufacturing
- Automotive
- Pipefitting
- Structural steel
- Industrial maintenance
- Agriculture and agricultural mechanics
- Skilled trades

Students will also develop employability skills including communication, teamwork, problem-solving, workplace safety, responsibility, professionalism, and career planning.

TEKS COVERAGE

The course covers these major areas:

§130.362(c)(1) Professional standards and employability skills

§130.362(c)(2) Characteristics of a successful worker and workplace expectations

§130.362(c)(3) Welding tools, equipment, technology, materials, PPE, and safety

§130.362(c)(4) Welding joint designs, symbols, sketches, and types of welds

§130.362(c)(5) Math, technical writing, measurement, fractions/decimals, and metric conversions

§130.362(c)(6) Welding projects, careers, codes/standards, teamwork, and independent work

§130.362(c)(7) Oxy-fuel cutting

§130.362(c)(8) Shielded Metal Arc Welding (SMAW/Stick)

§130.362(c)(9) Gas Metal Arc Welding (GMAW/MIG)

COURSE COMPLETION

Successful completion of this course requires students to demonstrate both **knowledge and safe work habits**.

Students are expected to participate in classroom activities, complete assignments and assessments, demonstrate appropriate PPE and safety practices, and maintain professional behavior.

In this class, safety comes before speed, grades, or production.