Maritime and Welding

Course Syllabus

Course	Maritime and Welding	**Term**	Full Year
Teacher	Mr. Heuker (Mr. H)		
Email	Heukerw@bsd405.org	**Tutorial Details**	During Lunch/After school/ by appointment

Welcome to Core Plus Maritime and Welding! This hands-on multi-period course is designed to give students the opportunity to learn the processes of welding, metal fabrication, and maritime concepts—showing how welding and maritime work as one. Students will build real-world skills, master major welding and fabrication processes, integrate SolidWorks Computer-Aided Design (CAD), utilize CNC plasma cutting tools, and study applied math and science concepts that meet rigorous industry standards.

1. Course Overview

Course description: Core Plus Maritime and Welding provides students with hands-on technical training where they can potentially earn CTE, 3rd-year math, and 3rd-year science credits. Students engage in project-based learning, studying material science, buoyancy, physics, hydraulics, pneumatics, and electrical systems while preparing for post-secondary careers and industry certifications.

Learning Outcomes By the end of this course, students will be able to...	How students will show learning
Develop proficiency in major welding and fabrication processes (MIG/GMAW, TIG/GTAW, SMAW, Oxy-fuel, and aluminum welding)	Weld samples, practical shop execution, and structural project builds
Integrate SolidWorks CAD and CNC plasma cutting into project design and fabrication	Technical sketches, 3D digital models, DXF cut files, and cut metal parts
Read and interpret technical drawings, blueprints, and symbols used in maritime and industrial construction	Print-reading assessments, layout work, and fabrication adherence to specifications
Adhere to professional safety standards and earn industry-recognized credentials (OSHA 10, CPR/First Aid, Boater Education Card)	Safety audits, practical safety compliance, and certification exams

2. Major Units and Approximate Timeline

Unit / Topic	Key Texts, Skills, or Standards	Major Evidence of Learning
Safety, SOPs & Shop Tools	OSHA-10 certification, shop safety protocols, Standard Operating Procedures (SOPs), personal protective equipment (PPE), and safe hand/power tool operation.	Safety certification test, shop safety audits, and practical compliance checks.
Mapping, Navigation & Boater Safety	Mapping maritime geography, PNW maritime resources/careers, navigation rules, and Washington Boater's Safety Card preparation.	Boater Education certification, navigation assessments, and career research portfolios.
Print Reading, Precision Measurement & CAD	Technical sketching, SolidWorks 3D CAD modeling, precision measurement tools, blueprints, and welding symbols.	Drafting portfolios, CAD models, precision measurement checks, and print-reading tests.
Material Science, Fasteners & Rigging	Properties of metals, material science, industrial fasteners, thread pitch/grades, and rigging/lifting safety principles.	Material science quizzes, fastener identification labs, and rigging practical evaluations.
Core Welding Processes (SMAW & GMAW)	Shielded Metal Arc Welding (SMAW) and Gas Metal Arc Welding (GMAW/MIG) setup, joint design, and position welding.	Practical weld coupons, destructive/non-destructive tests, and module exams.
Advanced Fabrication, TIG, Aluminum & CNC	Gas Tungsten Arc Welding (GTAW/TIG), aluminum welding, CNC plasma cutting (DXF files), and quality control (QC/QA).	TIG/aluminum weld coupons, cut metal components, QC weld inspections, and plasma parts.
Marine Systems (Hydraulics, Electrical & Propulsion)	Applied physics, buoyancy, fluid lines/fittings, hydraulics, pneumatics, electrical systems, corrosion control, and propulsion.	Applied science assignments, system troubleshooting labs, and corrosion mitigation projects.
Capstone Project & Career Readiness	Comprehensive capstone fabrication builds (e.g., boat kits or custom frames), resume building, mock interviews, and career readiness.	Final capstone fabrication project, technical presentation, and professional portfolio.

Note: Timelines may shift in response to student needs, school events, and opportunities for deeper learning.

3.Materials, Technology, and Daily Expectations

Bring Daily	Technology / Platforms	Classroom Routines
Sturdy closed-toed work boots, long pants (no rips/tears), 100% natural-fiber shirts/sweatshirts (cotton—no synthetics), charged laptop, notebook. Provided gear: Safety glasses, welding helmets, gloves, and welding jackets (students may use approved personal gear checked by Mr. Heuker).	StudentVUE, SolidWorks CAD software, digital curriculum resources. ParentVUE for grading visibility and assignment feedback tracking.	Line up for safety check, secure personal devices in the pocket chart, review daily agenda and safety brief, hands-on shop work, and end-of-period clean-up. One person out on a hall pass; 10/10 rule applies (no breaks during first/last 10 minutes); 5-minute limit on breaks.

• No Cell Phones, headphones, or personal devices are to be used during class time unless authorized by the teacher. Phones go in the pocket chart; violations follow the observation and detention ladder outlined in the student handbook.

4. Grading and Feedback

Category / Standard Area	Examples of Evidence	Approx. Weight or Reporting Notes
Essential Standards (CTE)	Weld samples, practical fabrication projects, performance evaluations	50% — Measured on a 0–4 standards rubric scale
Supporting Knowledge (CTE)	Discussion posts, chapter notes, quizzes, formative checks	25% — Measured on a 0–4 standards rubric scale
Habits of Work (CTE)	Work records, shop clean-up participation, safety compliance	25% — Performance-based active participation and safety execution
Essential Standards (Math/Science)	Summative assessments, major unit projects	70% — Measured on a 0–4 standards rubric scale
Supporting Work (Math/Science)	Formative assessments, in-class assignments	30% — Measured on a 0–4 standards rubric scale

Feedback, Late Work, and Reassessment

• Feedback: Students receive regular performance evaluations on weld samples, project walkthroughs, and gradebook updates via ParentVUE.

• Late work: Students are encouraged to submit work to demonstrate standards mastery. Late work is accepted up until established unit deadlines. To protect academic integrity while honoring student learning, late submissions may be capped at a "B" grade.

• Reassessment or revision: Students are provided opportunities to revise projects or reassess on standards to demonstrate growth, with unit deadlines and a "B" ceiling applied to protect workload and maintain accountability.

• Absent on due date: Unsubmitted or missing assignments will be marked with a "Z" code (missing, counting as a zero) in ParentVUE within two weeks to ensure accurate tracking and system alerts. Excused absences follow district timelines for full credit makeup.0-4 Rubric Scale

Letter Grade	Rubric High	Rubric Low	Description
A	4.00	3.50	Distinguished — Demonstrates excellent understanding of all topics, going above and beyond.
B	3.49	2.75	Proficient — Demonstrates adequate understanding of the majority of topics; active and meeting standards.
C	2.74	2.00	Basic — Demonstrates some understanding; inconsistent attendance or partial standard fulfillment.
D	1.99	1.50	Unsatisfactory — Little understanding demonstrated; chronically absent or missing assignments.
F	1.50	0.00	No Evidence — No understanding demonstrated; rarely present or major assignments uncompleted.

5. Communication and Support

Need...	Best Next Step
Help understanding a concept	Ask during shop demonstrations, attend tutorials, or reach out via email
Help with an assignment	Bring your draft, weld coupon, or project questions to Mr. H during shop hours
Family communication	Email Mr. Heuker at Heukerw@bsd405.org (best/most responsive method; phone: 425-456-7278)
Accessibility or accommodations	Full support for IEP and 504 plans; instruction and assessments adapted with MLL facilitators based on WIDA proficiency levels

Interlake High School Student Handbook

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