Danville High School
Design and Technology
2018-2019

Instructor:
Maxfield English

Course Description:
This course builds on the techniques acquired in the *Woodworking* and *Welding* components of the *Building Trades* course. Students learn craftsmanship through established industry standards including the latest technological techniques. The students experience the use of all available hand tools in addition to basic and advanced machinery and operations. Acquired knowledge of the properties of wood, construction methods, and finishing procedures are the fundamental units of study that will allow for students to explore self-directed projects. All technical skills, woodworking techniques, consumer knowledge, environmentally sound practices, and safety regulations act as the foundational basis for post-secondary education and/or employment. Emphasis is also placed on four position welding techniques (flat, vertical, horizontal and overhead) utilizing Oxy-Acetylene welding (OAW), Shielded Metal-Arc Welding (SMAW), Gas Tungsten-Arc Welding (GTAW) and Gas Metal-Arc Welding (GMAW) processes.

Content is based on the techniques and interrelationships found in design, manufacturing and production. Instruction will focus on the critical actions, knowledge, systems, and processes necessary to participate in a design/manufacturing enterprise. Activities will focus on manufacturing processes and production, quality and continuous improvement practices, maintenance awareness, and safety. Students will develop high performance skills through demonstrations, lectures, self-paced studies, labs, technical presentations, critical thinking, problem-solving, and individual and group activities in order to demonstrate the core set of skills and knowledge necessary to prepare for sustained careers in a high performance environment.

Learning Objectives:
There will be between 3 and 10 learning objectives that support each standard. The final grade for each standard will depend on the number and level of mastery students demonstrate on learning objectives for that standard. Students will have multiple opportunities throughout each unit to demonstrate their mastery of each learning objective. Some units span the entire semester. A clear list of learning objectives will be distributed at the beginning of each unit of study. Progress will be recorded in PowerSchool so students and parents will always have access. Students and parents are encouraged to contact me to discuss any concerns or to build a progress plan if needed.

Course Requirements and Policies

- Safety Contracts will be required to be signed by students and their parents in this course. We work with tools; gross safety violations may result in removal from the course.
- Electronic equipment not approved for class work will be stowed away **for the duration of class time.** This will be strictly enforced and infractions will result in temporary forfeiture.
- Academic honesty and other behavior in accordance of the school handbook will be expected at all times.
- Active participation in the classroom will be necessary in order to achieve the standards of the course. If absences are foreseeable, please make arrangements with me ahead of time to ensure the impact of the absence is minimized when possible.
- Completing practice work and timeliness with deadlines are integral to your success in meeting the standards of any course. Therefore these behaviors, along with timeliness and class participation, will be fastidiously tracked under the Habits of Work (H.O.W.) standards for this course. If there is concern about not being able to meet a deadline due to unusual circumstances, please contact me BEFORE the due date for the assignment in question to discuss the matter and make alternative arrangements if deemed appropriate/necessary.

Course Material Requirements

Text book
Charged laptop
Writing utensil
Proper task-specific footwear and attire

Methods of Instruction

Task-specific demonstration
Lecture
Text and technical manual reading
Video
Peer instruction
Peer review/critique

Group work
One-on-one instruction
Field-trips

Class Schedule

Week	Topic	Assessments
1-16	This course is project based. Duration of topics will be determined by instructor and student(s) based on interest and building a wide range of skills.	Paired with project and determined before any work starts.
1	Shop safety contracts	

Standards Assessed:
Outputs and Impacts: 7.18 Students understand that people control the outputs and impacts of our expanding technological activities in the areas of communication, construction, manufacturing, power and transportation, energy sources, health technology, and biotechnology. This is evident when students:
7.18.aaa. Assess ways that people are able to share, compile, use, and misuse technology;
7.18.bbb. Invent and use tools that observe, measure, create, and control; and
7.18.dd. Propose a technological solution in which both the positive and negative consequences of technology are considered.
Designing Solutions: 7.19 Students use technological/engineering processes to design solutions to

problems. This is evident when students:
7.19.aaa. Create a design solution:
-Build on specifications, with an understanding of the constraints (e.g., cost, weight, environment), and tolerances that affect performance;
-Include mathematical and/or mechanical models of their design;
-Include steps and sequences for efficiently building a prototype or product that conforms to the specifications;
-Test the prototype;
-Use the results to modify the design; and
7.19.bbb. Evaluate and adjust a design process, responding to the unique characteristics of a specific problem.

Course syllabus details subject to change. Please refer to this document frequently.