

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL**

**ADVANCED MACHINE TOOL TECHNOLOGY (CCHS)**

Advanced Machine Tool Technology is a program for the student who wishes to become a machinist or who is very serious about learning more skills in machine technology. Focus will be on processes which will help prepare the student to enter a post-high school training program or become employed as a machinist. Advanced processes in lathe, milling, foundry, CNC, and more are included in this course.

**Prerequisite:** C or better in General Machine Tool Technology, instructor approval, safety test must be passed.

**Advanced Designation Course - Career/Vocational**

This course is identified as an Advanced Designation Course. Students meeting the requirements of the Advanced Performance Level as defined in the Wyoming Content and Performance Standards will be considered Advanced in the Career/Vocational content area.

An advanced Career/Vocational student evaluates and integrates transferable academic/workplace knowledge and skills in multiple situations as a productive contributor in the workplace.

Students who are Advanced in at least five of the nine content areas and Proficient in the others will have the Advanced Endorsement placed on their grade transcript.

**VT-MA-01 SAFETY (Content Standard)**

State Standards Correlations:

- CV11.1.1 Prepare/Analyze Personal Financial Information
- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.3 Leadership to Accomplish Group Goals
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values
- CV11.6.2 Locate/Interpret Career Information, Labor Trends
- CV11.6.3 Create, Evaluate, Revise Career Plans
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will understand the relevancy of safety in the Machine Tool Technology area, and

he will demonstrate the ability to work safely at all times.

**VT-MA-01-01- Hand Tools, Power Tools, Foundry, Fire Safety (Objective)**

C-NR - Critical-District Reporting Not Required

Students will demonstrate an understanding of proper safety procedures concerning hand tools, power tools, foundry usage, and fire in the machine tool area.

**VT-MA-02 HAND TOOLS AND BENCH WORK (Content Standard)**

State Standards Correlations:

- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices

Students will demonstrate the ability to identify and properly use appropriate tools.

**VT-MA-02-01 - Use of Hand Tools, Measurement Tools, Layout Tools (Objective)**

C-NR - Critical-District Reporting Not Required

Students will identify, select, and properly use the basic bench, layout, and hand tools.

**VT-MA-03 BASIC MEASUREMENT AND INSPECTION (Content Standard)**

State Standards Correlations:

- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices

Students will demonstrate knowledge of measurement and inspection tools.

**VT-MA-03-01 - Read/Properly Use Measuring Tools (Objective)**

C-NR - Critical-District Reporting Not Required

Students will accurately read and properly use the common types of linear, micrometer, and vernier measuring tools.

**VT-MA-04 SHOP DRAWING AND PROJECT PLANNING (Content Standard)**

State Standards Correlations:

- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.4.2 Modifications of Systems; Alternate Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment

CV11.5.3 Workplace Equipment to Solve Problems

CV11.5.4 Apply Safe and Ethical Practices

Students will demonstrate knowledge of CAD systems and blueprint reading.

**VT-MA-04-01 - Drawings, Terms, Symbols, CAD (Objective)**

C-NR - Critical-District Reporting Not Required

Students will accurately create and read blueprints drawn on a CAD system.

**VT-MA-05 MACHINE TOOL POWER EQUIPMENT (Content Standard)**

State Standards Correlations:

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.3.2 Organize/Update Workplace Information

CV11.3.3 Interpret/Communicate Workplace Information

CV11.3.4 Technology to Process Workplace Information

CV11.4.1 Quality and Performance of Systems

CV11.4.2 Modifications of Systems; Alternate Systems

Students will demonstrate knowledge of Machine Tool Power Equipment usage and processes.

**VT-MA-05-01 - Machine Tool Power Equipment (Objective)**

C-NR - Critical-District Reporting Not Required

Students will operate machine tool power equipment (pedestal grinder, power saws, drill press, metal lathe, etc.) using correct procedures and processes.

**VT-MA-06 AUTOMATION AND COMPUTER NUMERIC CONTROL (Content Std)**

State Standards Correlations:

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.3.2 Organize/Update Workplace Information

CV11.3.3 Interpret/Communicate Workplace Information

CV11.3.4 Technology to Process Workplace Information

CV11.4.1 Quality and Performance of Systems

CV11.4.2 Modifications of Systems; Alternate Systems

CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology

CV11.5.2 Setup, Operation, Maintenance of Equipment

CV11.5.3 Workplace Equipment to Solve Problems

CV11.5.4 Apply Safe and Ethical Practices

CV11.6.1 Identify/Assess Personal Ability/Interests/Values

CV11.6.2 Locate/Interpret Career Information, Labor Trends

CV11.6.3 Create, Evaluate, Revise Career Plans

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate knowledge of automated machining and numeric control.

**VT-MA-06-01 - Cartesian Coordinate System, Programming (Objective)**

C-NR - Critical-District Reporting Not Required

Students will create a program for the automated mill by using CNC code and the Cartesian coordinate system.

**VT-MA-06-02 - Computer-Aided Machining (Objective)**

C-NR - Critical-District Reporting Not Required

Students will machine assigned parts using CAD, CAM, and the computer-controlled milling machine.

**VT-MA-06-03 - CAD to Design, Prepare, Machine Parts (Objective)**

C-NR - Critical-District Reporting Not Required

Students will design, prepare, and machine parts using machine codes, Computer-Aided Design (CAD), Computer-Aided Machining (CAM), and a numeric-controlled milling machine.

last update 7/28/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
AUTOMOTIVE TECH I (CCHS)**

Auto Technology I will involve classroom and laboratory experience concerned with the theory of operation and the construction, maintenance, repair, and adjustment of most all components of the automobile. Automobiles will be restored only with original equipment. It is highly recommended students have access to an automobile to experience and develop certain skills. Students must pass the final exam to continue in the program.

**VT-A1-01 CAREERS, SAFETY, HAND TOOLS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values

Students will know where to search for employment, pass a safety test, and identify and know how to use basic hand tools.

**VT-A1-01-01 - Occupational Outlook and Shop Organization (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will know where to search for employment in the automotive industry, and they will understand the six steps in automotive service.

**VT-A1-01-02 - Practicing Safety Skills (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will pass a safety test with a score of 100 percent, and they will demonstrate safe skills and procedures in the shop and in the classroom.

**VT-A1-01-03 - Identification of Hand Tools (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will identify basic hand tools correctly and demonstrate an understanding of how to use the tools correctly.

**VT-A1-02 AUTOMOTIVE MANUALS AND CD MITCHELL (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace

- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.3 Workplace Equipment to Solve Problems

Using automotive manuals and CD Mitchell, the students will locate and select proper specifications.

**VT-A1-02-01 - Using Automotive Manuals (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will select a certain year automobile and locate the proper specifications for that car.

**VT-A1-02-02 - Using a Computer (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will demonstrate an ability to select a certain year automobile and locate specifications for that automobile using the CD ROM Mitchell in a computer.

**VT-A1-03 AUTOMOTIVE SYSTEMS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.2.1 Diversity in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.4.2 Modifications of Systems; Alternate Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices

Students will demonstrate how to identify, test, diagnose, service, and repair automotive systems.

**VT-A1-03-01 - Systems Component Identification (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will demonstrate an ability to identify components of various automotive systems and demonstrate knowledge of their functions.

**VT-A1-03-02 - Systems Component Testing (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will demonstrate an ability to test various automotive systems.

**VT-A1-03-03 - Systems Component Servicing and Repair (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will diagnose, service and repair various automotive systems.

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
BASIC AUTO CAD**

The successful completion of Basic AutoCAD will provide you a basic introduction to the knowledge and skills that will be needed for future CADD (Computer Aided Drafting or Design) work. You might also work in CADD applicable areas such as electronics, civil or mechanical engineering, architecture, GIS, or manufacturing. By the end of this course you will have gained introductory skills in using a current version of AutoCAD and developed an overall understanding about the basic elements of using a CADD system. This is an introductory level course about 2D drawing using AutoCAD 2006. It requires that you have at least a basic knowledge of using a Microsoft Windows-based computer. You will cover various types of drawings such as isometric and orthographic using CADD, as well as some architectural design basics and processes: draw, modify, tool palette, and dimension.

**VT-BA-01 INTRODUCTION TO CAD (1<sup>st</sup> Semester) (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.2 Communication in the Workplace
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will be introduced to computer-aided drafting (CAD) and examine the hardware that makes up a CAD workstation. They will also become familiar with the operating system (Microsoft Windows) that enables the equipment to function as a unit. Students will be shown how to use AutoCAD to set up drawings and construct lines, circles, arcs, other shapes, geometric constructions, and text. Students will use display and editing techniques to obtain information about their drawings and work with drawing files. This course also introduces recommended drafting standards and work with drawing files as well as recommended drafting standards for students to use for properly preparing drawings for AutoCAD.

**VT-BA-01-01 - Intro to Computer-Aided Drafting (Objective)**

C-CS - Critical-Assessment at Content Standard

After completing the first semester of this course, the students will:

- use the AutoCAD interface and a keyboard, cursor pointing device, and graphics terminal to put drawing information into a computer.

- describe and use the basic terms, concepts, and techniques of computer-aided drafting.
- set up drawings, use drawing aides, save drawings, and get help when needed.
- draw lines, basic shapes, and geometric construction, and edit drawings.
- make multi-view layouts and plot or print drawings.
- use display options to increase drawing flexibility.
- place text on drawings.
- use the geometry calculator and filters.
- use basic and advanced AutoCAD editing commands.
- select and create hatch patterns to draw various section views.
- obtain information about drawings and work with drawing files.
- use Windows Explorer to arrange folders for files and programs and perform file management, such as copying and deleting.
- use proper drafting standards and practices.

## **VT-BA-02 ADVANCED DRAWING CONSTRUCTION (2<sup>nd</sup> Semester)(Content Standard)**

### **C - Critical--Assessment Reporting Required**

#### **State Standard and Benchmark Correlation:**

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.2 Modifications of Systems; Alternate Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will examine dimensioning, blocks and attributes, section views, external references, and multi-view layouts. They will be introduced to three-dimensional drawing, external commands, scripts, and slide shows. Students will learn how to use AutoCAD to dimension drawings, create section lines and graphic patterns, design symbols and attributes for multiple use, and make 3D drawings. Student drawings will be plotted or printed. This course also covers recommended drafting standards and practices for students to use for properly preparing drawings with AutoCAD.

### **VT-BA-02-01 - Dimensioning/Tolerancing/Drawing/Construction/3D (Objective)**

#### **C-CS - Critical-Assessment at Content Standard**

After completing the second semester, the students will:

- properly dimension drawings and use dimension styles.
- draw section views and graphic designs using AutoCAD's hatch patterns.
- construct blocks with attributes and use them in a drawing.
- use external references and create multi-view layouts.
- create a bill of materials.
- make isometric drawings.



- use external commands and create scripts and slide shows.
- perform Windows Explorer functions.
- use proper drafting standards and practices.

last update 7/28/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL**

**Computer Animation I - One Semester**

Computer Animation I is a fun and exciting class featuring computer animation techniques using Flash and Director. Students will draw computer characters and animate them by controlling movement, backgrounds, audio tempo, opacity, and dozens of other variables to create original animations. The class scope will run from very basic to advanced, based on the student's initial skills and his/her ability to acquire and process additional animation techniques. Computer character generation, media elements, and controls will be covered, as well as graphic editing, file types, compression, and export techniques. Students may take home a copy of the animations they create on a VCD that will play on newer DVD players.

**VT-AM-01 TWO-DIMENSIONAL COMPUTER ANIMATION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.3 Leadership to Accomplish Group Goals
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values
- CV11.6.2 Locate/Interpret Career Information, Labor Trends
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate the ability to design, create, and store a 2-D computer animation.

**VT-AM-01-01 - Storyboarding (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will design and prepare a storyboard detailing the animated sequences of an animation project.

**VT-AM-01-02 - Character Construction (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will use computer software to design characters for animated sequences.

**VT-AM-01-03 - Design Strategy (Objective)**

C-NR - Critical-District Reporting Not Required

Students will design virtual sets and staging areas for animated sequences.

**VT-AM-01-04 - Animation (Objective)**

C-NR - Critical-District Reporting Not Required

Students will animate sequences using computer animation software.

**VT-AM-01-05 - Digital Audio (Objective)**

C-NR - Critical-District Reporting Not Required

Students will use digital audio software to create music, sound effects, and narrative audio for an animation.

**VT-AM-01-06 - Career Applications (Objective)**

C-NR - Critical-District Reporting Not Required

Students will demonstrate basic skills as applied to animation and related visual arts..

last update 7/28/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL**

**Computer Animation II - One Semester**

**Computer Animation II** is an extension of **Computer Animation I**, but integrates the use of more advanced 3D animation programs along with Flash and Director. A higher level of audio and special effects are utilized, as well as more advanced animation techniques to create a more professional looking animation. The class will include character generation, step-recording, real time recording, tweening, digital audio, 3D animation and virtual camera usage. The students may also create a simple interactive CD portfolio of their animations, backgrounds, and characters to take with them. Students may take home a copy of the animations they create on DVD.

**VT-AN-01 TWO and THREE DIMENSIONAL COMPUTER ANIMATION (Content Standard)**

C - NR-District Reporting Not Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.3 Leadership to Accomplish Group Goals
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values
- CV11.6.2 Locate/Interpret Career Information, Labor Trends
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate the ability to design, create, and store a 2-D and 3-D computer animation.

**VT-AN-01-01 - Storyboarding (Objective)**

C-NR - Critical-District Reporting Not Required

Students will design and prepare a storyboard detailing the animated sequences of an animation project.

**VT-AN-01-02 - Character Construction (Objective)**

C-NR - Critical-District Reporting Not Required

Students will use computer software to design either 2D or 3D characters for animated

sequences.

**VT-AN-01-03 - Modeling (Objective)**

C-NR - Critical-District Reporting Not Required

Students will construct 3D objects and creatures from several primitive shapes and polygonal modeling.

**VT-AN-01-04 - Motion (Objective)**

C-NR - Critical-District Reporting Not Required

Students will animate 3D modeled objects and creatures using key frames, path and shape animations, and will use more advanced options like tweening and shape changing.

**VT-AN-01-05 - Color & Texture (Objective)**

C-NR - Critical-District Reporting Not Required

Students will create, import, and apply multiple colors and textures to objects and creatures.

**VT-AN-01-06 - Rendering (Objective)**

C-NR - Critical-District Reporting Not Required

Students will apply lighting and cameras to 3D animations, compile movies, and add sound.

**VT-AN-01-07 - Animation (Objective)**

C-NR - Critical-District Reporting Not Required

Students will animate either 2D or 3D sequences using computer animation software.

**VT-AN-01-06 - Animation Careers (Objective)**

C-NR - Critical-District Reporting Not Required

Students will research careers available in animation for either 2D or 3D animators.

last update 7/28/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
Computer Animation III - One Semester**

Computer Animation III is a fun and exciting class featuring the final application of the computer animation techniques acquired in Computer Animation I and II. Students will complete the independent film process by going through the three stages of the process: Preproduction, Production, and Postproduction. Students will complete the preproduction process by creating an original idea, doing the research, writing, and the creation of characters, as well as the thumbnail sketches, storyboard, and animatic. Students will also create a production schedule in this phase. In the production phase, students will choose the appropriate software and equipment, and apply the 12 principles of animation while following the storyboard, and use time management techniques. In the postproduction phase, students will edit the independent film, add music and narration, evaluate and promote the film they have completed.

**VT-A3-01 PREPRODUCTION (Content Standard)**

C- NR - Critical- District Reporting Not Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.3.2 Organize/Update Workplace Information

CV11.3.3 Interpret/Communicate Workplace Information

CV11.3.4 Technology to Process Workplace Information

Students will demonstrate the ability to complete preproduction work on an independent film.

**VT-A3-01-01 - Independent Film Proposal and Story (Objective)**

C-NR - Critical-District Reporting Not Required

Students will propose an idea for an independent film and write the story.

**VT-A3-01-02 - Independent Film Characters and Research (Objective)**

C-NR - Critical-District Reporting Not Required

Students will create characters and complete research for the independent film.

**VT-A3-02 PRODUCTION (Objective)**

C- NR - Critical-District Reporting Not Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.1.3 Management of Time, Materials, Resources

CV11.2.1 Diversity in the Workplace

CV11.2.2 Communication in the Workplace

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.3.2 Organize/Update Workplace Information

CV11.3.3 Interpret/Communicate Workplace Information

- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems

Students will demonstrate the ability to complete production work on an independent film.

**VT-A3-02-01 - Independent Film Sketching, Scheduling and Storyboarding (Objective)**

C-NR - Critical-District Reporting Not Required

Students will create thumbnail sketches and storyboards for the independent film and create a time schedule for production.

**VT-A3-02-02 - Software, Principles Application, Performance and Time Management (Objective)**

C-NR - Critical-District Reporting Not Required

Students will select the appropriate software, apply the 12 principles of animation, and manage time efficiently to enhance performance and keep production schedules.

**VT-A3-02-03 - Collaboration and Revision (Objective)**

C-NR - Critical-District Reporting Not Required

Students will collaborate with other animators and revise work based on this input and self analysis.

**VT-A3-03 POST PRODUCTION (Objective)**

C- NR - Critical-District Reporting Not Required

State Standard and Benchmark Correlation:

- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values
- CV11.6.2 Locate/Interpret Career Information, Labor Trends
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate the ability to complete postproduction work on an independent film.

**VT-A3-03-01 - Editing, Narration, Music and Sound Effects (Objective)**

C-NR - Critical-District Reporting Not Required

Students will complete the final editing process and-as needed-add narration, music and sound effects.

**VT-A3-03-02 - Reflection, Assessment and Animation Career Research (Objective)**

C-NR - Critical-District Reporting Not Required

Students will reflect on and assess the independent film as well as complete research on applicable animation career paths.

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
COMPUTER TECH I (CCHS)**

Computer Technology I is a semester class for students who would like to have fun learning more about computers and the Windows operating system. No previous computer experience is necessary to take this class. This class will allow students to work with the various technologies they will need as they further their education or enter the fast paced and rapidly changing high tech world of work. The students will use computers to do various activities like animation, electronic publishing, digital image, video editing, and many others. Students will identify the parts and terms associated with computers, and they will design and program a technical multimedia presentation.

**VT-C1-01 INFORMATION ACCESS AND STORAGE (Content Standard)**

C -Critical--Assessment Reporting Required

State Standard and Benchmark Correlation

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.3.2 Organize/Update Workplace Information

CV11.3.4 Technology to Process Workplace Information

Students will acquire, organize, store and retrieve information in various formats.

**VT-C1-01-01 Ways to Process Information (Objective)**

C-CS – Critical Assessment at Content Standard

Students will identify various technical computer processes used in information storage and retrieval.

**VT-C1-02 TECHNICAL GRAPHICS AND IMAGE MANIPULATION (Content Std.)**

C -Critical--Assessment Reporting Required

State Standard and Benchmark Correlation

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.3.2 Organize/Update Workplace Information

CV11.3.4 Technology to Process Workplace Information

Students will create and apply various technical graphics.

**VT-C1-02-01 Graphic Formats and Applications (Objective)**

C-CS – Critical Assessment at Content Standard

Students will create and identify various graphic formats and their applications as used in business and industry.

**VT-C1-02-02 Image Modification and Conversion (Objective)**

C-CS – Critical Assessment at Content Standard

Students will create, modify, and convert various technical graphics files for import into industrial and business applications.

**VT-C1-02-03 Computer-Aided Design (Objective)**

C-CS – Critical Assessment at Content Standard

Students will configure, create, colorize, dimension, layer, and print CAD files accurately.



**Campbell County School District #1  
Gillette, Wyoming**

**Career - TECHNICAL**

## **CONSTRUCTION /WOODS FABRICATON (CCHS)**

### **VT-WF-01 SAFE OPERATION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.2.1 Diversity in the Workplace

CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology

CV11.5.4 Apply Safe and Ethical Practices

Students will demonstrate the safe operation of tools and processes.

#### **VT-WF-01-01 - Woods Safety (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will use proper safety equipment and safe practices in the operation of all tools.

### **VT-WF-02 USE OF HAND TOOLS AND POWER TOOLS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.2.2 Communication in the Workplace

CV11.3.1 Acquire/Evaluate Workplace Information

Students will demonstrate an understanding of proper use of all hand tools and power tools.

#### **VT-WF-02-01 - Electrical Tools and Equipment (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate an ability to identify and properly use electrical tools and equipment.

#### **VT-WF-02-02 - Framing and Finishing (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate an ability to identify and properly use framing and finishing equipment.

### **VT-WF-03 - WOODS FABRICATION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.3.2 Organize/Update Workplace Information

CV11.3.3 Interpret/Communicate Workplace Information

CV11.4.2 Modifications of Systems; Alternate Systems

CV11.5.2 Setup, Operation, Maintenance of Equipment

CV11.5.3 Workplace Equipment to Solve Problems

Students will demonstrate an ability to identify and properly use building materials.

#### **VT-WF-03-01 - Identify/Use Rough-Framing Materials (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will identify and use rough framing materials.

#### **VT-WF-03-02 - Identify/Use Construction Materials (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will identify and properly use finishing construction materials.

### **VT-WF-04 PROJECT CONSTRUCTION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.1.3 Management of Time, Materials, Resources

CV11.2.4 Demonstrate/Teach Learned Skills

CV11.3.4 Technology to Process Workplace Information

CV11.4.1 Quality and Performance of Systems

CV11.6.1 Identify/Assess Personal Ability/Interests/Values

Students will demonstrate an ability to construct a project from the ground up.

**VT-WF-04-01 - Read and Interpret Blueprints (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will correctly read and interpret a blueprint.

**VT-WF-04-02 - Construct Project; Finish on a Time Line (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will construct a project and finish it according to a time line.

**VT-WF-05 CAREERS IN CONSTRUCTION TECHNOLOGY (Content Standard)**

State Standard and Benchmark Correlation:

CV11.6.1 Identify/Assess Personal Ability/Interests/Values

CV11.6.2 Locate/Interpret Career Information, Labor Trends

CV11.6.3 Create, Evaluate, Revise Career Plans

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will research career opportunities.

**VT-WF-05-01 - Career Exploration (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will acquire information on career opportunities available to them in the construction field. Students will have opportunities to participate in on-the-job training, mentorships, and on-site job shadowing.

last update 7/28/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
CONSTRUCTION FABRICATION I (WJSHS)**

Construction Technology emphasizes the main points of construction through classroom work

and hands-on experience. Students will build a one-story house on site.

**VT-CF-01 SAFETY (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.2.4 Demonstrate/Teach Learned Skills

CV11.3.3 Interpret/Communicate Workplace Information

CV11.5.2 Setup, Operation, Maintenance of Equipment

CV11.5.4 Apply Safe and Ethical Practices

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will safely operate and maintain machines and power tools used in the technical program.

**Assessment Standard:** Students will demonstrate general knowledge of the proper tools and methods used in the woods and welding fields when building or repairing projects.

**VT-CF-01-01 - Power Equipment and Tool Safety (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will understand the safe operation of machines and power tools used in the technical program.

**VT-CF-02 - WELDING FABRICATION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will apply welding skills and knowledge in building or repairing metal projects.

**Assessment Standard:** Students will demonstrate general knowledge of the proper tools and methods used in the welding field when building or repairing projects.

**VT-CF-02-01 - Welding Projects (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will apply welding skills and knowledge in building or repairing metal projects.

**VT-CF-03 WOOD CONSTRUCTION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will apply wood construction skills and knowledge in building or repairing wood projects.

**Assessment Standard:** Students will demonstrate general knowledge of the proper tools and methods used in the construction field when building or repairing woods projects.

**VT-CF-03-01 - Woods Construction Projects (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will apply wood construction skills and knowledge in building or repairing wood projects.

last update 7/28/2009

pc

## **Gillette, Wyoming**

### **CAREER - TECHNICAL CONSTRUCTION FABRICATION II (WJSHS)**

#### **VT-CG-01 SAFETY (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.2.4 Demonstrate/Teach Learned Skills

CV11.3.3 Interpret/Communicate Workplace Information

CV11.5.2 Setup, Operation, Maintenance of Equipment

CV11.5.4 Apply Safe and Ethical Practices

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will safely operate and maintain machines and power tools used in the technical program.

**Assessment Standard:** Students will demonstrate an advanced level knowledge of the proper tools and methods used in the woods and welding fields when building or repairing projects.

#### **VT-CG-01-01 - Power Equipment and Tool Safety (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will understand the safe operation of machines and power tools used in the technical program.

#### **VT-CG-02 - WELDING FABRICATION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will apply welding skills and knowledge in building or repairing metal projects.

**Assessment Standard:** Students will demonstrate an advanced level of knowledge of the proper tools and methods used in the welding field when building or repairing projects.

#### **VT-CG-02-01 - Welding Projects (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will apply welding skills and knowledge in building or repairing metal projects.

#### **VT-CG-03 WOOD CONSTRUCTION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will apply wood construction skills and knowledge in building or repairing woods projects.

**Assessment Standard:** Students will demonstrate an advanced level of knowledge of the proper tools and methods used in the construction field when building or repairing wood projects.

#### **VT-CG-03-01 - Woods Construction Projects (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will apply wood construction skills and knowledge in building or repairing woods projects.

last update 7/27/2009

pc

## **CAREER - TECHNICAL CONSTRUCTION TECHNOLOGY - GRADE 8 (WJSHS)**

### **VT-C8-01 - SAFETY (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV8.4.1 Explain Systems' Operation, Impact

CV8.5.1 Technical Knowledge/Skills; Appropriate Technology

CV8.5.2 Safe and Ethical Practices in the Workplace

Students will safely operate and maintain machines and power tools used in the technical program. Students will demonstrate general knowledge of the proper tools and methods used in the woods and welding fields when building or repairing projects.

### **VT-C8-01-01 - Power Equipment and Tool Safety (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will understand the safe operation of machines and power tools used in the technical program.

### **VT-C8-02 WOOD CONSTRUCTION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV8.2.4 Share a Learned Skill

CV8.3.3 Various Formats for Workplace Information

CV8.4.1 Explain Systems' Operation, Impact

CV8.5.1 Technical Knowledge/Skills; Appropriate Technology

CV8.5.2 Safe and Ethical Practices in the Workplace

CV8.6.2 Individual Strengths, Interests in Career Choice

Students will apply wood construction skills and knowledge in building or repairing woods projects. Students will demonstrate general knowledge of the proper tools and methods used in the construction field when building or repairing woods projects.

### **VT-C8-02-01 - Woods Construction Projects (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will apply wood construction skills and knowledge in building or repairing wood projects.

last update 7/27/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL**



## **CONSTRUCTION TECHNOLOGY - CCHS**

Construction Technology emphasizes the main points of construction through classroom work and hands on experience. Students will build a structure on site.

### **VT-CT-01 SAFE OPERATIONS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices

Students will demonstrate safe practices and processes, including hand and power tools.

#### **VT-CT-01-01 - Safe Practices and Processes (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate safe practices and processes, including hand and power tools operations.

### **VT-CT-02 SITE ORIENTATION; SAFETY TRAINING (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate safe working practices and have an emergency plan.

#### **VT-CT-02-01 - Safety, Emergency Plans, Hazards, Preventing Accidents (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate safe working practices and will have a working knowledge of emergency plans, worksite hazards, and accident prevention.

### **VT-CT-03 FLOOR SYSTEMS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will have a working knowledge of floor systems and materials.

#### **VT-CT-03-01 - Floor Systems and Materials (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will have a working knowledge of floor systems and materials.

### **VT-CT-04 EXTERIOR AND INTERIOR WALL FRAMING (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.3.1 Acquire/Evaluate Workplace Information

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will have a working knowledge of building materials, framing nomenclature, wall sheeting, and standing walls.

**VT-CT-04-01 - Exterior and Interior Walls Materials, Methods (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate a working knowledge of building materials, framing nomenclature, wall sheeting, and standing walls.

**VT-CT-05 ROOF SYSTEMS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will have a working knowledge of roof systems.

**VT-CT-05-01 - Roof Systems, Materials (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate a working knowledge of roof systems, including trusses, rafters, and roof coverings.

**VT-CT-06 WINDOW AND DOOR INSTALLATION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will have a working knowledge of selecting and installing windows and doors.

**VT-CT-06-01 - Selecting/Installing Windows and Doors (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate a working knowledge of selecting and installing windows and doors.

**VT-CT-07 SIDING INSTALLATION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will know how to identify and install different types of siding.

**VT-CT-07-01 - Selecting/Installing Siding (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate a working knowledge of identifying and installing different types of siding.

**VT-CT-08 CAREERS IN CONSTRUCTION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.6.2 Locate/Interpret Career Information, Labor Trends

Students will become familiar with construction career opportunities and will participate in on-the-job training, mentorship, and job shadowing.

**VT-CT-08-01 - Construction Industry Careers (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will acquire information on career opportunities available to them in the construction field. Students will have opportunities to participate in on-the-job training mentorship and on-site job shadowing.

**VT-CT-09 CONSTRUCTING A STRUCTURE AS A TEAM (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.3 Management of Time, Materials, Resources

CV11.4.1 Quality and Performance of Systems

CV11.5.3 Workplace Equipment to Solve Problems

Students will work as a team to construct a structure.

**VT-CT-09-01 Teamwork to Construct a House (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will work as a team to construct a structure.

last update 7/28/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL**

**COREL GRAPHICS DESIGN (Westwood)**

**VT-CO-01 COREL GRAPHICS (Content Standard)**

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values

Students will understand and demonstrate basic and advanced concepts, tools, and layout in the Corel Graphics program.

**VT-CO-01-01 - Corel Draw (Objective)**

C-C - Critical--Assessment Reporting Required

Students will understand Corel Draw's basic and advanced concepts:

- shapes
- clipart
- manipulation tools
- text
- characters
- page set-up
- fill
- shaping tools
- professional layout
- color
- editing tools

**VT-CO-01-02 - Corel PhotoPaint (Objective)**

C - Critical--Assessment Reporting Required

Students will understand Corel PhotoPaint's basic concepts and picture enhancement:

- page set-up
- image effects
- masking tools
- text
- cropping
- picture enhancement tools
- shapes

**VT-CO-02 REAL-LIFE APPLICATIONS (Content Standard)**

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values

Students will understand and demonstrate how to apply Corel Graphic Design to a real-life situation.

**VT-CO-02-01 - Corel Final Project (Objective)**

C - Critical--Assessment Reporting Required

Students will demonstrate their understanding of Corel Graphic Design through a realistic situation by creating:

- logos
- letterhead
- brochures
- business cards
- advertisements
- portfolio for presenting

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
ENGINEERING GRAPHICS and DESIGN TECHNOLOGY**

Engineering Graphics and Design Technology is an introductory course into the disciplines, practices, and careers of graphic communication and design. Topics to be covered include the theory of geometric construction, sketching techniques, pictorial views, multiview projections, sections, dimensioning, and basic CADD procedures. Engineering Graphics and Design

Technology is a one semester course. Recommendations for choosing this course are being an independent worker and having an interest in Computer Aided Drafting and Design (CADD).

**Prerequisite:** none

### **VT-EG-01 TECHNICAL SKETCHING (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate the skills and procedures needed for properly constructed technical sketches.

#### **VT-EG-01-01 - Technique (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will practice and apply an appropriate technique when sketching.

#### **VT-EG-01-02 – Geometric Construction (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate established procedures for sketching various geometric shapes.

#### **VT-EG-01-03 – Pictorial Views and Construction (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will describe the different pictorial views and demonstrate established procedure when sketching objects pictorially.

#### **VT-EG-01-04 – Multiviews and Construction (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will describe and demonstrate the established procedure for representing objects with multiple views.

#### **VT-EG-01-05 – Dimensioning and Notes (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate established procedure for fully and accurately annotating object sketches.

### **VT-EG-02 INTRO TO CADD (COMPUTER AIDED DRAFTING AND DESIGN (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources

- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate the skills and procedures needed for properly constructed computer aided designs and drawings.

**VT-EG-02-01 - Technique (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate appropriate and efficient CAD tool usage when generating CAD drawings.

**VT-EG-02-02 – Geometric Construction (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate established CAD procedures for constructing geometric shapes.

**VT-EG-02-03 – Pictorial Views and Construction (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate established CAD procedures while accurately constructing various pictorial drawings.

**VT-EG-02-04 – Multiviews and Construction (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate established CAD procedures while accurately constructing various multiview drawings.

**VT-EG-02-05 – Dimensioning and Notes (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate appropriate CAD tool usage and established procedure for fully and accurately annotating CAD drawings.

**VT-EG-02-06 – Introduction to 3D Modeling (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will apply appropriate CAD tools when generating 3D objects.

**VT-EG-03 INTRODUCTION TO DESIGN (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems

CV11.4.2 Modifications of Systems; Alternate Systems

CV11.5.3 Workplace Equipment to Solve Problems

CV11.5.4 Apply Safe and Ethical Practices

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will apply the skills and procedures needed to successfully work through the design process.

**VT-EG-03-01 – Introduction to Design (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will apply the engineering design process to develop solutions to a variety of problems.

**VT-EG-03-02 – Modeling Documentation (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will appropriately and accurately document their design solutions.

New 8/19/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
ENGRAVING TECH I (Westwood)**

**VT-EM-01 SAFETY (Content Standard)**

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.1.3 Management of Time, Materials, Resources

CV11.2.1 Diversity in the Workplace

CV11.2.2 Communication in the Workplace

CV11.2.3 Leadership to Accomplish Group Goals

CV11.2.4 Demonstrate/Teach Learned Skills



- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices

Students will understand the relevancy of safety in the Engraving lab.

**VT-EM-01-01 - General Safety (Objective)**

C - Critical--Assessment Reporting Required

Students will know and practice general shop rules for hand tools and for the shop environment.

**VT-EM-01-02 - Radial Arm Saw Safety (Objective)**

C - Critical--Assessment Reporting Required

Students will know and practice safety rules for the radial arm saw.

**VT-EM-01-03 - Drill Press Safety (Objective)**

C - Critical--Assessment Reporting Required

Students will know and practice safety rules for the drill press.

**VT-EM-01-04 - Rotary and Laser Engraver Safety (Objective)**

C - Critical--Assessment Reporting Required

Students will know and practice safety rules for the rotary and laser engraver.

**VT-EM-02 ROTARY ENGRAVER (Content Standard)**

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.4.2 Modifications of Systems; Alternate Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values

Students will understand and perform basic operations on the rotary engraver.

**VT-EM-02-01 - Rotary Engraver (Objective)**

C - Critical--Assessment Reporting Required

Students will understand the materials commonly used in rotary engraving operations, the setup of the machine, and engraving methods such as straight line, arc line, underline, slant, and columns.

**VT-EM-03 COREL DRAW (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.2.4 Demonstrate/Teach Learned Skills

- CV11.3.2 Organize/Update Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values

Students will understand and demonstrate basic commands and page setup in the Corel Draw program.

**VT-EM-03-01 - Corel Draw (Objective)**

C - Critical--Assessment Reporting Required

Students will understand basic commands and page setup in Corel Draw, such as page size, text, graphics, and professional layout.

last update 7/28/2009  
pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
ENGRAVING TECH II (Westwood)**

**VT-EN-01 LASER ENGRAVING (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology

CV11.5.2 Setup, Operation, Maintenance of Equipment

CV11.5.3 Workplace Equipment to Solve Problems

CV11.5.4 Apply Safe and Ethical Practices

CV11.6.1 Identify/Assess Personal Ability/Interests/Values

Students will understand and perform all operations on the laser engraver.

**VT-EN-01-01 - Laser Engraver/Vector Cutting (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will understand:

- materials commonly used in laser engraving operations.
- setup of a project using Corel Draw.
- laser engraving methods.
- machine setup.
- print menu setup.
- the differences between raster and vector.

**VT-EN-02 ROTARY AND LASER ENGRAVER (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.1.3 Management of Time, Materials, Resources

CV11.2.1 Diversity in the Workplace

CV11.2.4 Demonstrate/Teach Learned Skills

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.3.3 Interpret/Communicate Workplace Information

CV11.3.4 Technology to Process Workplace Information

CV11.4.2 Modifications of Systems; Alternate Systems

CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology

CV11.5.2 Setup, Operation, Maintenance of Equipment

CV11.5.3 Workplace Equipment to Solve Problems

CV11.5.4 Apply Safe and Ethical Practices

CV11.6.1 Identify/Assess Personal Ability/Interests/Values

Students will demonstrate the use of both rotary and laser engravers.

**VT-EN-02-01 - Rotary and Laser Engraver (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will understand:

- the rotary engraver using basic operations such as straight-line and arc and advanced operations such as axis swap.
- the laser engraver using both raster and vector.

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL**

**FABRICATION TECHNOLOGY EXPLORATIONS (SVJH- 9th)**

Fabrication Tech Explorations consists of more in-depth study of materials and processes used in today's industry. Students will be given assignments with only general guidelines allowing them the flexibility to choose their own projects. The emphasis will be on safety and the efficient use of time and materials. Students will need to purchase materials for some of the projects that they choose. Careers in cabinet and furniture making will be explored.

**Prerequisite:** 8<sup>th</sup>-Grade Fabrication Technology

**VT-AW-01 SAFETY (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.2.4 Demonstrate/Teach Learned Skills

- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will safely operate and maintain machines and power tools used in the technical program.

**Assessment Standard:** Students will demonstrate general knowledge of the proper tools and methods used in the construction and fabrication field when building or repairing projects.

**VT-AW-01-01 - Construction Tools and Methods Safety (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will safely use construction tools and will practice safe construction methods.

**VT-AW-02 USE OF HAND TOOLS AND POWER TOOLS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.2.2 Communication in the Workplace
- CV11.3.1 Acquire/Evaluate Workplace Information

Students will understand and demonstrate proper use of all hand tools and power tools.

**VT-AW-02-01 - Electrical Tools and Equipment (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will identify and properly use electrical tools and equipment.

**VT-AW-03 PROJECT CONSTRUCTION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will apply wood construction skills and knowledge in building or repairing woods projects.

**Assessment Standard:** Students will demonstrate general knowledge of the proper tools and methods used in the construction field when building or repairing woods projects.

**VT-AW-03-01 - Woods Construction Projects (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will apply wood construction skills and knowledge in building or repairing woods projects.

**VT-AW-04 PROJECT PLANNING - BLUEPRINTS, TIMELINE (Content Standard)**

State Standard and Benchmark Correlation:

none

Students will become familiar with construction planning concepts.

**VT-AW-04-01 - Read and Interpret Blueprints (Objective)**

C-NR - Critical-District Reporting Not Required

Students will correctly read and interpret blueprints.

**VT-AW-04-02 - Construct Project; Finish on a Time Line (Objective)**

C-NR - Critical-District Reporting Not Required

Students will construct a project and finish it according to a time line.

**VT-AW-05 CAREERS IN CONSTRUCTION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.6.1 Identify/Assess Personal Ability/Interests/Values
- CV11.6.2 Locate/Interpret Career Information, Labor Trends
- CV11.6.3 Create, Evaluate, Revise Career Plans
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will research career opportunities.

**Assessment Standard:** Students will acquire information on career opportunities available to them in the construction field.

**VT-AW-05-01 - Career Exploration (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will acquire information on career opportunities available to them in the construction field.

last update 7/28/2009

pc

## **Campbell County School District #1 Gillette, Wyoming**

### **CAREER - TECHNICAL**

#### **INTRO TO ENGINEERING DESIGN - PROJECT LEAD THE WAY**

Introduction to Engineering Design emphasizes the development of a design. Students will learn and apply an engineering design process and see how it is used in industry to manufacture a product. As a part of the engineering design process, students will use computer modeling software to produce, analyze, and evaluate models of project solutions. Students study the design concepts of form and function, and then use state-of-the-art technology to translate conceptual design into reproducible products.

First semester topics of study include the engineering design process, sketching, view types and engineering drawing types, dimensioning standards and conventions, career exploration, and software instruction and practice.

**Prerequisite:** none

**VT-IE-01 CAREERS IN ENGINEERING (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.3 Management of Time, Materials, Resources

- CV11.2.2 Communication in the Workplace
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values
- CV11.6.2 Locate/Interpret Career Information, Labor Trends

Students will identify career opportunities in engineering.

**VT-IE-01-01 - History of Design (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will explain the impact that the history of art and design has had on the field of engineering.

**VT-IE-01-02 - Career Awareness (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will understand the opportunities and education requirements for careers in the field of engineering.

**VT-IE-02 ENGINEERING DESIGN PROCESS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.4.2 Modifications of Systems; Alternate Systems
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices

Students will understand the problem-solving and design process as it relates to the field of engineering.

**VT-IE-02-01 – Intro to Design Process (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will understand the engineering design process and explain the activities that occur during each phase.

**VT-IE-02-02 – Design Process Skills (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate the skills needed to work through the various steps of the design process.

**VT-IE-03 COMMUNICATION AND DOCUMENTATION (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace

CV11.2.2 Communication in the Workplace  
CV11.2.4 Demonstrate/Teach Learned Skills  
CV11.3.3 Interpret/Communicate Workplace Information  
CV11.3.4 Technology to Process Workplace Information  
CV11.5.3 Workplace Equipment to Solve Problems  
CV11.5.4 Apply Safe and Ethical Practices

Students will understand the need for properly constructed engineering sketches and will begin development of a portfolio for organizing and displaying evidence of their work.

**VT-IE-03-01 - Portfolio Development (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate and maintain a fully developed portfolio while organizing and displaying evidence of their work.

**VT-IE-03-02 – Engineer’s Notebook (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will apply engineering notebook standards and protocols when documenting their work during the school year.

**VT-IE-03-03 – Presentations (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will communicate effectively with a variety of audiences and for different purposes.

last update 8/19/2009

pc



**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
MACHINE TOOL TECHNOLOGY - GENERAL**

General Machine Tool Technology is a class for any student who wants to learn more about how things are made. It deals with metalworking in foundry, the lathe, milling machine, and other power tools. This course also focuses on the use of computers in manufacturing. In this course students will operate many different machines, use hand tools, and use computers to design and build projects. If you are considering becoming a machinist, or simply want to learn more about how things are manufactured, this would be a very valuable course.

**VT-MG-01 WORKPLACE FITNESS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.3 Leadership to Accomplish Group Goals
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.4.2 Modifications of Systems; Alternate Systems
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will acquire appropriate workplace skills.

**VT-MG-01-01 - Work Ethics, Skills, Teamwork, Safety (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate understanding of the appropriate skills needed in every workplace, including regular on-time attendance, cooperation, teamwork, preparedness, safe practice, communication, basic lab maintenance, and diligent effort.

**VT-MG-02 TECHNICAL SKILLS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate industry standard practice in the safe and proper use of metalworking hand tools, power tools, layout, and part inspection. They will perform basic operations on the vertical milling machine and engine lathe.

**VT-MG-02-01 - Benchwork, Power Tools; Safety (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate industry standard practice in the safe and proper use of metalworking hand tools, layout, and part inspection. Students will safely use power tools, including drill press, grinder, bandsaw, and other associated tools.

**VT-MG-02-02 - Lathe Operations (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will perform basic operations of the engine lathe. They will demonstrate an elementary understanding of the materials commonly used in machine tool operations, their properties, and forming methods such as casting, forging, and the hardening of materials.

**VT-MG-0-03 - Milling Operations (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate the ability to perform basic operations to industry standards on the vertical milling machine, to include: clamping, surfacing, drilling, tapping threads, cutting various slots and rabbets, the dividing head, machine setup, all necessary calculations, basic maintenance, and safe practice.

**VT-MG-03 MEASUREMENT AND PRINT READING (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.2.4 Demonstrate/Teach Learned Skills

CV11.3.3 Interpret/Communicate Workplace Information

CV11.3.4 Technology to Process Workplace Information

CV11.4.1 Quality and Performance of Systems

CV11.4.2 Modifications of Systems; Alternate Systems

CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology

CV11.5.2 Setup, Operation, Maintenance of Equipment

CV11.5.3 Workplace Equipment to Solve Problems

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students acquire measuring and calculating skills, and they will create and interpret blueprints.

**VT-MG-03-01 - Measuring Skills (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will acquire and develop measuring skills.

**VT-MG-03-02 - Calculating Skills (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will acquire and develop calculating skills.

**VT-MG-03-03 - Creating Blueprints (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will create blueprints.

**VT-MG-03-04 - Interpreting Blueprints (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will read and interpret blueprints.

## **VT-MG-04 COMPUTER NUMERIC CONTROL (CNC) (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate elementary knowledge about computer controlled systems.

### **VT-MG-04-01 - Computer Controlled Systems; Numeric Code**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate elementary knowledge of computer controlled systems, how to write simple numeric code, use a CAD/CAM (computer-assisted drafting/computer-assisted manufacturing) computer system, set up and operate a CNC milling machine, and follow safe practice.

### **VT-MG-04-01 Computer-Assisted Drafting (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will demonstrate the ability to use lineal and precision measurement techniques, perform necessary calculations, interpret blueprints, and create simple blueprints for the execution of projects using industry standard methods.

## **VT-MG-05 MATERIALS (Content Standard)**

Students will become familiar with materials and methods used for machine tool operations.

### **VT-MG-05-01 - Materials/Methods Used in Machine Tool Operations (Objective)**

C-NR - Critical-District Reporting Not Required

Students will demonstrate an elementary understanding of the materials commonly used in machine tool operations, their properties, and forming methods such as casting, forging, and the hardening of materials.

## **VT-MG-06 MANUFACTURING (Content Standard)**

Students will acquire knowledge of manufacturing history, methods, operations, and career opportunities.

### **VT-MG-06-01 - Manufacturing: History, Production Methods, Opportunities (Objective)**

C-NR - Critical-District Reporting Not Required

Students will demonstrate knowledge of the history of manufacturing, mass production methods, order of operations in manufacturing, teamwork, and career opportunities in the industry.

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
PC ELECTRONICS (CCHS)**

PC Electronics will utilize Heathkit's CAI (Computer Assisted Instruction) program in both the laboratory and classroom. Troubleshooting techniques will be experienced using interactive graphics and life-like situations on the computer program workbench.

Units of Instruction:

- DC Electronics
- AC Electronics
- Semiconductor Circuits
- Electronic Circuits

**VT-E1-01 DC ELECTRONICS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.1 Prepare/Analyze Personal Financial Information
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Heathkit DC Electronics Computer-Aided Instruction (CAI) is an interactive software program to improve the students' ability to learn basic DC electronics.

**ASSESSMENT STANDARD:**

Students will complete the interactive software program with a score of at least 80 percent.

**VT-E1-01-01 - Solving Basic Electronic Problems (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will solve basic electronic problems involving current, voltage, resistance, and power.

**VT-E1-01-02 - Relationships (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will discuss the relationships between current, voltage, resistance, power, electricity, and magnetism.

**VT-E1-01-03 - Schematic Diagrams (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will construct DC circuits and draw an equivalent circuit with such components as resistors, relays, switches, lamps, batteries, and capacitors.

**VT-E1-01-04 - Theory of Measurement (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will use the multimeter to measure current, voltage, and resistance and describe the operation, construction, and purpose of resistors, potentiometers, switches, fuses, relays, capacitors, inductors, and batteries using basic safety procedures to protect the students and equipment.

## **VT-E1-02 AC ELECTRONICS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.4 Technology to Process Workplace Information
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Heathkit AC Electronics CAI is an interactive software program to improve the students' ability to learn basic semiconductor electronics.

### **ASSESSMENT STANDARD:**

Students will complete the interactive software program with a score of at least 80 percent.

### **VT-E1-02-01 - Alternating Current (AC) (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will list the differences and the operation of AC versus DC current, they will describe the operation of a basic AC generator.

### **VT-E1-02-02 - Series and Parallel Resistive AC Circuits (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will analyze series and parallel AC circuits that contain only resistance and solve for voltage, current, and power by using an AC voltmeter and Ohm's law.

### **VT-E1-02-03 - Capacitors and Inductors (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will analyze resistive-capacitive (RC), resistive-inductive (RL), and resistive-capacitive-inductive (RCL) circuits and determine resistance, inductive reactance, capacitive reactance, true power, reactive power, current, voltage, phase angle, power factor correction, resonant frequency, and AC resistance (impedance).

### **VT-E1-02-04 - Transformers (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will study transformer action to determine the current, voltage, impedance, and power ratios of a given transformer and to determine the turns ratio for an impedance match and general uses of the transformer.

## **VT-E1-03 SEMICONDUCTORS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.4 Technology to Process Workplace Information
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Heathkit Semiconductors CAI is an interactive software program to improve the students' ability to learn basic Semiconductor Electronics.

**ASSESSMENT STANDARD:**

Students will complete the interactive software program with a score of at least 80 percent.

**VT-E1-03-01 - Electrical Characteristics (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will understand the electrical characteristics of semiconductor devices, describe how they are constructed, and demonstrate how they operate in practical electronic circuits.

**VT-E1-03-02 - Semiconductor Applications (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will analyze semiconductor circuits using a volt-ohmmeter (VOM) and an oscilloscope; they will explain the terms linear (analog), digital components, MOS devices, CMOS devices, and light sensing and detecting diodes and transistors.

**VT-E1-04 ELECTRONIC CIRCUITS (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.2.4 Demonstrate/Teach Learned Skills

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.3.4 Technology to Process Workplace Information

CV11.5.4 Apply Safe and Ethical Practices

CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Heathkit Electronic Circuits CAI is an interactive software program designed to improve students' ability to learn about electronic circuits such as basic amplifiers, amplifier applications, operational amplifiers, power supplies, oscillators, and waveshaping.

**ASSESSMENT STANDARD:**

Students will complete the interactive software program with a score of at least 80 percent.

**VT-E1-04-01 - Common Electronic Circuits (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will observe the operation characteristics of common emitter, common base, and common collector amplifiers; they will examine the operation of the transistor in a push-pull amplifier, oscillator, power supply regulation circuit, and differential amplifier.

**VT-E1-04-02 - Waveshaping (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will demonstrate various pulse-shaping techniques such as clipping, clamping, and slicing using diodes and transistors; they will include waveform integration and differentiation.

**VT-E1-04-03 - Op-Amps (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will demonstrate the op-amp as an inverting and non-inverting amplifier, as a summing amplifier, and as an active filter.

**VT-E1-04-04 - Power Supplies (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will identify and demonstrate the operation of power supply rectifiers, filters, and regulation circuits; and they will demonstrate the operation of commonly used LC, RC, and crystal oscillators.

**VT-E1-04-05 - Test Circuits (Objective)**

C-CS - Critical - Assessment at Content Standard

Students will use a voltmeter and an oscilloscope to analyze the operation of electronic circuits and strengthen their troubleshooting experiences.

last update 7/27/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
PC MAINTENANCE**

More flexibility is the cornerstone of Heathkit's new PC Maintenance FIRM. Heathkit has combined the best features and components of our PC Systems Servicing and PC System Troubleshooting courses into one package for an overall approach to computer maintenance. For classrooms already equipped with computers, instructors will find curriculum and hardware that are compatible with most PC's. This eliminates the need for the purchase of additional computer trainers. In addition, instructors are able to choose any commercially available text to supplement PC Maintenance FIRM courseware. By augmenting the PC Maintenance FIRM with Heathkit's A+ Test Prep package, you are able to create the most cost-efficient path to certification available today. The end result is a flexible, cost effective computer maintenance course.

Methods of Instruction:

- Industry Standard PowerPoint Presentations
- 70 Hands-on Labs - Windows XP
- Comp TIA A+ Practice Tests - student receives a personal copy on CD
- CD ROM Video Presentation
- Technical Notebook

**Prerequisite:** Computer Programming

**VT-EL-01 COMPUTER TECHNOLOGY (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.1 Diversity in the Workplace
- CV11.2.2 Communication in the Workplace
- CV11.2.3 Leadership to Accomplish Group Goals
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.4.2 Modifications of Systems; Alternate Systems
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values
- CV11.6.2 Locate/Interpret Career Information, Labor Trends
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will effectively service, troubleshoot, and network computer systems.



**VT-EL-01-01 - Servicing (Objective)**

C-CS - Critical-Assessment at Content Standard

The students will;

- remove, configure, and install a hard disk drive.
- add a second hard disk drive to a PC.
- demonstrate the proper configuration of USB peripherals.
- remove, configure, and install a floppy disk drive.
- install a second floppy disk drive in a PC.
- install and configure dynamic system memory.
- install and remove a DIMM.
- demonstrate the proper method for installing, removing, and upgrading a Pentium II or III CPU.
- configure the computer video circuit to match the characteristics of a video display monitor.
- install a modem using both PnP and manual configuration modes.
- install a typical sound card and its software drivers.

**VT-EL-01-02 - Troubleshooting (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will troubleshoot a malfunctioning multimedia system in a personal computer, identify the source of the problem, and correct it whether that problem is hardware or software related.

**VT-EL-01-03 - Networking (Objective)**

C-CS - Critical-Assessment at Content Standard

Students will:

- use Windows 98 to install and configure new hardware devices.
- define and build a single-node Client/Server Network using MS-DOS 6.22.
- transfer files using Direct-Cable-Connection.
- define and build a peer-to-peer network using Windows 98.
- connect PC's in a peer-to-peer network using 10BaseT, Thinnet, and hubs.
- use the HCL (Hardware Compatibility List) to determine if a computer is compatible with Windows 2000.
- install the Windows 2000 operating system in a dual-booting configuration with Windows 98.
- describe where user information and resources are stored on the local computer running Windows 2000.
- use a Windows 2000 Properties Dialog box to regulate how a user may access the contents of a file, folder, or computer.
- use the two Windows 2000 registry editors, Regedit and Regedt32 to backup, modify and restore the registry.
- recover from a Windows 2000 boot failure.
- use the three administrative tools in Computer Management to control the operation and characteristics of Windows 2000.
- configure Windows 2000 and its Internet Explorer to browse the Internet answer questions on the A+ Certification Exam relevant to the material covered in this course.

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER TECHNOLOGY  
ENERGY & POWER TECHNOLOGY (SVJH)**

Students in Energy and Power class will be working with small engine design and rebuilding processes as well as studying alternative energy, power, and machines. In addition, the students will be introduced to machining as it relates to industry.

**VT-95-01 ENERGY (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.2.2 Communication in the Workplace
- CV11.2.3 Leadership to Accomplish Group Goals
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.4.2 Modifications of Systems; Alternate Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.6.1 Identify/Assess Personal Ability/Interests/Values

Students will demonstrate an understanding of the principles of energy sources, to include: wind, hydroelectric, solar electric, solar thermal, geothermal, nuclear, and petrochemical.

**VT-95-01-01 - Hydroelectric Power (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will explain modern methods of electric generation which use falling water and coal. They will perform activities which demonstrate electrical generation methods.

**VT-95-01-02 - Wind Generation (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will run electrical circuits using wind generation and will understand and explain practical applications of wind-generated electricity.

**VT-95-01-03 - Solar Power (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will demonstrate an understanding of the process of solar electric generation and will explain applications of solar power and formulate ideas for future uses of solar power.

**VT-95-01-04 - Alternate Energy Sources (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will describe alternate energy sources such as solar, nuclear, and geothermal energy. They will discuss practical applications and limitations of each type of power and will recognize potential career opportunities of alternate energies.

**VT-95-02 POWER (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.1 Prepare/Analyze Personal Financial Information
- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources

- CV11.2.3 Leadership to Accomplish Group Goals
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment

Students will demonstrate an understanding of the principles and functions of the two- and four-stroke cycle engines.

**VT-95-02-01 - Safety (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will:

- use proper safety equipment.
- recognize and avoid hazardous situations in the lab.
- develop a safety attitude practiced outside the lab.
- explain safe and proper operating procedures for machines used.
- use necessary hand and power tools to safely accomplish reconditioning procedures.

**VT-95-02-02 - Tools and Equipment for Small Engine Repair (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will correctly spell names and identify functions of tools used in small engine repair. They will properly and safely operate tools and machines used in small engine repair.

**VT-95-02-03 - Principles of Operation (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will:

- explain the principles of operation for two- and four-stroke engines.
- compare two- and four-stroke cycle engines and identify the differences.
- compare and contrast advantages and disadvantages of two- and four-stroke cycle engines.

**VT-95-02-04 - Systems of Small Engines (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will:

- accurately identify the parts and circuits of a carburetor.
- explain the function of a carburetor.
- identify the function, purpose, and parts of the ignition system.
- identify and explain the function, purpose, parts, and operation of air- and water-cooled systems.
- explain accurately the parts and operation of a lubrication system as related to a single-cylinder engine.
- explain valving systems in small engines.

**VT-95-02-05 - Diagnosis and Repair (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will:

- perform a compression test on a single-cylinder engine.
- set breaker point, armature air gap, and spark plug gap.
- inspect and replace damaged or defective parts.

- start engine and adjust carburetor to proper settings.
- perform coil and ignition tests as required.
- rebuild or replace carburetor.

**VT-95-02-06 - Engine Reconditioning (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will:

- remove a ring ridge from a cylinder.
- measure cylinder to determine out-of-round or taper.
- hone cylinder to seat new rings.
- set lifter clearance to specifications.
- grind valve faces.
- measure accurately the crankshaft, camshaft, rod, main bearings, and journals to determine whether they are acceptable for use.
- set and measure ring end gap.

last update 7/29/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL  
SMALL ENGINE TECHNOLOGY (CCHS)**

Small engines will involve classroom and laboratory experience concerned with the theory of operation and the construction, maintenance, repair, and adjustment of the various systems of a small engine. Small engines will be restored only with original equipment. Areas taught include safety, career opportunities, tools, measuring, manuals, computer programs, engine fundamentals, 2 cycle, 4 cycle, basic electricity, ignition systems, fuel systems, lubrication systems, starting systems, charging systems and cooling systems.

**VT-SE-01 SMALL GAS ENGINES-FOUR and TWO STROKE (Content Standard)**

C - Critical--Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.1 Personal Finances
- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

The students will learn how to disassemble, identify parts and major automotive systems, diagnose problems, and reassemble small gas engines. Students will complete the final 100 question EETC Certificate test with at least 80% to receive a technical certification for small gas engines.

**VT-SE-01-01 – Safety in the Small Gas Engine Shop (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will demonstrate safe skills and procedures in the shop and in the classroom.

**VT-SE-01-02 – Tools and Measuring Instruments (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will identify basic hand tools correctly and demonstrate an understanding of how to use the tools correctly.

**VT-SE-01-03 – Fasteners, Sealants and Gaskets (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will identify basic fasteners, sealants and gaskets correctly and demonstrate an understanding of how to use them correctly.

**VT-SE-01-04 – Engine Construction and Principles of Operation (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand how an engine is constructed and the principles of operation.

**VT-SE-01-05 – Two-Cycle and Four-Cycle Engines (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will identify a two-cycle engine and a four-cycle engine. They will understand the differences between the two engines.

**VT-SE-01-06 – Measuring Engine Performance (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand basic terminology when measuring an engine's performance.

**VT-SE-01-07 – Fuel and Emission Control Systems (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will demonstrate an ability to test various automotive systems.

**VT-SE-01-08 – Carburetion (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand the principles of carburetion.

**VT-SE-01-09 – Ignition Systems (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand basic ignition systems

**VT-SE-01-10 – Lubrication Systems (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand the principles of lubrication.

**VT-SE-01-11 – Cooling Systems (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand the principles of engine cooling and how it works.

**VT-SE-01-12 – Preventive Maintenance and Troubleshooting (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand and demonstrate general preventive maintenance. Students will also learn how to troubleshoot problems of an engine.

**VT-SE-01-13 – Fuel System Service (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will troubleshoot fuel systems and demonstrate how to remove, disassemble and repair carburetors.

**VT-SE-01-14 – Ignition and Electrical System Service (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand how an ignition system works. Students will learn how to test for ignition problems.

**VT-SE-01-15 – Engine Inspection, Disassembly, and Cylinder Reconditioning (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will demonstrate an ability to inspect, disassemble and recondition cylinders.

**VT-SE-01-16 – Piston and Piston Rings (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will demonstrate an ability to service pistons and piston rings.

**VT-SE-01-17 – Bearing, Crankshaft, Valve and Camshaft Service (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will identify different bearings, demonstrate how to remove and service different valves and the camshaft.

**VT-SE-01-18 – Lawn Equipment (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand the differences between various lawn mowers, demonstrate the maintenance of lawn equipment and proper safety procedures when using the different types of lawn equipment.

**VT-SE-01-19 – Lawn and Garden Tractors (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand the various components of lawn and garden tractors. They will demonstrate safe operating skills.

**VT-SE-01-20 – Snow Throwers (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand the various types of snow throwers and their operations. They will demonstrate safe operating skills.

**VT-SE-01-21 – Personal Watercraft (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand general boating terms and demonstrate safety skills while operating a watercraft.

**VT-SE-01-22 – Career Opportunities and Certification (Objective)**

C - CS - Critical - Assessed at Content Standard

The students will understand the various types of career opportunities in the field of small gas engines. They will prepare for and take a certification test.

NEW 8/2008

Pc

Last update 7/27/2009

pc

**Campbell County School District #1  
Gillette, Wyoming**

**CAREER - TECHNICAL**

**WELDING I (CCHS, WJSHS)**

**CCHS** - In Welding I students will learn and practice basic arc welding, including electrode selections and proper usage, and oxyfuel cutting techniques. Welding will be done on stock up to 3/8" and in all positions. Cutting will be done on steel up to 1/4" and 3/8" with hand and machine torches, power shear, and power saws. Instruction emphasizes safety and proper care of hand and power tools used in a welding shop.

**WJSH** - After learning safety skills, students will learn to correctly SMAW (Shielded Metal Arc Welding) in all positions. Time will be spent covering flat, horizontal, vertical, and overhead with E 7018 and E 6010 electrodes. Students will be introduced to basic metallurgy, GMAW (Gas Metal Arc Welding), oxyfuel, cutting, and blueprint reading. Students will be expected to complete a project towards the end of the quarter.

**VT-W1-01 WELDING SHOP SAFETY (Content Standard)**

C - Critical - Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices

Students will identify and practice general shop written and oral safety rules used in the classroom. Students will maintain American Welding Society entry-level welder training achievement record notebook for all competencies for Welding I.

**VT-W1-01-01 - Safety and Shop Grinders (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will identify and practice rules for safe operation of shop grinders. Students will name the various safety parts on the grinder.

**VT-W1-01-02 - Safety and Shop Drills (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will identify and practice rules for the safe operation of shop drills, and they will name the various safety parts of the drill press and hand drill.

**VT-W1-01-03 - Safety and Power Saws (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will know and practice safety rules specific to cutoff saws, coldcut saws, and bandsaws.



**VT-W1-01-04 - Welding Safety (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will know and practice shop rules for safe operation of arc, mig, and acetylene welders.

**VT-W1-02 SHOP EQUIPMENT AND SKILLS (Content Standard)**

C - Critical - Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

CV11.1.3 Management of Time, Materials, Resources

CV11.2.1 Diversity in the Workplace

CV11.2.2 Communication in the Workplace

CV11.2.4 Demonstrate/Teach Learned Skills

CV11.3.1 Acquire/Evaluate Workplace Information

CV11.3.2 Organize/Update Workplace Information

CV11.3.3 Interpret/Communicate Workplace Information

CV11.4.1 Quality and Performance of Systems

CV11.4.2 Modifications of Systems; Alternate Systems

CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology

CV11.5.2 Setup, Operation, Maintenance of Equipment

CV11.5.3 Workplace Equipment to Solve Problems

Students will identify parts of shop machines (powershear, grinders, drills, saws) and demonstrate an ability to appropriately and safely use all equipment.

**VT-W1-02-01 - Operation of Shop Grinders (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will identify (orally or in writing) the parts of the bench and pedestal grinders and hand grinders. Students will demonstrate an ability to properly use shop grinders.

**VT-W1-02-02 - Operation of Drill Press and Drills (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will identify (orally or in writing) the various parts of the drill press and other shop drills. Students will identify different drills and their uses and will demonstrate an ability to properly use the shop drills.

**VT-W1-02-03 - Operation of Power Saws (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will identify the parts of the cutoff saw, cold-cut saw, and bandsaw. Students will know the different kinds of power sawing machines and will demonstrate an ability to properly use shop power saws.

**VT-W1-02-04 - Operation of Power Shear (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will identify the parts of the power shear and will demonstrate an ability to properly use the power shear.

**VT-W1-03 OXYFUEL GAS CUTTING (Content Standard)**

C - Critical - Assessment Reporting Required

State Standard and Benchmark Correlation:

CV11.1.2 Assess Individual Skills, Evaluate Performance

- CV11.2.2 Communication in the Workplace
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.2 Locate/Interpret Career Information, Labor Trends

Students will demonstrate the ability to use manual and machine oxyfuel cutting torches.

**VT-W1-03-01 - Manual Gas Cutting (OFC) (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will:

- perform safety inspections of equipment and accessories.
- make minor external repairs to equipment and accessories.
- set up for manual oxyfuel gas cutting operations on plain carbon steel.
- operate manual oxyfuel cutting equipment.
- perform straight cutting operations on plain carbon steel.
- perform shape cutting operations on plain carbon steel.
- perform bevel cutting operations on plain carbon steel.
- remove weld metal from plain carbon steel using weld washing techniques.

**VT-W1-03-02 - Machine Gas Cutting (OFC) (Track Burner) (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will:

- perform safety inspections of equipment and accessories.
- make minor external repairs to equipment and accessories.
- set up for machine oxyfuel gas cutting (track burner) operations on plain carbon steel.
- operate machine oxyfuel cutting (track burner) equipment.
- perform straight cutting operations on plain carbon steel.
- perform bevel cutting operations on plain carbon steel.

**VT-W1-04 ARC CUTTING (Content Standard)**

C - Critical - Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.2.2 Communication in the Workplace
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.2 Locate/Interpret Career Information, Labor Trends

Students will demonstrate an ability to use the air carbon arc (ACA) and plasma arc cutting (PAC) machines.

**VT-W1-04-01 - Air Carbon Arc Cutting (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will:

- perform safety inspections of equipment and accessories.
- make minor external repairs to equipment and accessories.
- set up for manual air carbon arc gouging and cutting operations on plain carbon steel.
- operate manual air carbon cutting equipment.
- perform metal removal operations on plain carbon steel.

**VT-W1-04-02 - Plasma Arc Cutting (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will:

- perform safety inspections of equipment and accessories.
- make minor external repairs to equipment and accessories.
- set up for manual plasma arc cutting operations on plain carbon steel, aluminum, and stainless steel.
- operate manual plasma arc cutting equipment.
- perform shape cutting operations on plain carbon steel, aluminum, and stainless steel.

**VT-W1-05 GENERAL WELDING OPERATIONS & ASSIGNMENTS (Content Std.)**

C - Critical - Assessment Reporting Required

State Standard and Benchmark Correlation:

- CV11.1.2 Assess Individual Skills, Evaluate Performance
- CV11.1.3 Management of Time, Materials, Resources
- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.3.4 Technology to Process Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.5.1 Choose/Use Procedures/Tools/Equipment/Technology
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Apply Safe and Ethical Practices
- CV11.6.2 Locate/Interpret Career Information, Labor Trends
- CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate an ability to use the shielded metal arc welding (SMAW) and acetylene welders and oxygen and acetylene cutting torches. They will pass a performance test after all assigned welds are completed and turned in.

**ASSESSMENT STANDARD:** All welds listed in the following objectives must be completed and turned in to be signed off in students AWS Entry Level Welder Training Achievement Record Notebook.

**VT-W1-05-01 - Oxy-Acetylene Welding (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will complete the following oxy-acetylene welding exercises:

- Rodless weld--flat and V
- Bronze weld
- Bead with rod
- Back-hand weld
- Butt weld

**VT-W1-05-02 - Shielded Metal Arc Welding (SMAW) (Objective)**

C - CS - Critical - Assessed at Content Standard

Students will:

- perform safety inspections of equipment and accessories.
- make minor external repairs to equipment and accessories.
- set up for shielded metal arc welding operations on plain carbon steel.
- operate shielded metal arc welding equipment.
- make fillet welds, all positions, on plain carbon steel.
- make groove welds, all positions, on plain carbon steel.
- perform 2G-3G limited thickness qualification tests on plain carbon steel.

last update 7/28/2009

pc

**Campbell County School District # 1**  
**Gillette, Wyoming**

**CAREER - TECHNICAL**  
**WELDING II (CCHS)**

**CCHS** - Welding II emphasizes classroom and shop experiences involving the use of SMAW, SMAW, and GTAW welding processes to weld metal parts. Special emphasis will be placed on safety of both personnel and equipment. This course is a continuation of Welding I. The purpose of this course is to develop advanced welding skills for those students wishing to enter employment on a useful and productive level. Welding will be practiced on metal 1/4" to 2" in four welding positions: flat, horizontal, vertical, and overhead. Carbon arc gouging, plasma cutting, machine cutting, and oxy-fuel cutting will be demonstrated and practiced.

**WJSH** - Welding safety will be reviewed to begin the first quarter. Students will then use their SMAW skills and GMAW skills to begin producing projects. Topics to be covered during the semester are: Welding business, Project Design, Metallurgy, Careers in Welding, Production Practices, and Alternative Welding Practices.

**Advanced Designation Course - Career/Vocational**

This course is identified as an Advanced Designation Course. Students meeting the requirements of the Advanced Performance Level as defined in the Wyoming Content and Performance Standards will be considered Advanced in the Career/Vocational content area.

An advanced Career/Vocational student evaluates and integrates transferable academic/workplace knowledge and skills in multiple situations as a productive contributor in the workplace.

Students who are Advanced in at least five of the nine content areas and Proficient in the others will have the Advanced Endorsement placed on their grade transcript.

**VT-W2-01 WELDING SHOP SAFETY (Content Standard)**

State Standard and Benchmark Correlation:

- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.5.1 Choose and Use Procedures, Tools, Equipment
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems
- CV11.5.4 Safe and Ethical Practices

Students will review and practice all competencies covered in Welding I. Competency

Notebook (Portfolio) Assessment Standard:

**VT-W2-01-01 - Welding Shop Safety (Objective)**

C-NR - Critical-District Reporting Not Required

Students will review and practice all shop rules and safety practices specific to rules covered in Welding I.

## **VT-W2-02 OCCUPATIONAL ORIENTATION (Content Standard)**

State Standard and Benchmark Correlation:

- CV11.1.2 Individual Skills, Performance
- CV11.1.3 Management of Resources
- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills
- CV11.3.1 Acquire/Evaluate Workplace Information
- CV11.3.2 Organize/Update Workplace Information
- CV11.3.3 Interpret/Communicate Workplace Information
- CV11.4.1 Quality and Performance of Systems
- CV11.4.2 Modifications of Systems; Alternate Systems
- CV11.5.1 Choose and Use Procedures, Tools, Equipment
- CV11.5.2 Setup, Operation, Maintenance of Equipment
- CV11.5.3 Workplace Equipment to Solve Problems

Students will follow safe shop practices, prepare job cards, perform housekeeping duties, and follow verbal and written instructions to complete work. Students will interpret welding symbols and conduct weld inspection and testing principals.

**Assessment Standard:** Students will be signed of on each objective reviewed before moving on to the next objective. Students will maintain detailed American Welding Society Entry Level Welder Training Achievement Record Notebooks.

### **VT-W2-02-01 - Entry-Level Welder Training (Objective)**

C-NR - Critical-District Reporting Not Required

Students will:

- follow safe practices
- prepare time or job cards, reports, or records
- perform housekeeping duties
- follow verbal instructions to complete work assignments
- follow written instructions to complete work assignments

### **VT-W2-02-02 - Drawing and Welding Symbol Interpretation (Objective)**

C-NR - Critical-District Reporting Not Required

Students will:

- interpret basic elements of a drawing or sketch
- interpret welding symbol information
- fabricate parts from a drawing or sketch

### **VT-W2-02-03 - Visual Examination Principles and Practices (Objective)**

C-NR - Critical-District Reporting Not Required

Students will:

- examine cut surfaces and edges of prepared base metal parts
- examine tack, intermediate layers, and completed welds

## **VT-W2-03 ADVANCED WELDING OPERATIONS & ASSIGNMENTS (Content Std.)**

State Standard and Benchmark Correlation:

- CV11.1.2 Individual Skills, Performance
- CV11.1.3 Management of Resources
- CV11.2.2 Communication in the Workplace
- CV11.2.4 Demonstrate/Teach Learned Skills

CV11.3.1 Acquire/Evaluate Workplace Information  
CV11.3.2 Organize/Update Workplace Information  
CV11.3.3 Interpret/Communicate Workplace Information  
CV11.3.4 Computers to Process Workplace Information  
CV11.4.1 Quality and Performance of Systems  
CV11.5.1 Choose and Use Procedures, Tools, Equipment  
CV11.5.2 Setup, Operation, Maintenance of Equipment  
CV11.5.3 Workplace Equipment to Solve Problems  
CV11.5.4 Safe and Ethical Practices  
CV11.6.2 Locate/Interpret Career Information, Labor Trends  
CV11.6.4 Skills to Find, Acquire, Keep, Change Jobs

Students will demonstrate an ability to use gas metal arc welding (GMSW), flux cored arc welding (FCAW), and gas tungsten arc welding (GTAW). Students will pass a performance test after all assigned welds are turned in.

**Assessment Standard:** All welds listed in the following objectives must be completed and turned in to be signed off in student's AWS Entry Level Welder Training Achievement Record Notebook.

**VT-W2-03-01 - Gas Metal Arc Welding (GMAW, GMAW-S) (Objective)**

C-NR - Critical-District Reporting Not Required

Students will:

- perform safety inspections of equipment and accessories
- make minor external repairs to equipment and accessories
- set up for gas metal arc welding operations on plain carbon steel
- operate gas metal arc welding equipment

Short circuit transfer:

- make fillet welds, all positions, on plain carbon steel
- make groove welds, all positions, on plain carbon steel

Spray transfer:

- make 1F-2F welds on plain carbon steel
- make 1G welds on plain carbon steel

**VT-W2-03-02 - Flux Cored ARC Welding (FCAW, FCAW-G) (Objective)**

C-NR - Critical-District Reporting Not Required

Students will:

- perform safety inspections of equipment and accessories
- make minor external repairs to equipment and accessories
- set up for flux cored arc welding operations on plain carbon steel
- operate flux cored arc welding equipment
- make fillet welds, all positions, on plain carbon steel
- make groove welds, all positions, on plain carbon steel

**VT-W2-03-03 - Gas Tungsten Arc Welding (GTAW) (Objective)**

C-NR - Critical-District Reporting Not Required

Students will:

- perform safety inspections of equipment and accessories
- make minor external repairs to equipment and accessories
- Set up for gas tungsten arc welding operations on plain carbon steel, aluminum, and stainless steel

- operate gas tungsten arc welding equipment
- make fillet welds, all positions, on plain carbon steel
- make groove welds, all positions, on plain carbon steel
- make 1F-2F welds on aluminum
- make 1G welds on aluminum
- make 1F-3F welds on stainless steel
- make 1G-2G welds on stainless steel

last update 7/28/2009

pc



