COMPUTER AIDED DESIGN 40

Students can pursue an emphasis on any 1 of 3 disciplines: Architecture, Engineering Design, or Animation

Description

This course expands on the advanced skills learned in previous courses. This level allows for independent exploration of advanced software features such as interoperability. Independent and team project ideas are proposed by students to the instructor for approval. The course culminates in a portfolio project which demonstrates the student's mastery of the subject and software. Possibility of internships through the College & Career Center.
(Software: Inventor, Revit, 3ds Max, Mudbox, Motion Builder, iPi Motion Capture, Photoshop, Movie Maker)

Course Overview

Course Objectives

Students should be able to:

- synthesize all previous content and skills to create a yearlong summative project demonstrating their mastery of the CAD curriculum.
- identify and demonstrate positive work behaviors and personal qualities needed to be employable.
- employ critical thinking skills independently and in teams to solve problems and make decisions.
- employ leadership skills to accomplish organizational goals and objectives.
- effectively communicate design ideas through hand drawn sketches.
- clearly communicate design ideas through oral and written presentation.
- effectively communicate design ideas through fully dimensioned & annotated plans.
- effectively communicate design ideas through rendered images and animation techniques.
- demonstrate an extensive knowledge of the standard drafting conventions for mechanical and architectural drawings.
- employ engineering design process to achieve desired outcomes.
- brainstorm several solutions to a problem and evaluate alternatives to discover the best solution.
- describe characteristics and determine appropriate applications for various building material selections.
- develop an understanding of local, state and global building and construction issues using critical and creative thinking skills,

Essential Questions

- What interview strategies can I employ to ensure that the customer gets a design concept that meets their needs?
- How do engineers utilize the capabilities of CAD software to test their designs?
- What has the impact of national standards organizations had on the role of the engineer in unifying drawing formats?
- How can effectively convey emotion through movement and sound in an animation?
- Why is a portfolio an important tool in the acquisition of both a career and reaching personal goals?
- How do governmental building codes affect the design of structures?
- How do models enhance the communication of ideas to others?
- What has the impact of national standards organizations had on the role of the architect in meeting design codes?
- How can the CAD programs help customers visualize the final concepts?
- What advantages do physical models have in presenting designs and ideas versus computer models?
- Why is logical thought necessary in the

Assessments

Architecture

Summative Performance Assessment

- Mock Client Interview
- 2D&3D Sketches of Building Design
- Client Presentation of Concept
- CAD Model of Building
- File Management System
- Full Set of Dimensioned Plans
- Still and Animated Renderings
- Foam Core Model
- Digital Portfolio
- Mock Job Interview

Engineering Design

Summative Performance Assessment

- Mock Client Interview
- 2D&3D Sketches of the Concept
- Client Presentation of Concept
- File Management System
- CAD Model of Concept
- Animation of Concept Simulation
- Full Set of Dimensioned Plans
- Create a Functional Prototype
- Prototype Testing Report
- Modified Prototype
- Revised Drawings
- Final Engineering Report

logical reasoning, analytical thinking, and problem solving techniques. • apply mathematical data, social concerns, financial constraints, and the principles of design to create a product that is balanced and effective. • use the design process to solve problems by creating and refining prototypes. • use engineering equipment, laboratory materials and tools appropriately and safely. • demonstrate the application of science and math principles to the engineering process. • demonstrate proficiency in advanced 3D modeling techniques. • apply effects, materials, and lighting to enhance the realism of renderings. • maintain a portfolio to document knowledge, skills, materials and experience in CAD. • demonstrate the training, education and certification requirements for the CAD related career of their choice. • complete the application and interview process.	development of storyboards and video sequencing? • How does human emotion effect the animator's character movement decisions? • How do lighting considerations need to be included in the development process?? • Why is consideration of details in modeling crucial to success in the final product? • How do simulations differ from real life testing environments? • How can an engineer use the engineering design process to achieve desired outcomes? • How can data collection be used in a report when proving a concept? • How can CAD tools be utilized to complete complex tasks in the design process?	• Digital Portfolio • Mock Job Interview **Animation** Summative Performance Assessment • Mock Client Interview • 2D&3D Sketches of the Concept • Client Presentation of Concept • File Management System • CAD Models of the Characters • CAD Models of the Environments • CAD Models of the Props • Still &Animated Test Renderings with Textures & Lighting • Mo Cap & Animation of Characters and Scenes • Final Animation with Sound • Digital Portfolio • Mock Job Interview
Content Outline ***Architecture Emphasis*** **I.** Unit 1 – Planning & Concept Sketches **II.** Unit 2 – CAD Modeling **III.** Unit 3 – Dimensioned Drawings **IV.** Unit 4 – Animated Walkthroughs & Renderings **V.** Unit 5 – Constructing the Architectural Model **VI.** Unit 6 – Career Prep and Portfolio Compilation ***Engineering Design Emphasis*** **I.** Unit 1 – Planning & Concept Sketches **II.** Unit 2 – CAD Modeling & Simulation **III.** Unit 3 – Dimensioned Drawings **IV.** Unit 4 – Prototyping **V.** Unit 5 – Testing & Redesign	**VI.** Unit 6 – Final Testing & Report **VII.** Unit 7 – Career Prep and Portfolio Compilation ***Animation Emphasis*** **I.** Unit 1 – Production Planning & Concept Art **II.** Unit 2 – 3D Modeling & Digital Sculpting **III.** Unit 3 – UVW Mapping & Materials **IV.** Unit 4 – Lighting **V.** Unit 5 – Motion Capture and Animation **VI.** Unit 6 – Final Editing **VII.** Unit 7 – Career Prep & Portfolio Compilation	**Standards** Connecticut Technology Education Standards have been met in the following areas: • ***Essential Knowledge and Skills*** • ***Computer Aided Drafting and Design (CADD)*** • ***Pre-Engineering Technology*** • ***Communications***

Pacing Guide – Architecture Emphasis

1st Marking Period			2nd Marking Period			3rd Marking Period			4th Marking Period		
September	October	November	December	January	February	March	April	May	June		
Unit 1 Planning & Concept Sketches 4 weeks	Unit 2 CAD Modeling 10 weeks		Unit 3 Dimensioned Drawings 4 weeks	Unit 4 Animated Walkthroughs & Renderings 4 weeks	Unit 5 Constructing the Architectural Model 8 weeks				Unit 6 Career Prep and Portfolio Compilation 6 weeks		

Pacing Guide – Engineering Design Emphasis

1st Marking Period			2nd Marking Period			3rd Marking Period			4th Marking Period		
September	October	November	December	January	February	March	April	May	June		
Unit 1 Planning & Concept Sketches 4 weeks	Unit 2 CAD Modeling & Simulation 10 weeks		Unit 3 Dimensioned Drawings 2 weeks	Unit 4 Prototyping 10 weeks			Unit 5 Testing & Redesign 2 weeks	Unit 6 Final Testing & Report 2 weeks	Unit 7 Career Prep and Portfolio Compilation 6 weeks		

Pacing Guide - Animation Emphasis

1st Marking Period			2nd Marking Period			3rd Marking Period			4th Marking Period		
September	October	November	December	January	February	March	April	May	June		
Unit 1 Production Planning & Concept Art 4 weeks	Unit 2 3D Modeling & Digital Sculpting 10 weeks		Unit 3 UVW Mapping & Materials 4 weeks	Unit 4 Lighting 2 weeks	Unit 5 Motion Capture and Animation 6 weeks		Unit 6 Final Editing 4 weeks		Unit 7 Career Prep and Portfolio Compilation 6 weeks		

Architecture Emphasis

Unit 1 – Planning & Concept Sketches, 4 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.02 Demonstrate language arts knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.02.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06, EKS.05.07, EKS.05.10, EKS.05.11

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.05 Utilize Proper projection techniques to develop orthographic and pictorial drawings.
CADD.05.01, CADD.05.06 , CADD.05.14, CADD.05.15

CADD.08 Explain and Utilize the concepts of sketching and the sketching process used in preliminary design and development.
CADD.08.01, CADD.08.02 , CADD.08.03

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Unit Objectives

Students will be able to:

- exhibit professionalism and good communication practices in a client interview.
- use critical thinking and problem solving skills to design a solution to the client's needs.
- use standard measurement tools to calculate square footage and area.
- demonstrate advanced sketching techniques to create architectural designs.
- apply major styles of architecture and principles of design to concept sketches.

Essential Question

- How do governmental building codes affect the design of structures?

Focus Questions

- How can I effectively communicate my design ideas to others?
- How do I balance function and aesthetics to create designs that are both effective and attractive?
- What tools and techniques can I utilize to create attractive drawings?
- How are designs driven by cost, environmental, social, and manufacturing concerns?
- How does geography and culture impact

Assessments

- Mock Client Interview
- 2D&3D Sketches of Building Design
- Presentation of concept to the client
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Skill Objectives

Students will:

- practice active listening and effective communication in a mock client interview in order to satisfy the needs of the client
- use advanced sketching techniques to create design sketches
- design a residential or commercial structure based on a set of parameters and constraints

• balance Function and Aesthetics to create an effective building design. • incorporate the tenants of sustainable designs into an architectural concept. • describe how building codes affect architectural designs. • design a building in line with cultural and geographical conventions. • effectively communicate the concept in a presentation to a client.	architectural styles?	• develop a realistic timeline to guide productivity in order to meet the project benchmark deadlines • create a digital presentation on the proposed design concepts.

Unit 2 - CAD Modeling, 10 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06, EKS.05.07, EKS.05.10, EKS.05.11

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.02 Analyze the use of current CADD design technology.
CADD.02.01, CADD.02.06, CADD.02.07, CADD.02.08, CADD.02.12

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

Unit Objectives

Students will be able to:

- synthesize all previous knowledge to create complex, intricate CAD models from concept sketches.
- use problem solving and critical thinking to refine the design as the CAD model is created.
- demonstrate professionalism and maturity and the ability to accomplish tasks within a deadline.
- effectively manage files and backups through a computer network.

Essential Question

- How do models enhance the communication of ideas to others?

Focus Questions

- How is computer technology used to create designs and to effectively communicate ideas?
- How can I combine everything I have learned so far to create stunning architectural designs?
- How can I utilize network file management strategies to ensure that I am productive and do not lose any work to lost or corrupt file?

Assessments

- CAD Model of Building
- File Management System

Skill Objectives

Students will:

- create a file folder system to organize and manage their projects.
- maximize the features of architectural CAD software to create elaborate building models.
- create high quality furniture and fixture models to enhance their building model.
- create a site that demonstrates an understanding common zoning and planning considerations.
- add landscaping to increase the aesthetics and realism of the CAD model.

Unit 3 – Dimensioned Drawings, 4 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04, EKS.03.06

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06, EKS.05.07, EKS.05.10, EKS.05.11

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design (CADD)

CADD.02 Analyze the use of current CADD design technology.
CADD.02.01, CADD.02.05, CADD.02.06, CADD.02.08, CADD.02.10

CADD.03 Utilize measurement and annotation systems as they apply to CADD technology design.
CADD.03.03, CADD.03.04, CADD.03.05, CADD.03.06, CADD.03.07, CADD.03.08

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

CADD.05 Utilize Proper projection techniques to develop orthographic and pictorial drawings.
CADD.05.01, CADD.05.02, CADD.05.06, CADD.05.11, CADD.05.12, CADD.05.13, CADD.05.14, CADD.05.15, CADD.05.16

CADD.06 Demonstrate use and application of alternate view applications and functions.
CADD.06.02, CADD.06.03, CADD.06.04

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Unit Objectives

Students will be able to:

- communicate the solutions of a given architectural challenge through a set of dimensioned plans that satisfy ANSI conventions.

Essential Question

- What has the impact of national standards organizations had on the role of the architect in meeting design codes?

Focus Questions

- How is computer technology used to create designs and to effectively communicate ideas?
- What ANSI standards have I learned so far?
- What size paper and scale is most appropriate for this design?

Assessments

- Full Set of Dimensioned Plans

Skill Objectives

Students will:

- Create a package of professional looking plans for use in a digital portfolio, an attractive cover page, a border and title block, a site plan, a foundation plan, floor plans, elevation views, the electrical plans, a plumbing plan, an HVAC plan, window and door schedules and detail views.

Unit 4 - Animated Walkthroughs & Renderings, 4 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design (CADD)

CADD.02 Analyze the use of current CADD design technology.
CADD.02.01, CADD.02.05, CADD.02.06, CADD.02.08

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

CADD.05 Utilize Proper projection techniques to develop orthographic and pictorial drawings.
CADD.05.01, CADD.05.06, CADD.05.02, CADD.05.14, CADD.05.15, CADD.05.16

CADD.06 Demonstrate use and application of alternate view applications and functions.
CADD.06.02, CADD.06.05

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Unit Objectives

Students will be able to:

- demonstrate mastery of the materials, lighting and render settings within the architectural software.
- utilize time management and planning to accomplish many hours of render time within the deadline.

Essential Question

- How can the CAD programs help customers visualize the final concepts?

Focus Questions

- How is computer technology used to create designs and to effectively communicate ideas?
- Where should I place my cameras to highlight the best features of my design?
- How am I Going to accomplish so many render hours in just a few weeks?

Assessments

- Still and Animated Renderings

Skill Objectives

Students will:

- use default materials and create custom materials to create realistic rendered images.
- modify lighting properties to achieve aesthetic daytime and nighttime renders.
- balance the capabilities of the software and limitations of the computers to create the highest quality possible without crashing the machine.
- exercise good time management and planning.
- create outstanding images for use in a digital portfolio.

Unit 5 - Constructing the Architectural Model, 8 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04

EKS.06 Implement personal and jobsite safety rules and regulations to maintain safe and healthful working conditions and environments.
EKS.02.03, EKS.02.05, EKS.06.09

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.05 Utilize Proper projection techniques to develop orthographic and pictorial drawings.
CADD.05.16

CADD.06 Demonstrate use and application of alternate view applications and functions.
CADD.06.02, CADD.06.05, CADD.06.06

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Unit Objectives

Students will be able to:

- demonstrate safe handling of cutting and shaping tools.
- use mathematics and to create accurately scaled models of their site and building design.
- utilize standard and advanced modeling techniques attractive and sturdy models of their site and building design.

Essential Question

- What advantages do physical models have in presenting designs and ideas versus computer models?

Focus Questions

- What are the safety procedures for using the modeling tools?
- How can I go beyond the basic modeling techniques to create increasingly intricate details?
- What tips and tricks can I employ to create a great looking model?
- What construction techniques can I utilize to create a stable, durable model?

Assessments

- Foam Core Model

Skill Objectives

Students will:

- use modeling tools safely to create scale models of their CAD.
- create the site of their building complete with landscaping.
- utilize foam core modeling techniques to create attractive replicas of their building design.

Unit 6 - Career Prep and Portfolio Compilation, 6 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.01, EKS.01.02

EKS.02 Demonstrate language arts knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.02.02, EKS.02.03

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06, EKS.05.07, EKS.05.10, EKS.05.11

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

EKS.09 Demonstrate skills related to seeking and applying for employment to find and obtain a desired job.
EKS.09.01, EKS.09.02, EKS.09.03, EKS.09.04, EKS.09.05, EKS.09.06, EKS.09.07

Computer Aided Drafting and Design

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01, CADD.10.02, CADD.10.03

Unit Objectives

Students will be able to:

- demonstrate an understanding of the skills necessary to complete a successful Mock Job Interview.
- utilize multimedia technology to communicate their knowledge and talent through a digital portfolio**.**

Essential Question

- Why is a portfolio an important tool in the acquisition of both a career and reaching personal goals?

Focus Questions

- How can I best prepare myself for a career in architecture?
- How can I utilize computer software and design principles to create an outstanding digital portfolio of my work?
- What traits and qualities is the typical interviewer looking for?

Assessments

- Digital Portfolio
- Mock Job Interview

Skill Objectives

Students will:

- complete a successful Mock Job Interview.
- put together a design portfolio and present it to the class.

Engineering Design Emphasis

Unit 1 – Planning & Concept Sketches, 4 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.02 Demonstrate language arts knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.02.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06, EKS.05.07, EKS.05.10, EKS.05.11

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.05 Utilize Proper projection techniques to develop orthographic and pictorial drawings.
CADD.05.01, CADD.05.06 , CADD.05.14, CADD.05.15

CADD.08 Explain and Utilize the concepts of sketching and the sketching process used in preliminary design and development.
CADD.08.01, CADD.08.02 , CADD.08.03

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Pre-Engineering

ENG.02 Use the design process to solve problems by creating and refining prototypes.
ENG.02.01, ENG.02.02, ENG.02.05, ENG.02.06, ENG.02.07

ENG.07 Identify and demonstrate the use of various software programs used in the engineering field.
ENG.07.01, ENG.07.02, ENG.07.03, ENG.07.05

Unit Objectives

Students will be able to:

- exhibit professionalism and good communication practices in a client interview.
- use critical thinking and problem solving skills to engineering a solution to the client's needs.

Essential Question

- What interview strategies can I employ to ensure that the customer gets a design concept that meets their needs?

Focus Questions

- How can I effectively communicate my design ideas to others?

Assessments

- Mock Client Interview
- 2D&3D Sketches of the Concept
- Client Presentation of Concept

Skill Objectives

Students will:

• use standard measurement tools to create accurately dimensioned sketches of project components. • demonstrate advanced sketching techniques to create concept sketches of a product or device. • apply the principles of design to concept sketches. • balance Function and Aesthetics to create an effective design. • incorporate the tenants of sustainable designs into an engineering concept. • design a device or product in line with cultural and geographical conventions. • effectively communicate the concept in a presentation to a client.	• How do I balance function and aesthetics to create designs that are both effective and attractive? • What tools and techniques can I utilize to create attractive drawings? • How are designs driven by cost, environmental, social, and manufacturing concerns? • How does geography and culture impact engineering solutions?	• practice active listening and effective communication in a mock client interview in order to satisfy the needs of the client. • use advanced sketching techniques to create design sketches. • design a creative solution to a real world problem based on a set of parameters and constraints. • develop a realistic timeline to guide productivity in order to meet the project benchmark deadlines. • create a digital presentation on the proposed design concepts.

Unit 2 - CAD Modeling & Simulation, 10 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06, EKS.05.07, EKS.05.10, EKS.05.11

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.02 Analyze the use of current CADD design technology.
CADD.02.01, CADD.02.06, CADD.02.07, CADD.02.08, CADD.02.12

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

CADD.07 Create assemblies and views in 3-D format.
CADD.07.01, CADD.07.02

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Pre-Engineering

ENG.02 Use the design process to solve problems by creating and refining prototypes.
ENG.02.08

ENG.07 Identify and demonstrate the use of various software programs used in the engineering field.
ENG.07.04

Unit Objectives

Students will be able to:

- synthesize all previous knowledge to create complex, intricate CAD models from concept sketches.
- use problem solving and critical thinking to refine the design as the CAD model is created.
- demonstrate professionalism and maturity and the ability to accomplish tasks within a

Essential Question

- How do engineers utilize the capabilities of CAD software to test their designs?

Focus Questions

- How is computer technology used to create designs and to effectively communicate ideas?
- How can I combine everything I have learned so far to create stunning architectural designs?
- How can I utilize network file management

Assessments

- CAD Model of Concept
- File Management System

Skill Objectives

Students will:

- create a file folder system to organize and manage their projects.
- maximize the features of CAD software to create functional solutions to real world problems.

deadline. • effectively manage files and backups through a computer network. • test mechanisms for functionality using advanced digital prototyping.	strategies to ensure that I am productive and do not lose any work to lost or corrupt file?	• create “smart” dimensions and assembly constraints in order to more easily modify the design after testing. • choose materials based on their properties and test mechanisms for functionality using advanced digital prototyping.

Unit 3 - Dimensioned Drawings, 2 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04, EKS.03.06

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06, EKS.05.07, EKS.05.10, EKS.05.11

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.02 Analyze the use of current CADD design technology.
CADD.02.01, CADD.02.05, CADD.02.06, CADD.02.08, CADD.02.10

CADD.03 Utilize measurement and annotation systems as they apply to CADD technology design.
CADD.03.03, CADD.03.04, CADD.03.05, CADD.03.06, CADD.03.07, CADD.03.08

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

CADD.05 Utilize Proper projection techniques to develop orthographic and pictorial drawings.
CADD.05.01, CADD.05.02, CADD.05.06, CADD.05.11, CADD.05.12, CADD.05.13, CADD.05.14, CADD.05.15, CADD.05.16

CADD.06 Demonstrate use and application of alternate view applications and functions.
CADD.06.02, CADD.06.03, CADD.06.04

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Pre-Engineering

ENG.02 Use the design process to solve problems by creating and refining prototypes.
ENG.02.08, ENG.02.12

ENG.07 Identify and demonstrate the use of various software programs used in the engineering field.
ENG.07.04

Unit Objectives	**Essential Question**	**Assessments**
Students will be able to: • communicate the solutions of a given Engineering challenge through a set of dimensioned plans that satisfy ANSI conventions.	• What has the impact of national standards organizations had on the role of the engineer in unifying drawing formats? **Focus Questions**	• Full Set of Dimensioned Plans **Skill Objectives** Students will: • create a package of professional looking

	• How is computer technology used to create designs and to effectively communicate ideas? • What ANSI standards have I learned so far? • How do I decide the best location for dimension placement? • What size paper and scale is most appropriate for this design?	plans for use in a digital portfolio, an attractive cover page, a border and title block, an orthographic drawing with an isometric view, section and auxiliary views as needed, an assembly view and 3D pictorial views to help others visualize the concept.

Unit 4 - Prototyping, 10 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04

EKS.06 Implement personal and jobsite safety rules and regulations to maintain safe and healthful working conditions and environments.
EKS.02.03, EKS.02.05, EKS.06.09

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.05 Utilize Proper projection techniques to develop orthographic and pictorial drawings.
CADD.05.16

CADD.06 Demonstrate use and application of alternate view applications and functions.
CADD.06.06

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Pre-Engineering

ENG.02 Use the design process to solve problems by creating and refining prototypes.
ENG.02.09

ENG.03 Ensure quality control using the major components of manufacturing processes including measurement systems, tools and instruments to produce a product.
ENG.03.02, ENG.03.03

ENG.04 Design using the appropriate materials in engineering by identifying, comparing, selecting and testing.
ENG.04.04, ENG.04.06

ENG.05 Works collaboratively in engineering teams throughout the design process.
ENG.05.02, ENG.05.04

Unit Objectives

Students will be able to:

- demonstrate safe handling of cutting and shaping tools.
- use mathematics and to create accurately scaled models of their site and building design.

Essential Question

- How do simulations differ from real life testing environments?

Focus Questions

- How close are computer simulations to the results of physical testing?

Assessments

- Create a Functional Prototype

Skill Objectives

Students will:

- demonstrate understanding of the lab safety rules.
- demonstrate safe use of common hand and

• create physical prototypes of their designs in order to test it or functionality.	• How can I safely use hand and power tools to build a working prototype? • What manufacturing techniques and fasteners can I utilize to create a stable, durable product?	machine tools. • use real world skills to create physical prototypes of their designs. • maintain a clean and organized workspace.

Unit 5 - Testing & Redesign, 2 weeks top

Standards

Careers in Tech Ed

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04

EKS.04 Demonstrate science knowledge and skills required to pursue the full range of post-secondary and career education opportunities.
EKS.04.01, EKS.04.02

EKS.06 Implement personal and jobsite safety rules and regulations to maintain safe and healthful working conditions and environments.
EKS.02.03, EKS.02.05, EKS.06.09

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.02 Analyze the use of current CADD design technology.
CADD.02.01, CADD.02.03, CADD.02.05, CADD.02.08 , CADD.02.09, CADD.02.10

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

CADD.05 Utilize Proper projection techniques to develop orthographic and pictorial drawings.
CADD.05.13, CADD.05.14, CADD.05.15, CADD.05.16

CADD.06 Demonstrate use and application of alternate view applications and functions.
CADD.06.02, CADD.06.05, CADD.06.06

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Pre-Engineering

ENG.02 Use the design process to solve problems by creating and refining prototypes.
ENG.02.01, ENG.02.10, ENG.02.11

ENG.03 Ensure quality control using the major components of manufacturing processes including measurement systems, tools and instruments to produce a product.
ENG.03.02, ENG.03.03

ENG.04 Design using the appropriate materials in engineering by identifying, comparing, selecting and testing.
ENG.04.04, ENG.04.06

ENG.05 Works collaboratively in engineering teams throughout the design process.
ENG.05.02, ENG.05.04

Unit Objectives	Essential Question	Assessments

Students will be able to: • safely and reliably develop methods of evaluating the performance of their physical prototypes. • track their design process in an engineering journal. • use critical thinking and problem solving skills to redesign their concept improving its performance.	• How can an engineer use the engineering design process to achieve desired outcomes? **Focus Questions** • After I build and test my prototype what do I do with the data? • As an engineer, how do I ensure my designs are functional, aesthetic, and satisfy my customer's requests?	• Prototype Testing Report • Modified Prototype **Skill Objectives** Students will: • develop a reliable, scientifically based method for testing a concept prototype. • record the results of prototype testing in an engineering journal. • modify and improve their concept based on prototype test results.

Unit 6 - Final Testing & Report, 2 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04, EKS.03.06

EKS.04 Demonstrate science knowledge and skills required to pursue the full range of post-secondary and career education opportunities.
EKS.04.01, EKS.04.02

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.05, EKS.05.06, EKS.05.11

EKS.06 Implement personal and jobsite safety rules and regulations to maintain safe and healthful working conditions and environments.
EKS.02.03, EKS.02.05, EKS.06.09

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.02 Analyze the use of current CADD design technology.
CADD.02.03, CADD.02.05, CADD.02.10, CADD.02.08 , CADD.02.09

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

CADD.05 Utilize Proper projection techniques to develop orthographic and pictorial drawings.
CADD.05.16

CADD.06 Demonstrate use and application of alternate view applications and functions.
CADD.06.05

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Pre-Engineering

ENG.02 Use the design process to solve problems by creating and refining prototypes.
ENG.02.10, ENG.02.12

ENG.03 Ensure quality control using the major components of manufacturing processes including measurement systems, tools and instruments to produce a product.
ENG.03.02, ENG.03.03

ENG.04 Design using the appropriate materials in engineering by identifying, comparing, selecting and testing.
ENG.04.04, ENG.04.06

ENG.05 Works collaboratively in engineering teams throughout the design process.
ENG.05.02, ENG.05.03, ENG.05.04

Unit Objectives Students will be able to: • edit dimensioned drawings in accordance with ANSI standards. • use word processer and spreadsheet software to create technical report.	**Essential Question** • How can data collection be used in a report when proving a concept? **Focus Questions** • How do I create professional and clearly written technical reports? • How can I best prepare myself for a career in engineering or industrial design? • As an engineer, how do I ensure my designs are functional, aesthetic, and satisfy my customer's requests?	**Assessments** • Revised Drawings • Final Engineering Report **Skill Objectives** Students will: • update the package of dimensioned plans for use in a digital portfolio. • finalize the results of prototype testing in an engineering journal.

Unit 7 - Career Prep and Portfolio Compilation, 6 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.01, EKS.01.02

EKS.02 Demonstrate language arts knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.02.02, EKS.02.03

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06, EKS.05.07, EKS.05.10, EKS.05.11

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

EKS.09 Demonstrate skills related to seeking and applying for employment to find and obtain a desired job.
EKS.09.01, EKS.09.02, EKS.09.03, EKS.09.04, EKS.09.05, EKS.09.06, EKS.09.07

Computer Aided Drafting and Design

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01, CADD.10.02, CADD.10.03

Pre-Engineering

ENG.02 Use the design process to solve problems by creating and refining prototypes.
ENG.02.12

ENG.05 Works collaboratively in engineering teams throughout the design process.
ENG.05.02, ENG.05.03, ENG.05.04

Unit Objectives

Students will be able to:

- demonstrate an understanding of the skills necessary to complete a successful Mock Job Interview.
- utilize multimedia technology to communicate their knowledge and talent through a digital portfolio.

Essential Question

- Why is a portfolio an important tool in the acquisition of both a career and reaching personal goals?

Focus Questions

- How can I best prepare myself for a career in engineering or industrial design?
- How can I utilize computer software and design principles to create an outstanding digital portfolio of my work?
- What traits and qualities is the typical interviewer looking for?

Assessments

- Digital Portfolio
- Mock Job Interview

Skill Objectives

Students will:

- complete a successful Mock Job Interview.
- put together a design portfolio and present it to the class.

CAD 40
Animation Emphasis

Unit 1 – Production Planning & Concept Art, 4 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.02 Demonstrate language arts knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.02.02

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06, EKS.05.07, EKS.05.10, EKS.05.11

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.05 Utilize Proper projection techniques to develop orthographic and pictorial drawings.
CADD.05.01, CADD.05.02, CADD.05.06 , CADD.05.14, CADD.05.15

CADD.08 Explain and Utilize the concepts of sketching and the sketching process used in preliminary design and development.
CADD.08.01, CADD.08.02 , CADD.08.03

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Communications

AVC.03 Demonstrate the use of appropriate communication equipment for the delivery of a message.
AVC.03.07, AVC.03.09

Unit Objectives

Students will be able to:

- exhibit professionalism and good communication practices in a client interview.
- use critical thinking and problem solving skills to design a production that satisfies the client's requests.

Essential Question

- What interview strategies can I employ to ensure that the customer gets a design concept that meets their needs?

Focus Questions

- How can I effectively communicate my design ideas to others?
- How do I balance time constraints and aesthetics and complexity to create productions that are both within budget and attractive?
- What tools and techniques can I utilize to create

Assessments

- Mock Client Interview
- 2D&3D Sketches of the Concept
- Presentation of Concept to the Client

Skill Objectives

Students will:

- practice active listening and effective communication in a mock client interview in order to satisfy the needs of the client.
- use advanced sketching techniques to create

	attractive drawings? • How are designs driven by cost, computer limitations, deadlines, and message?	design sketches. • design an animation short which exhibits unity and a clear message. • design characters that target specific motional responses from the audience. • design environments that enhance the mood and style of the animation. • develop a realistic timeline to guide productivity in order to meet the project benchmark deadlines. • create a digital presentation on the proposed design concepts.

Unit 2 - 3D Modeling & Digital Sculpting, 10 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.03.04

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06, EKS.05.07, EKS.05.10, EKS.05.11

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.02 Analyze the use of current CADD design technology.
CADD.02.01, CADD.02.06, CADD.02.07, CADD.02.08, CADD.02.12

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

Communications

AVC.03 Demonstrate the use of appropriate communication equipment for the delivery of a message.
AVC.03.17, AVC.03.18

Unit Objectives

Students will be able to:

- synthesize all previous knowledge to create complex, intricate CAD models from concept sketches.
- use problem solving and critical thinking to refine the design as the production is created.
- demonstrate professionalism and maturity and the ability to accomplish tasks within a deadline.
- effectively manage files and backups through a computer network.

Essential Question

- Why is consideration of details in modeling crucial to success in the final product?

Focus Questions

- How is computer technology used to create designs and to effectively communicate ideas?
- How can I combine everything I have learned so far to create stunning architectural designs?
- How can I utilize network file management strategies to ensure that I am productive and do not lose any work to lost or corrupt file?

Assessments

- File Management System
- CAD Models of the Characters
- CAD Models of the Environments
- CAD Models of the Props

Skill Objectives

Students will:

- create a file folder system to organize and manage their projects.
- maximize the features of 3D modeling and animation software to create quality scenes in a timely manner.
- create 3D computer models that fit the overall style and message of the planned production.

Unit 3 - UVW Mapping & Materials, 4 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05, EKS.05.06

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.02 Analyze the use of current CADD design technology.
CADD.02.01, CADD.02.06, CADD.02.08

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

Communications

AVC.03 Demonstrate the use of appropriate communication equipment for the delivery of a message.
AVC.03.17, AVC.03.18

Unit Objectives

Students will be able to:

- demonstrate mastery of the tools for creating and modifying material shaders within the software.
- seamlessly wrap materials around a variety of complex 3D geometry.
- import and export files of multiple types between specialized software in order to attain quality texture maps and professional looking models.

Essential Question

- How can CAD tools be utilized to complete complex tasks in the design process?

Focus Questions

- What advanced software tools are available to aid me in designing more elaborate, creative products?
- How can I create and apply materials that fit within the overall art style of the entire animation?
- What mapping tools exist to help increase my productivity?
- How can I transfer my files to other software packages to enhance the quality of my end result?

Assessments

- Apply materials to the following:
- CAD Models of the Characters
- CAD Models of the Environments
- CAD Models of the Props

Skill Objectives

Students will:

- utilize 3ds Max, Maya, Mudbox, Photoshop, material libraries and internet resources to create and customize texture maps & material shaders.
- use mapping modifiers to create coordinates for material shaders.
- learn to use color pallets and shader properties to create an overall art style that creates unity and intrigue in their animation.

Unit 4 - Lighting, 2 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Communications

AVC.03 Demonstrate the use of appropriate communication equipment for the delivery of a message.
AVC.03.10, AVC.03.17, AVC.03.18

Unit Objectives

Students will be able to:

- compare and contrast the various lighting options within the software to choose a style which fits the message of the scene.
- utilize various lighting effects to enhance the entertainment value of the production.
- accentuate the features of the models with clever use of light and shadow.

Essential Question

- How do lighting considerations need to be included in the development process?

Focus Questions

- How do I choose the best lighting style to fit the overall theme of my animation?
- Which lighting techniques will work best with the materials I have chosen?
- How do I use lighting strategically to enhance the emotional response from the audience?

Assessments

- Still &Animated Test Renderings with Textures & Lighting

Skill Objectives

Students will:

- choose a lighting style that fits their overall art style.
- strategically place lighting to create ambiance and enhance the desired emotional response of a scene.
- add any special effects necessary to give their final product an impressive look.

Unit 5 – Motion Capture and Animation, 6 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.02 Analyze the use of current CADD design technology.
CADD.02.01, CADD.02.04, CADD.02.05, CADD.02.06, CADD.02.08

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Communications

AVC.03 Demonstrate the use of appropriate communication equipment for the delivery of a message.
AVC.03.07, AVC.03.14, AVC.03.16, AVC.03.17, AVC.03.18

Unit Objectives

Students will be able to:

- demonstrate mastery of the basic key framing tools.
- effectively utilize the built in physics engine and special modifiers to create believable movement.
- utilize built animation tools create smooth, complex movements.
- use motion capture technology to record and translate human movement into digital animation information.
- apply and edit motion capture data to create smooth, realistic character movement.

Essential Question

- How does human emotion effect the animator's character movement decisions?

Focus Questions

- How do I use a characters movement to convey emotion?
- How can I increase the realism of my character's movements?
- What animation tools exist to help increase my productivity?

Assessments

- Mo Cap & Animation of Characters and Scenes

Skill Objectives

Students will:

- use 3dsMax character animation tools to create and apply character movement in order to express emotion.
- independently use motion capture technology to record and process a human actor's movement.
- apply the motion capture data using MotionBuilder and edit the bone rig to create realistic character movement.
- take advantage of the physics engine and special modifiers to animate the props and environment.

Unit 6 – Final Editing, 4 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.02

EKS.05 Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
EKS.05.02, EKS.05.04, EKS.05.05

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

Computer Aided Drafting and Design

CADD.02 Analyze the use of current CADD design technology.
CADD.02.01, CADD.02.04, CADD.02.05, CADD.02.06, CADD.02.08

CADD.04 Identify, describe, and utilize the basic hardware and operating systems used in CADD.
CADD.04.05, CADD.04.06

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01

Communications

AVC.03 Demonstrate the use of appropriate communication equipment for the delivery of a message.
AVC.03.0,1 AVC.03.03, AVC.03.06, AVC.03.07, AVC.03.14, AVC.03.16, AVC.03.17, AVC.03.18

AVC.04 Edit media productions to demonstrate basic skills in operating various elements in a production system.
AVC.04.05, AVC.04.06

Unit Objectives

Students will be able to:

- demonstrate mastery of the editing software by creating a high quality animation short with sound.
- arrange video clips together to create a harmonious series of events in accordance with the desired message.
- strategically place sound effects and background music to enrich the message of the production.

Essential Question

- Why is logical thought necessary in the development of storyboards and video sequencing?

Focus Questions

- What video and audio editing tools are available to aid me in creating more elaborate, creative products?
- How can I convey subtle messages with video transitions?
- How do I boost the emotional power of a scene with targeted sound effects and music?
- How do I combine sound effects to enhance the impact of special effects such as explosions?

Assessments

- Final Animation with Sound

Skill Objectives

Students will:

- organize rendered scenes into the proper order of events.
- use video transitions to enhance production value of animations.
- record and mix multiple audio tracks into a singular production.
- time sound effects to enhance production value.
- design an audio scheme that will increase the emotional message of the animation.

Unit 7 – Career Prep and Portfolio Compilation, 6 weeks top

Standards

Essential Knowledge and Skills

EKS.01 Complete required training, education, and certification to prepare for employment in a particular career field.
EKS.01.01, EKS.01.02

EKS.02 Demonstrate language arts knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
EKS.02.02, EKS.02.03

EKS.08 Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
EKS.08.01, EKS.08.02, EKS.08.03, EKS.08.06, EKS.08.07, EKS.08.08

EKS.09 Demonstrate skills related to seeking and applying for employment to find and obtain a desired job.
EKS.09.01, EKS.09.02, EKS.09.03, EKS.09.04, EKS.09.05, EKS.09.06, EKS.09.07

Computer Aided Drafting and Design

CADD.10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD.
CADD.10.01, CADD.10.02, CADD.10.03

Communications

AVC.03 Demonstrate the use of appropriate communication equipment for the delivery of a message.
AVC.03.18

Unit Objectives

Students will be able to:

- demonstrate an understanding of the skills necessary to complete a successful Mock Job Interview.
- utilize multimedia technology to communicate their knowledge and talent through a digital portfolio**.**

Essential Question

- Why is a portfolio an important tool in the acquisition of both a career and reaching personal goals?

Focus Questions

- How can I best prepare myself for a career in digital media?
- How can I utilize computer software and design principles to create an outstanding digital portfolio of my work?
- What traits and qualities is the typical interviewer looking for?

Assessments

- Digital Portfolio
- Mock Job Interview

Skill Objectives

Students will:

- complete a successful Mock Job Interview.
- put together a design portfolio and present it to the class.