COURSE DESCRIPTION

Course Title: Animation
Course Number: 10740
Course Prerequisites: None

Course Description: See Attachment

Suggested Grade Level: Grades 9-12
Length of Course: One Semester
Units of Credit: .5
PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:
CSPG 65
To find the CSPG information, go to https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx
Certification verified by the WCSD Human Resources Department: ☒Yes   ☐No

WCSD STUDENT DATA SYSTEM INFORMATION

Course Level: Academic
Mark Types: Check all that apply.
                                   ☒F – Final Average   ☒MP – Marking Period   ☐EXM – Final Exam

GPA Type: ☐ GPAEL-GPA Elementary   ☐ GPAML-GPA for Middle Level   ☒ NHS-National Honor Society
                                   ☐ UGPA-Non-Weighted Grade Point Average   ☒ GPA-Weighted Grade Point Average

State Course Code: 05117

To find the State Course Code, go to https://nces.ed.gov/forum/sced.asp, download the Excel file for *SCED*, click on SCED 6.0 tab, and chose the correct code that corresponds with the course.

TEXTBOOKS AND SUPPLEMENTAL MATERIALS

Supplemental Materials: Edynamic (Virtual Academy)

Curriculum Document

WCSD Board Approval:
   Date Finalized: 9/19/2019
   Date Approved: 11/4/2019
   Implementation Year: 19-20

SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

ASSESSMENTS

PSSA Academic Standards, Assessment Anchors, and Eligible Content: The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

Formative Assessments: The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

Effective formative assessments for this course include: Lesson quizzes, projects, discussion boards, and module exams

Summative Assessments: The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

Effective summative assessments for this course include: Semester exams

Animation

Are you inherently creative? Do you have an eye for drawing, technology, and timing? If so, 2D Animation is the course for you! 2D animation creates movement in a two-dimensional artistic space. And in this course, you will learn the necessary skills to do just that. 2D Animation will give you the tools to conceptualize and bring your animation dreams to life! Using a variety of software and design programs, you'll have the power to transform your creative notions into reality! Design, define, and complete a variety of digital design projects including creating your own website! Learning about 2D Animation could lead to a thriving career in the growing world of technology and animation!

Unit 1: Basics of Animation

Drawing pictures and making them move is nothing short of magic. Since at least the 1600s, people have been experimenting and inventing ways to make images move. In fact, it is these cool experiments, which you can replicate yourself, that have led us to the modern era of fantastic 3D computer generated animated movies! Get ready to take a peek behind the scenes as we track the history of animation magic.

What will you learn in this unit?

- Trace the origins and early history of the art of animation
- Explore how the eye and brain process moving images
- Compare the differences between past animation techniques and current animation technologies
- Understand the differences between various types of animation

Unit 1 Assignments

Assignment	Type
Unit 1 Text Questions	Homework
Unit 1 Activity	Homework
Unit 1 Discussion 1	Discussion
Unit 1 Discussion 2	Discussion
Unit 1 Quiz	Discussion

Unit 2: Hand Drawn Animation

Humans talk with their hands, and one way this happens is by communication through drawings. Traditional animation is hand-drawn animation, which evolved from the exciting invention of photography and motion pictures. We will trace these developments all the way through the classic principles of animation developed by the animators at Disney Studios.

What will you learn in this unit?

- Explain how drawn animation evolved from early picture viewing devices
- Understand and apply Disney's 12 Principles of Animation
- Use key terms of hand-drawn animation
- Appreciate the world of animation beyond the United States
- Include design elements in your drawings

Unit 2 Assignments

Assignment	Type
Unit 2 Text Questions	Homework
Unit 2 Lab	Homework
Unit 2 Activity 1	Homework
Unit 2 Activity 2	Homework
Unit 2 Activity 3	Homework
Unit 2 Discussion 1	Discussion
Unit 2 Discussion 2	Discussion

Unit 2 Quiz   Discussion

Unit 3: Computer Animation and CGI

How do they do that? Modern animated films are a complete wonder to look at and incredibly complex to make. With so many artists performing intricate jobs to create realistic characters, backgrounds, and movement, it takes organization and leadership to bring it all together into a finished film. From the tiniest pixels to the huge computing power needed for post-production, we'll explore how CGI films are made.

What will you learn in this unit?
- Understand the difference between a bitmap image and a vector image
- Trace the process of CGI production from idea to theater
- Discuss the pros and cons of different production processes
- Define and explain kinematics and animatics
- Identify the key departments in an animation studio

Unit 3 Assignments

Assignment	Type
Unit 3 Text Questions	Homework
Unit 3 Activity 1	Homework
Unit 3 Activity 2	Homework
Unit 3 Discussion 1	Discussion
Unit 3 Discussion 2	Discussion
Unit 3 Quiz	Discussion

Unit 4: Digital 2D Animation and Rotoscopy

Now's your chance to join the ranks of talented animators! Everyone can try their hand at this fun art form and increase their communication skills and artistic expression while learning a simple 2D animation program. Pull out your photos and videos---you can use these along with your drawings to make cool mini-animation while you explore TupiTube Desk, a 2D animation program that will allow you to put everything you've learned into action!

What will you learn in this unit?
- Create animation sequences with layered drawings and backgrounds
- Trace videos to make rotoscoped sequences
- Use the important functions of 2D animation software
- Export your animated videos to share with the world
- Apply graphical tools to improve your digital drawings

Unit 4 Assignments

Assignment	Type
Unit 4 Text Questions	Homework
Unit 4 Activity	Homework
Unit 4 Discussion 1	Discussion
Unit 4 Discussion 2	Discussion
Unit 4 Quiz	Discussion

Unit 5: Human Anatomy and Form

Animated characters aren't real, so animators don't really need to understand the human body, right? WRONG! You actually DO need to know how to draw the human form, with bone structure and muscles, and appreciate real world body mechanics in order to draw believable, but also stylized, animated characters. Together, we'll tackle the basics and then you can let your imagination fly, while taking your audience along with you for the ride.

What will you learn in this unit?
- Draw the human body in proportion
- Identify and create the walk cycle for animation
- Discuss how poses communicate emotion
- Develop your own animated characters based on real anatomy

Unit 5 Assignments

Assignment	Type
Unit 5 Text Questions	Homework
Unit 5 Lab	Homework
Unit 5 Activity	Homework
Unit 5 Discussion 1	Discussion
Unit 5 Discussion 2	Discussion
Unit 5 Quiz	Discussion

Unit 6: Animated Motion

Jump around. Walk. Run. Smile. Shake your head. Tap your foot. We move all the time, but how does it look in a sequence of images? Movement in animation must conform roughly to the laws of gravity and motion of the real world but can be used to express emotions, plot points, and character development. Studying natural movement will teach you to translate movement into animation, but you can still get creative and give that movement personality.

What will you learn in this unit?
- Understand the Laws of Motion and Gravity
- Apply physics principles to the movement of your characters
- Create facial expressions that convey emotions
- Turn your characters into first-rate actors

Unit 6 Assignments

Assignment	Type
Unit 6 Text Questions	Homework
Unit 6 Activity 1	Homework
Unit 6 Activity 2	Homework
Unit 6 Discussion 1	Discussion
Unit 6 Discussion 2	Discussion
Unit 6 Quiz	Discussion

Animation Midterm Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first six units in this course (Note: You will be able to open this exam only one time.)

Midterm Assignments

Assignment	Type
Midterm Exam	Exam
Midterm Discussion	Discussion

Unit 7: Intro to Blender

Have you ever watched a modern animated movie and wondered how they created those incredibly detailed and compelling characters and worlds? With extremely realistic lighting, physics, and even hair, fur, and skin,

the world of 3D animation has become truly rich and visually compelling. In this unit, we will learn about the popular, open source, yet powerful, 3D modeling and animation software called Blender.

What will you learn in this unit?
- Explain the difference between motion capture and keyframe animation
- Grasp the power of modern animation techniques, including bones, muscles, and rigging
- Understand the process of simulating water, hair, and other dynamics
- Navigate the Blender interface
- Create simple animations using parenting, movement, rotation and scaling along with keyframes

Unit 7 Assignments

Assignment	Type
Unit 7 Text Questions	Homework
Unit 7 Activity	Homework
Unit 7 Discussion 1	Discussion
Unit 7 Discussion 2	Discussion
Unit 7 Quiz	Discussion

Unit 8: Character Modeling

Have you ever watched an extremely vivid, polished animated movies or 3D video games and wondered to yourself: How do they create those 3D characters? We're going to begin by exploring the basic tools and techniques involved in creating the 3D models for characters, and then you'll even get to create a 3D character model of your own!

What will you learn in this unit?
- Use various modeling techniques to create a character model
- Hide background geometry
- Navigate the 3D view using shortcuts
- Switch between perspective and orthographic mode
- Understand and apply the principles of topology

Unit 8 Assignments

Assignment	Type
Unit 8 Text Questions	Homework
Unit 8 Activity	Homework
Unit 8 Discussion 1	Discussion
Unit 8 Discussion 2	Discussion
Unit 8 Quiz	Discussion

Unit 9: Character Animation

At some point, you have probably watched a modern animated movie like *Ice Age* or *Shrek*, or played a modern, high-end computer game and asked yourself: How did they make those characters move so realistically, and believably? Well…you're about to find out! Get ready to take a look at the basic process involved in rigging, skinning, and animating a 3D character.

What will you learn in this unit?
- Create an armature rig to fit a bipedal character model
- Skin, or attach, a character model to a rig so that it deforms like skin with the movements of the various bones
- Develop a seamless walk cycle for a rigged character model

Unit 9 Assignments

Assignment	Type

Unit 9 Text Questions	Homework
Unit 9 Lab	Homework
Unit 9 Activity	Homework
Unit 9 Discussion 1	Discussion
Unit 9 Discussion 2	Discussion
Unit 9 Quiz	Discussion

Unit 10: Storytelling

Want to go to the movies? Well, why do people go? Because of the story! It draws them in, makes them care about the characters, and it lets them immerse themselves in another world. Storytelling is as old as the cavemen, and it is the best way to entertain modern humans as well. How do you make sure your story will captivate the audience? We have the secrets and the tricks right here—come along and we will tell you a story about telling a story!

What will you learn in this unit?
- Write dialogue and action in proper film script format
- Understand three-act script structure
- Identify camera shots, angles, and movement
- Create storyboards for animation

Unit 10 Assignments

Assignment	Type
Unit 10 Text Questions	Homework
Unit 10 Activity 1	Homework
Unit 10 Activity 2	Homework
Unit 10 Activity 3	Homework
Unit 10 Discussion 1	Discussion
Unit 10 Discussion 2	Discussion
Unit 10 Quiz	Discussion

Unit 11: Video, Music, & Sound

Silent films were great when they first came out, but now that we can have music, sound, and talking in our films… let's do it! From recording voice acting to making your own sound effects, putting sound to animation is an exercise in imagination and precision. After all, you don't want that "pop!" to be heard before the popcorn actually starts to pop or the "crash" to occur before the block tower comes toppling over. Funny, quirky, spooky, or serious—the sounds included in your animation and how you make them are really all up to you!

What will you learn in this unit?
- Appreciate how sound affects emotions
- Record good voice acting for animation
- Match animated mouth shapes to the sounds of speech
- Design and edit a simple soundtrack for video
- Add titles and export an animation with sound

Unit 11 Assignments

Assignment	Type
Unit 11 Text Questions	Homework
Unit 11 Lab	Homework
Unit 11 Activity	Homework
Unit 11 Discussion 1	Discussion

Unit 11 Discussion 2   Discussion

Unit 11 Quiz   Discussion

Unit 12: Careers in Animation

Animation is fun stuff! Who wouldn't want to spend their days making amusing characters do silly things to entertain the masses? Well, perhaps you have a more serious side and would like to apply your talents to medicine or engineering. That is possible for animators too! Whatever your dream, today is the first day on the path to a lifetime of fulfilling work as an animator. Seize the day!

What will you learn in this unit?

- Put together a portfolio of your work
- Recognize plagiarism and know how to avoid it in animation
- Pitch your animation project
- Understand the difference between jobs in animation vs. game design
- Describe how to protect your digital animation work

Unit 12 Assignments

Assignment	Type
Unit 12 Text Questions	Homework
Unit 12 Lab	Homework
Unit 12 Activity 1	Homework
Unit 12 Activity 2	Homework
Unit 12 Activity 3	Homework
Unit 12 Discussion 1	Discussion
Unit 12 Discussion 2	Discussion
Unit 12 Quiz	Discussion

Animation Final Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from units seven to twelve in this course – the last six units. (Note: You will be able to open this exam only one time.)

Final Assignments

Assignment	Type
Final Exam	Exam
Class Reflection Discussion	Discussion