WEST SOUND TECH   **Visual Arts Pathway**

Teacher: Tony Sharpe   **Room Number: 213**

Phone Number: 360-473-0585   **Planning Time: 1:40 – 3:00 Daily**

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3D Animation and Video Game Design Syllabus

I.   COURSE DESCRIPTION

Learn the principles, tools, and concepts used in 2D and 3D animation, video game programming, and video game production. Students use industry standard computers and software to create 3D video games and animations. During your time in this course you will learn to design, develop a 3D model, rig, and animate a character for video games. Strategies include development of a 2D and 3D art pipeline, modeling, texturing, game engines, modeling for anatomy, principles of animation, as well as lighting and compositing. Using pre-and post-production skills, students work in teams to create animations and video games, modeling strategies used in industry. Students learn a variety of 21st Century Skills, or employability skills, that are essential for effective transition into the professional world. Career opportunities include: video game design, animation design, 3D modeling, programing video games and more.

II.   STUDENT OUTCOMES

Upon completion of this course, students will be able to

Unit:	Student Competencies:
Career Planning	● Student will prepare a program of study of the video game industry. ● Student will understand different career paths in the video game industry.
Personal Success	● Student will create an online portfolio of work completed in program.
Employability and Entrepreneurship	● Student will work as part of a game development team to create video games and animations. ● Students will participate in a workplace environment that models workplace skills.
Problem Solving	● Student will work in game development teams to create video games. ● Student will use problems solving models to make informed decisions.
Health And Safety	● Student will use file maintenance, backup and security to safeguard student work. ● Students will learn the
Ethic and Legal Responsibilities	● Student will understand acceptable use policy, copyright and intellectual property protection laws. ● Students will conduct research on the internet and correctly cite sources.

Time Management	● Student will complete activities using techniques to manage their projects and time. ● Student will learn to set milestones, establish a budget, and schedule deadlines
Computer Foundation Skills	● Student will be comfortable working in, saving, and retrieving computer files. ● Student will be introduced to a variety of computer programs used to create video games.
Computer Science and Applied Programming	● Student will learn programming languages, problem solving, Unified Modeling Language, flowcharting, pseudocode, Integrated Development Environment, algorithmic reasoning, object - oriented programming. ● Student will work with variables, data types, operators and operands, statements, expressions, functions and function calls, function with arguments, input and output, pointers, behaviors, state machines, arrays to create video games
Applied Mathematics Concepts	● Student will understand that mathematics is embedded in all video games. ● Student with work with integers, decimals, fractions, functions, graphing functions, number systems, logic gates, trigonometric functions, vectors, position coordinate systems, polar coordinates, series, matrices to create video games.
Art and Design Concepts	● Student will learn about Art and Design elements and principles, color theory, 2D drain application, keyframing, tweening, anatomy of motion, design process. ● Student will use 3D modeling applications to create 3D primitives, 3D models, 3D spline models, 3D grouping, and 3D textures.
Game Design Concepts	● Student will learn about the history of computers and video games industry. ● Student will learn to create game design and technical documents. ● Student will understand scripting, character design, story proposal, design presentation, AI design, Game user interface (GUI) design.
Computer Concepts	● Students will identify internal computer parts, peripherals, and mobile technology. ● Student will understand different software and software operating systems.
Animation Theory	● Student will learn art elements and principles. ● Student will learn animation history, observational drawing, timing, spacing and placement. ● Student will learn the difference between 2D, 3D and other forms of animation. ● Student will understand the 12 principles of Animation.
Storyboarding and Pre Production	● Student will research and design a character. ● Student will design concept art for a storyboard and understand the production pipeline.
Lighting	● Student will use different lighting techniques for both video games and animations.

III.   COLLEGE CREDIT
West Sound Tech 3D Animation and Video Game Design and The Academy of Interactive Entertainment are working on a college credit agreement.

IV.   EQUIVALENCY CREDIT
Students may earn equivalency credit in a general academic subject area while completing this course. The following equivalency credit may be earned in this class:
1.0 Geometry Credit
1.0 Art Credit

V.   INDUSTRY CERTIFICATION
Upon completion of the course, students will be prepared to take the Unity Certification Exam.

VI.   REQUIRED TEXTBOOKS AND MATERIALS
Provided by the instructor:
- Unity Game Engine
- Blender Animation Software
- CGCookie Online Training Account
- 3D Game Lab - Online Management System
- CodeCombat - Online Code Training

Provided by the student:
- Headphones for use with computers.
- Students are required to have a working gmail account, with attached Youtube, Blogger account. These accounts are for professional use only and the student should plan on using these accounts beyond high school. The instructor should be able to identify the student from the account names.

VII.   CLASS FEES:
No Class Fees

VIII.   ATTENDANCE:
State law (RCW 28A.225.010) and school board policy recognize regular attendance is the basis of success in the classroom. Attendance is especially important at WST because of the significant amount of demonstrations and hands-on learning.

Steps to follow in case of an absence:
1. Just as you would in the workplace, students MUST contact the instructor if the student is absent.
2. Parents MUST follow-up with an email, phone call, or written documentation with the reason for the absence. *(must include student name, date of absence and reason for absence)*

IX.   SIMULATED WORKPLACE REQUIREMENTS
This class is designed to simulate a Game Design Company. The game design company needs Artists Programmers and Game Designers. You have been contracted for 180 days as an independent freelancer. You are a very talented person but have limited experience in the

game industry. You have been given a chance to work and learn in a company and find out where you best fit.

The company is made up of the following three departments.

- The Art and Animation Department - The department focuses on 2D and 3D art and animation. This department is responsible for the creation of 2D sprites and texture, 3D models, rigs and animations used in the creation of video games. People in this department works with Blender as its main source of software.
- The Programming Department - The department focuses on programming, scripting, and game mechanics. This department is responsible for writing, coding and debugging programs and scripts in the game engine. The people in this department works with Unity as its main source of software.
- The Game Design Department - The department focuses on the process of creating and producing video games. This department is responsible for the production of the game, creating and managing game design documents and managing timelines. People in this department need an understanding of both Unity and Blender and how they work together.

Your 180 day contract is divided into 6 terms. Each term is 30 days. The first term all new contractors will go through company orientation, and procedures and working with each of the departments and finding the best department that fits you. At the end of the first term you will be placed in a department based on your skills and department preference. Terms 2, 3 and 4 you will learn department specific task. For Term 5 and 6 you will be teamed with other freelancers from other departments to create a video game for the end of year company showcase.

X.   ACADEMIC INTEGRITY:
Cheating is by definition, an action done by a student to supply work for another student, or turn in work, use work, or rely on work that is not her/his own, other than in circumstances clearly understood to involve collaborative or group learning. District policy requires that the teacher will record a 'zero' in the gradebook to communicate lack of evidence. Parents will be notified if a student is caught cheating in the classroom or lab. Subsequent cheating may result in an "F" in the class and possible removal from WST.

XI.   INSTRUCTIONAL STRATEGIES:
This class is designed like a video game. You have become a player in the game. A player will start at level 0 and level up as they progress through the game. A player levels up by completing quests (assignments and tutorials), participating in daily programming (lectures and group activities), boss fights (tests and projects). Every activity in the class is worth XP (experience points). As a player progress through the game, the player will be rewarded with Badges, Achievements and Awards.

XII. ASSESSMENT STRATEGIES:

Students work and projects will be assessed through an on-line management system. Students will be required to submit sample images and videos of work completed in class for review by instructor. Students will receive Achievements and Awards based on completion of tasks, assignments and tutorials.

XIII. Grading Criteria:

WST grades are earned at six week intervals, encompassing approximately 90 hours of learning/instruction each grading period. Grades are available through your family access account and are updated regularly. Grades are based on the following:

Attain identified knowledge, skills, and abilities as well as industry standards
Demonstrate knowledge and application of related theory
Demonstrate attainment of 21st century skills
Quality of work completed
Adherence to all safety rules and expectations

Example:

XP achieved - Daily Work, Assignments and Tutorials	60%
Terms 1,2,3 & 4 Boss fights or Terms 5 & 6 End of Year Showcase	20%
Personal Portfolio of Work	20%

XIV. Grading Scale:

Standards-Based Grading Description	Letter Grade	Percentage Value
Exceeds Standards	A	93-100
	A-	90-92
Meets Standards	B+	87-89
	B	83-86
	B-	80-82
Approaching Standards	C+	77-79
	C	73-76
	C-	70-72
	D+	67-69
	D	60-66
Does Not Meet Standard	F	Below 60

XV. NON-DISCRIMINATION

The Bremerton School District complies with all federal and state rules and regulations and does not discriminate on the basis of sex, race, creed, religion, color, national origin, age, honorably discharged veteran or military status, sexual orientation including gender expression or identity, the presence of any sensory, mental, or physical disability, or the use of a trained dog guide or service animal by a person with a disability in its programs and activities and provides equal access to the Boy Scouts and other designated youth groups. This holds true for all students who are interested in participation in educational programs and/or extra-curricular school activities. Inquiries regarding compliance and/or grievance procedures may be directed to the District's Title IX/RCW 28A.640 Officer and ADA Coordinator, Garth Steedman, at 360.473.1031, email garth.steedman@bremertonschools.org or the Section 504 Coordinator, John Welsh, at 360.473.4400, email john.welsh@bremertonschools.org. Mailing address: 134 Marion Avenue North, Bremerton, WA 98312.

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Please review, then sign, and return to the instructor:

• Review and follow student handbook expectations: every student at West Sound Tech is expected to adhere to all policies and expectations outlined in the student handbook.
- Attendance: Attendance is expected daily. Students that are absent MUST follow the requirements in the WST student handbook
- Student Drivers: Must follow policy outlined in student handbook
- Plagiarism policy
- Dress Code/Uniform Requirement: Follow classroom requirements and expectations for your program and as outlined in the student handbook
- Safety Policy: workplace safety is paramount. Students are expected to follow all safety expectations. Each classroom must meet industry safety requirements.

I have read, understand, and agree to the class rules, grading, and expectations outlined in this syllabus.

_____   _____   _____
Student Name   Student Signature   Date

_____   _____   _____
Parent/Guardian Name   Parent/Guardian Signature Date

Communication between parent/guardians and instructor is extremely important for student success. Please complete the information below and indicate preferred contact method:

Parent/Guardian Cell # _____   Home # _____

Parent/Guardian Email: _____