Subject:	Computer Science	**Course/Grade Level:**	Computer Programming II: Game Design / 10th-12th
Focus Statement:	**This course will focus on the creation of computer games. Students will learn the basic principles of game design and learn to work with a team to develop a larger videogame.**		

Outcome 1:

CTE.CPII.1		**Students will analyze the history and future of the videogame industry.**			
Pacing:		**Local Code:**	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
Instruct	**Assess**		**Students will:**		
NA	NA	CTE.CPII.1.1	Analyze the history of the videogame industry including the people, companies, and games that impacted the industry's development.	DGD.1.1.1 DGD.1.1.3 DGD.1.1.5	
NA	NA	CTE.CPII.1.2	Compare and contrast non-digital games to videogames.	DGD.1.1.2	
NA	NA	CTE.CPII.1.3	Categorize games based on their genres.	DGD.1.1.4	
NA	NA	CTE.CPII.1.4	Compare and contrast the careers of game artist, sound designer, game developer, game tester, game producer, and independent game developer.	DGD.1.2.1 DGD.1.2.2 DGD.1.2.3 DGD.1.2.4 DGD.1.2.5 DGD.1.2.6 DGD.1.2.7 DGD.2.1.3	

Outcome 2:

CTE.CPII.2		**Students will demonstrate knowledge of the videogame industry.**			
Pacing:		**Local Code:**	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
Instruct	**Assess**		**Students will:**		
NA	NA	CTE.CPII.2.1	Show how to correctly use industry terminology.	DGD.1.3.1 DGD.1.3.3	
NA	NA	CTE.CPII.2.2	Distinguish between different tools that can be used for videogame development.	DGD.1.3.2	
NA	NA	CTE.CPII.2.3	Compare and contrast the Entertainment Software Rating Board (ESRB) ratings for games.	DGD.1.3.4	
NA	NA	CTE.CPII.2.4	Analyze a videogame and point out game design theories that it implements.	DGD.1.4.1 DGD.1.4.2 DGD.1.4.3	

Outcome 3:

CTE.CPII.3		**Students will demonstrate how to create a videogame.**			
Pacing:		**Local Code:**	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
Instruct	**Assess**		**Students will:**		
NA	NA	CTE.CPII.3.1	Determine the target audience for a game.	DGD.2.1.1	

NA	NA	CTE.CPII.3.2	Create a game plan document with essential and optional ideas listed to minimize “feature creep”.	DGD.2.1.2 DGD.2.1.5 DGD.2.1.6 DGD.2.1.7 DGD.2.3.3 DGD.2.3.4 DGD.2.3.5	
NA	NA	CTE.CPII.3.3	Create a videogame prototype.	DGD.2.1.4	
NA	NA	CTE.CPII.3.4	Utilize collaboration tools to work as a team on a videogame.	DGD.2.1.8 DGD.2.1.9 DGD.2.1.10 DGD.2.1.11 DGD.2.1.12 DGD.2.1.13	
NA	NA	CTE.CPII.3.5	Write a story for a videogame.	DGD.2.2.1 DGD.2.2.2 DGD.2.2.3	
NA	NA	CTE.CPII.3.6	Create rules, objectives, and outcomes for a videogame.	DGD.2.2.4 DGD.2.2.5 DGD.2.2.6 DGD.2.4.2	
NA	NA	CTE.CPII.3.7	Demonstrate the importance of usability in video games by showing good and bad examples of it.	DGD.2.2.7	
NA	NA	CTE.CPII.3.8	Show how in-game economies and reward systems are used in videogames.	DGD.2.2.8	
NA	NA	CTE.CPII.3.9	Produce documentation for a videogame.	DGD.2.3.1 DGD.2.3.2 DGD.2.3.6	
NA	NA	CTE.CPII.3.10	Compare and contrast different types of game mechanics.	DGD.2.4.1	
NA	NA	CTE.CPII.3.11	Incorporate game mechanics into a videogame.	DGD.2.4.3 DGD.2.4.4	

Outcome 4:

CTE.CPII.4		**Students will demonstrate how to create assets for a videogame.**			
Pacing:		**Local Code:**	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
Instruct	**Assess**		**Students will:**		
NA	NA	CTE.CPII.4.1	Evaluate the role of typography as well as layout and composition in a videogame.	DGD.3.1.1 DGD.3.1.2	
NA	NA	CTE.CPII.4.2	Explain how color theory is used in a videogame.	DGD.3.1.3	
NA	NA	CTE.CPII.4.3	Show examples of 1 and 2 point perspective.	DGD.3.1.4 DGD.3.1.5 DGD.3.1.6	
NA	NA	CTE.CPII.4.4	Show an example of a proportionally-correct figure.	DGD.3.1.7	
NA	NA	CTE.CPII.4.5	Distinguish among 2D, 2.5D, and 3D art styles.	DGD.3.1.8 DGD.3.1.9	
NA	NA	CTE.CPII.4.6	Compare and contrast the process of creating an indoor versus an outdoor environment.	DGD.3.2.1 DGD.3.2.2 DGD.3.2.3	
NA	NA	CTE.CPII.4.7	Create an environment for a videogame.	DGD.3.2.4 DGD.3.2.5 DGD.3.2.6 DGD.3.2.7	
NA	NA	CTE.CPII.4.8	Show how character development occurs in a videogame.	DGD.3.3.1 DGD.3.3.2 DGD.3.3.3 DGD.3.3.4 DGD.3.3.5	

NA	NA	CTE.CPII.4.9	Construct a character for a videogame.	DGD.3.3.6 DGD.3.4.1	
NA	NA	CTE.CPII.4.10	Construct and manipulate polygonal objects.	DGD.3.4.2 DGD.3.4.3 DGD.3.4.4 DGD.3.4.5 DGD.3.4.6 DGD.3.4.7	
NA	NA	CTE.CPII.4.11	Demonstrate how lighting and shading affect form and surface.	DGD.3.4.8 DGD.3.4.9 DGD.3.4.10 DGD.3.5.9	
NA	NA	CTE.CPII.4.12	Create a 2D or 3D animation.	DGD.3.5.1 DGD.3.5.2 DGD.3.5.3 DGD.3.5.4 DGD.3.5.5 DGD.3.5.6 DGD.3.5.7 DGD.3.5.8 DGD.3.5.10 DGD.3.5.11 DGD.3.5.12 DGD.3.5.13 DGD.3.5.14 DGD.3.5.15 DGD.3.5.16 DGD.3.5.17	
NA	NA	CTE.CPII.4.13	Demonstrate how hexadecimal code is used to define colors.	DGD.4.1.4	

Outcome 5:

CTE.CPII.5		**Students will apply logical thinking to the game development process.**			
Pacing:		**Local Code:**	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
Instruct	**Assess**		**Students will:**		

NA	NA	CTE.CPII.5.1	Demonstrate how to correctly utilize conditional statements to control program flow.	DGD.4.1.1 DGD.4.1.2 DGD.4.2.7	
NA	NA	CTE.CPII.5.2	Generate a truth table to model game events.	DGD.4.1.3 DGD.4.3.1	
NA	NA	CTE.CPII.5.3	Apply mathematical formulas in code.	DGD.4.1.5 DGD.4.1.6 DGD.4.1.7	
NA	NA	CTE.CPII.5.4	Create a diagram that shows code execution flow.	DGD.4.1.8 DGD.4.3.4	

Outcome 6:

CTE.CPII.6		**Students will demonstrate how to utilize programming concepts in their videogames.**			
Pacing:		**Local Code:**	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
Instruct	**Assess**		**Students will:**		
NA	NA	CTE.CPII.6.1	Demonstrate how to use primitive data types and arrays.	DGD.4.2.2 DGD.4.2.3	
NA	NA	CTE.CPII.6.2	Compare and contrast syntax and semantics.	DGD.4.2.1	
NA	NA	CTE.CPII.6.3	Gather game input from different sources (keyboard, mouse, gamepad, etc.)	DGD.4.2.4	
NA	NA	CTE.CPII.6.4	Demonstrate how to use callback methods and normal methods.	DGD.4.2.5 DGD.4.2.8	
NA	NA	CTE.CPII.6.5	Compare and contrast constants and variables.	DGD.4.2.6	

NA	NA	CTE.CPII.6.6	Compare and contrast iterative and sequential control.	DGD.4.2.9 DGD.4.2.10	
NA	NA	CTE.CPII.6.7	Demonstrate how to debug and test a program using unit tests.	DGD.4.2.11 DGD.4.3.4	
NA	NA	CTE.CPII.6.8	Design and implement user-defined data types.	DGD.4.2.12 DGD.4.2.14 DGD.4.3.5	
NA	NA	CTE.CPII.6.9	Show how to output data to different destinations.	DGD.4.2.13	
NA	NA	CTE.CPII.6.10	Show how to utilize the basic steps of algorithmic problem solving.	DGD.4.3.2	
NA	NA	CTE.CPII.6.11	Compare and contrast top-down and bottom-up software development.	DGD.4.3.3	
NA	NA	CTE.CPII.6.12	Illustrate how algorithms can be used to produce artificial intelligence by producing examples of AI.	DGD.4.3.6	

Outcome 7:

CTE.CPII.7		**Students will demonstrate how to build a videogame.**			
Pacing:		**Local Code:**	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
Instruct	**Assess**		**Students will:**		
NA	NA	CTE.CPII.7.1	Compare and contrast various game engines and choose an engine that best fits the game requirements.	DGD.5.1.1 DGD.5.1.2 DGD.5.1.3 DGD.5.1.4	
NA	NA	CTE.CPII.7.2	Show how characters will advance in relation to storyline and gameplay.	DGD.5.2.1	

NA	NA	CTE.CPII.7.3	Develop levels for a videogame.	DGD.5.2.2 DGD.5.2.4 DGD.5.2.5 DGD.5.2.6	
NA	NA	CTE.CPII.7.4	Create non-player characters and scripted events.	DGD.5.2.3 DGD.5.2.5	
NA	NA	CTE.CPII.7.5	Compare and contrast various options for a graphical user interface (GUI).	DGD.5.3.1	
NA	NA	CTE.CPII.7.6	Implement a GUI in a videogame.	DGD.5.3.2 DGD.5.3.4	
NA	NA	CTE.CPII.7.7	Create a flowchart that models the functionality of the GUI.	DGD.5.3.3	
NA	NA	CTE.CPII.7.8	Create victory conditions for a videogame.	DGD.5.4.1	
NA	NA	CTE.CPII.7.9	Establish a reward system for a videogame.	DGD.5.4.3	
NA	NA	CTE.CPII.7.10	Create and balance game mechanics for a videogame.	DGD.5.4.2 DGD.5.4.4 DGD.5.4.5	
NA	NA	CTE.CPII.7.11	Demonstrate how to incorporate music in a videogame.	DGD.5.5.1 DGD.5.5.2 DGD.5.5.3 DGD.5.5.4	
NA	NA	CTE.CPII.7.12	Demonstrate how to incorporate sound effects in a videogame.	DGD.5.5.1 DGD.5.5.3 DGD.5.5.4 DGD.5.5.5	
NA	NA	CTE.CPII.7.13	Compare and contrast different publishing platforms for publishing a student-created videogame.	DGD.7.1.1 DGD.7.1.2 DGD.7.1.3 DGD.7.1.4	

Outcome 8:

CTE.CPII.8		**Students will determine if their actions when creating videogames are ethical and legal.**			
Pacing:		**Local Code:**	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
Instruct	**Assess**		**Students will:**		
NA	NA	CTE.CPII.8.1	Demonstrate how intellectual property (IP) can be used in student-created videogames.	DGD.6.1.1 DGD.6.1.3 DGD.6.1.4 DGD.6.3.3	
NA	NA	CTE.CPII.8.2	Compare and contrast Creative Commons and open source licenses.	DGD.6.1.2	
NA	NA	CTE.CPII.8.3	Debate how videogames can be used to invade privacy.	DGD.6.2.1	
NA	NA	CTE.CPII.8.4	Debate the benefits and drawbacks of digital rights management (DRM).	DGD.6.2.3	
NA	NA	CTE.CPII.8.5	Discuss social responsibility and issues concerning videogames.	DGD.6.3.2	
NA	NA	CTE.CPII.8.6	Illustrate key elements of a nondisclosure agreement (NDA) or contract by analyzing one.	DGD.6.3.4	

Outcome 9:

CTE.CPII.9		**Students will show how to market and sell a videogame.**			
Pacing:		**Local Code:**	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
Instruct	**Assess**		**Students will:**		
NA	NA	CTE.CPII.9.1	Pitch a videogame and defend why it will be entertaining.	DGD.7.2.1	

NA	NA	CTE.CPII.9.2	Debate the role of social media and social gameplay.	DGD.7.2.2 DGD.8.1.1 DGD.8.1.2 DGD.8.2.1 DGD.8.2.2	
NA	NA	CTE.CPII.9.3	Produce examples of successful crowd sourcing and crowd funding for videogames.	DGD.7.2.3	
NA	NA	CTE.CPII.9.4	Analyze successful videogame marketing campaigns.	DGD.7.2.4	
NA	NA	CTE.CPII.9.5	Create a videogame trailer.	DGD.7.2.5	
NA	NA	CTE.CPII.9.6	Hypothesize how localization issues impact game design.	DGD.7.2.6	
NA	NA	CTE.CPII.9.7	Compare and contrast various pay models for a videogame.	DGD.7.2.7	
NA	NA	CTE.CPII.9.8	Compare and contrast various output devices for videogames.	DGD.8.3.1 DGD.8.3.2 DGD.8.3.3	