Kentucky CTE

Computer Science: Game Design and Development Principles 113605 (2026–2027)

Explain the history of computing technologies that impact the game development industry. 1	1 Explain the history of computing technologies that impact the game development industry. 1
Explore non-digital games. 2	2 Explore non-digital games. 2
Research the evolution of video games. 3	3 Research the evolution of video games. 3
Describe the different game genres. 4	4 Describe the different game genres. 4
Evaluate the contributions of individual game designers and developers. 5	5 Evaluate the contributions of individual game designers and developers. 5
Explore careers as a game artist and sound designer. 6	6 Explore careers as a game artist and sound designer. 6
Describe the role of a game designer. 7	7 Describe the role of a game designer. 7
Explore careers as a game developer. 8	8 Explore careers as a game developer. 8
De pa assurance/testing. 9	escribe career pathways in quality assurance/testing. 9

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Explain the role of the producer. 10	10 Explain the role of the producer. 10
Explain the career path of an independent developer. 11	11 Explain the career path of an independent developer. 11
Research salary structures in the industry. 12	12 Research salary structures in the industry. 12
Define common terminology and its acronyms. 13	13 Define common terminology and its acronyms. 13
Identify the tools to develop a game (engine, application program interface [API], digital content creation tools, editors). 14	14 Identify the tools to develop a game (engine, application program interface [API], digital content creation tools, editors). 14
Communicate both in writing and verbally using appropriate industry terminology. 15	15 Communicate both in writing and verbally using appropriate industry terminology. 15
Compare and contrast the entertainment software rating boards (ESRB) ratings for games. 16	16 Compare and contrast the entertainment software rating boards (ESRB) ratings for games. 16
Explain the principles of visual design. 17	17 Explain the principles of visual design. 17
Explain the elements of design. 18	18 Explain the elements of design. 18
Analyze artwork/designs for specific design theories. 19	19 Analyze artwork/designs for specific design theories. 19

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Explore the components of game structure. 20	**20 Explore the components of game structure.** 20
Analyze the essentials of storytelling. 21	**21 Analyze the essentials of storytelling.** 21
Write an outline of a nonlinear story. 22	**22 Write an outline of a nonlinear story.** 22
Create rules for a game. 23	**23 Create rules for a game.** 23
Compare conflict and outcomes. 24	**24 Compare conflict and outcomes.** 24
Develop objectives and outcomes for a game. 25	**25 Develop objectives and outcomes for a game.** 25
Explain the importance of usability and how it impacts user experience. 26	**26 Explain the importance of usability and how it impacts user experience.** 26
Explain in-game economies, motivators, and reward systems. 27	**27 Explain in-game economies, motivators, and reward systems.** 27
Research various styles of game documentation. 28	**28 Research various styles of game documentation.** 28
Develop a technical design document (TDD). 29	**29 Develop a technical design document (TDD).** 29
Describe components of a game design document (GDD). 30	**30 Describe components of a game design document (GDD).** 30
Produce a game design document. 31	**31 Produce a game design document.** 31
Produce a game pitch do	**32 Produce a game pitch document.** 32

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Present game documentation. 33	**33** **Present game documentation.** 33
Compare and contrast categories of game mechanics. 34	**34** **Compare and contrast categories of game mechanics.** 34
Research victory condition mechanics of a game. 35	**35** **Research victory condition mechanics of a game.** 35
Discuss the relationship between game mechanics and game complexity and interactions. 36	**36** **Discuss the relationship between game mechanics and game complexity and interactions.** 36
Incorporate game mechanics into a game. 37	**37** **Incorporate game mechanics into a game.** 37
Explain basic logic statements such as if/then and cause/effect. 38	**38** **Explain basic logic statements such as if/then and cause/effect.** 38
Describe the uses of Boolean operators and the symbols associated with them. 39	**39** **Describe the uses of Boolean operators and the symbols associated with them.** 39
Generate truth tables for game events. 40	**40** **Generate truth tables for game events.** 40
Examine different number systems, including binary, decimal, and hexadecimal. 41	**41** **Examine different number systems, including binary, decimal, and hexadecimal.** 41
Demonstrate proper use of the order of operations. 42	**42** **Demonstrate proper use of the order of operations.** 42
Co for Skip to main content	**Convert mathematical formulas into code.** 43

Explain when to apply mathematical concepts common to game coding. 44

44 Explain when to apply mathematical concepts common to game coding. 44

Use logical thinking to create a diagram of code execution. 45

45 Use logical thinking to create a diagram of code execution. 45

Research laws that govern intellectual property in diverse forms. 46

46 Research laws that govern intellectual property in diverse forms. 46

Evaluate Creative Commons and open-source licensure. 47

47 Evaluate Creative Commons and open-source licensure. 47

Cite the boundaries of third-party work. 48

48 Cite the boundaries of third-party work. 48

Explain copyright, trademarks, and other intellectual property protection. 49

49 Explain copyright, trademarks, and other intellectual property protection. 49

Explain the invasion of privacy in the use of technology. 50

50 Explain the invasion of privacy in the use of technology. 50

Model acceptable security practices. 51

51 Model acceptable security practices. 51

Explore the issues of piracy and digital rights management (DRM). 52

52 Explore the issues of piracy and digital rights management (DRM). 52

Analyze your digital footprint. 53

53 Analyze your digital footprint. 53

Discuss social responsibility and issues concerning gaming. 54

54 Discuss social responsibility and issues concerning gaming. 54

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use of information. 55

Model legal and ethical use of information. 55

Identify key elements of non-disclosure agreements (NDA) and contracts. 56

56 Identify key elements of non-disclosure agreements (NDA) and contracts. 56

Summarize the behavior of an algorithm. 57

57 Summarize the behavior of an algorithm. 57

Determine if a given algorithm successfully solves a stated problem. 58

58 Determine if a given algorithm successfully solves a stated problem. 58