



# Video Game Design Master

## Competency

Student understands the principles of video game design and creates playable video games.

## Key Method

Student uses a range of video game design tools to create projects.

## Method Components

### What is coding?

To put it simply, coding is the language that computers speak. Much like human languages, many different coding languages are used around the world, all of which have different strengths and uses.

To use computers as a tool to shape the world around us, we need to learn these languages. Luckily, coding languages are based on a system of rules. When we are writing code, we are providing a set of instructions for a computer to follow in a way that it understands. Once we understand the fundamental rules that underpin coding as a whole, we can start to apply those rules to all the different coding languages and their unique syntax.

### What is the relationship between coding and video games?

Video games are created with code! You may dream of becoming a video game designer, so it's important to know exactly what is happening behind the scenes in your favorite games! From graphics to gameplay, points systems to levels, coding is behind it all.

### Why should you learn to code?

One of the reasons most often shared for why young people should learn to code is “to prepare them for the jobs of the future.” This is a worthwhile goal; jobs in STEM fields are



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growing at a rate of close to 8%, compared to just 3.7% for non-STEM jobs. Over 70% of jobs in STEM are actually computing jobs or use computer science in a major way (US Bureau of Labor Statistics, 2021). Learning to code can be a valuable skill in the workforce.

However, you may not end up in a STEM field. Nevertheless, you should still learn how to code!

Coding is not only an enjoyable pursuit, but it also helps you to understand technology. Learning to code means that rather than being a passive user of technology, you can better understand how technology is shaping our lives and societies and how you can use technology to make a positive impact in the world.

## 5 Skills of Great Video Game Designers

Creating video games is about more than just writing code! The 5 skills embraced by great video game designers are:

### 1. Understanding Technology Concepts

Yes, an important part of video game design is knowing how to code! Great programmers have a solid understanding of the fundamental concepts of code, including sequence, loops, conditionals, and more. They recognize that these fundamentals are consistent across most programming languages, although the exact way they are written and used may be different.

### 2. Critical Thinking and Problem Solving

Great video game designers know that mistakes = learning! They recognize that *something* is likely to go wrong or present a challenge every time they work on a project. They are able to analyze problems, break them down into smaller steps, and work through them while still keeping their cool. They use their previous knowledge and experience to find appropriate solutions and approaches to achieve their goals.

### 3. Communication and Collaboration

Great video game designers communicate effectively with others about their learning and work in a variety of contexts. They are able to work independently and with others to create unique projects, share experiences, and build new skills.

### 4. Knowledge Constructor

No single person, course, or video can teach you everything you need to know about video game design. Great video game designers know that they need to combine their knowledge and skills in new settings to find solutions to new problems and create new projects. They are also able to use a variety of resources and tools to build new knowledge independently.

### 5. Digital Citizenship

With great power comes great responsibility! Truly great video game designers recognize the power of coding, games, and technology to shape the world around them and they use their skills responsibly. They respect the work of others, are kind online, and always keep an eye on cybersecurity to help keep themselves safe.



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### What else can I learn from video game design?

Of course, learning about video game design is more than just learning how to code! In fact, there are many introductory tools to video game design that are entirely code-less.

Video game design gives you the opportunity to extend your experience in dozens of directions, including:

1. **Art.** From character designs to custom backgrounds to lifelike animations, art is a huge component of an effective video game.
2. **Storytelling.** All video games have some element of stories, no matter how simple. Character dialogue, narration, narrative structure, and more—video games are an excellent way to build and apply your language and literacy skills.
3. **Communication.** From ensuring your players understand *how* to play your game to making an engaging and accessible storyline to pitching your video game, communication is a huge component of effective video game design.
4. **Collaboration.** Can you make a video game on your own? Sure. But most famous game design studios have dozens (even hundreds) of team members working to bring a video game to life. Collaborating to design a video game can help you explore a range of roles within the video game design industry.

## Supporting Rationale and Research

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## Resources

### Terms and Concepts



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<https://dl.dropbox.com/s/a057nkmj49triej/Video%20Game%20Design%20Terminology.pdf?dl=0>

## Submission Guidelines & Evaluation Criteria

To earn the micro-credential, you must receive a passing evaluation for Parts 1 and 3 and a “Yes” for Part 2.

### Part 1. Overview Questions

1. How old are you?
2. How would you rate your confidence when it comes to STEM? (out of 5 stars)
3. How would you rate your ability when it comes to STEM?
  - a. I’m a total beginner; I’ve never done this before.
  - b. I’m pretty new to this; I have only a little bit of experience.
  - c. I’ve got some experience and am looking to take my learning to the next level.
  - d. I’ve got lots of experience, and I’m ready for more advanced stuff!
4. How would you rate your interest in exploring a STEM career when you get older? (out of 5 stars)
5. What are you most hoping to get out of your STEAM Hub course? Why?

**Passing:** The participant has responded to the survey answering all of the question prompts.

### Part 2. Work Examples/Artifacts/Evidence

To earn this micro-credential, submit the following artifacts:

#### Artifact 1: Badges

1. Badge for THREE of the following STEAM Hub courses:
  - a. Video Game Design with Bloxels
  - b. Video Game Design with MakeCode Arcade
  - c. Video Game Design with Flowlab
  - d. Video Game Design with Unity
  - e. eSports

#### Artifact 2: STEAM Hub Course Final Project

For the STEAM Hub course you selected above, please submit a copy of your final project. It must include:

- the full project file (please do not submit screenshots)
- any relevant share settings appropriately set to allow anyone to view the project



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## Part 2. Scoring Guide

Artifact	“Yes”	“Almost”	“Not Yet”
Artifact 1	The course badges were provided.	N/A	The course badges were not provided.
Artifact 2	The project provided meets the expectations as outlined in the project rubric within the STEAM Hub course at a level of 80% or higher.	The project provided meets the expectations as outlined in the project rubric within the STEAM Hub course at a level of less than 80%.	The project was not provided.

## Part 3. Reflection

Please write your responses below (500 words maximum).

1. What was the most challenging part of creating your project? How did you deal with these challenges?
2. What part of your project are you most proud of? Why?
3. Discuss what you have learned about video game design. Could you see yourself pursuing a career in this industry? Why or why not?

**Passing:** Response provides reasonable and accurate information that outlines their experience with learning to design video games. Student demonstrates a genuine attempt to reflect on their learning process and how their learning will influence their future.

