

In Mod Design 1, students learn the fundamentals of Java™ programming by creating their own Minecraft® Mod for the PC/Mac version of Minecraft®. For every item, block, or creature they want to add, students will first design and then code their object in Java. At the end of the course, they will have their own polished Mod that they created from scratch.

This is a project-based course where students take on the role of creator. In addition to technical skills, students develop the creative, critical thinking, and problem-solving skills necessary to build amazing projects from start to finish. Throughout the course, students work with industry-standard tools used by professionals. If they need any help along the way with their coursework or projects, students can reach out to experts for support by e-mail, chat, or phone.

By the end of this course, students will have built an original, professional-grade project and developed the knowledge, skills, and confidence to become creators on their own, in further study, or professionally.

Course Materials

All required materials are included with this course.

Length: One semester

UNIT 1: WELCOME TO MOD DESIGN 1

LESSON 1: START MODDING

Study: Start Modding

Get comfortable working together in the Modding environment.

Duration: 1 hr

Review: Start Modding Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: INTRO TO JAVA

Study: Intro to Java

Get comfortable working in Eclipse.

Duration: 1 hr

Review: Intro to Java Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: WRAP UP

Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

UNIT 2: A WHOLE NEW SWORD

LESSON 1: DRAW YOUR SWORD

Study: Draw Your Sword

Draw the Sword for your Mod.

Duration: 1 hr

Review: Draw Your Sword Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: WIELD YOUR SWORD

Study: Wield Your Sword

Add the code to get your sword into Minecraft.

Duration: 1 hr

Review: Wield Your Sword Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: CRAFT YOUR SWORD

Study: Craft Your Sword

Craft the crafting recipe for your sword.

Duration: 1 hr

Review: Craft Your Sword Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 4: WRAP UP

Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

Explore: Bonus Content

Explore extra content from the unit.

Duration: 0 hrs 20 mins Scoring: 10 points

UNIT 3: YOUR PICK

LESSON 1: PICK YOUR COLORS

Study: Pick Your Colors

Draw the pickaxe for your mod.

Duration: 1 hr

Review: Pick Your Colors Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: MINE IN STYLE

Study: Mine in Style

Program your pickaxe to appear in Minecraft.

Duration: 1 hr

Review: Mine in Style Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: FORGE A MATERIAL

Study: Forge a Material

Create your own custom tool material.

Duration: 1 hr

Review: Forge a Material Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 4: WRAP UP

Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

UNIT 4: BRAND NEW ITEMS

LESSON 1: ITEM FROM SCRATCH

Study: Item From Scratch

Learn brand new techniques to draw a new item for Minecraft.

Duration: 1 hr

Review: Item From Scratch Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: CALLING ALL METHODS

Study: Calling All Methods

Add your item into Minecraft, and customize it with some new programming.

Duration: 1 hr

Review: Calling All Methods Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: MMM...FOOD

Study: Mmm...Food

Add a new food item and customize its properties.

Duration: 1 hr

Review: Mmm...Food Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 4: WRAP UP

Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

Explore: Bonus Content

Explore extra content from the unit.

UNIT 5: ORE GALORE

LESSON 1: BLOCK PARTY

Study: Block Party

Design and code your very own block.

Duration: 1 hr

Review: Block Party Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: ORE PROPERTIES

Study: Ore Properties

Use new methods to make your block exactly the way you want it.

Duration: 1 hr

Review: Ore Properties Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: LOOP - THERE IT IS

Study: Loop - There it is

Add a new class that generates your block naturally in the world of Minecraft.

Duration: 1 hr

Review: Loop - There it is Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 4: WRAP UP

Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

UNIT 6: SUIT UP

LESSON 1: THAT'S A WRAP

Study: That's a Wrap

Draw all of the images you need for your armor.

Duration: 1 hr

Review: That's a Wrap Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: ARMOR CODE

Study: Armor Code

Add all four new pieces of armor with just one class.

Duration: 1 hr

Review: Armor Code Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: NEW ARMOR MATERIAL

Study: New Armor Material

Add a new armor material for your armor.

Duration: 1 hr

Review: New Armor Material Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 4: WRAP UP

Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

Explore: Bonus Content

Explore extra content from the unit.

Duration: 0 hrs 20 mins Scoring: 10 points

UNIT 7: A BIOME BY YOU

LESSON 1: A BIOME BY YOU

Study: A Biome By You

Create your own biome.

Duration: 1 hr

Review: A Biome By You Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: CHANGE THE WORLD

Study: Change the World

Customize the plant life, the mob life, and the landscape of your biome.

Duration: 1 hr

Review: Change the World Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: WRAP UP

Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

UNIT 8: CUSTOM CREATURE

LESSON 1: YOUR VERY OWN MOB

Study: Your Very Own Mob

Add all of the code you need to add a new mob in Minecraft.

Duration: 1 hr

Review: Your Very Own Mob Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: HARVEST SOME A.I.

Study: Harvest Some A.I.

Harvest some AI to give to your mob from the Minecraft source code.

Duration: 1 hr

Review: Harvest Some A.I. Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: MOB SPAWNING

Study: Mob Spawning

Customize your mob's spawn egg and how it spawns in all the biomes.

Duration: 1 hr

Review: Mob Spawning Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 4: WRAP UP

Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

UNIT 9: WAY MORE INSTANCES

LESSON 1: NEW ITEMS, FOR INSTANCE

Study: New Items, For Instance

Add new instances to quickly create new items for your mod.

Duration: 1 hr

Review: New Items, For Instance Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: A NEW CLASS OF BIOME

Study: A New Class of Biome

Add another biome to your mod.

Duration: 1 hr

Review: A New Class of Biome Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: WRAP UP

Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

Explore: Bonus Content

Explore extra content from the unit.

Duration: 0 hrs 20 mins Scoring: 10 points

UNIT 10: NEW FRIENDS**LESSON 1: TWO MOBS IN A MOD****Study: Two Mobs in a Mod**

Add a second mob into Minecraft.

Duration: 1 hr

Review: Two Mobs in a Mod Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: HIGHER INTELLIGENCE**Study: Higher Intelligence**

Customize the AI of your mob in a big way.

Duration: 1 hr

Review: Higher Intelligence Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: WRAP UP**Practice: Troubleshooting**

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

UNIT 11: ENTER THE INTERFACE**LESSON 1: ACHIEVEMENTS GET****Study: Achievements Get**

Add your own achievements into Minecraft.

Duration: 1 hr

Review: Achievements Get Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 2: HANDLE IT**Study: Handle It**

Trigger your achievements.

Duration: 1 hr

Review: Handle It Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 3: CREATE A CREATIVE TAB**Study: Create a Creative Tab**

Add a custom creative tab that will be a one stop shop for all of your items.

Duration: 1 hr

Review: Create a Creative Tab Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 10 mins

LESSON 4: WRAP UP

Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

Explore: Bonus Content

Explore extra content from the unit.

Duration: 0 hrs 20 mins Scoring: 0 points

UNIT 12: PACKAGE IT UP

LESSON 1: STANDARDS OF EXCELLENCE

Study: Standards of Excellence

Go through the Mod Design Standards of Excellence.

Duration: 1 hr

LESSON 2: PACK UP YOUR MOD

Project: Pack up your Mod

Upload your course project for review.

Duration: 1 hr Scoring: 200 points

UNIT 13: ADVANCED TOPICS

LESSON 1: EXPLODING PROJECTILES

Study: Exploding Projectiles

Make exploding projectiles.

Duration: 1 hr

LESSON 2: ANIMATED TEXTURES

Study: Animated Textures

Add Animated textures.

Duration: 1 hr

LESSON 3: SECOND SET OF ARMOR

Study: Second Set of Armor

Create a second set of armor.

Duration: 1 hr

LESSON 4: EXPORT YOUR MOD

Study: Export your Mod

Get ready to export your mod.

Duration: 1 hr