



HOUDINI RENASCENCE PROGRAM

COURSE CONTENT

MODULE I – THE AWAKENING

We will start by explaining how to take your first steps in the software. The content is highly optimized to get you familiar with Houdini in a dynamic and productive way. We won't talk about every menu or button; all this information will be explained on-the-go, along with the training. Our priority is to make you feel comfortable from the start.

You will find out about the main nodes in Houdini, you will learn to move around the interface and we will teach you how to control points and particles (Points, POPs and POP Grain).

At the end of this module, you will be able to create simulations of rain, sand, snow, perspiration, sparks, ashes, confetti, fireworks, bubbles, and much more.

This is not a lighting and rendering course, but we will teach you everything you need to submit your project with a perfect final look.

Week 01

- Interface
- Intro to SOP
- Custom attributes
- Create a simple galaxy from image base
- Extruded cubes project
- Intro to lighting, shading and rendering

Week 02

- Intro to attributes, variables and expressions
- Copy Stamp
- Condensation project (setup, shading and rendering)

Week 03

- Intro to procedural modeling
- Rocks generator setup
- Create a cascade model

Week 04

- Intro to POPs
- Custom velocity
- Rain project



Week 05

- Intro to collision events
- Particles trail project (setup, shading, lighting and rendering)

Week 06

- Basic particle explosion
- Footprints setup
- POP Attract setup

Week 07

- Intro to POP Grain
- Sand project setup

Week 08

- Advance POP Grain disintegration project (setup, lighting, shading and rendering)



MODULE II – RISE OF THE FALLEN

You will become a weapon of mass destruction! You will learn to perform different types of fractures and we will provide you with all the tools to control and choreograph your simulations.

In this second module, you will put together everything you have learned so far to create complex scenes using particles.

Demolishing a house, fracturing the floor or making cars fly through the air, are just some of the challenges you will face here!

Week 01

- Intro to RBD
- Start cars crash project

Week 02

- Intro to fracture simulations
- Ground fracture setup

Week 03

- Debris, rocks and particles setup
- Finish cars crash project

Week 04

- Intro to Material Fracture
- Constraints

Week 05 – 06 – 07

- House destruction project

Week 08

- Car destruction setup

Week 09

- Intro to FEM
- Gummy bear project (setup, shading and rendering)
- FEM Fracture



MODULE III – FIRE INCEPTION

Explosions, fire, smoke, clouds... Everything you have been waiting for! This module is full of action.

We will focus on learning to emit and control volumes, using one of the most powerful solvers in Houdini, i.e., "Pyro Solver". You will learn different methods to accelerate your simulations, always working as quickly and efficiently as possible. We will teach you how to create shaders that will make your simulation looks realistic.

Recycle! Every setup created during these 8 weeks, can be reused to create new scenes.

Week 01

- Intro to Pyro Solver
- Basic smoke setup

Week 02

- Custom smoke columns setup
- Custom forces
- Create a smoke library using Wedges

Week 03

- Dynamic cloud setup

Week 04

- Create a tornado setup

Week 05

- Intro to fuel and temperature
- Create a basic explosion

Week 06

- Fire and embers project (setup, shading and rendering)

Week 07

- Static cloud bed setup

Week 08

- Stadium sprout from the underground (only smoke pass setup)



MODULE IV – DEEP DIVE

We will have to put out the fire after the chaos...

This is the final module of the course, and here you will learn to work with FLIP, which is the Houdini's solver to create liquids.

You will recreate infinite oceans and simulate water. You will learn how to create foam, bubble and spray passes. Finally, we will teach you how to deal with the different viscosities to get simulations of blood, chocolate, honey, yogurt, caramel, etc.

Week 01

- Intro to FLIP
- Collisions
- Viscosity
- Meshing

Week 02

- Chocolate project (setup, shading and rendering)

Week 03

- Melting soldiers project (setup, shading and rendering)

Week 04

- Intro to Dynamic Oceans
- Ocean project - Basic foam (setup, shading and rendering)

Week 05

- Suction force setup
- Water tornado setup
- Coffee beans and chocolate project

Week 06

- Collisions and water simulation
- Start cascade project

Week 07

- Intro to Whitewater
- Finish cascade project (setup, shading and rendering)

Week 08

- Ship wake project