How a Computer Is Made

Education Series · Title 1 · User Manual

This course teaches how every part of a computer and laptop is made: where its materials are dug up, how it is fabricated step by step, the industry behind it, and how the parts are joined into the machine on your desk.

Ten lessons, each with a narrated video or a full narrated listen-track, a written lesson with its sources, and a short quiz. Your progress is saved on your own computer — nothing is uploaded anywhere.

What you need

• A Windows 10 or 11 computer, or a Linux computer with Python 3.

• An internet connection for the one-time setup download (about 32 megabytes (MB)). After setup, the course works offline.

• Any modern web browser — the course opens in it.

This manual's steps were re-verified against the shipped setup files of version 0.1.0 (SOP section 41).

Installing on Windows

1. **Download the setup file**
   You see: Your browser's download bar shows HowAComputerIsMade-Windows-Setup.exe arriving. It is one file, under one megabyte — the course itself is fetched, with checksums, during setup.

2. **Double-click the setup file**
   You see: A console window opens titled with the course name. Windows may show a blue SmartScreen notice because the file is new: click "More info", then "Run anyway" to continue.

3. **Wait while it downloads and verifies**
   You see: Lines appear: "Downloading Python runtime", then "Downloading course part 1 of N", each followed by extraction. A checksum failure stops the setup with a plain message — nothing half-installed is left behind.

4. **The course opens by itself**
   You see: Your browser opens the course home page: a blue header, your progress bar, and ten lesson cards. A "How a Computer Is Made" icon is now on your desktop and in the Start menu for next time.

To open the course later: double-click the desktop icon. The course runs locally at 127.0.0.1 — your progress never leaves the computer.

Installing on Linux

1. **Download the setup file**
   You see: One file: HowAComputerIsMade-Linux-Setup. Save it anywhere, for example your Downloads folder.

2. **Make it runnable and run it**
   You see: In a terminal: chmod +x HowAComputerIsMade-Linux-Setup, then ./HowAComputerIsMade-Linux-Setup. You need Python 3 (already present on most Linux systems).

3. **Watch the verified download**
   You see: The setup prints each part it downloads, verifies every checksum, then verifies the assembled package. Any mismatch stops it with a plain message; just run it again.

4. **The course opens by itself**
   You see: Your browser opens the course home page with the ten lesson cards. A "How a Computer Is Made" entry now sits in your applications menu (and on the desktop, if you have one).

Files live under ~/.local/share/hacm/. Remove the course by deleting that folder and the hacm.desktop entry in ~/.local/share/applications/.

Using the course

The home page

Ten cards, one per component, in build order: processor, motherboard, memory, storage, graphics, display, power, cooling, ports, assembly. Badges on each card show whether it has a video, whether you have watched it, and your quiz result. The bar at the top counts a lesson complete when it is watched AND its quiz is passed.

A lesson page

Watch the video (it fills the width under the title). Or press play on "Listen to this lesson" and choose your narrator: Voice 1 (Amy) is the course voice; Voice 2 (Lessac) is the alternative. Below, the written lesson gives the full treatment: what it is, materials and sourcing, fabrication step by step, the industry behind it, how it joins the machine, and an honest comparison of real models.

Boxes marked "Reconstruction" hold details that makers keep proprietary, rebuilt from open patents and public literature — they are labelled, never disguised as a maker's own disclosure. Every lesson ends with its sources.

The quiz

Three questions per lesson. Two or more correct passes the lesson. Answers are graded on your own computer; the answer key is never shown in the page. You can retake a quiz as often as you like.

When something goes wrong

Setup says a download failed or a checksum did not match

Your connection dropped or a file arrived damaged. Nothing broken was installed. Connect again and run the same setup file once more — verified parts already downloaded are kept and reused.

The browser does not open, or the page will not load

Open the course from its icon (desktop or applications menu). The launcher starts the course server if it is not running, then opens the page. Still stuck? Restart the computer once and use the icon again — the course server starts fresh with it.

Your progress looks lost

Progress is stored on the computer where you installed the course (progress.json inside the course data folder). It survives restarts. It does not follow you to a different computer — each install keeps its own progress.

Removing the course

Windows: delete the folder HACM inside your local Programs folder (%LOCALAPPDATA%\Programs\HACM) and the two shortcuts. Linux: delete ~/.local/share/hacm and its applications entry (see page 3). Nothing else was changed on your machine.

Course version 0.1.0. Lessons whose videos are still in production carry the complete written lesson and a full narrated listen-track; the home page badges say which is which.