

The Definitive Guide: Month 1, Week 2 - Version Control & Collaboration Mastery

The Unabridged Lesson Plan

- **Topic:** From Local History to Global Collaboration: A Complete Guide to Git & GitHub
- **Core Philosophy:** This lesson is divided into two distinct but connected halves. First, we master Git, the tool for managing history on our own machine. Second, we master GitHub, the platform for collaborating with the world. We will learn not just the commands, but the mental models and professional workflows that separate amateurs from engineers.
- **Total Time:** 3.5 - 4 Hours. This is the most important foundational topic in modern software. We will give it the time it demands.
- **Resources:** <https://www.atlassian.com/git>

Sesion Breakdown

Duration	Module	Activity	Key Concepts & Goals
35 min	Module 0: The Professional Toolkit Setup	Guided, Step-by-Step Installation	Install Git on all major OSes. Verify the installation. Perform the crucial one-time global configuration (<code>git config</code>). Explain exactly what the <code>.gitconfig</code> file is and why it's necessary for attribution.
15 min	Module 1: The "Why" - Ending the Chaos	Interactive Lecture & Analogy	The visceral pain of <code>final_v4_real_final.doc</code> . The "Magic Time-Traveling Notebook" analogy for Version Control.
45 min	Module 2: Git - The Local Universe	Deep Dive Live Coding	Local Mastery. The Three Trees (Working, Staging, Repo). The core loop: <code>init</code> , <code>status</code> , <code>add</code> , <code>commit</code> . Professional commit messages. The Time Machine (<code>git log</code>). Branching (<code>checkout -b</code>) as creating parallel universes. Merging (<code>merge</code>) as fusing those universes.
30 min	Module 3: GitHub - The Global Town Square	Guided Tour of the Platform	Platform Mastery. What is GitHub? It's more than storage; it's a social platform for code. The anatomy of a repository page. The Issue tracker. User profiles. The concept of "remotes" (<code>origin</code>).
45 min	Module 4: The Professional Workflow	Deep Dive & Live Demo	Collaboration Mastery. Connecting local to remote. SSH setup. The full workflow: <code>clone</code> , <code>push</code> , <code>pull</code> . The Pull Request (PR): the heart of modern collaboration. The Code Review process.

Duration	Module	Activity	Key Concepts & Goals
30 min	Module 5: Handling Reality - Conflicts & Changes	Live Troubleshooting	Problem-Solving Mastery. A deep, practical dive into resolving a merge conflict from start to finish. Introducing git stash : the developer's pause button for handling interruptions.
20 min	Module 6: Advanced Tools & Concepts	Conceptual Lecture	Introduction to git rebase : what it is (rewriting history), its main use case (cleaning up local commits), and the golden rule (never rebase shared branches).
30 min	Module 7: The Capstone Exercise	In-Class Practical	A new, more comprehensive in-class exercise that forces students to use the entire workflow, from branching to creating a PR and resolving a planned conflict.