

SIW 1: Working with Git.

The entire process of working with Git must be performed through the terminal so that students can effectively manage their repositories from the command line. The goal is to automate and speed up repetitive tasks in Git, making the use of commands so familiar that it will be performed without much thought. Students working with GitHub need to complete the following list of tasks:

1. Registration and account setup on GitHub
 - Register on GitHub if you don't have an account yet.
 - Customize your profile by adding a name, a photo and a short description.
2. Creating a repository
 - Create a new repository for storing laboratory work.
 - Initialize the repository with the README file.
3. Basics of working with Git
 - Clone the repository to a local computer.
 - Study and apply the basic Git commands: ``git add``, ``git commit``, ``git push``, ``git pull``.
4. Loading laboratory work
 - Upload your lab files to the repository using the commands ``git add``, ``git commit``, ``git push``.
 - Create a separate branch for each lab work.
5. Working with branches
 - Learn how to create and switch between branches using ``git branch`` and ``git checkout``.
 - Merge the lab branches into the main branch using ``git merge``.
6. Collaboration and teamwork
 - Divide into groups of 2-3 people.
 - Add team members as collaborators to your repository.
 - Work on shared files by updating the contents regularly and resolving merge conflicts.
7. Roll back changes
 - Study and apply the ``git revert`` and ``git reset`` commands to roll back changes to the repository.
 - Practice rolling back to a specific commit.
8. Access and security
 - Set up access rights for repository employees.
 - Learn how to use SSH keys to work securely with the repository.
9. Automation with Git
 - Learn and configure Git Hooks to automate routine tasks.
 - Practice writing simple scripts to automatically complete tasks with certain actions with the repository.