**Install Jenkins and configuration:**

**1. Introduction to Jenkins**

* Jenkins is an open-source tool used for **automating the software build, test, and deployment** process.
* It helps teams implement **Continuous Integration (CI)** and **Continuous Delivery (CD)** efficiently.
* It supports many plugins to integrate with tools like Git, Maven, Docker, and more.

**2. Jenkins Installation on Windows**

**a. Prerequisites**

* Ensure **Java (JDK 8 or later)** is installed on your Windows system.
* You can download JDK from the [Oracle official website](https://www.oracle.com/java/technologies/javase-jdk8-downloads.html) or use OpenJDK.
* Set the **JAVA\_HOME** environment variable:
  + Go to *System Properties → Environment Variables*.
  + Add a new system variable:
    - **Variable name**: JAVA\_HOME
    - **Variable value**: path to your JDK folder (e.g., C:\Program Files\Java\jdk1.8.0\_281)
  + Add %JAVA\_HOME%\bin to the **Path** variable.

**b. Download Jenkins**

* Go to the [official Jenkins website](https://www.jenkins.io/download/) and click on **Windows**.
* Download the **Jenkins Windows Installer (jenkins.msi)** file.

**c. Install Jenkins**

* Run the downloaded .msi installer.
* Follow the setup wizard:
  + Choose the installation path (default is fine).
  + Jenkins will install as a **Windows service**.
  + The service will be started automatically.

**3. First-Time Setup in Browser**

**a. Open Jenkins in Web Browser**

* After installation, open your browser and go to:
* http://localhost:8080

**b. Unlock Jenkins**

* You will see a screen asking for an **Administrator Password**.
* Find the password from the following file:
* C:\Program Files\Jenkins\secrets\initialAdminPassword
* Open this file with Notepad and copy the password.
* Paste it into the web interface and click "Continue".

**c. Install Plugins**

* Choose **"Install suggested plugins"** to get the most commonly used plugins.
* Jenkins will automatically download and install them.

**d. Create Admin User**

* Fill in your admin details:
  + Username
  + Password
  + Full name
  + Email address
* Click "Save and Continue".

**e. Set Jenkins URL**

* Confirm or change the Jenkins URL (usually http://localhost:8080).
* Click "Save and Finish".
* Now Jenkins is ready to use.

**4. Basic Configuration after Setup**

**a. Add Build Tools**

* Go to **Manage Jenkins → Global Tool Configuration**.
* Set paths for tools like:
  + JDK (auto-detected if JAVA\_HOME is set)
  + Git (install Git for Windows and provide path if not auto-detected)
  + Maven or Gradle (optional for Java builds)

**b. Create Your First Job**

* Click **"New Item"** → Enter project name.
* Select **"Freestyle project"** and click OK.
* In the job configuration:
  + Add Git repository URL (if using Git).
  + Add build steps like shell commands or Windows batch commands.
* Save and click **"Build Now"** to test.

**c. Check Build Status**

* After the job runs, you can view the build result.
* You can also check the **Console Output** for logs.

**5. Conclusion**

Installing Jenkins on Windows is simple using the .msi installer.  
Once installed, it runs as a Windows service and can be accessed via a web browser.  
Jenkins allows you to set up automated jobs for building and deploying applications using an easy-to-use interface.