

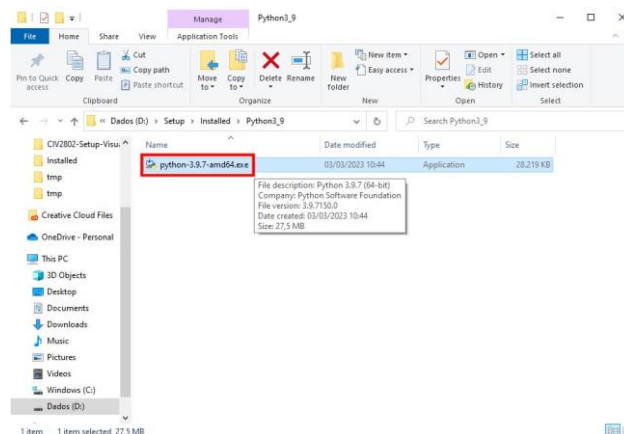
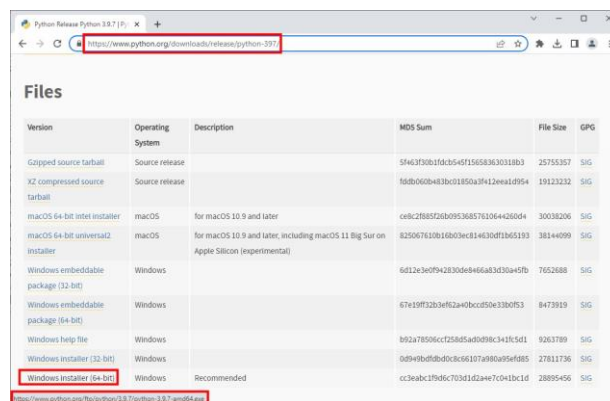
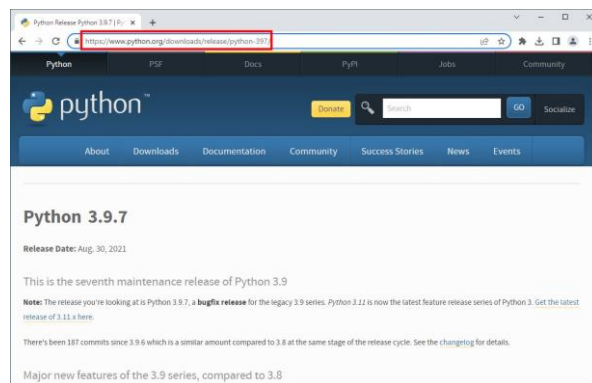
CIV 2802 – Sistemas Gráficos para Engenharia

Ambiente de desenvolvimento de programas gráficos interativos

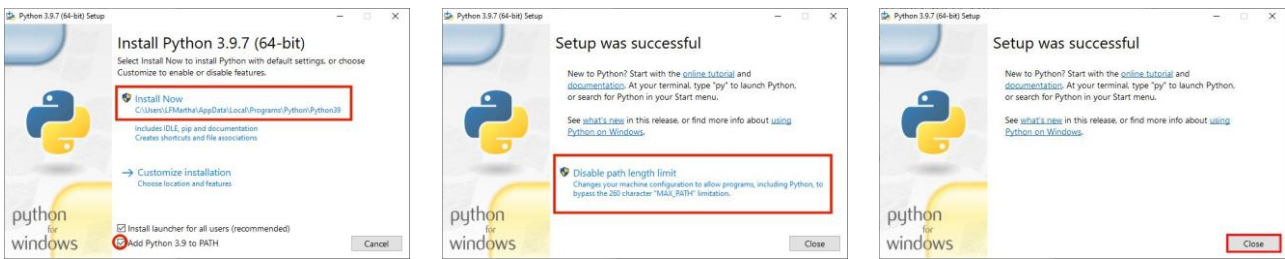
A linguagem de programação adotada na disciplina é o Python, versão 3.9.7. O ambiente de compilação e criação de programas (IDE) que é utilizado na disciplina é o Visual Studio Code. Além do Python e o Visual Studio Code, para a disciplina é necessário instalar o sistema de interface gráfica Qt, versão 5, o sistema gráfico OpenGL e algumas outras bibliotecas adicionais, que podem instalados conforme indicado neste documento. Inicie a instalação pelo Python. Todos os softwares utilizados e bibliotecas adotadas podem ser obtidos livremente pela internet.

Python 3.9.7

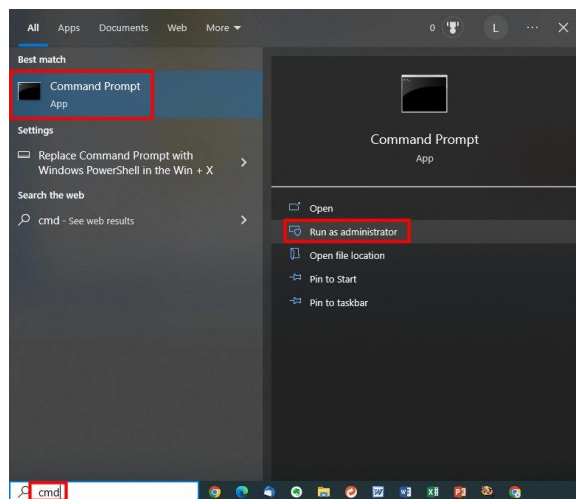
O arquivo de instalação do Python pode ser obtido através do link:
<https://www.python.org/downloads/release/python-397>



Execute o arquivo “python-3.9.7-amd64.exe”. Utilize as opções indicadas nas imagens a seguir.

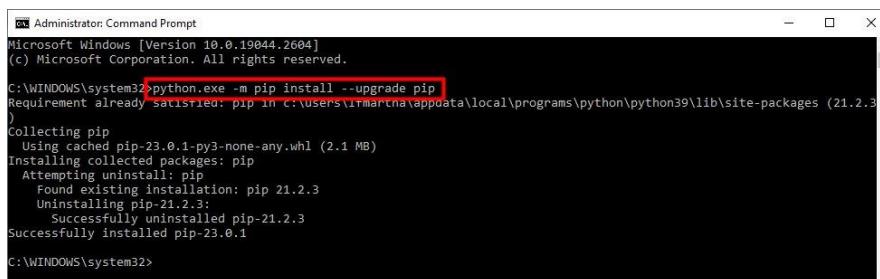


Abra o “Command Prompt” com permissão de administrador:

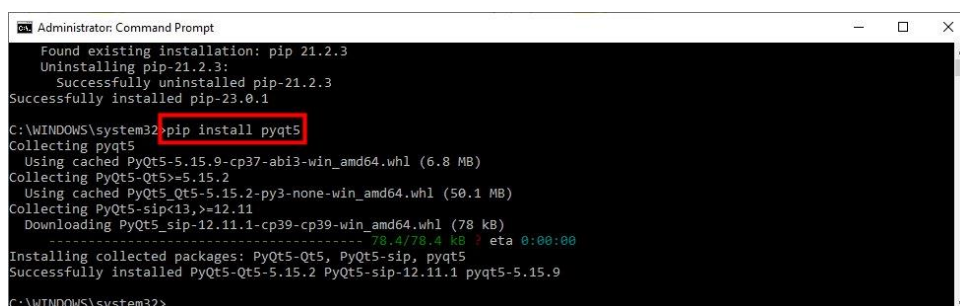


Os passos de instalação seguintes adicionam componentes ao Python, digitando os seguintes comandos no “Command Prompt”:

```
python.exe -m pip install --upgrade pip
```



```
pip install pyqt5
```



pip install pyqt5-tools

```
Administrator: Command Prompt
----- 78.4/78.4 kB ? eta 0:00:00
Installing collected packages: PyQt5-Qt5, PyQt5-sip, pyqt5
Successfully installed PyQt5-Qt5-5.15.2 PyQt5-sip-12.11.1 pyqt5-5.15.9

C:\WINDOWS\system32> pip install pyqt5-tools
Collecting pyqt5-tools
  Using cached pyqt5_tools-5.15.4.3.2-py3-none-any.whl (29 kB)
Collecting pyqt5-plugins<5.15.4.3,>=5.15.4.2.2
  Downloading pyqt5_plugins-5.15.4.2.2-cp39-cp39-win_amd64.whl (67 kB)
----- 67.5/67.5 kB ? eta 0:00:00
Collecting click
  Using cached click-8.1.3-py3-none-any.whl (96 kB)
Collecting python-dotenv
  Downloading python_dotenv-1.0.0-py3-none-any.whl (19 kB)
Collecting pyqt5==5.15.4
  Downloading PyQt5-5.15.4-cp36-cp37-cp38-cp39-none-win_amd64.whl (6.8 MB)
----- 6.8/6.8 MB 11.7 MB/s eta 0:00:00
Requirement already satisfied: PyQt5-Qt5>=5.15 in c:\users\lfmartha\appdata\local\programs\python\python39\lib\site-pack
ages (from pyqt5==5.15.4->pyqt5-tools) (5.15.2)
Requirement already satisfied: PyQt5-sip<13,>=12.8 in c:\users\lfmartha\appdata\local\programs\python\python39\lib\site-
packages (from pyqt5==5.15.4->pyqt5-tools) (12.11.1)
Collecting qt5-tools<5.15.2.2,>=5.15.2.1.2
  Downloading qt5_tools-5.15.2.1.2-py3-none-any.whl (13 kB)
Collecting colorama
  Downloading colorama-0.4.6-py2.py3-none-any.whl (25 kB)
Collecting qt5-applications<5.15.2.3,>=5.15.2.2
```

pip install pyopengl

```
Administrator: Command Prompt

C:\WINDOWS\system32> pip install pyopengl
Collecting pyopengl
  Downloading PyOpenGL-3.1.6-py3-none-any.whl (2.4 MB)
----- 2.4/2.4 MB 11.1 MB/s eta 0:00:00
Installing collected packages: pyopengl
Successfully installed pyopengl-3.1.6

C:\WINDOWS\system32>
```

pip install numpy

```
Administrator: Command Prompt

C:\WINDOWS\system32> pip install numpy
Collecting numpy
  Downloading numpy-1.24.2-cp39-cp39-win_amd64.whl (14.9 MB)
----- 14.9/14.9 MB 11.5 MB/s eta 0:00:00
Installing collected packages: numpy
Successfully installed numpy-1.24.2

C:\WINDOWS\system32>
```

pip install pyinstaller

```
Administrator: Command Prompt

C:\WINDOWS\system32> pip install pyinstaller
Collecting pyinstaller
  Downloading pyinstaller-5.8.0-py3-none-win_amd64.whl (1.3 MB)
----- 1.3/1.3 MB 11.4 MB/s eta 0:00:00
Collecting pywin32-ctypes>=0.2.0
  Downloading pywin32_ctypes-0.2.0-py2.py3-none-any.whl (28 kB)
Collecting pefile>=2022.5.30
  Downloading pefile-2023.2.7-py3-none-any.whl (71 kB)
----- 71.8/71.8 kB ? eta 0:00:00
Requirement already satisfied: setuptools>=42.0.0 in c:\users\lfmartha\appdata\local\programs\python\python39\lib\site-p
ackages (from pyinstaller) (57.4.0)
Collecting altgraph
  Downloading altgraph-0.17.3-py2.py3-none-any.whl (21 kB)
Collecting pyinstaller-hooks-contrib>=2021.4
  Downloading pyinstaller_hooks_contrib-2023.0-py2.py3-none-any.whl (255 kB)
----- 255.7/255.7 kB 15.3 MB/s eta 0:00:00
Installing collected packages: pywin32-ctypes, altgraph, pyinstaller-hooks-contrib, pefile, pyinstaller
Successfully installed altgraph-0.17.3 pefile-2023.2.7 pyinstaller-5.8.0 pyinstaller-hooks-contrib-2023.0 pywin32-ctypes
-0.2.0

C:\WINDOWS\system32>
```

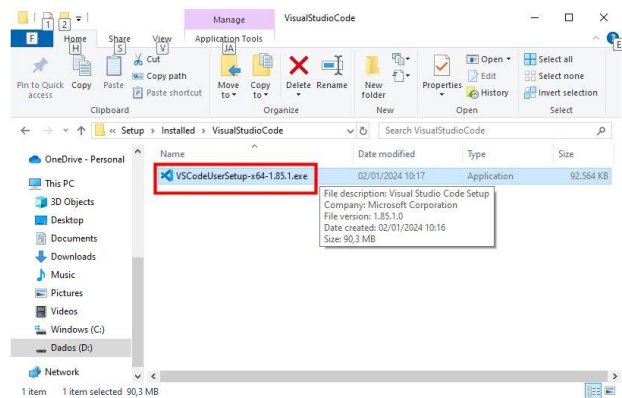
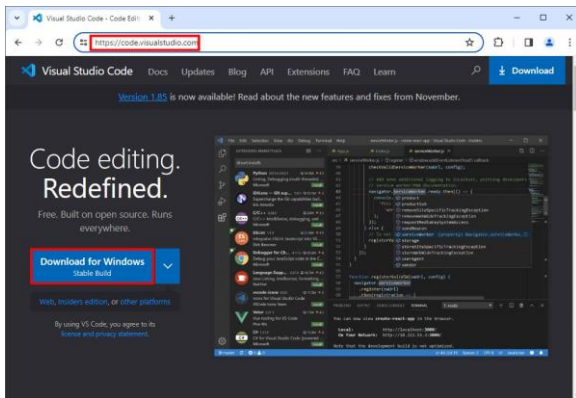
pip install vtk.

```
Administrator: Command Prompt

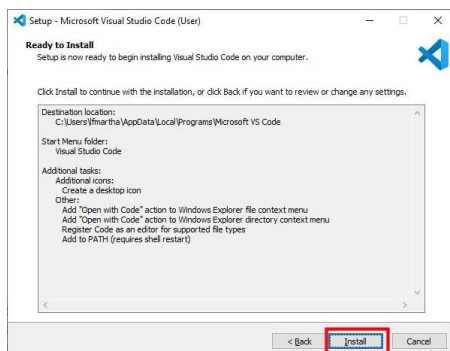
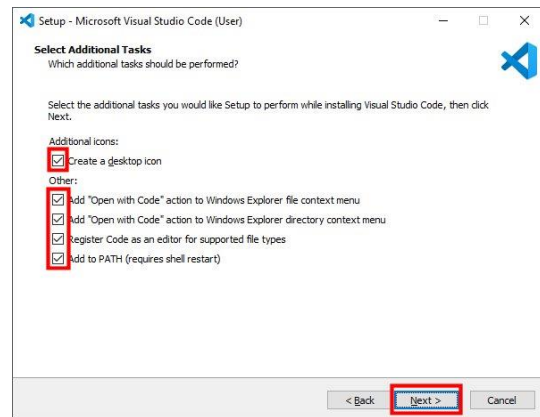
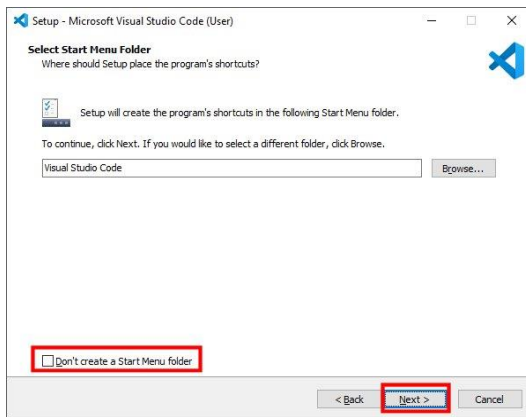
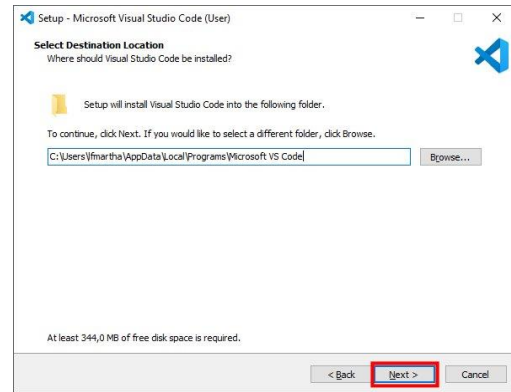
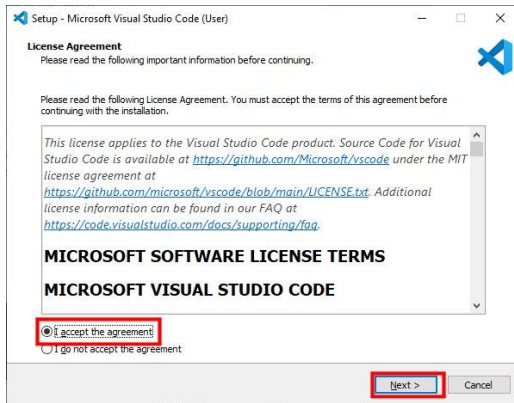
C:\WINDOWS\system32> pip install vtk
Collecting vtk
  Downloading vtk-9.2.6-cp39-cp39-win_amd64.whl (48.8 MB)
----- 48.8/48.8 MB 3.4 MB/s eta 0:00:00
Collecting matplotlib>=2.0.0
  Downloading matplotlib-3.7.0-cp39-cp39-win_amd64.whl (7.6 MB)
----- 7.6/7.6 MB 11.4 MB/s eta 0:00:00
Collecting cycycler>=0.10
  Downloading cycycler-0.11.0-py3-none-any.whl (6.4 kB)
```

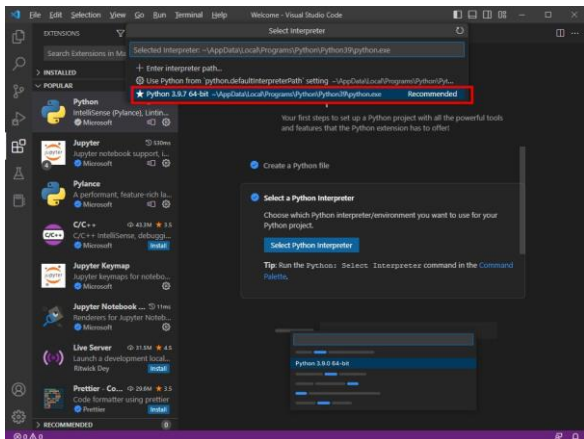
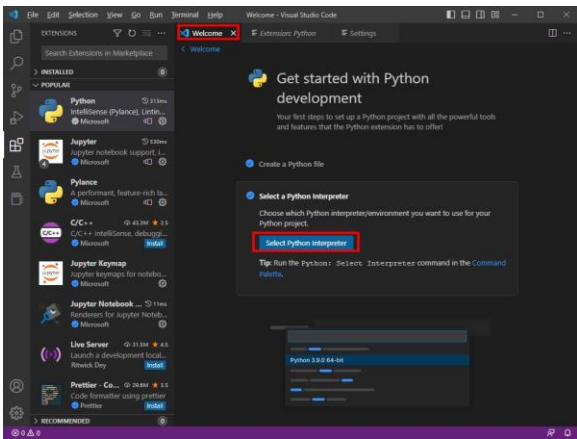
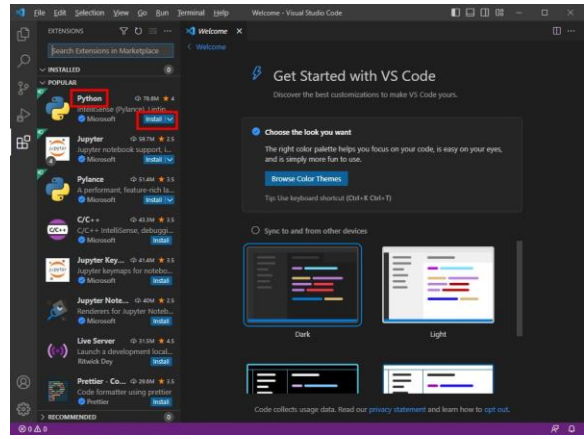
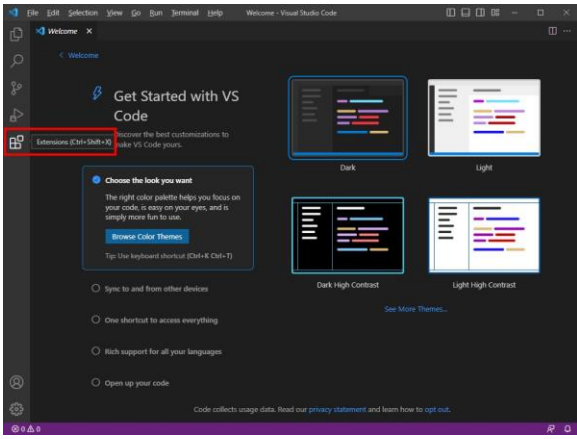
Ambiente IDE: Visual Studio Code

O ambiente Visual Studio Code pode ser obtido através do link: <https://code.visualstudio.com>.



Execute o arquivo “VSCodeUserSetup-x64-X.XX.X.exe” e siga os passos indicados.





Rode o programa “LW1_HelloWorld/Simple”.

