

Ministry of Science and Higher Education
of the Russian Federation
Penza State University
Faculty of Computer Engineering

Course Work
for the course "Programming Technologies"
on the topic "OOP Foundations"

Completed by:

Badr EL AM-
RANI

Accepted by:

Patunin D.V.

Mitrokhin H.A.

Over

«APPROVED»

Head of the
Department of CE
Mitrokhin M. A.

« » 2025

ASSIGNMENT
for a term paper in the course of

Programming Technologies

Student: Badr EL AMRANI

Group 23VVIA1

Tema npoekpa: Developing an object-oriented program with a user interface

Initial data (technical requirements) for design

Program name: E-Commerce Management System

Assignment. The program must implement an object-oriented e-commerce system that simulates the functionality of an online store.

The system must support product management, shopping cart functionality, order processing, payment handling, and product search using object-oriented programming principles.

Mandatory requirements for the program:

1. Multi-modularity.
2. Use of object-oriented programming.
3. Video system operating mode — graphical.
4. Input devices — keyboard and mouse.
5. The user interface should be menu- and toolbar-based.
6. Operating system — Windows.
7. Programming system — Python based on the Visual Studio Code .
8. Programming language — Python..

Amount of work for the course

1. Calculation part

Program development.

2. Graphic part

UML use case diagrams, UML class diagrams.

3. Experimental part

Debugging a program.

Project completion time by sections

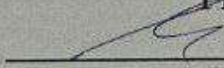
1. In accordance with the course project schedule.

2.

3.

Date of assignment issue « 21 » 11 2025

Project defense date « » 2025

Supervisor 

The assignment was received « 21 » 11 2025

Student 