**The final exam program on the discipline “Object-oriented programming”**

**of 2023 – 2024 academic year**

**Faculty**: Information technologies.

**Department**: Information systems.

**Code and name of the educational program**: 6B06102 – Information systems.

**Name of the discipline**: Object-oriented programming.

**Course**: 2.

**Teacher**: Karyukin Vladislav Igorevich

**The form of the final control of the academic discipline**: test.

**Platform**: SDU Moodle.

**Testing control**: online proctoring.

Proctoring technology (English “proctor” – to control the exam course). As in the usual exam in the classroom, the proctors make sure that the examinees pass the test honestly: they complete the assignments on their own and do not use additional materials. Both a specialist (full-time proctoring) and a program that controls the test subject’s desktop, the number of faces in the frame, extraneous sounds or voices, and even gaze movements (cyber proctoring) can monitor an online exam in real-time via a webcam. A type of mixed proctoring is often used: a video recording of the exam with the program’s notes is additionally watched by a person and decides whether violations have actually taken place.

Each student must be sure to familiarize himself / herself with the rules and confirm in the chat that he /she is familiar with the schedule, rules, and requirements of the proctoring instruction.

**Test duration**: 60 minutes for 25 questions; one attempt.

**The number of test questions**: 25 (7 multiple choices + 6 true / false + 6 for matching + 6 choices of missing words = 25)

**EXAM REGULATIONS**

The exam is held on schedule. Thirty minutes before the start, students must prepare for the exam in accordance with the requirements of the proctoring instruction. Test results can be revised based on proctoring results. For example, if a student violated the test rules, his result would be canceled.

**The topics of the exam**

1. Fundamentals of C# language
2. Fundamentals of object-oriented programming
3. Concepts of object-oriented programming
4. Inheritance, encapsulation, polymorphism and abstraction
5. Constructors and destructors
6. Types of classes. Sealed and partial classes
7. Collections
8. Windows forms applications
9. Creating elements of Windows forms
10. Exception handling in Windows forms
11. CRUD operations in Windows Forms
12. Working with XML files
13. ListViews and TreeViews in Windows Forms
14. Visualization in Windows Forms
15. Adding images to Windows Forms

**Literature**

# Bill Wagner. More Effective C# (Includes Content Update Program): 50 Specific Ways to Improve Your C# (Effective Software Development Series) 2nd Edition.

# Jon Skeet. C# in Depth: Fourth Edition 4th Edition

# Dan Clark. Beginning C# Object-Oriented Programming (Expert's Voice in .NET) 2nd ed. Edition

# Raihan Taher. Hands-On Object-Oriented Programming with C#: Build maintainable software with reusable code using C# Paperback – February 28, 2019

# Svetlin Nakov, Vesselin Kolev. Fundamentals of Computer Programming with C#: Programming Principles, Object-Oriented Programming, Data Structures (free programming books) Paperback – February 9, 2014

**Grade scale:**

|  |  |  |  |
| --- | --- | --- | --- |
| «excellent» - | А | 4,0 | 95-100 |
| А- | 3,67 | 90-94 |
| «good» -  | В+ | 3,33 | 85-89 |
| В | 3,0 | 80-84 |
| В- | 2,67 | 75-79 |
| С+ | 2,33 | 70-74 |
| «satisfied» -  | С | 2,0 | 65-69 |
| С- | 1,67 | 60-64 |
| D+ | 1,33 | 55-59 |
| D- | 1,0 | 50-54 |
| «unsatisfied» -  | FX | 0,5 | 25-49 |
| F | 0 | 0-24 |