



Syllabus of the academic discipline "PROGRAMMING"

Specialty	<i>122 Computer Science</i>
Field of knowledge	<i>122 Computer Science</i>
Educational level	<i>first (bachelor's)</i>
Discipline status	<i>Basic</i>
Language of instruction, teaching and assessment	<i>English</i>
Course / Semester	<i>1, 2 course / 1, 2 semester</i>
Number of ECTS credits	<i>10</i>
Structural and scheme of studying the discipline	<i>Lectures – 48 h. Practice – h. Computer class lesson – 48 h. Self work – 204 h.</i>
Form of final control	<i>Exam</i>
Department	<i>Department of Cybersecurity and Information Technology, Kharkiv Science av. 9-A, 057-702-18-31, http://www.kafcbit.hneu.edu.ua/</i>
Teacher (-s)	<i>Milov Olexander</i>
Contact (-s)	<i>oleksandr.milov@hneu.net</i>
Day of the lesson	<i>Tuesday</i>
Consulting	<i>Monday 12.10; an-line; according to schedule; individual</i>
<p>The purpose of the discipline is to master the theoretical foundations and the formation of practical skills in future bachelors in programming using the tools and methods</p> <p><i>Prerequisites for study</i> <i>Computer science according to the school program</i></p>	



Curriculum of the discipline

(1 semester)

Content module 1. Mathematical foundations of programming.

Topic 1. *Mathematical foundations of computer science.*

Topic 2. *Information units and digital systems.*

Topic 3. *Algorithms.*

Topic 4. *Data types.*

Content module 2. Data calculation

Topic 5. *Data search algorithms.*

Topic 6. *Data sorting.*

Topic 7. *Linear data structures.*

Topic 8. *Data hashing.*

(2 semester)

Content module 3. Introduction to programming

Topic 9. *Programming Concepts.*

Topic 10. *Software product design.*

Topic 11. *Software product architecture.*

Topic 12. *Development technologies.*

Content module 4. Developer tools

Topic 13. *Operating Systems.*

Topic 14. *Programming Languages.*

Topic 15. *Developer tools.*

Topic 16. *Business-process automation.*

Material and technical (software) maintenance of the discipline

access to the Internet, OC Windows, Microsoft Office

The page of the course on the Moodle (personal education system)

The personal education system website of the Simon Kuznets Kharkiv National University of Economics
«Programming»
<https://pns.hneu.edu.ua/course/view.php?id=7009>

Recommended Books

Basic

1. *Object-oriented programming: a synopsis of lectures for students in the field of training "Computer Science" of all forms of education / Yu. E. Parfenov, V. M. Fedorchenko, M. Yu. Losev, OV Shcherbakov.* – Kharkiv: Ed. KhNEU, 2010. – 312p.

2. *Methodical recommendations for performance of laboratory works on discipline "Object-oriented programming" for students of a direction of preparation "Computer sciences" of all forms of training. Part 1 / Comp. u. E. Parfenov, V. M. Fedorchenko, M. Yu. Losev, OV Shcherbakov - H .: Ed. KhNEU, 2008. - 72 p.*

3. *Object-oriented programming. Part 1. Fundamentals of object-oriented programming in C # .: Tutorial. / D.V. Nastenka, AB Nesterko. - K .: NTUU "KPI", 2016. - 76p. [Electronic resource]. - Access mode: http://ela.kpi.ua/bitstream/123456789/16671/1/OOP_manual.pdf*

4. *Object-oriented programming. Laboratory workshop: textbook / B.I. Boyko, L.L. Omelchuk, NG Rusina - K .: 2016. - 90 p. [Electronic resource]. - Access mode:*



- http://csc.knu.ua/media/filer_public/4a/35/4a3533cd-4ec7-45f3-85d2-4edaafdf1b82/oop_2016.pdf
5. C# Notes for Professionals book [Электронний ресурс]. – Режим доступу : <https://books.goalkicker.com/CSharpBook/>
 6. Fundamentals of Computer Programming with C#. Authors: Svetlin Nakov and Team. Publisher: Faber, Veliko Tarnovo, Bulgaria, 2013, Pages: 1122 [Электронний ресурс]. – Режим доступу : <https://introprogramming.info/english-intro-csharp-book/>
 7. The Free Book + Video Course "Programming Basics with C#" [Электронний ресурс]. – Режим доступу : <https://csharp-book.softuni.org/>
- Additional
8. Weisfeld M. Object-Oriented Thinking - 2014, 304 pp., ISBN: 978-5-496-00793-1, Peter.
 9. Herbert Schildt. C # 4.0: The Complete Guide - 1056 pp., ISBN 978-5-8459-1684-6, hardcover; 2015, Williams.
 10. Richter D. CLR via C #. Programming on Microsoft .NET Framework 4.5 in C # - 2016, 896 pages, ISBN: 978-5-496-00433-6, Peter.
 11. Adam Fremen. ASP.NET Core MVC with examples in C # for professionals // Williams - 2017 - 992 p.
 12. Object-oriented analysis and design with examples of applications (UML 2). Third edition. Grady Booch, Robert A. Maximchuk, Michael W. Engle, Bobby J. Young, Jim Conallen, Kelly A. Houston - 720 pages, ISBN 978-5-8459-1401-9, hardcover; 2010, Williams ..
 13. Laforêt R. Object-oriented programming in C ++. Classics Computer Science - 2016, 928 pp., ISBN: 978-5-496-00353-7, Peter.
- Information resources
14. Section on C # programming language and .NET platform on the METANIT.COM website [Electronic resource]. - Access mode: <https://metanit.com/sharp/>
 15. Object Oriented Programming in C #. [Electronic resource] Platform for mass open online courses edX. Developer: Microsoft. - Access mode: <https://www.edx.org/course/object-oriented-programming-in-c-3>
 16. C # - Channel 9 programming language [Electronic resource]. - Access mode: <https://channel9.msdn.com/Series/C-Development-Russian>
 17. C # Guide [Electronic resource]. - Access mode: <https://docs.microsoft.com/en-us/dotnet/csharp/>.
 18. .NET Core Guide [Electronic resource]. - Access mode: <https://docs.microsoft.com/en-us/dotnet/core/>
 19. .NET Tutorial - Hello World in 10 minutes [Electronic resource]. - Access mode: <https://dotnet.microsoft.com/learn/dotnet/hello-world-tutorial/intro>
 20. Site of personal educational systems of S. Kuznets KhNEU in the discipline "Object-Oriented Programming" <https://pns.hneu.edu.ua/enrol/index.php?id=5528>.

The procedure for evaluating learning outcomes

A student should be **considered certified** if the sum of points obtained from the final / semester test is equal to or exceeds 60. The minimum possible number of points for current and modular control during the semester is 35 and the minimum possible number of points scored in the exam is 25.

The final grade in the discipline is calculated taking into account the points obtained during the current control of the accumulative system. The total result in points for the semester is: "60 or more points - credited", "59 or less points - not credited" and is entered in the test "Statement of performance" of the discipline.

The final grade is set according to the scale given in the table "Assessment scale: national and ECTS".

Forms of assessment and distribution of points are given in the table "Rating-plan of the discipline".

Accumulation of rating points in primary discipline (example)



Types of educational work	Max number of points	
Lecture	12	12
Laboratory lesson	36	36
Control Tests	12	12
Exam (if present)	40	
Max number of points	100	

Assessment scale: Simon Kuznets Kharkiv National University of Economics and ECTS

The sum of points for all types of educational activities	Score EKTC	Score on a national scale	
		for exam, course project (work), practice	For credit
90 – 100	A	excellent	credited
82 – 89	B	fine	
74 – 81	C		
64 – 73	D		
60 – 63	E	satisfactorily	Not credited
35 – 59	FX	unsatisfactorily	
1 – 34	F		

Discipline policies

Policy of academic integrity,

Class omission policy,

Policy to perform tasks later than the deadline, etc.

More detailed information on competencies, learning outcomes, teaching methods, assessment forms, independent work is given in the Work Program of the discipline "Programming", 2020.

Syllabus approved at the meeting of the department "31" in August 2020. Protocol № 2