



1. Data structures and types of programming languages.
2. Fundamentals of the semantics and syntax of high-level programming languages.
3. The principles of object-oriented programming.
4. Stages of software development.
5. Visual programming environments.
6. Key points of software development methodologies Microsoft Solutions Framework (MSF).
7. Design and implementation of databases.
8. Relational data models.
9. Database applications development.
10. Web Application Development Technologies.
11. The concept of a carrier signal. Modulation and detection of signals. Spectra of modulated signals.
12. The main types of modulation used in the channels of telecommunication systems.
13. Classification of messages, signals and interference.
14. Information characteristics of message sources and communication channels.
15. Communication quality parameters. Quality of Service models (QoS).
16. Open Systems Interaction Architecture.
17. Ways of transition to next generation communication networks (NGN).
18. Features and specifics of personal, local and city radio access networks.
19. Definition of the radio frequency spectrum and its main characteristics. Methods of managing the use of RFS.
20. Switching methods in communication networks.
21. Sorting and search algorithms.
22. Typical development and debugging environments of programs.
23. Differences in the following approaches in cloud computing: PaaS (Platform as a Service); IaaS (Infrastructure-as-a-Service); SaaS (Software as a Service).
24. Programming languages. Compilers and interpreters. Static and dynamic languages. Areas of functional application.
25. Working with data in languages to choose the one responsible (C, C ++, Python, Perl, PHP, JavaScript, Shell ...).
26. The concept of platform virtualization. Advantages over the traditional "one computer — one platform" approach.
27. The main software constructs in languages to choose the one responsible (C, C ++, Python, Perl, PHP, JavaScript, Shell).
28. Relational database principles
29. Standard data structures (lists, stacks, queues, decks, trees, graphs) and ways of representing them.
30. Basic algorithms and principles of data mining and machine learning.