Career and Technology Education
Information Technology

IT Foundations of Computer Science

Standards
    Indicators

IT.FCS.10 – Students will develop an understanding of Human Computer Interaction
    IT.FCS.10.01 Analyze the characteristics of hardware components to determine the applications for which they can be used
    IT.FCS.10.02 Use appropriate tools and methods to execute Internet searches which yield requested data
    IT.FCS.10.03 Evaluate the results of web searches and the reliability of information found on the Internet
    IT.FCS.10.04 Explain the differences between tasks that can and cannot be accomplished with a computer
    IT.FCS.10.05 Analyze the effects of computing on society within economic, social, and cultural contexts
    IT.FCS.10.06 Communicate legal and ethical concerns raised by computing innovation
    IT.FCS.10.07 Explain the implications of communication as data exchange
    IT.FCS.10.08 Describe the types of Cybersecurity attacks and threats
    IT.FCS.10.09 Describe methods to protect against Cybersecurity attacks and threats
    IT.FCS.10.10 Identify good security habits
    IT.FCS.10.11 Describe Cybersecurity attacks and threats to the Internet infrastructure
    IT.FCS.10.12 Describe how to recover from Cybersecurity attack**s**

IT.FCS.20 – Students will apply problem solving techniques in a variety of contexts
    IT.FCS.20.01 Name and explain the steps they use in solving a problem
    IT.FCS.20.02 Solve a problem by applying appropriate problem-solving techniques
    IT.FCS.20.03 Express a solution using standard design tools
    IT.FCS.20.04 Determine if a given algorithm successfully solves a stated problem
    IT.FCS.20.05 Create algorithms that meet specified objectives
    IT.FCS.20.06 Explain the connections between binary numbers and computers
    IT.FCS.20.07 Summarize the behavior of an algorithm
    IT.FCS.20.08 Compare the tradeoffs between different algorithms for solving the same problem
    IT.FCS.20.09 Explain the characteristics of problems that cannot be solved by an algorithm

IT.FCS.30 – Students will demonstrate knowledge of web design
    IT.FCS.30.01 Create web pages to address specified objectives
    IT.FCS.30.02 Create web pages with a practical, personal, and/or societal purpose
    IT.FCS.30.03 Select appropriate techniques when creating web pages
    IT.FCS.30.04 Use abstraction to separate style from content in web page design and development
    IT.FCS.30.05 Describe the use of a website with appropriate documentation

IT.FCS.40 – Students will apply problem solving techniques in a programming language
    IT.FCS.40.01 Use appropriate algorithms to solve a problem
    IT.FCS.40.02 Design, code, test, and execute a program that corresponds to a set of specifications
    IT.FCS.40.03 Select appropriate programming structures
    IT.FCS.40.04 Locate and correct errors in a program
    IT.FCS.40.05 Explain how a particular program functions
    IT.FCS.40.06 Justify the correctness of a program
    IT.FCS.40.07 Create programs with practical, personal, and/or societal intent
    IT.FCS.40.08 Explain the importance of building security in when writing code
    IT.FCS.40.09 Explain the possible consequences of insecure code
    IT.FCS.40.10 Describe the types of coding errors and practices that can lead to insecure code

IT.FCS.50 – Students will use computers to analyze data

    IT.FCS.50.01 Describe the features of appropriate data sets for specific problems

    IT.FCS.50.02 Apply a variety of analysis techniques to large data sets

    IT.FCS.50.03 Use computers to find patterns in data and test hypotheses about data

    IT.FCS.50.04 Compare different analysis techniques and discuss the tradeoffs among them

    IT.FCS.50.05 Justify conclusions drawn from data analysis.

IT.FCS.60 – Students will demonstrate knowledge of robotics

    IT.FCS.60.01 Identify the criteria that describe a robot and determine if something is a robot

    IT.FCS.60.02 Match the actions of the robot to the corresponding parts of the program

    IT.FCS.60.03 Build, code, and test a robot that solves a stated problem

    IT.FCS.60.04 Explain ways in which different hardware designs affect the function of a machine

    IT.FCS.60.05 Describe the tradeoffs among multiple ways to program a robot to achieve a goal

IT.FCS.70 – Students will develop an understanding of the societal impacts of computing

    IT.FCS.70.01 Describe ways in which computing enables innovation

    IT.FCS.70.02 Discuss the ways in which innovations enabled by computing affect communication and problem solving

    IT.FCS.70.03 Analyze how computing influences and is influenced by the cultures for which they are designed and the cultures in which they are used

    IT.FCS.70.04 Analyze how social and economic values influence the design and development of computing innovations

    IT.FCS.70.05 Discuss issues of equity, access, and power in the context of computing resources

    IT.FCS.70.06 Communicate the legal an ethical concerns raised by computational innovations

    IT.FCS.70.07 Discuss privacy and security concerns related to computational innovations

    IT.FCS.70.08 Explain positive and negative effects of technological innovations on human culture

    IT.FCS.70.09 Describe how to keep children safe online

    IT.FCS.70.10 Describe how to protect privacy while online

    IT.FCS.70.11 Describe how to protect against Cyberbullying

    IT.FCS.70.12 Describe how to stay safe on social networking sites