

Computer Programming 2 with C++ STUDENT PROFILE

DIRECTIONS:

Evaluate the student using the applicable rating scales below and check the appropriate box to indicate the degree of competency. The ratings 3, 2, 1, and N are not intended to represent the traditional school grading system of A, B, C, and D. The description associated with each of the ratings focuses on the level of student performance or cognition for each of the competencies listed below.

PERFORMANCE RATING

- 3 - Skilled--can perform task independently with no supervision
 2 - Moderately skilled--can perform task completely with limited supervision
 1 - Limitedly skilled--requires instruction and close supervision
 N - No exposure--has no experience or knowledge of this task

COGNITIVE RATING

- 3 - Knowledgeable--can apply the concept to solve problems
 2 - Moderately knowledgeable--understands the concept
 1 - Limitedly knowledgeable--requires additional instruction
 N - No exposure--has not received instruction in this area

A. Safety and Ethics

- 3 2 1 N
- ___ ___ ___ ___ 1. Identify major causes of work-related accidents in offices.
- ___ ___ ___ ___ 2. Describe the threats to a computer network, methods of avoiding attacks, and options in dealing with virus attacks.
- ___ ___ ___ ___ 3. Identify potential abuse and unethical uses of computers and networks.
- ___ ___ ___ ___ 4. Explain the consequences of illegal, social, and unethical uses of information technologies (e.g., piracy; illegal downloading; licensing infringement; and inappropriate uses of software, hardware, and mobile devices).
- ___ ___ ___ ___ 5. Differentiate between freeware, shareware, and public domain software copyrights.
- ___ ___ ___ ___ 6. Discuss computer crimes, terms of use, and legal issues such as copyright laws, fair use laws, and ethics pertaining to scanned and downloaded clip art images, photographs, documents, video, recorded sounds and music, trademarks, and other elements for use in Web publications.
- ___ ___ ___ ___ 7. Identify netiquette including the use of e-mail, social networking, blogs, texting, and chatting.

- ___ ___ ___ ___ 8. Describe ethical and legal practices in business professions such as safeguarding the confidentiality of business-related information.

B. Employability Skills

- 3 2 1 N
- ___ ___ ___ ___ 1. Identify positive work practices (e.g., appropriate dress code for the workplace, personal grooming, punctuality, time management, organization).
- ___ ___ ___ ___ 2. Demonstrate positive interpersonal skills (e.g., communication, respect, teamwork).

C. Student Organizations

- 3 2 1 N
- ___ ___ ___ ___ 1. Explain how related student organizations are integral parts of career and technology education courses.
- ___ ___ ___ ___ 2. Explain the goals and objectives of related student organizations.
- ___ ___ ___ ___ 3. List opportunities available to students through participation in related student organization conferences/competitions,

community service, philanthropy, and other activities.

- ___ ___ ___ ___ 4. Explain how participation in career and technology education student organizations can promote lifelong responsibility for community service and professional development.

D. Computer Systems

- 3 2 1 N
- ___ ___ ___ ___ 1. Define what a computer is and its purpose.
- ___ ___ ___ ___ 2. Define basic computer terminology.
- ___ ___ ___ ___ 3. Define basic programming terminology.
- ___ ___ ___ ___ 4. Identify basic hardware and software components.
- ___ ___ ___ ___ 5. Explain the flow of data and instructions through the computer system.
- ___ ___ ___ ___ 6. Identify components of the programming development.
- ___ ___ ___ ___ 7. Describe the concept of OOP (object-oriented programming).

E. Program Documentation

- 3 2 1 N
- ___ ___ ___ 1. Describe the purpose and value of the program.
- ___ ___ ___ 2. Define the input for the program.
- ___ ___ ___ 3. Define the output of the program.
- ___ ___ ___ 4. Define variables and constants associated with the program using descriptive names and appropriate data types associated with the program.
- ___ ___ ___ 5. Describe the scope of variables.

F. Programming Design

- 3 2 1 N
- ___ ___ ___ 1. List in sequence the steps for developing a program.
- ___ ___ ___ 2. Develop an algorithm (pseudocode) for a program.
- ___ ___ ___ 3. Key the program.
- ___ ___ ___ 4. Save the program.
- ___ ___ ___ 5. Execute the program.
- ___ ___ ___ 6. Debug the program for errors (e.g., syntax, run-time, and logic).
- ___ ___ ___ 7. Run the program to test the logical validity of an application program give appropriate data.

G. Programming

- 3 2 1 N
- ___ ___ ___ 1. Write a program that uses built-in functions to perform calculations on mathematical, business, and/or advanced mathematical data.
- ___ ___ ___ 2. Write a program that incorporates current Windows Application Standards (e.g., access keys, tab order, focus).
- ___ ___ ___ 4. Describe the purpose/function of a structure.
- ___ ___ ___ 5. Write a program that uses arrays/structures to store data.

- ___ ___ ___ 6. Write a program that uses color, graphics, animation, and/or sound.
- ___ ___ ___ 7. Describe the purpose/function of a class.
- ___ ___ ___ 8. Write a program that uses a class.
- ___ ___ ___ 9. Write a program that creates an external file for data storage and manipulation.
- ___ ___ ___ 10. Differentiate between various types of sorting algorithms (e.g., linear, bubble, selection, insert, binary).
- ___ ___ ___ 11. Write a program that uses appropriate sorting algorithms.
- ___ ___ ___ 12. Write a program using advanced features (e.g., multiple windows, splash screens, menus, dialogs).
- ___ ___ ___ 13. Write a program that integrates a spreadsheet.
- ___ ___ ___ 14. Write a program that integrates a database.
- ___ ___ ___ 15. Write a program that integrates a word processing document.
- ___ ___ ___ 16. Write an advanced macro for application software.
- ___ ___ ___ 17. Describe the purpose/function of Web controls.
- ___ ___ ___ 18. Write a web application program that includes appropriate input validation.