

# Programming (6640)

## Exploring Programming Concepts P.1

- 1 Describe the development of computers and current industry trends in the programming field. P.1.1
- 2 Describe the development of programming languages and applications. P.1.2
- 3 Describe the functions of computer hardware, computer software, and computer system components. P.1.3
- 4 Compare computer operating systems. P.1.4
- 5 Identify the software development life cycle (SDLC). P.1.5
- 6 Describe the integrated development environment (IDE) for a specific programming language. P.1.6
- 7 Describe basic concepts of a programming language. P.1.7

## Using Algorithmic Procedures P.2

- 1 Analyze the problem statement. P.2.1
- 2 Create possible solutions to the problem. P.2.2
- 3 Determine the best solution to the problem. P.2.3

## Implementing Programming Procedures P.3

- 1 Design a program, using an algorithm, pseudocode, a flowchart, and/or a decision table. P.3.1
- 2 Code the program, using a programming language. P.3.2
- 3 Test the program with sample data. P.3.3
- 4 Debug the program. P.3.4
- 5 Document the program. P.3.5
- 6 Implement the program. P.3.6
- 7 Describe maintenance procedures. P.3.7

## Mastering Programming Fundamentals P.4

- 1 Identify syntax errors of a given programming language. P.4.1
- 2 Identify industry standards for a graphical user interface (GUI). P.4.2

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- 3 Create a graphical user interface that adheres to industry standards.** P.4.3

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  - 4 Code a program that will produce formatted output.** P.4.4

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  - 5 Code a program that uses mathematical operators and built-in functions.** P.4.5

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  - 6 Write a program that uses variables and constants.** P.4.6

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  - 7 Write a program that accepts user input.** P.4.7

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  - 8 (Optional) Write a program that uses arrays.** P.4.8

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  - 9 Write a modular program that uses functions or methods.** P.4.9

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  - 10 Write a program that uses conditional structures.** P.4.10

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  - 11 Write a program that uses looping structures.** P.4.11

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  - 12 Write a program that uses counters and accumulators.** P.4.12
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**Developing Interactive  
Multimedia  
Applications** P.5

- 1 Code a program to display graphics.** P.5.1

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  - 2 Code a program to incorporate multimedia.** P.5.2

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  - 3 Code a program to animate objects.** P.5.3

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  - 4 Examine the history of game design and development.** P.5.4

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  - 5 (Optional) Analyze the effect of intellectual property law on game design.** P.5.5

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  - 6 (Optional) Identify the target markets for game applications.** P.5.6

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  - 7 (Optional) Identify game genres.** P.5.7

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  - 8 Examine a variety of game programming platforms.** P.5.8

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  - 9 Create a storyboard.** P.5.9

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  - 10 Code a game program from the storyboard.** P.5.10

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  - 11 Create a game object.** P.5.11

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  - 12 Specify behaviors of a game object.** P.5.12

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  - 13 Develop a game program that uses a scoring method.** P.5.13

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  - 14 Create a game program with multiple levels.** P.5.14
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**Using Web  
Technology** P.6

- 1 Explain how to locate resources and references to aid program development.** P.6.1

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**2 Evaluate sample code obtained from the Internet and/or other sources.** P.6.2

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**3 (Optional) Develop a web page, using hypertext markup language (HTML) and cascading style sheets (CSS) and/or JavaScript.** P.6.3

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**Preparing for Industry Certification** P.7

**1 (Optional) Describe the process and requirements for obtaining industry certifications related to the Programming course.** P.7.1

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**2 (Optional) Identify testing skills/strategies for a certification examination.** P.7.2

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**3 (Optional) Demonstrate ability to successfully complete selected practice examinations (e.g., practice questions similar to those on certification exams).** P.7.3

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**4 (Optional) Successfully complete an industry certification examination representative of skills learned in this course (e.g., MCP, IC3).** P.7.4

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**Developing Employability Skills** P.8

**1 Identify careers in the information technology industry.** P.8.1

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**2 Describe ways that computer programs can be used in business and industry.** P.8.2

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**3 Create or update a résumé.** P.8.3

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**4 Investigate information technology educational and job opportunities.** P.8.4

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**5 Assemble a professional portfolio.** P.8.5

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**6 Describe basic employment activities.** P.8.6

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**7 (Optional) Deliver an oral presentation of the professional portfolio.** P.8.7

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**8 Identify potential education and employment barriers for nontraditional groups and ways to overcome those barriers.** P.8.8

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