Instructor: Date:

Course: Period/Section:

Chapter 3: Software

IC3 Certification Objectives

GS5

* **Computing Fundamentals**
  + **Domain 2.0** Hardware devices
    - **Objective 2.6** Understand power management and power settings
    - **Objective 2.7** Understand driver concepts as well as their device compatibility
    - **Objective 2.8** Know platform considerations and implications
    - **Objective 2.9** Know platform compatibility, device limitations
  + **Domain 3.0** Computer software architecture
    - **Objective 3.1** Understand operating system versioning and update awareness
    - **Objective 3.2** Know concepts surrounding applications vs. operating system vs. global settings
    - **Objective 3.3** Have a general understanding of operating systems and software settings
    - **Objective 3.5** Users and profiles
    - **Objective 3.8** Menu navigation
    - **Objective 3.9** Searching for files
    - **Objective 3.12** Know how to install, uninstall, update, repair software
  + **Domain 6.0** Cloud computing
    - **Objective 6.5** Understand web app types
  + **Domain 7.0** Security
    - **Objective 7.1** Know credential management best practices
* **Key Applications**
  + **Domain 6.0** App culture
    - **Objective 6.1** Understand how to obtain apps
    - **Objective 6.2** Identify different app genres
    - **Objective 6.3** Understand strengths and limits of apps and applications
* **Living Online**
  + **Domain 1.0** Internet (navigation)
    - **Objective 1.1** Understand what the Internet is

GS4

* **Computing Fundamentals**
  + **Domain 1.0** Operating system
    - **Objective 1.1** What is an OS and what does it do?
    - **Objective 1.2** Manage computer files and folders
    - **Objective 1.3** Manage computer configuration, Control Panel, OS drivers
  + **Domain 3.0** Computer software and concepts
    - **Objective 3.1** Software management
    - **Objective 3.2** Licensing
    - **Objective 3.3** Software usage
    - **Objective 3.4** Software tools
  + **Domain 4.0** Troubleshooting
    - **Objective 4.1** Software
    - **Objective 4.3** Devices and peripherals
* **Key Applications**
  + **Domain 1.0** Common application features
    - **Objective 1.3** Navigating
* **Living Online**
  + **Domain 4.0** Digital citizenship
    - **Objective 4.2** Legal and responsible use of computers

Section 3.1: Language of Computers

Learning Goals

* Compare mechanical and electronic computers.
* Explain various number systems.
* Discuss computer programming languages.

Terms

* American Standard Code for Information Interchange (ASCII)
* assembly language
* bit
* byte
* bytecode
* code
* compiler
* computer algorithm
* data type
* encoding
* high-level programming language
* interpreter
* low-level programming language
* machine language
* object-oriented languages
* procedural languages
* programs
* unicode

Materials

* *Principles of Information Technology* textbook
* G-W Learning companion website for *Principles of Information Technology*
* *Principles of Information Technology* Instructor’s Resources
* *Principles of Information Technology* Instructor’s Presentations for PowerPoint® (optional)

Engage

* Instruct students to read the Chapter 3 introduction. Discuss how the information relates to the overall theme of the unit.
* Have the students read the Section 3.1 introduction.
* Engage students by having them take the Check Your IT IQ, Chapter 3 pretest available on the G-W Learning companion website. Discuss which questions students were unable to answer.
* Assign the College and Career Readiness Reading Prep activity before students read the chapter to explore the suggested topics. Reading Prep activities give students opportunities to apply college and career readiness skills.
* Ask students the Essential Question at the beginning of the section, “How is a strong understanding of math important to computer programmers?” Engage students in a class discussion centered around their answers to the question.

Explore

* Review the vocabulary terms at the beginning of the section. Where have students encountered these terms before? Help students make educated guesses about the meanings of the terms with which they are least familiar.

Explain

* Use the Instructor’s Presentations for PowerPoint® for Chapter 3 as an outline for presenting the section.
* Explain electronic computers, number systems, and code.

Elaborate/Extend

* Assign the Internet Research activity to extend student understanding of the topics presented in this chapter. Have students complete their research as homework or during lab time.
* Use the Teamwork exercise at the end of the chapter to engage students with each other to solve a problem or make a group presentation.
* Use the Event Prep activity at the end of the chapter to extend student learning to experiences with career and technical student organizations.

Evaluate

* Assign Hands-On Example 3.1.1–3.1.2.
* Conduct a formative assessment of student comprehension using the 3.1 Section Review. Assign Check Your Understanding questions at the end of the section.
* Have students complete the IC3 Certification Practice question found in the Section 3.1 Review. Engage the students in a conversation to ensure understanding of the topic and correct answer.
* Direct students to add their definitions of the terms in the Build Your Vocabulary exercise to their personal glossary.

Section 3.2: System Software

Learning Goals

* Explain operating systems.
* Identify system utility programs.
* Describe device drivers.
* Discuss programs.

Terms

* accessibility options
* check box
* desktop theme
* device driver
* drop-down menu
* hibernation
* language packs
* platform
* power down
* power options
* power states
* radio button
* sleep
* system software
* user account
* utility programs

Materials

* *Principles of Information Technology* textbook
* G-W Learning companion website for *Principles of Information Technology*
* *Principles of Information Technology* Instructor’s Resources
* *Principles of Information Technology* Instructor’s Presentations for PowerPoint® (optional)

Engage

* Have the students read the Section 3.2 introduction.
* Ask students the Essential Question at the beginning of the section, “Which operating system is the best to use?” Engage students in a class discussion centered around their answers to the question.

Explore

* Review the vocabulary terms at the beginning of the section. Where have students encountered these terms before? Help students make educated guesses about the meanings of the terms with which they are least familiar.

Explain

* Use the Instructor’s Presentations for PowerPoint® for Chapter 3 as an outline for presenting the section.
* Explain operating systems, system utility programs, device drivers, and programs.

Elaborate/Extend

* Ask students to study the key terms using the Vocabulary activities available on the G-W Learning companion website.
* Assign the Communication Skills activities found at the end of the chapter. Opportunities for applying speaking, listening, and writing skills help develop the communication skills that are needed for college and career readiness.

Evaluate

* Assign Hands-On Examples 3.2.1–3.2.2.
* Conduct a formative assessment of student comprehension using the 3.2 Section Review. Assign Check Your Understanding questions at the end of the section.
* Have students complete the IC3 Certification Practice question found in the 3.2 Section Review. Engage the students in a conversation to ensure understanding of the topic and correct answer.
* Direct students to add their definitions of the terms in the Build Your Vocabulary exercise to their personal glossary.

Section 3.3: Application Software

Learning Goals

* Explain software licenses.
* Describe application software.
* Install application software.

Terms

* application software
* bugs
* desktop publishing (DTP)
* end user license agreement (EULA)
* file format
* for-purchase software
* freeware
* integrated development environment (IDE)
* open-source software
* podcasting
* proprietary software
* raster-based software
* shareware
* system requirements
* template
* vector-based software

Materials

* *Principles of Information Technology* textbook
* G-W Learning companion website for *Principles of Information Technology*
* *Principles of Information Technology* Instructor’s Resources
* *Principles of Information Technology* Instructor’s Presentations for PowerPoint® (optional)
* ExamView® Assessment Suitefor *Principles of Information Technology* (optional)

Engage

* Have the students read the Section 3.3 introduction.
* Ask students the Essential Question at the beginning of the section, “How does application software affect your daily life?” Engage students in a class discussion centered around their answers to the question.

Explore

* Review the vocabulary terms at the beginning of the section. Where have students encountered these terms before? Help students make educated guesses about the meanings of the terms with which they are least familiar.

Explain

* Use the Instructor’s Presentations for PowerPoint® for Chapter 3 as an outline for presenting the section.
* Explain software licenses and versions, application software, and installing software.

Elaborate/Extend

* As time permits, have students read and discuss the chapter’s special features: FYIs, Ethics, STEM, Green Tech, and Career Skills. Each feature focuses on real-world information to which students can relate and apply to their personal lives.
* Have students complete the Portfolio Development activity. Discuss portfolio projects with students.

Evaluate

* Assign Hands-On Examples 3.3.1–3.3.4.
* Evaluate the students’ understanding by having them take the Chapter 3 posttest. The test may be accessed by going to the G-W Learning companion website.
* Conduct a formative assessment of student comprehension using the 3.3 Section Review. Assign Check Your Understanding questions at the end of the section.
* Have students complete the IC3 Certification Practice question found in the 3.3 Section Review. Engage the students in a conversation to ensure understanding of the topic and correct answer.
* Direct students to add their definitions of the terms in the Build Your Vocabulary exercise to their personal glossary.
* Assign the Chapter 3 Test found at the end of the chapter.
* Assign the Application and Extension of Knowledge questions.
* Assign the Certification Practice Exam for Chapter 3 located on the G-W Learning companion website.
* Conduct a summative assessment. Create a Chapter 3 exam using the ExamView® Assessment Suite for *Principles of Information Technology.*