

**EASTERN ARIZONA COLLEGE**  
**Introduction to Computer Based Systems**  
**Course Design**  
**2018-2019**

**Course Information**

**Division** Business  
**Course Number** CMP 103 (SUN# CIS 1120)  
**Title** Introduction to Computer Based Systems  
**Credits** 3  
**Developed by** James McBride  
**Lecture/Lab Ratio** 3 Lecture/0 Lab

**Transfer Status**

ASU	NAU	UA
CIS 105, IFT 100, Computer/Stats (CS)	ISM 120 Science & Applied Science [SAS]	MIS 111

**Activity Course** No  
**CIP Code** 11.0100  
**Assessment Mode** Final Exam (75 Questions/100 Points)  
**Semester Taught** Fall and Spring  
**GE Category** AAS degree only/GE Options  
**Separate Lab** No  
**Awareness Course** No  
**Intensive Writing Course** No  
**Diversity and Inclusion Course** No

**Prerequisites**

ENG 091 with a grade of “C” or higher or reading placement test score as established by District policy

**Educational Value**

The purpose of this course is to provide learners with a general introduction to the field of information systems within the framework of a class that can meet the transfer requirements of most 4 year colleges/universities. Content includes: Fundamental concepts of hardware and software as applied to computers in a business environment; programming, operating systems, the Internet, data communications, systems development life cycle, information systems and office support systems. With specific coverage of; word processing, spreadsheets, databases and presentation systems. The course includes hands-on content to familiarize learners with basic software, operating systems and Internet skills that they can use in other classes/life situations.

**Description**

Explores the world of computers in business and society. Included topics are: digital literacy, the Internet and its multiple uses, computers and mobile devices, programs and apps, digital safety/security, components of computers and mobile devices, definitions and examples of input and output, communications and networks, information and data management, and information systems. Business applications emphasize spreadsheet/database creation and manipulation. Word processing and email systems are also covered.

## **Supplies**

Access to an Internet-connected personal computer.

## **Competencies and Performance Standards**

### **1. Explain the functions of hardware, software, data, procedures, and people in a business computer system.**

#### **Learning objectives**

*What you will learn as you master the competency:*

- a. Identify the parts of an information system: people, procedures, software, hardware, data and the Internet.

#### **Performance Standards**

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the successful completion of quiz
- o in the successful completion of final exam

*Criteria - Performance will be satisfactory when:*

- o learner identifies the parts of an information system in oral discussion
- o learner completes labs demonstrating proper identification of information system components
- o learner completes tests covering information systems terms

### **2. Identify the major hardware elements of a computer system and describe the purpose of each element.**

#### **Learning objectives**

*What you will learn as you master the competency:*

- a. Define input and output.
- b. Describe keyboard entry including types and features of keyboards.
- c. Identify different pointing devices including game controllers and styluses.
- d. Describe scanning devices including optical scanners, RFID readers, and recognition devices.
- e. Recognize image capturing and audio-input devices.
- f. Identify different monitor features and types including flat panels and e-books.
- g. Define printing features and types including inkjet and cloud printers.
- h. To recognize different audio and video devices including portable media devices.
- i. Define combination input and output devices including multifunctional devices, telephones, drones, robots, and VR headgear and gloves.
- j. Explain ergonomics and ways to minimize physical damage.
- k. Distinguish between primary and secondary storage.
- l. Identify the important characteristics of secondary storage including media, capacity, storage devices, and access speed.
- m. Compare internal and external hard drives.
- n. Define optical storage including compact discs, digital versatile discs, and Blu-ray discs.
- o. Define solid-state storage including solid-state drives, flash memory cards, and USB

drives.

- p. Define cloud storage and cloud storage services.

**Performance Standards**

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner identifies the major hardware elements of a computer system and describe the purpose of each element in oral discussion
- o learner completes labs demonstrating proper identification of major hardware elements of a computer systems
- o learner completes tests covering major hardware elements of a computer systems

**3. Describe the role of and use of a variety of widely used software packages including spreadsheets, word processors, databases, and presentation software.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Identify general-purpose applications.
- b. Describe word processors, spreadsheets, presentation programs, and database management systems.
- c. Identify specialized applications.
- d. Describe graphics programs, web authoring programs, and other specialized professional applications.
- e. Describe mobile apps and app stores.\
- f. Identify software suites.
- g. Describe office suites, cloud suites, specialized suites, and utility suites.

**Performance Standards**

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner identifies the uses of major software packages in oral discussion
- o learner completes labs demonstrating proper identification of the uses of major software packages
- o learner completes tests covering the uses of major software packages

**4. Explain the basic features of an operating system and execute its associated commands properly.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Describe the differences between system software and application software.

- b. Identify the types of system software programs.
- c. Explain the basic functions, features, and categories of operating systems.
- d. Compare mobile operating systems
- e. Compare desktop operating systems, including Windows, Mac OS/UNIX, Linux, and virtualization.
- f. Explain the purpose of utilities and utility suites.
- g. Identify the four most essential utilities.
- h. Describe Windows utility programs.

**Performance Standards**

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner explains an operating system and how to execute its associated commands properly in oral discussion
- o learner completes assignments and tests about the operating system and its associated commands

**5. Explain the programming process and the role of software in solving business-related problems.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Define programming and describe the six steps of programming.
- b. Compare design tools including top-down design, pseudocode, flowcharts, and logic structures.
- c. Describe program testing and the tools for finding and removing errors.
- d. Describe CASE tools and object-oriented software development.
- e. Explain the five generations of programming languages.

**Performance Standards**

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner explains the basic components of the programming process and the role of software in solving business-related problems
- o learner completes assignments and tests explaining the programming process and the role of software in solving business-related problems

**6. Describe how communications and network technology is used.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Explain connectivity, the wireless revolution, and communication systems.
- b. Describe physical and wireless communication channels.
- c. Differentiate between connection devices and services including dial-up, DSL, cable, satellite, and cellular.
- d. Describe data transmission factors, including bandwidth and protocols.
- e. Define networks and key network terminology including network interface cards and network operating systems.
- f. Describe different types of networks, including local, home, wireless, personal, metropolitan, and wide area networks.

***Performance Standards***

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner explains communications and network technology and how it is used in oral discussion
- o learner completes assignments and tests explaining communications and network technology and how it is used

**7. Explain the role and use of the Internet.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Explain the origins of the Internet and the web.
- b. Explain how to access the web using providers and browsers.
- c. Compare different web utilities, including plug-ins, filters, file transfer utilities, and Internet security suites.
- d. Compare different Internet communications, including e-mail, text messaging, instant messaging, social networking, blogs, microblogs, webcasts, podcasts, and wikis.
- e. Describe search tools, including search engines and specialized search engines.
- f. Evaluate the accuracy of information presented on the web.
- g. Identify electronic commerce, including B2C, C2C, B2B, and security issues.
- h. Describe cloud computing, including the three-way interaction of clients, Internet, and service providers.
- i. Discuss the Internet of Things (IoT) and the continuing development of the Internet to allow everyday objects to send and receive data.

***Performance Standards***

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz

- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner explains the basic components and the role of and use of the Internet in oral discussion
- o learner completes assignments and tests explaining the basic components and role of and use of the Internet

**8. Identify the requirements for choosing specific hardware systems and software packages.**

***Learning objectives***

*What you will learn as you master the competency:*

- Differentiate between the five basic types of system units.
- Describe system boards, including sockets, slots, and buses.
- Recognize different microprocessors, including microprocessor chips and specialty processors.
- Compare different types of computer memory, including RAM, ROM, and flash memory.
- Explain expansion slots and cards.
- Describe buses, bus widths, and expansion buses.
- Describe ports, including standard and specialized ports.
- Explain how a computer can represent numbers and encode characters electronically.

***Performance Standards***

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner explains the requirements for choosing specific hardware systems and software packages in oral discussion
- o learner completes assignments and tests explaining the requirements for choosing specific hardware systems and software packages

**9. Explain the role of information and how management information systems (MIS) are developed and used in an organization.**

***Learning objectives***

*What you will learn as you master the competency:*

- Explain the functional view of an organization and describe each function.
- Describe the management levels and the informational needs for each level in an organization.
- Describe how information flows within an organization.
- Describe computer-based information systems.
- Distinguish among a transaction processing system, a management information system, a decision support system, and an executive support system.
- Distinguish between office automation systems and knowledge work systems.
- Explain the difference between data workers and knowledge workers.

- h. Define expert systems and knowledge bases.

**Performance Standards**

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner explains the role of information and how management information systems (MIS) are developed and used in an organization in oral discussion
- o learner completes assignments and test explaining the importance of management information systems

**10. Explain what a database is using database terminology and its importance in a business environment and the Internet.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Distinguish between the physical and logical views of data.
- b. Describe how data is organized: characters, fields, records, tables, and databases.
- c. Define key fields and how they are used to integrate data in a database.
- d. Define and compare batch processing and real-time processing.
- e. Describe databases, including the need for databases and database management systems (DBMSs).
- f. Describe the five common database models: hierarchical, network, relational, multidimensional, and object-oriented.
- g. Distinguish among individual, company, distributed, and commercial databases.
- h. Describe strategic database uses and security concerns.

**Performance Standards**

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner explains what a database is using database terminology and its importance in a business environment and the Internet in oral discussion
- o learner completes assignments and tests explaining the importance of databases and their importance in a business environment and the Internet

**11. Identify and describe the different steps in the system development life cycle and the type of activities performed in each step.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Describe the six phases of the systems life cycle.
- b. Identify information needs and formulate possible solutions.

- c. Analyze existing information systems and evaluate the feasibility of alternative systems.
- d. Identify, acquire, and test new system software and hardware.
- e. The generals of switch from an existing information system to a new one with minimal risk.
- f. What system audits are and periodic evaluations.
- g. Describe prototyping and rapid applications development.

**Performance Standards**

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner describes the different steps in the system development life cycle and the type of activities performed in each step in oral discussion
- o learner completes assignments and tests explaining the importance of the system development life cycle

**12. Explain computer-related ethical, security, privacy, and legal issues.**

**Learning objectives**

*What you will learn as you master the competency:*

- a. Identify the most significant concerns for effective implementation of computer technology.
- b. Discuss the primary issues of accuracy, property, and access.
- c. Describe the impact of large databases, private networks, the Internet, and the web on privacy.
- d. Discuss online identity and the major laws on privacy.
- e. Discuss cybercrimes including creation of malicious programs such as viruses, worms, Trojan horses, and zombies as well as denial of service attacks, Internet scams, identity theft, cyberbullying, rogue Wi-Fi hotspots, and data manipulation.
- f. Detail ways to protect computer security including restricting access, encrypting data, anticipating disasters, and preventing data loss.
- g. Discuss computer ethics including copyright law, software piracy, digital rights management, the Digital Millennium Copyright Act, as well as plagiarism and ways to identify plagiarism.

**Performance Standards**

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner explains the computer-related ethical, security, privacy, and legal issues facing society in oral discussion
- o learner completes assignments and tests explaining computer-related ethical, security, privacy, and legal issues facing society

**13. Describe career opportunities in the computer field.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Analyze the requirements of various jobs relating to the IS/IT field.
- b. Analyze the educational requirements of various jobs relating to the IS/IT field.
- c. Examine the potential salary of jobs in the IS/IT field.

***Performance Standards***

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner explains the basic components of project management in oral discussion
- o learner completes assignments and tests explaining the importance of project management in IS/IT

**14. Use Microsoft Word.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Complete the process for creating a Word document.
- b. Apply the functions used to edit a Word document.
- c. Learn how to change settings for formatting a Word document.
- d. Accomplish how to use collaboration tools in Word.
- e. Demonstrate table creation and use in Word.
- f. Apply text and paragraph formatting options in Word.
- g. Inserting and modify graphics in Word.

***Performance Standards***

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner demonstrates proper use of creation and editing in Word in assignments and tests
- o learner demonstrates proper use of formatting techniques
- o learner demonstrates proper use of collaboration tools offered in Word
- o learner demonstrates in assignments and tests the use of tables
- o learner demonstrates through use how to modify and use text and paragraph formatting options
- o learner demonstrates through use how to insert and manipulate graphics in Word

**15. Create, edit, format spreadsheets and use formulas, functions, and charts in Microsoft Excel.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Create and edit data within an Excel workbook.
- b. Format data and cells in an Excel workbook.
- c. Identify and use various formulas and functions in Excel.
- d. Properly insert and manipulate charts in Excel.

***Performance Standards***

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner demonstrates proper use of creation and editing in Excel in assignments and tests
- o learner demonstrates through use proper formatting techniques
- o learner demonstrates proper use of collaboration tools offered in Excel
- o learner demonstrates in assignments and tests the use of tables
- o learner demonstrates through use how to modify and use text and paragraph formatting options
- o learner demonstrates through use how to insert and manipulate graphics in Excel

**16. Create, edit, and format database tables; use data validation, define relationships, queries, forms, and reports in Microsoft Access.**

***Learning objectives***

*What you will learn as you master the competency:*

- a. Create and edit data and tables in Access.
- b. Format data and tables using Access.
- c. Apply validation to data in Access.
- d. Define relationships using Access.
- e. Design and run queries in Access.
- f. Design and build reports using Access.

***Performance Standards***

*Competence will be demonstrated:*

- o in the completion of assignments related to the material
- o in the completion of a quiz
- o in the successful completion of the final exam

*Criteria - Performance will be satisfactory when:*

- o learner demonstrates proper creation and editing of data and tables in Access
- o learner demonstrates formatting of data and tables using Access
- o learner applies validation to data in Access

- learner defines relationships using Access
- learner designs and runs queries in Access
- learner designs and builds reports using Access

### ***Types of Instruction***

Classroom presentation.

Lab work

### ***Grading Information***

#### ***Grading Rationale***

The final will represent 20% of the overall grade. All other tests and assignments will represent 80% of the grade.

#### ***Grading Scale***

- A 90-100%
- B 80-89%
- C 70-79%
- D 60-69%
- F Below 60%