

Information Technology Fundamentals

Syllabus | 2020-2021 | #520005 - One Credit



Instructor: Carmanita Monroe **Email:** cmonroe@bessk12.org **Phone:** 205-432-3777

COURSE DESCRIPTION:

This course is designed to provide students with skills involving the design, installation, maintenance, and operation of computer systems. Activities and topics of study include personal and business computer hardware, software, troubleshooting, repair, and installation. Wired and wireless network configuration, peripheral devices, operating systems, information technology careers, and technology ethics issues are content standards for this course. Students receive both classroom instruction and hands-on laboratory experiences. Upon successful completion of this course, students should be able to maintain, upgrade, and configure PC systems.

PREREQUISITES: None **CAREER CLUSTER:** Information Technology
COURSE FEE: \$40 **CAREER PROGRAM:** Networking & Computer Services

LAB APPLICATION:

TestOut LabSim: PC Pro
Students will access this through Schoology

WEBSITE:

Links to all course technologies will be available on the Bessemer Center for Technology website here:
<https://bessemer.bcst.schoolsites.com/>

TEXTBOOK:

James Andrews, Joy Dark, Jill West, *CompTIA A+ Guide to IT Technical Support, 10th Edition (Cengage, MindTap)*

EMAIL:

All students are required to use their school email to access the course technologies we will use.

GENERAL SUPPLIES:

- Notebook
- Pencil (Mechanical or Standard)
- Highlighters

ADDITIONAL RECOMMENDED SUPPLIES: These supplies would be used to organize lessons, fact sheets, and lab printouts from TestOut LabSim and the textbook to use for test preparation and as a reference in an IT career.

- 5" or 6" Three-Ring Binder
- Dividers or Post It Tabs
- Sheet Protectors
- College ruled filler paper

CAREER AND TECHNICAL STUDENT ORGANIZATION (CTSO):

SkillsUSA - \$15 Membership Fee (included in Course Fee)

All Information Technology Fundamental students are required to join and participate in SkillsUSA. SkillsUSA is a professional organization that is designed to be run by students as an integral, co-curricular component of career and technical courses. SkillsUSA members develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for professional growth. Through chapter meetings, contests, leadership conferences, and activities, students will build these skills. Each chapter chooses plans and conducts its operations.

AVAILABLE INDUSTRY CREDENTIALS:

TestOut PC Pro

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GRADING AND EVALUATION CRITERIA:

Assessments: Grades will be based on quizzes, midterm, and final examinations. Exams are cumulative and given in a variety of formats. An in-class review will be held before each exam.

Classwork: Grades will be based on keyword terms, review questions, critical thinking, weekly objectives, projects, labs, bell ringers, etc.

Miscellaneous: Grades will be based on homework, bonuses, etc.

The following scale will be used in assessing the student's content knowledge and skills during the course:

<u>EVALUATION CRITERIA:</u>	<u>PERCENTAGE:</u>	<u>GRADING SCALE:</u>	<u>LETTER GRADE:</u>
Assessments	50	100 – 90	A
Classwork/Participation	40	89 – 80	B
Miscellaneous	10	79 – 70	C
TOTAL	100	69 – 60	D
		Below 59	F

CLASS POLICIES:

1. Eating and drinking are NOT permitted in the computer lab or classroom.
2. Students are not to tamper with computers in any way nor to make changes in setup unless directed by the instructor. Any students performing unauthorized actions on computers will be subject to disciplinary action.
3. Sufficient time will be allowed in the classroom to complete the work assigned.
4. Students must leave the work area clean, neat, and ready for the next class. Also, students are to return any textbooks to the book bin and shut down the computer before leaving the classroom.
5. School policies will be followed.

MAKE-UP POLICY:

You are responsible for informing the instructor within one week after you return that you need to make up assignments or tests. Failure to do so will result in a zero being assigned for the missed work.

COURSE GOALS:

1. Distinguish between input and output devices, including monitor, keyboard, mouse, and scanner.
2. Utilize mathematics skills to convert between two number systems, including decimal, binary, and hexadecimal.
3. Perform computer maintenance and upgrading of computer components and portable devices
4. Practice basic procedures of installing, configuring, optimizing, and upgrading printers and scanners.
5. Identify the fundamentals of using operating systems.
6. Perform basic configuration and optimization by updating and upgrading operating systems.
7. Utilize troubleshooting techniques for personal computer components and portable devices.
8. Perform preventive maintenance on personal computer components and portable devices, operating systems, and computer security systems.
9. Identify tools, diagnostic procedures, and troubleshooting techniques for operating systems, printers and scanners, and security.
10. Demonstrate the construction of a computer system, including the installation of hardware and software
11. Demonstrate configuring, upgrading, and optimizing security

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12. Determine career and entrepreneurial opportunities, responsibilities, and educational and credentialing requirements related to the information technology industry.
13. Use communication skills effectively when communicating with customers and colleagues.
14. Exhibit job-related professional behavior, including confidentiality, respect for the customer and customer's property, and adherence to privacy laws.
15. Interpret research data to predict anticipated changes in computer systems.
16. Identify fundamental principles of networks.
17. Demonstrate configuring, optimizing, and upgrading of networks.
18. Identify tools, diagnostic procedures, and troubleshooting techniques for networks.

ESSENTIAL QUESTIONS:

- How will future changes in input and output devices affect how people will process information?
- Why are number systems important in the computing process?
- Why is upgrading computer hardware and software a critical part of information technology management?
- What benefits or problems relate to the use of portable devices?
- How could changes in operating systems affect the way people use computers?
- Why is upgrading the operating system an important factor in effective computing?
- How does preventative maintenance reduce the frequency of computer problems?
- Why is updated security software essential?
- How important is your skill level in troubleshooting computers?
- What are the dominant jobs within the region?
- How do you determine the needed degree/experience/certification employment requirements?
- How important is your skill level for IT occupations?
- Why is respect the privacy of a customer's property and information necessary?
- What pending changes in technology will affect careers in information technology, and why is continuing education so important?
- Why are networks a vital component of society?
- How do differing types of networks offer challenges for network security?

COURSE OUTLINE:

- I. **Computer Basics**
 - A. Types of Input Devices
 - B. Types of Output Devices
 - C. Numbering Systems
- II. **Hardware Installation**
 - A. Maintaining computer components
 - B. Installing, configuring, and optimizing
- III. **Software Installation**
 - A. The purpose of an Operating Systems
 - B. Operating system types
 - C. History of operating systems
 - D. DOS systems
 - E. GUI systems

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- F. Functions of an operating system
- G. Graphical user interface components
- H. Upgrading software
- I. Application and Other software

IV. Troubleshooting and Maintenance

- A. Types of problems
- B. OS Setup Problems
- C. Startup Problems
- D. Operational Problems
- E. Upgrade Problems
- F. Troubleshooting
- G. Virus and Security problems
- H. Safe Mode
- I. Utilizing Windows Task Manager
- J. Network Connections
- K. System Tools
- L. Checking hard drive space
- M. Checking memory
- N. Restoring registry
- O. Upgrading
- P. Hardware
- Q. Memory
- R. Operating System Software
- S. Application Software
- T. Bios
- U. Drivers
- V. Building a computer
- W. Installing hardware
- X. Installing software

V. Career Opportunities

- A. Employment and Careers
- B. Job Demand by Industry
- C. Requirements for IT careers
- D. Professional Communication
- E. Predicting changes to computer systems

VI. Network Basics

- A. Terms
- B. Troubleshooting

CULMINATING PRODUCTS:

1. Students will demonstrate a variety of installation, upgrade, and troubleshooting activities on a PC with various software or hardware issues.
2. Students are to present information during a multimedia presentation.
3. Students will troubleshoot simulated or actual computer network problems.