

Syllabus

Computer Technology

Hardware Year

Instructor: Jim Farthing

Contact Information:

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Office Hours: Before and after school (check for meetings)

Course Description:

This program provides Juniors and Seniors the opportunity to acquire real world, hands-on skills with computers by learning to design, build, maintain, troubleshoot, and repair computers. In addition, students will learn network creation, manipulation, and server administration as it relates to home and small businesses. At the conclusion of this course, students will have the opportunity to test for the PC Pro Certification. Embedded English and Math credit is included in this class.

Goal:

To prepare each student to enter the workforce as an entry-level IT support professional, or to continue their education/training at the college, university, tech school, or military branch of their choice.

Rationale:

Computer Technology is designed to prepare students for further education in the field of computer science or related studies and any number of high skill, high wage positions that utilize knowledge and skills in programming, analyzing software requirements and functions, configuring and maintaining computer hardware and networks, and providing customer support and service. The program also provides students with an opportunity to apply critical thinking, analysis, and logic skills in the context of creating software applications and requires demonstrations of written and oral communication skills.

Prerequisite:

Prior to taking Computer Technology, students are required to have taken and passed with a C or higher Algebra I (or higher).

Dual Credit:

6 hours of dual credit are available through State Technical College of Missouri.

Textbooks / Resources:

This course uses the online curriculum TestOut PC Pro as the basis for the course curriculum. At times other enrichment articles or texts may be used to further clarify or identify a concept.

Embedded Communication Arts:

Grades: 11-12 Credit: 0.5

The Nichols Career Center Technical English program will capitalize on student interest in and practical experience of computer technology. Students will be encouraged to choose topics related to computer technology and the workplace when conducting research and presenting information. (Please see additional information in the Technical English syllabus)

Embedded Math:

Grades: 11-12 Credit: 0.5

The Nichols Career Center Embedded Math will focus on topics related to computer science and problem solving in general. Students will solve problems through the application of concepts such as:

sequences, series, permutations, combinations, graph theory, and more. This course is intended to be an introduction to the field of Discrete Mathematics. (Please see additional information in the Technical Math syllabus)

Student Services:

Student services are available to help students succeed in their classes. Students in technical programs are eligible for extra assistance by asking for help from their teacher or by having their teacher refer them to the Vocational Resource Educator. Career Planning is available to students who are looking for part-time or full-time jobs or need help with writing a resume. In addition, persons knowledgeable about financial aid for post high school training/education are available, as well as persons who can help students assess their vocational strengths and preferences in order to make more informed career choices.

Grading:

Student grades will be configured using the following scale:

Terms 1 thru 4

Tests and Projects – 50%

Homework, Quizzes, Assignments, and Activities – 30%

Final Exam / Project – 10%

Tech English – 5%

Tech Math – 5 %

The following grading scale will be used for this class:

A	93 – 100	C	73 – 76
A-	90 – 92	C-	70 – 72
B+	87 – 89	D+	67 – 69
B	83 – 86	D	63 – 66
B-	80 – 82	D-	60 – 62
C+	77 – 79	F	59 or below

Course Objectives: Topics in Computer Technology may include but will not be limited to:

- Design, build, configure, maintain, and repair computer systems.
- Network computer systems from both the server and client sides.
- Build, configure, and implement a file server, web server, and domain name server.
- Configure and implement computer and network security measures.
- Explain and demonstrate ethics related to technology and copyright laws.
- Prepare a resume.
- Explore careers in computer technology.
- Explore current technology trends and issues.

Communication Plan:

The following forms of communication will be used to inform students of assignments or important class information:

- In-class postings on whiteboard, Clear Touch monitor, or posted papers
- Distance Learning on Google Classroom
- Infinite Campus
- Email
- Phone calls home

Assignment Policy:

All assignments are expected to be turned in on time and completed to the best of the student's ability. If the student does not turn in the assignment on time, the following scale will be used for grading when the student does turn in the assignment:

- 1 day = 10% reduction in total points possible
- 2 days = 25% reduction in total points possible
- 3 days and after = 50% reduction in total points possible

Note: All assignments will have a final deadline established by the instructor. After that final deadline, the assignment will not be entered in the gradebook for a grade.

Retake Policy:

Students who score <75% on any test except the final may retake the exam for a maximum grade of 75%.

AI Policy:

Turning in someone else's work is never ok. While AI tools may be used in some circumstances, turning in AI work as your own is not acceptable and will be considered plagiarism and/or cheating.

Dress Code:

All students should be dressed appropriately for school in accordance with district and school dress code policies. In addition, no open-toe shoes are allowed during lab activities for safety reasons. Students should be prepared for lab work every day. Students who are not dressed properly for lab activities will not be allowed to participate in the lab activities and may lose all credit for the lab activity they missed with or without makeup privileges.

Cell Phone Policy:

Each Nichols Career Center program has their own cell phone policy based on industry standards and professional expectations. In our industry, cell phones are a useful and often necessary part of work. For this reason, cell phones are allowed for use in class for professional/classroom use. Some examples of appropriate use include but are not limited to:

- Taking a picture of a wiring diagram.
- Researching a troubleshooting problem.
- Recording notes or work reminders.
- Taking pictures for use in a project or assignment.

Some examples of inappropriate use include but are not limited to:

- Playing games.
- Watching entertainment videos.
- Listening to music.
- Taking pictures of classmates for non-school related reasons.
- Checking or posting on social media.

Students should either have their cell phones off or on silent and put away, or have their cell phones in front of them face-down on their desk at the end of their work area. If their use causes a distraction or is being used inappropriately, the privilege of such use may be taken away either temporarily or permanently.

School Property and Equipment Damage:

Any damage to school property or classroom equipment may result in a financial charge to the student whether determined to be accidental or not.

Skills USA:

Involvement in our professional student organization (Skills USA) is highly encouraged providing students leadership and competitive opportunities in our content area. Students can participate/compete on the local, state, and national levels.

Classroom Procedures: All procedures shall conform to either Jefferson City School District or Nichols Career Center policies and procedures.

Bathroom and Locker Trips: Students are not allowed out of the classroom unless specifically permitted by the teacher. Cell phones will not be permitted on these trips.

Electronic Devices: Personal electronic devices (cell phones or otherwise) are to remain off and put away unless the teacher allows their use. If their use causes a distraction, the privilege of such use may be taken away either temporarily or permanently. Please see “Cell Phone Policy”.

Food & Drinks: Only water in a sealable container is allowed in the classroom unless otherwise approved by the teacher. No food is allowed unless otherwise approved by the teacher.

Beginning Class:

- Students are expected to be in the room and preparing to start class work when the bell sounds.
- Information about the day’s topics and other relevant information will be posted on either the white board or the Clear Touch monitor.
- If sending school students other than JC students are running late for any reason except a late bus, students are to check in with the Nichols Office before proceeding to class. Upon arrival to class, those students are to enter and prepare for class with as little disruption as possible.

During Class:

- Students are expected to remain in their work area unless otherwise directed. No unnecessary wandering!
- When moving around the room, students are expected to walk to where they are going. Students are not to roll around the room in their chairs. If the student needs to take their chair with them, they are to push the chair to this new location. If a student cannot follow this directive, they will sit in a chair without wheels for a minimum of 2 days.
- Students are expected to treat each member of this class with the respect, consideration and support you would give the most important people in your lives. You don’t have to like each other, but you do have to get along.

Leaving Class:

- Whether leaving for the day or for a break, each student is expected to leave their workspace in good order with materials organized or put away and chairs pushed in.
- When leaving for the day, students will be dismissed by the teacher, not the bell. Students will be informed when it is time to put materials away.
- Students are to remain in their workspace areas until dismissed. No waiting by the door!

Consequences: For those students who choose not to follow the school and classroom procedures, students will earn the following consequences:

- 1st Offense: Verbal reminder
- 2nd Offense: Verbal discussion in hallway or after class, parent contact.
- 3rd Offense: Office Referral and parent contact.

- Sever Clause - Any student who uses profanity in a malicious fashion, fights, damages school property (this includes the property of the teacher and other students), is disrespectful (as defined by the teacher), or refuses to work will be sent to the office IMMEDIATELY.

***Note: School policies and procedures supersede these consequences.*

Writing Assignments:

Occasionally, students will be given a writing assignment. Many times, this will be in the form of an article review. An article review is a 1-page, double-spaced review of a computer technology article. This article review will have 3 paragraphs. The first paragraph will contain the name of the article, where the student found the article, the article's author, and what the article is generally about. The second paragraph will contain a synopsis of the article highlighting the main points. The third paragraph will contain the student's opinion about the content of the article. The third paragraph should be the longest paragraph of the review.

**Disclaimer: The teacher reserves the right to change or modify any part of this syllabus or any classroom procedures at any time.*

Course Outline

The following is a detailed partial list of the topics covered during the year. The pace is estimated.

PC Pro (Term 1)

- Computing Overview
 - Course Introduction
- PC Technician Responsibilities
 - Protection and Safety
 - Environmental Controls
 - Professionalism
 - Change Management
 - PC Maintenance
 - PC and Networking Tools
 - Troubleshooting Process Overview
 - Support Systems
 - Documentation
- Hardware
 - Network Media
 - Cables and Connectors
 - Cases and Motherboards
 - Motherboard Troubleshooting
 - Memory
 - Memory Installation
 - Memory Troubleshooting
 - BIOS/UEFI
 - Processors
 - Processor Troubleshooting
 - Video and Expansion Cards
 - Audio
 - Cooling
 - Power Supplies
- Operating System Basics
 - Operating system
 - Windows Basics
 - Linux Basics
 - macOS Basics

PC Pro (Term 2)

- Storage
 - Storage Devices
 - SATA
 - Optical Media
 - RAID
 - File Systems
 - Storage Management
 - Storage Spaces
 - Disk Optimization
 - Storage and RAID Troubleshooting
- System Implementation
 - Windows Pre-Installation

- Windows Installation
- Cloud Computing
- Virtualization
- System Management 1
 - Windows System Tools
 - Windows Settings
 - Performance Monitoring
 - Windows Application Management
 - Linux Application Management
 - Digital Content Management
 - Virtual Memory
 - Windows and Application Troubleshooting
 - Scripting Basics
- System Management 2
 - Active Directory
 - Users and Groups
 - Remote Services
 - VPN
 - Updates
 - System Backup
 - System Recovery
 - Windows Boot Errors
- File Management
 - Managing Files on Windows
 - NTFS and Share Permissions
 - File Encryption
 - Linux File Management
- Peripheral Devices
 - Peripheral Devices
 - Display Devices
 - Display, Video, and Projector Troubleshooting
 - Device Driver Management
 - Device Driver Troubleshooting

PC Pro (Term 3)

- Networking
 - Networking Overview
 - Network Ports and Protocols
 - Client-Side Networking Configuration
 - Services Provided by Network Devices
 - Wireless Networking
 - SOHO Configuration
 - Network Hardware
 - Community Line Network Utilities
 - Network Troubleshooting
- Mobile Devices
 - Laptops
 - Mobile Device Displays and Components
 - Laptop Power Management
 - Mobile Devices
 - Mobile Device Network Connectivity

- Mobile Device Security
- Laptop and Mobile Device Troubleshooting
- Printing
 - Printer Overview
 - Printer Connectivity
 - Printer Types and Components
 - Printer Troubleshooting

PC Pro (Term 4)

- Security
 - Security Best Practices
 - Incident Response and Regulated Data
 - Physical Security
 - Logical Security Measures
 - Social Engineering Attacks
 - Data Destruction and Disposal
 - Malware Protection
 - Firewalls
 - Proxy Servers
 - Install, Configure, and Secure Browsers
 - Security Troubleshooting
- Capstone Exercises
- PC Pro Certification Practice Exams
- Server Administration
 - Overview of basic servers
 - Installation and configuration of Linux
 - Installation and configuration of a file server
 - Installation and configuration of a web server
 - Installation and configuration of a DNS server