



Wilco Area Career Center
Syllabus Computer Technology
Online and Onsite

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Office Hours: By Appointment

Grade level: 11-12

Suggested Prerequisites: None

Supplies needed: Flash drive, Earbuds, Notebook, Pen, Mouse

COURSE DESCRIPTION

Computer Technology Covers 3 Joliet Junior College courses which offers

10 College Credits

● **Computer Information Systems — CIS 122: 4 COLLEGE CREDITS**

A first course for business or computer information systems majors planning to transfer to a four-year institution. A complete introductory study of information systems, computer programming and application software is presented. Course topics include the elements of a business computer system, system analysis and design, computer-to-mainframe systems, program design and implementation. Also included will be an introduction to the internet and its uses, computer application software. This course also introduces basic concepts regarding word processing (Microsoft Word), (Excel Spreadsheet), (PowerPoint) and database management systems (Access). At the end of

the course, you will achieve a reasonable proficiency in the above areas. Syllabus subject to change.

- **Fundamentals of Networking -- CIS 145: 3 COLLEGE CREDITS**

This course discusses the basic concept of Local Area Networking. Topics include networking overview, sharing computer resources, using E-mail, using file servers, protocols, different networking software, how to manage your network and an introduction to Wide Area Network.

- **CompTIA A+ IT Technical Support- CYBIT 120: 3 COLLEGE CREDITS**

This course investigates the hardware components of the personal computer. Heavy emphasis is placed on diagnosing and maintaining the PC. Students will learn to install and replace the major hardware components of the system. The students will learn to work the BIOS/CMOS, as well as what it takes to build a PC. This is the first course in preparation for taking the A+ exam.

LAB SIMULATIONS:

- **CompTIA Lab Simulations ARTIFICIAL INTELLIGENCE AND PERSONAL COMPUTERS**

(A) COMPTIA- LEADING TO A+ CERTIFICATION

CompTIA's state-of-the-art simulation labs are a proven way to give students hands-on experience working with diverse technologies/platforms and build their competence in digital literacy. Replicating real world examples, these labs are designed to assess student's understanding as they interact with the concepts being taught. This course simplifies AI concepts and equips you with practical skills to enhance efficiency, foster innovation, and understand the legal and ethical use of generative AI. With no prior experience required, this course is an ideal first step to integrating AI into your career.

Building Foundational Knowledge

- **AI unveiled:** Explore what AI is, how it has evolved, and the types transforming industries today. Learn essential skills and mindsets to work effectively with AI while ensuring ethical and efficient use.
- **Generative AI frontiers:** Discover how generative AI creates text, audio, and images, revolutionizing content creation. Learn to choose the right tools for your projects and apply generative AI in real-world scenarios.
- **Engineering effective prompts:** Understand the importance of prompt engineering in interacting with AI systems. Gain practical tips for crafting effective prompts and avoiding common pitfalls.
- **Balancing innovation and privacy:** Learn strategies to mitigate cybersecurity risks posed by AI. Explore privacy laws, ethical considerations, and intellectual property rights for AI-generated content.

- Human-AI collaboration: Discover how AI can enhance creativity and productivity. Learn strategies for effective collaboration between humans and AI and how to communicate AI concepts with your team.
- Future trends and innovations: Stay ahead with insights into emerging AI trends and innovations. Explore potential breakthroughs, challenges like job displacement, and opportunities for reskilling in an AI-driven world.

Course Details

- Focus areas: foundational AI skills, including generative AI, prompt engineering, ethical considerations, and future trends
- Skill-building resources: hands-on activities, instant feedback on assessments, and performance reports to track your progress
- Recommended experience: no prior experience required—designed for beginners
- CompCert assessment: prove your mastery of key concepts and earn a downloadable Competency Certificate at the end of the course to showcase your achievement
- Outcome: confidence and knowledge to apply AI concepts in your career and explore advanced AI technologies

(B) PERSONAL COMPUTER PRO(PC PRO)

- **CompTIA A+ Core 1 and Core 2 Personal Computer PC Pro- Lab Simulations**
The main purpose of the PC Pro is to help with necessary skills to work as an IT support professional. In an IT support job, you'll be asked to install, repair, configure, secure, and manage computer hardware, operating systems, and software in home or corporate environments. CompTIA provides the most advanced IT simulation environment. These simulations allow students to gain valuable experience by developing real-world IT skills. By simulating hardware, software, operating systems, and entire network environments, students can practice IT skills in a realistic environment.

About This Course

The CompTIA A+ certification, broken into a Core 1 exam and a Core 2 exam, is a foundational-level certification designed for professionals with 12 months hands-on experience in a help desk support technician, desk support technician, or field service technician job role.

This course can benefit you in two ways. If you intend to pass the CompTIA A+ Core 1 and Core 2 (Exams 220-1201 and 220-1202) exams to receive an A+ certification, this course can be a significant part of your preparation. However, certification is not the only key to professional success in the field of IT support. Today's job market demands individuals have demonstrated skills, and the information and activities in this course can help you build your skill set so that you can confidently perform your duties in any entry-level IT support role.

The course content is broken down to cover both Core 1 and Core 2 objectives:

- A+ Core 1 is covered in Modules 1-10.

- A+ Core 2 is covered in Modules 11-22.
- Upon course completion, you will be able to:
- Define the role of an IT Specialist
- Install Motherboards and Connectors
- Install System Devices
- Troubleshoot PC Hardware
- Compare Local Networking Hardware
- Configure Network Addressing and Internet
- Support Network Services
- Summarize Virtualization and Cloud Concepts
- Support Mobile Devices
- Support Print Devices
- Manage Support Procedures
- Configure Windows
- Manage Windows
- Support Windows
- Secure Windows
- Install Operating Systems
- Support Other OS
- Configure SOHO Network Security
- Manage Security Settings
- Support Mobile Software
- Use Data Security
- Implement Operational Procedures

Students enrolled in Wilco are given the opportunity to receive college credits for certain portions of the course through Joliet Junior College. Students who enroll in these credits are expected to complete the course with minimum completion grade of a "C" or instructor may encourage the student to withdraw. No student should willingly accept a "D" on a college transcript as a result choosing to voluntarily withdraw would be in his/her best interest. Wilco will not be held responsible if the student does not meet the minimum requirements. It is expected that the student will accept full responsibility for completing necessary requirements to obtain all college credits.

Instructional Philosophy

Students will be expected to meet all listed course goals and be able to demonstrate their understanding of the concepts necessary for an introductory technology career. The instruction involves a laboratory based structure with audio/visual support and class lecture. Students will work collaboratively to troubleshoot individual problem areas and complete review activities. Assignments will require students to utilize academics skills in basic applied computer skills that involve trouble shooting, step-by-step problem solving and online research. Student's will be given work readiness evaluations monthly which will be based on class participation,

quality of work, attendance, assignment completion, behavioral expectations, use of resources and ability to communicate with peers and instructor. Daily written assignments, written and oral unit projects, chapter quizzes, unit exams, and comprehensive semester exams shall comprise the main portion of the students' grade.

Students will be able to access grades through the Wilco Area Career Centers on line grade component to monitor progress and attain ongoing grade reports. Instructor feedback will also be provided, so the student can make necessary corrections and adjustments. Upon completion of the school year students will demonstrate mastery of tasks as indicated on the student task list tool. Students will be held to all safety and quality standards as expected on the job. Students will be expected to utilize outside resources to obtain information for some assignments. Library research and professional consultation will be required for some projects. Tutoring is available in Student Services. For those students pursuing college credits through Joliet Junior College, semester grade must be a minimum requirement of 70%, as well as, the student is required to complete or meet any other standardized testing minimum scores as established by the institution seeking credits from.

Class Operation:

The instructor provides direction and manages the classroom setting, but also gives the students some autonomy for planning certain day to day assignments and managing the class environment with peers. The instructor will meet briefly with students at the beginning of each day to review previous lectures, discuss the content for the day and demonstrate any new concepts as needed. Individual assistance will be provided as necessary. Periodic class discussions will focus on student understanding of material. Students will be called upon in class discussion scenarios. Students will work independently and in small groups as the lesson dictates. Students will be given a variety of resources and will create a study guide conducive to their learning style. Students will be expected to actively participate in the instructor's on-line resources of Campus and Google classroom. If a student has a situation which prevents this access the instructor should be made aware of these special circumstances.

Monitoring Performance:

Each student will be responsible for monitoring their individual progress throughout the year. Students will have access to the school's grade posting system. Students and families will be educated on access to the system at the beginning of the year. Students will be expected to check grades regularly and are encouraged to question any grade in dispute in private with the instructor. Student progress will be evaluated /updated weekly. Since the focus of attending a career center is also to build appropriate skills for future technical employability, students will receive weekly/monthly evaluations from the instructor focusing on these skills as they relate to the classroom setting. Students will be provided comments for improvement. These evaluations may be copied and used when student may be obtaining future employment.

Suggested Course Supplies:

Wilco provides the books and laptops(of which are monitored) for student use. Books may be checked out but laptops cannot.

Wilco Area Career Center Grading Scale

90.0 A

80.0 B

70.0 C

60.0 D

Below 59.0 F

Grade Components

Participation 10%

Assignments: 30%

Computer Lab: 30%

Homework 10%

Quizzes/Tests 10%

Midterm/Final Exam 10%

Classroom Policies and Procedures

*General Information - Students will come prepared for class with a notebook, earplugs, pen, and flash drive daily. Students are to keep desk areas clean at all times. Students are to be respectful of fellow classmates. Cell phones are to be put away prior at the start of class and may only be utilized at teacher discretion. Books & Laptops - Students will be responsible for their individual textbook throughout the school year and are responsible for replacement fee if damaged or lost. Students will also utilize laptops on a daily basis to complete assignments and must maintain their condition.

*Attendance Policy - 5 or more unexcused absences will result in an attendance contract. JJC- If a student has absences in excess of ten days, we will notify the Office of Dual Credit. This way, a determination can be made if the student should be removed from the course or receive an incomplete grade.

*Make-up Policy - ALL students are responsible for checking Google Classroom for daily coursework and announcements. Students who have an excused/exempt absence will be granted one day per absence upon their return to complete all assignments for full credit. Students with an unexcused/unknown absence

will be responsible for completing the coursework by the assigned date and are encouraged to contact their instructor, Mrs. Jackson with concerns.

*Academic Honor Code - The objective of the academic honor code is to sustain a learning-centered environment in which all students are expected to demonstrate integrity, honor, responsibility, and recognize the importance of being accountable for one's academic behavior.

*Intellectual Property - Students own and hold the copyright to the original work they produce in class. It is a widely acceptable practice to use student work as part of the college's internal self-evaluation, assessment procedures, or other efforts to improve teaching and learning and in promoting programs and recruiting new students. If you do not wish your work to be used in this manner, please inform the instructor.

*Student Code of Conduct - Each student is responsible for reading and adhering to the Student Code of Conduct stated in the college catalog and Wilco Student Handbook.

*Sexual Harassment - Wilco Area Career Center seeks to foster a community environment in which all members respect and trust each other. In a community in which persons respect and trust each other, there is no place for sexual harassment. Wilco has a strong policy prohibiting the sexual harassment of one member of the college community by another. See Catalog or Student Handbook.

*Student Support - Available through student services at Wilco and coordinated with high school.

COURSE CONTENT SEMESTER ONE

COMPTIA is part of each semester. LabSim is CompTIA's learning platform that the Computer Technology program will work with. It includes CompTIA's best-of-class IT simulations. The LabSim courses will keep each student engaged and are flexible. Great tools for IT education. With LabSim, students are able to gain practical knowledge and practice real-world skills anytime and anywhere. All they need is Internet access on a supported device. LabSim is equipped with powerful features that advances a student's ability to learn and gain skills. With the ability to assess the needs of each individual student, the instructor will be able to help each student advance.

Computer Information Systems 122

Book: Technology in Action	Chapter lesson	Chapters/Technology Covered
Chapters 1	Impact of Technology in a Changing World	Technology
Chapter 2	Computer Parts	Understanding the Parts
Chapter 3	Using Internet	Web's Resources
Chapter 4	Application Software	Programs that let you work and play
Chapter 5	System Software	Operating system, Utility programs, and File management Evaluating your system Connecting Computing Devices Challenges and Ethics Protecting Digital Data Programming Databases Networking in the Business World Internet
Chapter 6	Hardware	
Chapter 7	Networking	
Chapter 8	Digital Lifestyle	
Chapter 9	Securing Your System	
Chapter 10	Software Programming	
Chapter 11	Databases & Information Systems	
Chapter 12	Networking & Security	
Chapter 13	How the Internet Works	

Microsoft Office	Word	Creating, Formatting, and editing a Word Document with a Picture.
Microsoft Office	PowerPoint	Creating and editing a Presentation with Pictures
Microsoft Office	Excel	Create a Worksheet and a Chart

COURSE CONTENT – SEMESTER TWO
CIS 145 FUNDAMENTALS OF NETWORKING/NETACAD ONLINE

Week	Module Title/Topic Title	Objective
Week 1	Module 1. Communications in a Connected World	Explain important concepts in network communication.
	Module 2. Network Components, Types, and Connections	Explain network types, components, and connections.
	Module 3. Wireless and Mobile Networks	Configure mobile devices for wireless access.
	Module 4. Build a Home Network	Configure an integrated wireless router and wireless client to connect securely to the internet.
Week 2	Module 5. Communication Principles	Explain the importance of standards and protocols in network communications.
	Module 6. Network Media	Describe common network media.
	Module 7. The Access Layer	Explain how communication occurs on Ethernet networks.
	Module 8. The Internet Protocol	Explain the features of an IP address.
	Module 9. IPv4 and Network Segmentation	Explain how IPv4 addresses are used in network communication and segmentation.
	Module 10. IPv6 Addressing Formats and Rules	Explain features of IPv6 addressing.
	Module 11. Dynamic Addressing with DHCP	Configure a DHCP server.
Week 3	Module 12. Gateways to Other Networks	Explain how routers connect networks together.

	Module 13. The ARP Process	Explain how ARP enables communication on a network.
	Module 14. Routing Between Networks	Create a fully connected LAN.
	Module 15. TCP and UDP	Explain how clients access internet services.
	Module 16. Application Layer Services	Explain the function of common application layer services.
	Module 17. Network Testing Utilities	Use various tools to test and troubleshoot network connectivity.
Week 4	Module 18. Network Design	Explain components of a hierarchical network design.
	Module 19. Cloud and Virtualization	Explain the characteristics of virtualization and cloud services.
	Module 20. Number Systems	Calculate numbers between decimal, binary, and hexadecimal systems.
	Module 21. Ethernet Switching	Explain how Ethernet operates in a switched network.
	Module 22. Network Layer	Explain how routers use network layer protocols and services to enable end-to-end connectivity.
	Module 23. IPv4 Address Structure	Calculate an IPv4 subnetting scheme to efficiently segment a network.
Week 5	Module 24. Address Resolution	Explain how ARP enables communication on a local area network.
	Module 25. IP Addressing Services	Explain how DNS and DHCP services operate.
	Module 26. Transport Layer	Compare the operations of transport layer protocols in supporting end-to-end communication.

Week 6	Module 27. The Cisco IOS Command Line	Use the Cisco IOS.
	Module 28. Build a Small Cisco Network	Build a simple computer network using Cisco devices.
	Module 29. ICMP	Use various tools to test network connectivity.
Week 7	Module 30. Physical Layer	Explain how physical layer protocols, services, and network media support communications across data networks.
	Module 31. Data Link Layer	Explain how media access control in the data link layer supports communication across physical and logical networks.
	Module 32. Routing at the Network Layer	Explain how routers use network layer protocols and services to enable end-to-end connectivity.
	Module 33. IPv6 Addressing	Implement an IPv6 addressing scheme.
	Module 34. IPv6 Neighbor Discovery	Explain how ND enables communication on a network.
	Module 35. Cisco Switches and Routers	Describe Cisco routers and switches.
	Module 36. Troubleshoot Common Network Problems	Troubleshoot basic network connectivity issues.
Week 8	Module 37. Network Support	Demonstrate effective troubleshooting methodologies and help desk best practices.
	Module 38. Cybersecurity Threats, Vulnerabilities, and Attacks	Explain common threats, vulnerabilities, and attacks on end points.

A+ Guide to IT Technical Support-Book	Chapter Lesson	Chapters/Technology Covered
Taking a Computer Apart and Putting it Back Together	1	Taking a Computer Apart and Putting it Back Together
All About Motherboards	2	Types, Sizes and Settings
Supporting Processors and Upgrading Memory	3	Types and characteristics of processors and memory
Power Supplies Troubleshooting Computer Problems	4	Selecting power supplies, solving hardware problems, & troubleshooting electrical systems
Supporting Hard Drives and Other Devices	5	How to select and install Hard drives. Troubleshooting Hard Drives.
Supporting I/O Devices	6	USB, HDMI, sound, keyboards, mouse. Learning input output devices.

A+ Guide to IT Technical Support	Chapter lesson	Chapters/Technology Covered
Networking Fundamentals	7	Networking TCP/IP, Configurations
Network Infrastructure and Cloud Computing	8	Switches, Virtual Lans, PoE, IoT
Supporting Mobile Devices	9	Business Apps, Troubleshooting, Connections
Supporting Printers	10	Printer Types, Maintenance, Features
Complex World of IT Professionals	11	What Customers Want, Diverse Software Environment
Installing Windows	12	Using Windows Utilities and Tools, Supporting Networks, Installation, Large Enterprises