Unit 1: IT Career Preparation

Content Area: **CTE**
Course(s):
Time Period: **September**
Length: **1 month**
Status: **Published**

Unit Overview:

Students will be introduced and review the various careers in IT that are related to the Computer Systems and Networking curriculum. The differences between computer science, computer engineering, information systems and information technology will be discussed.

Enduring Understandings:

- Future trends in IT
- How college programs and certifications help students prepare for IT careers
- Helpful tips on finding and preparing for IT jobs

Essential Questions:

- What are the most common career paths in Information Technology?
- What college programs and certifications are designed to help students prepare for IT careers?

Standards/Indicators/Student Learning Objectives (SLOs):

ITEC.9-12.9.4.12.K.55	Develop a Personalized Student Learning Plan to meet career goals and objectives.
ITEC.9-12.9.4.12.K.57	Maintain a career portfolio to document knowledge, skills, and experience in a career field.
ITEC.9-12.9.4.12.K.58	Demonstrate skills in evaluating and comparing employment opportunities in order to accept employment positions that match career goals.
ITEC.9-12.9.4.12.K.60	Identify and explore careers in one or more career pathways to build an understanding of the opportunities available in the cluster.
ITEC.9-12.9.4.12.K.61	Examine requirements for career advancement to plan for continuing education and training.
ITEC.9-12.9.4.12.K.62	Research professional development opportunities needed to keep current on relevant trends and information within the cluster.
ITEC.9-12.9.4.12.K.63	Examine licensing, certification, and credentialing requirements at the national, state, and local levels to maintain compliance with industry requirements.

ITEC.9-12.9.4.12.K.64	Examine employment opportunities in entrepreneurship as an option for career planning.
ITEC.9-12.9.4.12.K.70	Identify and compare new information systems trends and technologies to build an understanding of their potential influence on industry practices.
ITEC.9-12.9.4.12.K.71	Summarize basic data communications components and trends to maintain and update information technology systems.

Lesson Titles:

1. Careers in Computer Hardware
2. Careers in Computer Software
3. Careers in Internet Technologies
4. Careers in Networking
5. Careers in Databases
6. Careers in Programming
7. Careers in Information Systems
8. Careers in Cybersecurity
9. Education and Training
10. Finding a Job

Career Readiness, Life Literacies, & Key Skills

TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.9.4.12.CI.2	Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
TECH.9.4.12.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
TECH.9.4.12.CT	Critical Thinking and Problem-solving
	Innovative ideas or innovation can lead to career opportunities.
	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
	With a growth mindset, failure is an important part of success.

Inter-Disciplinary Connections:

LA.K-12.NJSLSA.W6	Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
LA.RST.11-12.10	By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.
LA.WHST.11-12.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
LA.WHST.11-12.2.D	Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance

	in a style that responds to the discipline and context as well as to the expertise of likely readers.
LA.WHST.11-12.6	Use technology, including the Internet, to produce, share, and update writing products in response to ongoing feedback, including new arguments or information.
SOC.6.1.12.EconET.14.b	Analyze economic trends, income distribution, labor participation (i.e., employment, the composition of the work force), and government and consumer debt and their impact on society.
SOC.6.1.12.EconEM.14.a	Relate the changing manufacturing, service, science, and technology industries and educational opportunities to the economy and social dynamics in New Jersey.
SOC.6.1.12.CivicsPR.16.a	Analyze government efforts to address intellectual property rights, personal privacy, and other ethical issues in science, medicine, and business that arise from the global use of new technologies.
SOC.6.1.12.EconNE.16.b	Evaluate the economic, political, and social impact of new and emerging technologies on individuals and nations.
SOC.6.2.12.HistoryCC.2.c	Assess the impact of the printing press and other technologies developed on the dissemination of ideas.
SOC.6.2.12.EconET.3.a	Determine how, and the extent to which, scientific and technological changes, transportation, and new forms of energy brought about social, economic, and cultural changes in the world.

Equity Considerations

Holocaust Mandate

Topic: Bias in artificial intelligence

Materials Used: https://www.forbes.com/sites/forbestechcouncil/2021/02/04/the-role-of-bias-in-artificial-intelligence/?sh=75db7d82579d

Addresses the Following Component of the Mandate:

- Bias

LGBTQ and Disabilities Mandate

Topic: Programmers that are members of the LGBTQ community

Materials Used: https://newrelic.com/blog/nerd-life/10-lgbt-computer-science-pioneers

Addresses the Following Component of the Mandate:

- Social

Climate Change

Topic: Reduction of the carbon footprint

Materials Used: https://news.mit.edu/2022/how-can-we-reduce-carbon-footprint-global-computing-0428

Addresses the Following Component of the Mandate:

- Social

Asian American Pacific Islander Mandate

Topic: Asian American technological innovation

Materials Used: https://qz.com/2014491/the-asian-american-immigrants-behind-key-technology-innovations/

Addresses the Following Component of the Mandate:

- Social

Instructional Strategies, Learning Activities, and Levels of Blooms/DOK:

- History of computers project (Google Sites)
- Research careers (Microsoft PowerPoint)
- Create a Linked In account
- Create a resume (Microsoft Word)

Modifications

ELL Modifications:

- Digital translators
- Provide ELL students with multiple literacy strategies
- Front load information
- Focus on domain specific vocabulary and keywords
- Group students
- Use manipulatives where possible
- Use visuals
- Use graphic organizer
- Use real objects when possible
- Create planned opportunities for interaction between individuals in the classroom: skits, cooperative and collaborative learning, student generated stories based on personal experience
- Tap prior knowledge
- Establish a framework allowing ELL students to understand and assimilate new ideas and information
- Provide support as ELL students move through all levels of language acquisition: scaffold learning, processing time, as well as other modifications mentioned above
- Utilize explicit learning strategies that are well planned in advance (intentional planning)
- Assess ELL students continuously using formative assessment methods
- 1:1 testing
- Repeat, reword, clarify
- Intentional scheduling/grouping with student/teacher who speaks the same language if possible
- Offer alternate/or modify assessments
- Be flexible with time frames and deadlines
- Offer resources for specific topics in primary language (YouTube web resources)

IEP & 504 Modifications:

- Testing modifications:
    - higher level reasoning questions would have less weight than other questions or provided as extra credit questions to provide exposure to these questions but not something that will be a detriment to the student's ability to share knowledge of content
    - rewording questions so that there are not higher level vocabulary within the question (you are testing for understanding of the content not the ability to understand the question)
    - less questions per page (so not visually overwhelming)
    - less none of the above, all of the above, which of the following apply, or which do not apply type questions (again it is testing for understanding of the question not the content)
    - if not directly testing directly for reading comprehension offering paraphrasing of quotes, etc... if the student is expected to be testing on understanding that paragraph or quote to answer future questions

    - word banks, multiple choice, matching questions help when possible
    - less questions overall if the student takes so much extra time that they are going into future days (then missing instruction) to take the test
    - allowing student to correct mistakes or answer wrong questions correctly for additional credit if failed the first test (another way to re-teach material)
    - math tests could have formula's available on the test and/or sample problems
    - students could use calculator and/or other math tools (x grids, chips, ect)
- Instructional modifications/accommodations:
    - teaching the main ideas/concepts (limiting not needed details)to be taught and repeating them in several different ways over several different days (goal is 7 different ways same concept for students with learning disabilities)
    - providing students with content vocabulary prior to teaching a lesson including that vocabulary (pre-teaching)
    - providing study guides that don't lead the student to study too much extraneous information (less unnecessary details)/scaffolded study guides
    - scaffolded notes
    - allowing student to take notes in class for reinforcement but also providing a copy of completed/correct notes to study from
    - modeling and showing lots of examples
    - allowing co-teaching with general education and special education teachers in the same classroom so that the special education teacher can re-teach students with special needs in a different way in a smaller group (pulled to the side)
    - if not in a co-teaching setting allowing time in the schedule for a special education teacher to consult with general education teachers on what specifically can be modified or how to paraphrase things in a different way specific to that lesson
    - direct teaching and/or assistance for organization, social skills/peer interactions
    - providing paraphrased or modified reading materials at the student's reading level for science and social studies and elective classes
    - speaking to students privately when redirecting behaviors
    - reducing homework length to just those most important for review
    - allow student to edit with teacher comments the first attempt at a graded written assignment
    - breaking larger assignments/projects into shorter tasks with clear deadlines for each section
    - monitoring student moods/behavior fluctuation patterns to report to casemanager

G&T Modifications:

- Encourage students to explore concepts in depth and encourage independent studies or investigations.
- Invite students to explore different points of view on a topic of study and compare the two.
- Determine where students' interests lie and capitalize on their inquisitiveness.
- Refrain from having them complete more work in the same manner.
- Employ differentiated curriculum to keep interest high.
- Avoid drill and practice activities.
- Ask students' higher level questions that require students to look into causes, experiences, and facts to draw a conclusion or make connections to other areas of learning.
- Encourage students to make transformations- use a common task or item in a different way.
- Different test items.
- Annotating

- Journal article analysis

At Risk Modifications

- review, restate, reword directions
- guided notes
- outlines & graphic organizers
- study guides
- modeling
- visuals
- hands-on Instruction
- slower pacing of materials
- center-based instruction
- more resources/supports
- additional help during tutoring/Delsea One/Academic Enrichment
- retesting
- providing students with content vocabulary prior to teaching a lesson including that vocabulary (pre-teaching)
- scaffolded notes
- allowing student to take notes in class for reinforcement but also providing a copy of completed/correct notes to study from
- modeling and showing lots of examples
- non-verbal redirection of behaviors
- speaking to students privately when redirecting behaviors
- reducing homework length to just those tasks most important for review
- allow student to edit with teacher comments the first attempt at a graded written assignment
- breaking larger assignments/projects into shorter tasks with clear deadlines for each section
- preliminary or “draft” due dates for written assignments, allowing for teacher input prior to the actual assignment due date
- testing modifications

Formative Assessment:

- Anticipatory Set
- Closure
- Warm-Up

Summative Assessment:

- Alternate Assessment

- Benchmark
- Marking Period Assessment

Resources & Materials:

- employment posters
- guest speakers

Technology:

- digital screens
- interactive whiteboard
- student computers
- www.bls.gov/ooh/
- www.linkedin.com
- www.testout.com

TECH.8.1.12.A.3	Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.
TECH.8.1.12.A.CS2	Select and use applications effectively and productively.
TECH.8.1.12.B.CS2	Create original works as a means of personal or group expression.
TECH.8.1.12.E.CS2	Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
TECH.8.1.12.E.CS3	Evaluate and select information sources and digital tools based on the appropriateness for specific tasks.