

Course Description

This course addresses essential end-user basics and advanced software tools with a focus on document word processing, electronic spreadsheets, and slideshows. Each underlying unit provides the student with a practical real-world application of the skills being developed. The course also provides students with an end-unit assessment opportunity to sit for the Microsoft® Office® application exams.

Workstation Essentials – Covers basic and advanced concepts of a workstation terminal situated in a professional working environment. Also covered in this unit are the occupational risks that come with working in an office setting, as well as best practices designed to mitigate them. Additionally, this unit addresses how to be a good digital citizen and practice proper digital etiquette.

Word Processing – Covers basic and advanced word processing tools essential for a vocational setting, as well higher education. Students will develop skills in screen viewing, font tools, paragraph formatting, and page layout tools.

Electronic Spreadsheets - Covers basic and advanced spreadsheet tools essential for a work setting, as well higher education. Students will develop skills in inputting and formatting data.

Electronic Slideshows - Covers basic and advanced slideshow tools essential for a work setting, as well higher education. Students will develop skills in creating and editing slides.

Applied Technology II

Pacing Guide		
Unit	Topic	Suggested Timing
Unit 1	Workstation Essentials	approx. 7 weeks
Unit 2	Intro to Document Processing	approx. 10 weeks
Unit 3	Advanced Document Processing	approx. 10 weeks
Unit 4	Electronic Spreadsheets and Slideshows	approx. 8 weeks

Differentiated Instruction

Strategies to Accommodate Students Based on Individual Needs

<u>Time/General</u>	<u>Processing</u>	<u>Comprehension</u>	<u>Recall</u>
<ul style="list-style-type: none"> • Extra time for assigned tasks • Adjust length of assignment • Timeline with due dates for reports and projects • Communication system between home and school • Provide lecture notes/outline/copies of slides 	<ul style="list-style-type: none"> • Extra Response time • Have students verbalize steps • Repeat, clarify or reword directions • Mini-breaks between tasks • Provide a warning for transitions • Reading partners 	<ul style="list-style-type: none"> • Precise step-by-step directions • Short manageable tasks • Brief and concrete directions • Provide immediate feedback • Small group instruction • Emphasize multi-sensory learning 	<ul style="list-style-type: none"> • Teacher-made checklist • Use visual graphic organizers • Reference resources to promote independence • Visual and verbal reminders • Online or hardcopy study cards for practice
<u>Assistive Technology</u>	<u>Tests/Quizzes/Grading</u>	<u>Behavior/Attention</u>	<u>Organization</u>
<ul style="list-style-type: none"> • Computer/whiteboard • iPad/Kindle • Spell-checker • Online videos 	<ul style="list-style-type: none"> • Extended time • Study guides • Shortened tests • Read directions aloud 	<ul style="list-style-type: none"> • Consistent daily structured routine • Simple and clear classroom rules • Frequent feedback 	<ul style="list-style-type: none"> • Individual daily planner • Display a written agenda • Note-taking assistance • Color code materials

Enrichment

Strategies Used to Accommodate Based on Students Individual Needs:

- Adaption of Material and Requirements
- Evaluate Vocabulary
- Elevated Text Complexity
- Additional Projects
- Independent Student Options
- Projects completed individual or with Partners
- Self Selection of Research
- Tiered/Multilevel Activities
- Learning Centers
- Individual Response Board
- Independent Book Studies
- Open-ended activities
- Community/Subject expert mentorships

Assessments

Suggested Formative/Summative Classroom Assessments

- Timelines, Charts, Graphic Organizers
- Teacher-created Unit Assessments, Chapter Assessments, Quizzes
- Teacher-created DBQs, Essays, Short Answer
- Accountable Talk, Debate, Oral Report, Role Playing, Think Pair, and Share
- Projects, Portfolios, Presentations
- Homework
- Live Performance Assessment, Live Demonstration
- Microsoft® Office® Certification Exam: MS Word, MS Excel, MS PowerPoint

Interdisciplinary Connections

English Language Arts

- Question the accuracy and relevance of information
- Incorporate a variety of visual aids in publication
- Build vocabulary by reading a variety of grade-level texts and apply new vocabulary
- Keep a running word wall of industry vocabulary

Social Studies

- Research the history of a given industry/profession
- Research prominent historical individuals in a given industry/profession
- Understand how key events, people and ideas contributed to United States History

World Language

- Translate industry-content
- Create a translated index of industry vocabulary
- Generate a translated list of words and phrases related to workplace safety
- Learn the language of technology as the universal language

Math

- Interpret a graphical representation of a real-world situation
- Convert from binary to digital
- Track and track various data, such as industry's impact on the GDP, career opportunities or among of individuals currently occupying careers

Fine & Performing Arts

- Create a poster recruiting young people to focus their studies on a specific career or industry
- Design a flag or logo to represent a given career field

Science

- Identify ways in which technology has influenced the course of history and improved the quality of life
- Research latest developments in industry technology
- Explain how designing and implementing technology requires weighing trade-offs between positive and negative impacts on humans and the environment
- Investigate applicable-careers in STEM fields

New Jersey Student Learning Standards 9-12

8.1–Educational Technology

Career Cluster: Applied Technology-1

- 8.1.12.A.1: Create a personal digital portfolio which reflects personal and academic interests, achievements, and career aspiration by using a variety of digital tools and resources
- 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.
- 8.1.12.B.2: Apply previous content knowledge by creating and piloting a digital learning game or tutorial
- 8.1.12.C.1: Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.
- 8.1.12.D.2: Evaluate consequences of unauthorized electronic access (e.g., hacking)

8.2–Technology Education, Engineering, Design, and Computational Thinking-Programming

Career Cluster: Applied Technology-1

- 8.2.12.A.2: Analyze a current technology and the resources used, identify to identify trade-offs in terms of availability, cost, desirability and waste
- 8.2.12.B.2: Evaluate ethical considerations regarding the sustainability of environmental resources that are used for the design, creation and maintenance of a chosen product.
- 8.2.12.C.3: Analyze a product or system for factors such as safety, reliability, economic considerations, quality control, environmental concerns, manufacturability, maintenance and repair, and human factors, engineering (ergonomics).

Common Core State Standards (CCSS)

CCSS - English-Language Arts

Key Ideas and Details:

- CCSS.ELA-LITERACY.RL.11-12.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

Craft and Structure:

- CCSS.ELA-LITERACY.RL.11-12.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text.

Integration of Knowledge and Ideas:

- CCSS.ELA-LITERACY.W.11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem.

Production and Distribution of Writing:

- CCSS.ELA-LITERACY.W.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Common Core State Standards (CCSS)

CCSS - Mathematics

Reason quantitatively and use units to solve problems:

- CCSS.MATH.CONTENT.HSN.Q.A.1 Use units as a way to understand problems and to guide the solution of a multi-step problems: choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

Make inferences and justify conclusions from sample surveys, experiments, and observational studies:

- CCSS.MATH.CONTENT.HSS.IC.B.6 Evaluate reports based on data.

Create equations that describe numbers or relationships:

- CCSS.MATH.CONTENT.HSA.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

<p>Course: Applied Technology II</p> <p>Unit: 1- Workstation Essentials</p> <p>Grade Level: 9-12</p>	<p>Unit Overview:</p> <p>This unit will cover introduction to the occupational risks associated with working in an office environment. Students will learn best practices, such as ergonomics, designed to mitigate the risks of occupational hazards. Additionally, students will become familiar with the hardware components of a CPU workstation and understand the command transmission of devices. Also covered in this unit is an overview of suggestions and best practices designed to mitigate the risks of digital online tools.</p>
<p>New Jersey Student Learning Standards (NJSLS): 8.1.12.A.1, 8.1.12.A.3, 8.1.12.B.2, 8.1.12.C1, 8.1.12.C.1,8.1.12.D.2, 8.2.12.A.2, 8.2.12.B.2, 8.2.12.C.3</p>	
<p>Common Core State Standards (CCSS): RL.11-12.1; RI.11-12.4; RL.11-12.7; W.11-12.4, HSN.Q.A.1, HSS.IC.B.6, HAS.CED.A.4</p>	

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
<p>Students will demonstrate understanding of workplace ergonomics, hygiene and safety</p> <p>NJSLS: 8.1.12.A.3, 8.1.12.B.2, 8.2.12.C.3</p> <p>CCSS: RL.11-12.1, W.11-12.7, W.11-12.4, HSN.Q.A.1, HSS.IC.B.6</p>	<ul style="list-style-type: none"> • Why would you want to work in an ergonomically friendly environment? • What are the implications of occupational health risks? • Why are best hygiene practices essential to the workplace 	<ul style="list-style-type: none"> • Ergonomic Concepts and Practices • Occupational Health Risks • Workplace Hygiene ▪ Electrical Safety 	<p>Live Assessment Students will perform a live task of emulating workstation adjustments from a tutorial video on workstation ergonomics</p> <p>Game Activity Interactive Training game that challenges students to identify occupational hazards in</p>	<p>OSHA https://www.osha.gov</p> <p>INTERNATIONAL ORGANIZATION for Standardization ISO 45001 – Occupational health and Safety http://www.iso.org/iso/home.html</p>

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
	<p>environment?</p> <ul style="list-style-type: none"> Why is it important to maintain electrical safety in an office environment? 		<p>an office workplace environment</p> <p>Diagram Students will design a flowchart of electrical power sources that supports a workplace environment. Students will indicate on the diagram the available specific wattage limits within each component.</p>	<p>WEB-MD http://www.webmd.com/</p> <p>Online Video Tutorial SAIF Corporation. (2015, March 6). <i>Office Ergonomics: Simple solutions for comfort and safety</i>. Retrieved from YouTube: https://www.youtube.com/watch?v=ofnpBtO1-gA</p>
<p>Students will demonstrate understanding of a computer workstation and its components</p> <p>NJSLS: 8.1.12.A.3, 8.1.12.B.2, 8.2.12.C.3</p> <p>CCSS: RL.11-12.1, W.11-12.7, W.11-12.4, HSN.Q.A.1, HSS.IC.B.6</p>	<ul style="list-style-type: none"> How is the CPU the core of a desktop workstation? What is the benefit of having a hybrid device that sends and receives commands simultaneously? How has network printing allowed end-users to work more efficiently? 	<ul style="list-style-type: none"> Identifying workstation hardware Device Commands Printing Components Network Printing 	<p>Pairing Activity Students will identify which hardware belongs in the input command group, output command group, and the hybrid group.</p> <p>Live Assessment Students will perform a live task of identifying which hardware components are input, output, and hybrid</p>	<p>MS Office 2010 Bucki, L., Katsaropoulos, C., Parrish, C., Weixel, S., & Wempen, F. (2010). <i>Learning Microsoft Office 2010: Deluxe Edition</i>. Boston: Pearson.</p> <p>MS Word 2010 CCI Solutions, Inc. (2010). <i>Microsoft Word 2010: Core Skills</i>.</p>

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
			<p>devices on a sample workstation. Students will be assessed by their peers on the accuracy of their live demonstration.</p> <p>Diagram Students will construct a flowchart of a printer network supported by LAN and WAN workstations.</p>	<p>ISBN: 978-1-55332-293-1</p> <p>MS Word 2007 Rutkosky, N., & Rutkosky Roggenkamp, A. (2008). Microsoft® Word 2007: Windows XP Edition. St. Paul, MN: Paradigm Publishing, Inc. ISBN: 978-0-76383-214-8</p> <p>Office.com Microsoft. (2016). <i>Office Help And Training</i>. Retrieved from: https://support.office.com</p> <p>Online Video Tutorial StudioDell. (2007, November 23). <i>Workstation vs. Desktop</i>. Retrieved from YouTube: https://www.youtube.com/watch?v=kpqBP7wSCG8</p>
Students will	<ul style="list-style-type: none"> • What consequences 	<ul style="list-style-type: none"> • Identifying Sources 	Scenario Based	Google, Inc. (2012).

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
<p>demonstrate understanding of the risks and rewards presented by online digital tools</p> <p>NJSLS: 8.1.12.A.1, 8.1.12.B.2, 8.2.12.A.2, 8.2.12.B.2, 8.2.12.C.3</p> <p>CCSS: RL.11-12.1, RL.11-12.4, W.11-12.4, HSN.Q.A.1, HSS.IC.B.6</p>	<p>could come from using unreliable information?</p> <ul style="list-style-type: none"> • Why is it important to have a professional persona if your information and communication records can be publically accessed? • How does social media present risks as well as rewards? 	<ul style="list-style-type: none"> • Managing Risk • Identifying Opportunities • Managing your digital footprint 	<p>Problem Students will be given a series of scenario based dilemmas where they will be required to make a judgment on the next best step to take. Students will be required to apply their recently acquired knowledge of credibility risk, fraudulent risk, and personal risk to influence their decision making process.</p> <p>Live Assessment Students will perform a live task of identifying red flags through several virtual mediums.</p> <p>Pairing Activity Students will identify the varying levels of online security risks by pairing the various tiers of risk with scenario based examples.</p>	<p>Google Digital Literacy and Citizenship Curriculum. Retrieved from Google Safety Center: https://www.google.com/goodtoknow/web/curriculum/</p> <p>Rasmussen College (2014) Your Digital Footprint: What it is an how you can manage it. http://www.rasmussen.edu/student-life/blogs/main/your-digital-footprint/</p> <p>Edutopia(2011) Digital Citizenship: Resource Roundup http://www.edutopia.org/article/digital-citizenship-</p>

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				<p><u>resources</u></p> <p>Online Video Tutorial Risk Group LLC. (2016, May 26). <i>Enterprise Digital Intelligence Risks: Need for Smarter Search Tools</i>. Retrieved from YouTube: https://www.youtube.com/watch?v=qB5bOF4wJR4</p>

Unit 1 Vocabulary

Bacteria
Carpal Tunnel Syndrome
CPU
Ergonomics
Frequency
Hygiene
Indicator Lights
Input
Microcomputer
Occupational Hazards

Output
Qwerty Keyboard
Right-Click
Scrolling
Unit Serial Board (USB)
Voltage
Watts
Workplace Safety
Workstation

Suggested Unit Projects

Choose At Least One

Research Project

Students will also research and identify pivotal events in history where occupational hazards have brought serious health consequences to employees/laborers. Students will compare and contrast the events they have identified with the modern day occupational hazards of a computer workstation.

Research Project

Students will research what Carpal Tunnel Syndrome is, its causes, as well as treatment solutions. Students will gather and present recent data on pertinent statistics of Carpal Tunnel Syndrome cases.

Suggested Structured Learning Experiences

Depository Trust & Clearing Corporation
 570 Washington Blvd. Jersey City, NJ 07310
 (201) 659-4612
<http://www.dtcc.com/>

Paterson Public School District
 Dept. of Internet Technology
 90 Delaware Ave. Paterson, NJ
 (973) 321-0905
http://www.paterson.k12.nj.us/11_departments/technology.php

Microsoft District Office - Computer Training School
 101 S Wood Ave #900, Iselin, NJ 08830
 (732) 635-9033
<http://www.microsoft.com/en-us/learning/>

New York Stock Exchange - Mark J. Muller Equities, Inc.
 11 Wall St. New York, NY 10005
 (212) 656-3000
<https://www.nyse.com/index>