PATERSON PUBLIC SCHOOLS

Preparing All Children for College and Career

Department of College and Career Readiness

Applied Technology II

Curriculum

5.0 Credits

Unit 4

PATERSON PUBLIC SCHOOLS

Preparing All Children for College and Career

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

Educational Technology Standards

8.1.12.A.1, 8.1.12.A.3, , 8.1.12.B.2, 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

- ➢ **Technology Operations and Concepts**
  - Create a personal digital portfolio which reflects personal and academic interests, achievements, and career aspirations by using a variety of digital tools and resources.
    Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.

- ➢ **Creativity and Innovation**
    Apply previous content knowledge by creating and piloting a digital learning game or tutorial

- ➢ **Communication and Collaboration**
  - 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.

- ➢ **Digital Citizenship**
  - Demonstrate appropriate application of copyright, fair use and/or Creative Commons to an original work.
  - Evaluate consequences of unauthorized electronic access (e.g. hacking)

- ➢ **Critical Thinking, Problem Solving, Decision Making**
  - Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs.

Career Ready Practices

Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

CRP1. **Act as a responsible and contributing citizen and employee**
Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

CRP2. Apply appropriate academic and technical skills.
Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

CRP3. Attend to personal health and financial well-being.
Career-ready individuals understand the relationship between personal health, workplace performance and personal well-being; they act on that understanding to regularly practice healthy diet, exercise and mental health activities. Career-ready individuals also take regular action to contribute to their personal financial well-being, understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success.

CRP4. Communicate clearly and effectively and with reason.
Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

CRP5. Consider the environmental, social and economic impacts of decisions.
Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.

CRP6. Demonstrate creativity and innovation.
Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

CRP7. Employ valid and reliable research strategies.
Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use reliable research process to search for new information. They evaluate the validity of sources when considering the use and adoption of external information or practices in their workplace situation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

CRP9. Model integrity, ethical leadership and effective management.
Career-ready individuals consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term

effects that management's actions and attitudes can have on productivity, morals and organizational culture.

CRP10. Plan education and career paths aligned to personal goals.
Career-ready individuals take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.

CRP11. Use technology to enhance productivity.
Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

CRP12. Work productively in teams while using cultural global competence.
Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

Differentiated Instruction

Strategies to Accommodate Students Based on Individual Needs

Time/General	Processing	Comprehension	Recall
• 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	• Extra Response time • Have students verbalize steps • Repeat, clarify or reword directions • Mini-breaks between tasks • Provide a warning for transitions • Reading partners	• Precise step-by-step directions • Short manageable tasks • Brief and concrete directions • Provide immediate feedback • Small group instruction • Emphasize multi-sensory learning	• Teacher-made checklist • Use visual graphic organizers • Reference resources to promote independence • Visual and verbal reminders • Online or hardcopy study cards for practice
Assistive Technology	**Tests/Quizzes/Grading**	**Behavior/Attention**	**Organization**
• Computer/whiteboard • iPad/Kindle • Spell-checker • Online videos	• Extended time • Study guides • Shortened tests • Read directions aloud	• Consistent daily structured routine • Simple and clear classroom rules • Frequent feedback	• 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

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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.

Course: Applied Technology II	Unit Overview:
Unit: 4 – Electronic Spreadsheets and Slideshows	This unit will cover basic and advanced spreadsheet tools designed for academic and professional environments. Likewise, students will hone current electronic slideshow tools tailored toward academic and vocational settings. Also covered in this unit is document protection and encryption, where students will learn the varying levels of protection that you can apply to a document, as well as encryption tools.
Grade Level: 9-12	

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

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

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
Students will input and format cell data **NJSLS**: 8.1.12.A.3, 8.1.12.B.2, 8.2.12.C.3 **CCSS:** RL.11-12.1, W.11-12.7, W.11-12.4, HSN.Q.A.1, HSS.IC.B.6	• What is the added benefit of having multiple ways to input cell data? • How does formatting a cell impact the data within a cell? • How does aligning cell data improve the layout of the worksheet?	• Identifying screen tools • Inputting data • Formatting Cell • Formatting Worksheets • Apply Colors • Auto-fill	**Scenario Based Problem(s)** Students will be given a series of scenario based questions where they will indicate the preferred way to input data into worksheet cells **Pairing Activity** Students will match screen components with a comprehensive list of tools	**MS Office 2010** Bucki, L., Katsaropoulus, C., Parrish, C., Weixel, S., & Wempen, F. (2010). *Learning Microsoft Office 2010: Deluxe Edition.* Boston: Pearson. **MS Excel 2010** CCI Solutions, Inc.

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
	• How does using keystrokes to cut, copy, and paste cell data help the user work more efficiently? • What is the benefit of undo/redo when working with a worksheet? • What enhancement(s) does coloring/shading provide to your worksheet?	• Auto-fit • Cell Alignment • Clipboard Tools • Column Width • Delete Rows/Columns • Hide Rows/Columns • Insert Rows/Columns • Row Height • Shading	on a program screen printout **Live Assessment** Students will demonstrate to their peers how to input cell data and format cells and will recall a series of instructional steps in their live demonstration	(2010). *Microsoft Excel 2010: Core Skills.* ISBN: 978-1-55332-293-1 **Office.com** Microsoft. (2016). *Office Help And Training.* Retrieved from: https://support.office.com/ **Online Video Tutorial** Goodwill Community Foundation, Inc. (2015, February 26). *Excel 2013.* Retrieved from GCF Learn Free: http://www.gcflearnfree.org/Excel2013
Students will insert and format cell formulae **NJSLS:** 8.1.12.A.3, 8.1.12.B.2, 8.2.12.C.3 **CCSS:** RL.11-12.1,	• What is the added value of using functions in a worksheet? • How do formulae streamline the user's task of presenting	• Auto-Sum • Conditional Formatting • Financial Functions • Get External Data	**Live Assessment** Students will emulate to their peers how to insert and format cell formulae from what they recall during instruction **Scenario Based**	**MS Office 2010** Bucki, L., Katsaropoulus, C., Parrish, C., Weixel, S., & Wempen, F. (2010). *Learning Microsoft Office 2010: Deluxe Edition.* Boston:

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
W.11-12.7, W.11-12.4, HSN.Q.A.1, HSS.IC.B.6	worksheet data? • What is the added benefit of including a logic function within your worksheet?	• Inserting Formula • Logic Functions • What-If Analysis	**Problem(s)** Students will be given a series of scenario based dilemmas where they will be required to decide whether qualitative or quantitative formatting applies **Written Assignment** Students will type a two to three paragraph essay on how numerical and qualitative data are different from each other and how they impact cell formats	Pearson. **MS Excel 2010** CCI Solutions, Inc. (2010). M*icrosoft Excel 2010: Core Skills.* ISBN: 978-1-55332-293-1 **Office.com** Microsoft. (2016). *Office Help And Training.* Retrieved from: https://support.office.com/ **Online Video Tutorial** Goodwill Community Foundation, Inc. (2015, February 26). *Excel 2013.* Retrieved from GCF Learn Free: http://www.gcflearnfree.org/Excel2013
Students will create & edit a slideshow	• What enhancements does a theme add to a slideshow?	• Creating a slideshow • Editing a slideshow	**Scenario Based Problem(s)** Students will be given a	**MS Office 2010** Bucki, L., Katsaropoulus, C., Parrish, C., Weixel,

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
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 **CCSS:** RL.11-12.1, RL.11-12.4, W.11-12.4, HSN.Q.A.1, HSS.IC.B.6	• What do layout tools allow you to do with your slideshow? When would you use these tools? • What enhancements do animation tools bring to a slideshow? When would you use these tools? • What enhancements do transition tools bring to a slideshow? When would you use these tools?	• Formatting a slideshow • Transition Tools • Animation Tools • Layout Tools • Slideshow Theme • Presentation Tools • Set-up Tools	series of scenario based dilemmas where they will decide which theme and layout is best suited for a particular type of presentation **Pairing Activity** Students will label specific slideshow tools from a list with a program screen printout **Live Assessment** Students will demonstrate to their peers how to create and edit a slideshow and will be recalling a series of instructional steps in their live demonstration	S., & Wempen, F. (2010). *Learning Microsoft Office 2010: Deluxe Edition.* Boston: Pearson. **MS PowerPoint 2010** CCI Solutions, Inc. (2010). M*icrosoft PowerPoint 2010: Core Skills.* ISBN: 978-1-55332-293-1 **Office.com** Microsoft. (2016). *Office Help And Training.* Retrieved from: https://support.office.com/ **Online Video Tutorial** Kaceli, S. (2014, February 14). *PowerPoint 2010 Tutorial: All You Need to Know About PowerPoint.* Retrieved from

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
				http://kaceli.com/: https://www.youtube.com/watch?v=5q484k1JyGY
Students will protect and encrypt a document **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 **CCSS:** RL.11-12.1, RL.11-12.4, W.11-12.4, HSN.Q.A.1, HSS.IC.B.6	• In what ways does encryption assist the author of a document? • Why would you want to apply editing restrictions to a document? • What is the underlying difference between document encryption and protection?	• Editing Restriction • Format Restriction • Encrypting	**Live Assessment** Students will emulate to their peers how to protect and encrypt a document from what they recall during instruction **Scenario Based Problem(s)** Students will be given a series of scenario based dilemmas where they will be required to decide which whether to protect or encrypt a document **Pairing Activity** Students will match screen components with a comprehensive list of tools on a program screen printout	**MS Office 2010** Bucki, L., Katsaropoulus, C., Parrish, C., Weixel, S., & Wempen, F. (2010). *Learning Microsoft Office 2010: Deluxe Edition.* Boston: Pearson. **MS Word 2010** CCI Solutions, Inc. (2010). M*icrosoft Word 2010: Core Skills.* ISBN: 978-1-55332-293-1 **MS Word 2007** Rutkosky, N., & Rutkosky Roggenkamp, A. (2008). *Microsoft® Word 2007: Windows XP Edition.* St. Paul, MN: Paradigm

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
				Publishing, Inc. ISBN: 978-0-76383-214-8 **Office.com** Microsoft. (2016). *Office Help And Training*. Retrieved from: https://support.office.com/ **Online Video Tutorial** OneMinuteGeek.com. (2013, March 29). *How to Encrypt Microsoft Excel Documents*. Retrieved from YouTube: https://www.youtube.com/watch?v=DWsKka1L-jA

Unit 4 Vocabulary	
Adjust	Formula
Animation	Function
Auto-Fill	Hide
Auto-Fit	Input
Cell	Insert
Column	Layout
Delete	Logic
Design	Orientation
Document Protection	Outline
Edit	Row
Encryption	Sort
Fill	Sum
Filter	Transition
Fit	Workbook
Format	Worksheet

Suggested Unit Projects
Choose At Least One

Trade Blotter	Investment Portfolio Presentation
Students will establish their own investment portfolio with the worksheet serving as a tracking tool for their investment performance. Students will use the skills from this unit to format their worksheet and calculate essential numerical data.	Students will create a comprehensive slideshow presentation on their investment portfolio performance from when they started up until the end of the unit section. Students will use slideshow tools to format, edit, and enhance their presentation.

Suggested Structured Learning Experiences

Depository Trust & Clearing Corporation 570 Washington Blvd. Jersey City, NJ 07310 (201) 659-4612 http://www.dtcc.com/	**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	**Paterson Public School District - Dept. of Technology** 90 Delaware Ave. Paterson, NJ (973) 321-0905 http://www.paterson.k12.nj.us/11_departments/technology.php