CURRICULUM MAPPING TEMPLATE

Program: 10.0301 Graphics and Printing Technology and Communications Consolidated (2010)

Segment	CTE Segments/Performance Elements	CTE Concepts	Math Concepts	Common Core Math Standards Middle School	Common Core Math Standards High School
	OVERVIEW OF Graphics and Printing Technology and Communications				
1	**V. SYSTEMS** *A. Describe the nature and types of business organizations to build an understanding of the scope of organizations.* 　　　　1. Describe the types and functions of businesses. 　　　　2. Explain the functions and interactions of common departments within a business. 　　　　3. Describe quality control standards and practices common to the workplace. *D. Analyze and summarize the formal and informal influences in the abstract and formal structures of business organizations within this cluster to demonstrate an understanding of the influences on holding careers in this field.* 　　　　1. Examine the influence government, public opinion, and diverse local and cultural perspectives may have upon visual arts, media communications, or performance as a business. 　　　　2. Examine labor management processes and agreements generally used in the arts, audio-video technologies, telecommunications, printing, and media fields.				

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	IX. EMPLOYABILITY AND CAREER DEVELOPMENT *B. Explore, plan, and effectively manage careers.* 　　　**6. Examine employment opportunities in entrepreneurship to consider entrepreneurship as an option for career planning.**				
	X. TECHNICAL SKILLS *D. Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.* 　　　**1. Analyze the technological systems that are apparent within the various pathways in this cluster.** 　　　**2. Research the impact of potential new technology advancements related to this cluster in the future.** *E. Introduction to Printing* 　　　**2. Explain importance of quality control procedures, consistency of production, and statistical process control (SPC) as it relates to customer satisfaction** 　　　**3. Identify workflow, processes, and equipment in graphic communications** 　　　**6. Understand/define printing terminology** 　　　**7. Describe various methods of graphic reproduction (offset, screen, intaglio, gravure, letterpress)** *H. Finishing and Binding Processes* 　　　**11. Identify properties and use of various paper stocks**				
	I. General Arts and Communication Technical Skills 　　　**1. Compare and contrast the roles of creators, performers, and others involved in the production and presentation of broadcasting/journalism, performing arts, and visual arts** 　　　**3. Demonstrate an awareness of the arts within a cultural context to understand the nature and scope of art in society (e.g., how film, theatre, television, electronic, and print media productions influence values and**				

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	behaviors.) **XI. PRINTING PATHWAY** *A. Employ processes required for the production of various printed products to build a working understanding of print technologies.* 1. Explain the diversity of the printing process including paper, non-paper substrates and specialty products. 2. Examine the impact of the printing industry on the US economy. 3. Examine the impact of emerging technologies in hardware and software applications.	A. 1. Paper Needs	A. 1 Measurement: Fractions and Decimals ASMD (1)	6.NS.1; 6.EE.2; 7.NS.1; 7.NS.2; 7.NS.3; 7.EE.3; 6.NS.2; 6.NS.3; 6.NS.5; 6.RP.3; 7.RP.1	
2	**VI. SAFETY, HEALTH AND ENVIRONMENTAL** *A. Implement personal and jobsite safety rules and regulations to maintain safe and healthful working conditions and environments.* 1. Assess workplace conditions with regard to safety and health. 2. Select appropriate personal protective equipment as needed for a safe workplace/jobsite. 3. Employ a safety hierarchy and communication system within the workplace/jobsite. 4. Implement safety precautions to maintain a safe worksite. *B. Complete work tasks in accordance with employee rights and responsibilities and employers obligations to maintain workplace safety and health.* 1. Demonstrate personal and group health and safety practices. 2. State the implications and rationale for various rules and laws designed to promote safety and health may have on a work environment. *C. Employ emergency procedures as necessary to provide aid in workplace accidents.* 1. Use knowledge of First Aid procedures as necessary. 2. Use knowledge of CPR procedures as necessary. 3. Demonstrate completion of a variety of methods to prevent and correct common hazards.				

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	D. Employ knowledge of response techniques to create a disaster and/or emergency response plan. 　　　1. Complete an assessment of an emergency and/or disaster situation. 　　　2. Create an emergency and/or disaster plan. 　*E. Examine and summarize the responsibilities various entities have for promoting a safe and healthy work environment in order to understanding the roles involved in maintaining acceptable conditions in the arts, technology and communications field.* 　　　1. Summarize the individual employee's responsibility for maintaining health and safety in contrast to a supervisor or others. 　　　2. Illustrate situations that demonstrate compliance with OSHA safety regulations and practices related to this cluster. 　　　3. Apply MSDS and Hazardous Materials procedures related to handling and disposing of chemicals. 　　　4. Apply Hazardous Materials practices in relation to fire and water hazards, electrical coding, and right-to-know laws regarding hazards. 　*F. Apply safety procedures in operating equipment commonly used within the career pathways involved in this cluster to demonstrate a broad understanding of important safety practices.* 　　　1. Demonstrate the ability to set and use a ladder. 　　　2. Demonstrate safety procedures for operating aerial systems. 　　　3. Demonstrate safety procedures when involved with heights. 　　　4. Apply the safety practices related to printing and graphic arts, telecommunications, performing arts, visual arts, and broadcasting. 　*G. Examine and summarize the life style implications and physical demands required by work activities common in the arts, audio/visual, technology and communications cluster to demonstrate an broad perspective regarding the nature of work in the industry.* 　　　1. Summarize the physical				

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	preparation needed to maintain the work activities of pathways in this career cluster.				

	X. TECHNICAL SKILLS
	   E. Introduction to Printing
	      1. Demonstrate knowledge of hazard communication laws and environmental protection and safety procedures				

3	**IV. INFORMATION TECHNOLOGY APPLICATIONS**
	   B. Employ technological tools to expedite workflow.
	      1. Use information technology tools to manage and perform work responsibilities.
	      8. Prepare simple documents and other business communications.
	      22. Manage computer operations.
	      23. Manage file storage.
	      25. Operate computer driven equipment and machines.				

	V. SYSTEMS
	   B. Analyze the arts, audio-visual technology and communication industry's economic base in order to demonstrate an understanding of the economic factors influencing the industry as a whole.
	      3. Evaluate the role of the arts in business, technology, and the community.
	   C. Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.
	      2. Analyze how the roles of				

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	creators, performers, technicians, and others are similar and different from one another.				
	X. TECHNICAL SKILLS **F. *Electronic Publishing and Printing, Pre-Press, and Output*** **1. Identify and demonstrate principles of layout and design** **2. Identify type terminology, styles, and uses** **3. Identify proofreader's marks, proofread and mark-up copy** **5. Demonstrate steps in the creative process (thumbnail, rough, comp, mechanical, etc.)** **6. Crop, scale, and manipulate photographs** **7. Prepare elements for a variety of imposition layouts** **8. Demonstrate basic computer knowledge** **9. Demonstrate proficiency in computer graphic applications** **15. Differentiate between web, multimedia, and print graphics** **19. Demonstrate knowledge of scanners, cameras, plate technology, and other peripherals** **I. *General Arts and Communication Technical Skills*** **2. Understand the creative development process as it relates to artistic fields** **J. *Visual Arts Technical Skills*** **1. Analyze and employ art elements and principles as they relate to two-dimensional works of art (e.g., drawing, printmaking, photographs)**	F. 2 (points and picas) F. 6 (Crop and Scale photography) F. 7 (Imposition and pagination) F. 15 (Changing resolution properly on a photograph)	F. 2 Measurement (1) F. 6 Percents and Proportions (1) F. 7 Measurement, Fractions/Decimals ASMD (1) F. 15 Proportion (2)	6.NS.1; 6.EE.2; 7.NS.1; 7.NS.2; 7.NS.3; 7.EE.3; 6.NS.2; 6.NS.3; 6.NS.5; 7.EE.2; 6.RP.1; 6.RP.2; 6.RP.3; 7.RP.1; 7.RP.2; 7.RP.3;	

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	XI. PRINTING PATHWAY
	   B. Manage the printing process including customer service and sales, scheduling, and quality control to deliver products that meet customer needs and expectations.
	         1. Employ knowledge of customer needs and expectations when promoting printing services.
	   C. Demonstrate preparation of customer materials for imaging to deliver products that meet customer needs and expectations.
	         2. Apply knowledge of camera and scanner operations to produce images using process photography.
	         3. Demonstrate conversion from analog to digital forms, using scanning equipment.
	         4. Demonstrate moving manuscripts into a form that is camera-ready copy.
	   D. Analyze image retrieval through refinement, page assembly processes and type set and trapping to prepare products for printing.
	         1. Identify processes used to modify images so that they conform to layout design specifications.
	         2. Examine the page assembly process.
		B. Estimating customer cost
		
		D. 1 Modifying the size of an image
			B. Decimals ASMD, Percent, Substitution (1)
			
			D. 1 Proportions, Measurement (1)
				6.NS.2; 6.NS.3; 6.NS.5; 7.NS.1; 7.NS.2; 7.NS.3; 7.EE.3; 6.RP.1; 6.RP.2; 6.RP.3; 7.RP.1; 7.RP.2; 7.RP.3	

4	**V. SYSTEMS**
	   C. Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.
	         1. Summarize the features of the partnership technology and the arts have in developing presentations and productions.				

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	X. TECHNICAL SKILLS *F. Electronic Publishing and Printing, Pre-Press, and Output* **10. Demonstrate knowledge of pre-flighting electronic files** **11. Output color separations from digital files** **12. Assemble single-color, spot color, and process color jobs** **16. Exhibit knowledge of PDF workflow** **17. Demonstrate knowledge of different color modes and color management, i.e. CMYK and RGB** **18. Exhibit familiarity with desktop and large format printers** *G. Offset Press Operations* **1. Prepare and operate an offset press** **3. Define generic systems of an offset press** **7. Demonstrate proper handling of print stock**				
	XI. PRINTING PATHWAY *C. Demonstrate preparation of customer materials for imaging to deliver products that meet customer needs and expectations.* **1. Demonstrate previewing materials for imaging (pre-flighting).** *G. Employ knowledge of basic printing processes to demonstrate readiness for a career in the printing technology pathway.* **2. Examine ink and ink processes used for various types of printing.** **3. Employ knowledge of basic printing processes when completing a printing project.**				
5	**X. TECHNICAL SKILLS** *H. Finishing and Binding Processes* **1. Set up, adjust, and operate a paper cutter** **2. Set up, adjust, and operate a paper folder** **3. Demonstrate understanding of perforating, scoring, embossing, and die-cutting** **5. Set up and operate a stitcher** **6. Set up, adjust, and operate a paper drill** **7. Differentiate between collating, gathering, and other methods of assembly** **8. Explain different methods of**	H. Finishing a job to customer specs	H. Measurement (1)	6.RP.3; 7.RP.1	

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	binding
	      9. Explain assembly of carbonless paper forms
	      12. Demonstrate understanding of packaging methods
	      13. Demonstrate knowledge of carrier options and postal sorting				

6	**I. ACADEMIC FOUNDATIONS**
	A. Demonstrate language arts knowledge and skills required to pursue the full range of post-secondary education and career opportunities.
	      2. Demonstrate use of the concepts, strategies, and systems for obtaining and conveying ideas and information to enhance communication in the workplace.
	      3. Locate, organize and reference written information from various sources to communicate with co-workers and clients/participants.
	      7. Interpret verbal and nonverbal cues/behaviors to enhance communication with co-workers and clients/participants.				

	II. COMMUNICATIONS
	A. Develop and interpret tables, charts, and figures to support written and oral communications.
	      1. Create tables, charts, and figures to support written and oral communications.
	      2. Interpret tables, charts, and figures used to support written and oral communication.
	B. Apply active listening skills to obtain and clarify information.
	      1. Interpret a given verbal message/information.
	      2. Respond with restatement and clarification techniques to clarify information.
	C. Listen to and speak with diverse individuals to enhance communication skills.
	      1. Apply factors and strategies for communicating with a diverse workforce.
	      2. Demonstrate ability to communicate and resolve conflicts within a diverse workforce.
		A. 1 Material Costs	A. 1 Chart Reading to determine cost (1)	6.EE.2; 6.EE.3; 6.SP.4; 6.SP.5; 7.SP.2; 7.SP.3; 7.SP.4; 8.SP.3; 8.SP.4	S.IC.1; S.IC.2; S.IC.3; S.IC.4; S.IC.5; S.IC.6; S.ID.1

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	IV. INFORMATION TECHNOLOGY APPLICATIONS **B. *Employ technological tools to expedite workflow.*** 2. Use email to share files and documents. 3. Identify the functions and purpose of email systems. 4. Use email to communicate within and across organizations.				
	VI. SAFETY, HEALTH AND ENVIRONMENTAL **G. *Examine and summarize the life style implications and physical demands required by work activities common in the arts, audio/visual, technology and communications cluster to demonstrate an broad perspective regarding the nature of work in the industry.*** 2. Summarize life style choices required to maintain the work activities of the pathways in this career cluster.				
	VII. LEADERSHIP AND TEAMWORK **A. *Use leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.*** 3. Employ teamwork skills to achieve collective goals and use team members' talents effectively. 4. Establish and maintain effective working relationships with all levels of personnel and other departments in order to accomplish objectives and tasks.				
	VIII. ETHICS AND LEGAL RESPONSIBILITIES **B. *Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.*** 1. Analyze the copyright laws in relation to seeking formal permission to use materials. 2. Analyze contracts for potential work in career pathways within this cluster. 3. Analyze state, county, and city codes related to decisions affecting work in this cluster. 4. Analyze the First Amendment,				

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	FCC, the Freedom of Information Act, libel laws, and other regulations for compliance issues relevant to this cluster. 5. Analyze the liabilities associated with productions and performances, media, and telecommunications installations.				
	IX. EMPLOYABILITY AND CAREER DEVELOPMENT *B. Explore, plan, and effectively manage careers.* 1. Develop a personal career plan to meet career goals and objectives. 2. Identify and explore career opportunities in one or more career pathways to build an understanding of the opportunities available in the cluster. 3. Recognize and act upon requirements for career advancement to plan for continuing education and training. 5. Examine licensing, certification and credentialing requirements at the national, state and local levels to maintain compliance with industry requirements. *C. Demonstrate skills related to seeking and applying for employment to find and obtain a desired job.* 1. Use multiple resources to locate job opportunities. 2. Prepare a résumé. 3. Prepare a letter of application. 4. Complete an employment application. 5. Interview for employment. 6. List the standards and qualifications that must be met in order to enter a given industry. 7. Employ critical thinking and decision-making skills to exhibit qualifications to a potential employer. 8. Maintain a career portfolio to document knowledge, skills and experience in a career field. 9. Demonstrate skills in evaluating and comparing employment opportunities in order to accept employment positions that match career goals.				

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	10. Identify and exhibit traits for retaining employment to maintain employment once secured.				
	X. TECHNICAL SKILLS *E. Introduction to Printing* 5. Understand legal aspects of copyrighted materials *I. General Arts and Communication Technical Skills* 4. Analyze current issues related to the arts and communication fields *K. Employability and Career Development* 1. Demonstrate employability skills related to a career in arts and communication 2. Pursue career development skills to advance in arts and communication careers				
7	I. ACADEMIC FOUNDATIONS *A. Demonstrate language arts knowledge and skills required to pursue the full range of post-secondary education and career opportunities.* 1. Select and employ appropriate reading and communication strategies to learn and use technical concepts and vocabulary in practice. 4. Evaluate and use information resources to accomplish specific occupational tasks. 5. Use correct grammar, punctuation and terminology to write and edit documents. 6. Develop and deliver formal and informal presentations using appropriate media to engage and inform audiences. *B. Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.* 1. Identify whole numbers, decimals, and fractions. 2. Demonstrate knowledge of basic arithmetic operations such as addition,	I B. Estimating Job Costs, Scaling photographs, Mixing Inks for production, Ink Coverage, Paper needs, impositions, make ready and spoilage, image registration	I B. Whole Number ASMD (1), Fractions ASMD (1), Decimals ASMD (1), Percents ASMD (1), Proportions (1), Direct Variation (1), Ruler (1), Weight (1), Metric/English Conversions (1), Area (2), Time (1)	6.NS.3; 6.NS.1; 6.EE.2; 6.NS.2; 6.NS.3; 6.NS.5; 7.NS.1; 7.NS.2; 7.NS.3; 7.EE.2; 7.EE.3; 6.RP.1; 6.RP.2; 6.RP.3; 7.RP.1; 7.RP.2; 7.RP.3; 6.G.1; 6.G.2; 6.G.3; 7.G.1; 7.G.4; 7.G.6	A.APR.1; A.APR.7; N.RN.3; N.Q.1; G.GPE.7; G.MG.2

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	subtraction, multiplication, and division. 3. Demonstrate use of relational expressions such as equal to, not equal, greater than, less than, etc. 4. Apply data and measurements to solve a problem. 5. Analyze Mathematical problem statements for missing and/or irrelevant data. 6. Construct charts/tables/graphs from functions and data. 7. Analyze data when interpreting operational documents. *C. Demonstrate science knowledge and skills required to pursue the full range of post-secondary and career education opportunities.* 1. Evaluate scientific constructs including conclusions, conflicting data, controls, data, inferences, limitations, questions, sources of errors, and variables. 2. Apply scientific methods in qualitative and quantitative analysis, data gathering, direct and indirect observation, predictions, and problem identification.	B. 7 Determining the most efficient process for a printing production job	B. 7 Chart Reading, compare and contrast (2)	6.EE.2; 6.EE.3; 6.SP.4; 6.SP.5; 7.SP.2; 7.SP.3; 7.SP.4; 8.SP.3; 8.SP.4	S.IC.1; S.IC.2; S.IC.3; S.IC.4; S.IC.5; S.IC.6; S.ID.1
	II. COMMUNICATIONS *B. Apply active listening skills to obtain and clarify information.* 3. Model behaviors that demonstrate active listening. *D. Exhibit public relations skills to increase internal and external customer/client satisfaction.* 1. Locate, organize, and reference written information from reliable sources to communicate with co-workers and clients/participants 2. Use correct grammar to communicate verbally. 3. Develop and deliver formal and informal presentations using appropriate media to engage and inform audiences 4. Listen to a presentation and record important information. Report back identifying central themes and use key points to explain how the message applies to a similar situation.				

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	IV. INFORMATION TECHNOLOGY APPLICATIONS *C. Demonstrate Digital Citizenship* **1. Identify legal and ethical issues related to the use of information and communication technologies (e.g., properly selecting and citing resources)** **3. Discuss and demonstrate proper netiquette in online communications**				
	V. SYSTEMS *B. Analyze the arts, audio-visual technology and communication industry's economic base in order to demonstrate an understanding of the economic factors influencing the industry as a whole.* **1. Analyze the industry's economic base pertinent to the arts and related technologies.**				
	IX. EMPLOYABILITY AND CAREER DEVELOPMENT *B. Explore, plan, and effectively manage careers.* **4. Continue professional development to keep current on relevant trends and information within the industry.**				
	X. TECHNICAL SKILLS *A. Employ information management techniques and strategies in the workplace to assist in decision-making.* **1. Use information literacy skills when accessing, evaluating and disseminating information.** *E. Introduction to Printing* **4. Demonstrate mathematical concepts relating to print, estimating materials/service costs, and preparing work orders** *F. Electronic Publishing and Printing, Pre-Press, and Output* **4. Make conversions using printer systems of measurement** **14. Demonstrate ability to calculate paper costs for job, waste included** *H. Finishing and Binding Processes* **10. Calculate number of small**	E 4. Estimating Job Costs, Scaling photographs, Mixing Inks for production, Ink Coverage, Paper needs, impositions, make ready and spoilage, image registration F. 4 Points/Picas/Inches Metric/English systems	E 4. Whole Number ASMD (1), Fractions ASMD (1), Decimals ASMD (1), Percents ASMD (1), Proportions (1), Direct Variation (1), Ruler (1), Weight (1), Metric/English Conversions (1), Area (2), Time (1) F. 4 Linear Conversions (1)	6.NS.1; 6.EE.2; 7.NS.3; 6.NS.2; 6.NS.3; 6.NS.5; 7.NS.1; 7.NS.2; 7.NS.3; 7.EE.2; 7.EE.3; 6.RP.1; 6.RP.2; 6.RP.3; 7.RP.1; 7.RP.2; 7.RP.3; 6.G.1; 6.G.2; 6.G.3; 7.G.1; 7.G.4; 7.G.6	A.APR.1; A.APR.7; N.RN.3; N.Q.1; G.GPE.7; G.MG.2

Segment	CTE Segments/Performance Elements	CTE Concepts	Math Concepts	Common Core Math Standards Middle School	Common Core Math Standards High School
	sheets cut from large sheets	F. 14 Estimating Job Costs, Scaling photographs, Mixing Inks for production, Ink Coverage, Paper needs, impositions, make ready and spoilage, image registration H. 10 Paper Needs/Costing Job	F 14 and H. 10 Whole Number ASMD (1), Fractions ASMD (1), Decimals ASMD (1), Percents ASMD (1), Proportions (1), Direct Variation (1), Ruler (1), Weight (1), Metric/English Conversions (1), Area (2), Time (1) Division and Multiplication Factions/Decimals (1)	6.NS.1; 6.EE.2; 6.NS.2; 6.NS.3; 6.NS.5; 7.NS.1; 7.NS.2; 7.NS.3; 7.EE.2; 7.EE.3; 6.RP.1; 6.RP.2; 6.RP.3; 7.RP.1; 7.RP.2; 7.RP.3; 6.G.1; 6.G.2; 6.G.3; 7.G.1; 7.G.4; 7.G.6	G.GPE.7; G.MG.2

8	IV. INFORMATION TECHNOLOGY APPLICATIONS
	   B. Employ technological tools to expedite workflow.
	        24. Compress or alter files.
	        26. Use installation and operation manuals.
	        27. Troubleshoot computer driven equipment and machines.
	        28. Access support as needed to maintain operation of computer driven equipment and machines.				

	V. SYSTEMS
	   B. Analyze the arts, audio-visual technology and communication industry's economic base in order to demonstrate an understanding of the economic factors influencing the industry as a whole.
	        4. Analyze current issues related to the arts, audio-video technologies, telecommunications, printing, and the media.				

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	X. TECHNICAL SKILLS
	  I. General Arts and Communication Technical Skills
	        5. Use marketing and advertising strategies effectively to inform and interest the public about various arts and communication programs				

9	**III. PROBLEM-SOLVING AND CRITICAL THINKING**
	  A. Solve problems using critical thinking skills (analyze, synthesize, and evaluate) independently and in teams. Solve problems using creativity and innovation.
	        1. Employ critical thinking skills independently and in teams to solve problems and make decisions (e.g., analyze, synthesize and evaluate).
	        2. Employ critical thinking and interpersonal skills to resolve conflicts with staff and/or customers.
	        3. Identify, write and monitor workplace performance goals to guide progress in assigned areas of responsibility and accountability.
	        4. Conduct technical research to gather information necessary for decision-making.				

	IV. INFORMATION TECHNOLOGY APPLICATIONS
	  A. Use Personal Information Management (PIM) applications to increase workplace efficiency.
	        1. Manage personal schedules and contact information.
	        2. Create memos and notes.
	  B. Employ technological tools to expedite workflow.
	        5. Access and navigate Internet (e.g., use a web browser).
	        6. Search for information and resources.
	        7. Evaluate Internet resources for reliability and validity.
	        9. Prepare reports and other business communications by integrating graphics and other non-text elements.				

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	11. Prepare presentations for training, sales and information sharing. **12. Deliver presentations with supporting materials.** **19. Facilitate group work through management of shared schedule and contact information.** **20. Facilitate group work through management of shared files and online information.** **21. Facilitate group work through instant messaging or virtual meetings.** *C. Demonstrate Digital Citizenship* **2. Discuss possible long-range effects of unethical uses of technology (e.g., virus spreading, file pirating, hacking) on cultures and society** **4. Identify ways that individuals can protect their technology systems from unethical or unscrupulous users** **5. Create appropriate citations for resources when presenting research findings** **6. Discuss and adhere to fair use policies and copyright guidelines**				
	V. SYSTEMS *B. Analyze the arts, audio-visual technology and communication industry's economic base in order to demonstrate an understanding of the economic factors influencing the industry as a whole.* **2. Analyze the industry's business practices pertinent to the arts and related technologies.**				
	VII. LEADERSHIP AND TEAMWORK *A. Use leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.* **1. Employ leadership skills to accomplish organizational goals and objectives.** **2. Employ organizational and staff development skills to foster positive working relationships and accomplish organizational goals.** **5. Conduct and participate in meetings to accomplish work tasks.** **6. Employ mentoring skills to inspire and teach others.**				

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	VIII. ETHICS AND LEGAL RESPONSIBILITIES *A. Know and understand the importance of professional ethics and legal responsibilities.* **1. Apply ethical reasoning to a variety of workplace situations in order to make ethical decisions.** **2. Analyze ethical principles of decision-making related to clients, customers, fellow workers, and others.** **3. Interpret and explain written organizational policies and procedures to help employees perform their jobs according to employer rules and expectations.** **4. Identify ethics involved in the degree of influence media, arts, and performance have upon individuals.**				
	IX. EMPLOYABILITY AND CAREER DEVELOPMENT *A. Know and understand the importance of employability skills.* **1. Identify and demonstrate positive work behaviors and personal qualities needed to be employable.**				
10	**IV. INFORMATION TECHNOLOGY APPLICATIONS** *B. Employ technological tools to expedite workflow.* **13. Create a spreadsheet.** **14. Perform calculations and analyses on data using a spreadsheet.** **15. Manipulate data elements.** **16. Manage interrelated data elements.** **17. Analyze interrelated data elements.** **18. Generate reports showing interrelated data elements.**				

Segment	CTE Segments/Performance Elements	CTE Concepts	Math Concepts	Common Core Math Standards Middle School	Common Core Math Standards High School
	X. TECHNICAL SKILLS **F. Electronic Publishing and Printing, Pre-Press, and Output** **13. Demonstrate knowledge of personalization by geographic or other characteristics** **G. Offset Press Operations** **2. Demonstrate understanding of press chemistry (ink tack, fountain solutions, solvents, dryers)** **4. Perform general maintenance and cleaning of an offset press** **5. Mix inks for color match** **6. Demonstrate auxiliary operations performed on press (perforation, scoring)** **8. Troubleshoot printing problems (scumming, pilling, chalking, roller stripping, ghosting, glazing)** **9. Demonstrate ability to print a second or third color in register on a second pass through an offset press**	G. 2. Mixing Ink and Chemicals G. 5. Mixing Ink and Chemicals G. 9. Line Guage	G. 2. Measuring, Weights, Decimals (2) G. 5. Measuring, Weights, Decimals (2) G. 9. Linear Measurements: Fractions/Decimals (1)	6.RP.3; 7.RP.1; 6.NS.2; 6.NS.3; 6.NS.5; 7.NS.1; 7.NS.2; 7.NS.3; 6.NS.1; 6.EE.2; 7.EE.3	
	XI. PRINTING PATHWAY **B. Manage the printing process including customer service and sales, scheduling, and quality control to deliver products that meet customer needs and expectations.** **3. Analyze scheduling processes to ensure timely completion of projects.** **4. Identify quality control measures.** **D. Analyze image retrieval through refinement, page assembly processes and type set and trapping to prepare products for printing.** **3. Examine trapping processes.** **E. Analyze and summarize output processes, including digital, film, directive platemaking, and cylinders to build an understanding regarding delivery of printed products.** **1. Examine digital output software.** **2. Examine film output processes.** **3. Examine directive processes.** **4. Examine platemaking and cylinders as output processes.** **G. Employ knowledge of basic printing processes to demonstrate readiness for a career in the printing technology pathway.** **1. Explain printing processes related to lithographic, planographic, gravure,**	B. 4. Make Read and Spoilage	B. 4. Percents (1)	6.RP.2; 6.RP.3; 7.EE.2; 7.EE.3	

Segment	CTE Segments/Performance Elements	CTE Concepts	Math Concepts	Common Core Math Standards Middle School	Common Core Math Standards High School
	intaglio, and screen.				
11	**X. TECHNICAL SKILLS** *H. Finishing and Binding Processes* **4. Lubricate and maintain bindery equipment**				
	XI. PRINTING PATHWAY *B. Manage the printing process including customer service and sales, scheduling, and quality control to deliver products that meet customer needs and expectations.* **2. Apply knowledge of services, equipment, capabilities, workflow process, data acquisition and technology to deliver customer service.** *F. Examine the finishing and distribution operations related to printing in order to complete the printing process.* **1. Apply knowledge and skills related to binding processes used to finish printed materials.** **2. Examine the specialty operations related to finishing.** **3. Apply packaging knowledge and skills to provide the customer with delivery of the product as specified.**	B. Estimating customer cost	B. Decimals ASMD, Percent, Substitution (1)	6.NS.2; 6.NS.3; 6.NS.5; 7.NS.1; 7.NS.2; 7.NS.3; 7.EE.3; 6.RP.2; 6.RP.3; 7.EE.2; 6.EE.2	A.CED.4

Segment	CTE Segments/Performance Elements	CTE Concepts	Math Concepts	Common Core Math Standards Middle School	Common Core Math Standards High School
12	**IV. INFORMATION TECHNOLOGY APPLICATIONS** *B. Employ technological tools to expedite workflow.* **10. Prepare complex multi-media publications.**				
	IX. EMPLOYABILITY AND CAREER DEVELOPMENT *A. Know and understand the importance of employability skills.* **2. Manage resources in relation to the position (i.e. budget, supplies, computer, etc).**	A 2. Costing out ink and paper needs	A 2. Whole Number ASMD (1), Fractions ASMD (1), Decimals ASMD (1), Percents ASMD (1), Proportions (1), Direct Variation (1), Ruler (1), Weight (1), Metric/English Conversions (1), Area (2), Time (1) Division and Multiplication Factions/Decimals (1)	6.NS.2; 6.NS.3;; 7.EE.3; 6.NS.1; 6.EE.2; 6.NS.2; 6.NS.3; 6.NS.5; 7.NS.1; 7.NS.2; 7.NS.3; 7.EE.2; 7.EE.3; 6.RP.1; 6.RP.2; 6.RP.3; 7.RP.1; 7.RP.2; 7.RP.3; 6.G.1; 6.G.2; 6.G.3; 7.G.1; 7.G.4; 7.G.6	A.APR.1; A.APR.7; N.RN.3; N.Q.1; G.GPE.7; G.MG.2
	X. TECHNICAL SKILLS *A. Employ information management techniques and strategies in the workplace to assist in decision-making.* **2. Describe the nature and scope of information management.** **3. Maintain records to facilitate ongoing business operations.** *B. Employ planning and time management skills and tools to enhance results and complete work tasks.* **1. Develop goals and objectives.** **2. Prioritize tasks to be completed.** **3. Develop timelines using time management knowledge and skills.** **4. Use project-management skills to improve workflow and minimize costs.** *C. Demonstrate the use of technical knowledge and skills that relate to pathways*				

Segment	CTE Segments/Performance Elements	CTE Concepts	Math Concepts	Common Core Math Standards Middle School	Common Core Math Standards High School
	in this cluster to allow for mobility among numerous career options within the family of related occupations. **1. State how various pathways within the cluster work together to generate productions, media, and other activities. 2. Identify pathways with common knowledge and skills that provide a worker with the potential for mobility.** *J. Visual Arts Technical Skills* **2. Analyze and employ art elements and principles as they relate to three-dimensional works of art (e.g., sculpture, interior design, textiles) Use computer and multimedia applications (software, hardware) for the purpose of visual communications**				