

DESE Model Curriculum

GRADE LEVEL/UNIT TITLE: 11-12/Introduction to Graphic Communications

Course Code: 171900 CIP Code: 10.0301

COURSE INTRODUCTION:

An instructional program that generally prepares individuals to apply technical knowledge and skills to plan, prepare, and execute commercial and industrial visual image and print products using mechanical, electronic, and digital graphic and printing equipment.

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UNIT DESCRIPTION: Introduction to the Graphic Communications profession, including the basic skills needed in the workforce.		SUGGESTED UNIT TIMELINE: 160 days CLASS PERIOD (min.): 2.5 hours					
ESSENTIAL QUESTIONS: 1. What is the role of graphics in the free enterprise system? 2. What basic training is needed for a career in the printing industry? 3. What are the health and safety procedures for printing facilities? 4. How does a graphic communications professional prepare digital files and digital file output? 5. How does color theory impact graphic communications? 6. What skills are necessary for bindery operations? 7. How are math skills used in the graphic communications industry?							
ESSENTIAL MEASURABLE LEARNING OBJECTIVES (PrintEd Standards)		CCSS LEARNING GOALS (Anchor Standards/Clusters)	CROSSWALK TO STANDARDS				
			GLEs/CL Es	PS	CCSS	OTHER	DOK
1. Industry Overview a. Define the role of graphics in the free enterprise system. b. Identify and list print markets and types of print businesses. c. List printings ranking among other manufacturing industries. d. Identify and describe the major printing processes: flexography, gravure, lithography, screen printing, and digital. e. List the advantages and disadvantages of each					RST.11-12.2 RST.11-12.4 SL.11-12.3 SL.11-12.4 SL.11-12.5 WHST.11-12.2 WHST.11-12.4 WHST.11-12.8 G-GM.3		1, 2

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<p>major printing process.</p> <p>f. List typical products produced by each major process.</p> <p>g. Show a typical business flow of printing from initial concept to finished product.</p> <p>h. Identify these major occupations in the graphic communications industry and describe the basic training needed for each: sales representative; customer service representative; prepress technician; press operator; bindery operator; and, management personnel</p> <p>i. Identify basic salary/wage expectation ranges.</p> <p>j. Identify and describe basic production equipment used in a commercial printing plant, including: computer workstation; proofing device; platesetter; scanner; offset press; digital press; paper cutter; folder; saddle stitcher; perfect binder; paper padder;</p> <p>k. Identify the types of major companies that employ people with graphic communications skills, including: commercial printers; in-plant printers; book printers; packaging, label & wrapper printers; catalogs & directories printers; direct mail printe</p> <p>l. Read and interpret production information on a job ticket.</p> <p>m. Identify these major printing industry associations: National Association for Printing</p>						
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Leadership (NAPL); Printing Industries of America (PIA) and the local PIA affiliate; Flexographic Technical Association (FTA); Specialty Graphic Imaging Association (SG) n. Define counterfeiting and copyright laws.						
2. Environmental Health, Safety, and First Aid a. Identify location(s) and describe proper use of fire safety equipment in the facility. b. List safety rules involving flammable liquids. c. List the steps to be taken in case of injury in the lab. d. Identify location(s) of first aid kit(s) and eye wash station(s). e. Read and interpret Material Safety Data Sheets (MSDS). f. Describe protective safety equipment, if needed (e.g., gloves, goggles, ear plugs, lab dress, etc.). g. Describe appropriate safety procedures to follow when operating equipment. h. Pass a general lab safety test. i. Identify approved methods for disposing of waste materials. j. Read, interpret, and follow instructions on warning labels. k. Identify the safety color code.				SL.11-12.1 SL.11-12.6 RST.11-12.3 RST.11-12.4 A-CED.3 N-Q.1 N-Q.2		1, 2
3. Digital File Preparation a. Identify professional prepress software				RST.11-12.4 WHST.11-12.2		1, 2

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<p>applications and uses, including: page layout (QuarkXPress, InDesign); image editing (Photoshop); illustration (Illustrator); PDF generation and editing (Acrobat, PitStop); and, imposition (Preps).</p> <p>b. Describe the disadvantages of using office/home-based software for professional graphic purposes.</p> <p>c. Describe the difference between a raster image and a vector graphic image.</p> <p>d. List advantages/disadvantages of removable storage media.</p> <p>e. Explain the significance of PDF as it pertains to the printing industry.</p> <p>f. Explain the difference between supplying PDF files versus native files for print.</p> <p>g. Identify various file formats and their extensions: .doc; .qxd; .pdf; .tif; .eps; .rtf; .raw; .jpg; .bmp; .txt; .indd; .psd; .ai; .pub; .html; .gif; .xls; .zip; .dmg; .png; .dng.</p> <p>h. Explain the purpose of a folding dummy.</p> <p>i. Explain the purpose of imposition.</p>				<p>WHST.11-12.10</p> <p>SL.11-12.4</p> <p>SL.11-12.5</p> <p>G-MG.3</p> <p>N-Q.1</p> <p>N-Q.2</p> <p>7.RP.3</p>		
<p>4. Image Capture</p> <p>a. Explain basic scanning hardware.</p> <p>b. Explain basic digital camera hardware.</p> <p>c. Explain and identify the difference between line art and continuous tone originals.</p>				<p>SL.11-12.2</p> <p>SL.11-12.4</p> <p>RST.11-12.4</p>		2
<p>5. Color Theory</p>				<p>SL.11-12.1c</p>		2

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<ul style="list-style-type: none"> a. Explain additive and subtractive color theory. b. Explain the effect of lighting on color perception. c. Explain the effect of the surround on color perception. d. Explain the significance of standard viewing conditions in the graphic communications industry. e. Explain the influence of the substrate on color reproduction. 				SL.11-12.6 RST.11-12.4 A-CED.4		
6. Digital File Output <ul style="list-style-type: none"> a. Explain and describe trapping and why it is necessary. b. Explain the purpose of proofing. c. Explain the difference between hard and soft proofs. d. Explain digital platemaking equipment for offset plates. e. Explain the difference between static output and variable output. f. Explain the process of creating digital output from a computer file. 				SL.11-12.1 SL.11-12.4 RST.11-12.4		2
7. Press Operations (Offset and Digital) <ul style="list-style-type: none"> a. Identify basic safety press procedures. b. Identify basic press systems. c. List and describe quality control devices for press (color bars, densitometer, etc.). 				SL.11-12.1 RST.11-12.4 A-CED.2 G-MG.3		1, 2
8. Bindery Operations <ul style="list-style-type: none"> a. Describe the differences between, and the 				SL.11-12.1 RST.11-12.4		1, 2, 3

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<p>advantages/disadvantages of: in-line; off-line; and, near-line finishing.</p> <p>b. List basic paper types, weights, grades and classifications commonly used in the printing industry.</p> <p>c. Explain operational and safety features of a paper cutter.</p> <p>d. Identify grain direction of paper, and explain its importance.</p> <p>e. Calculate basic paper cuts from a parent sheet.</p> <p>f. Create an accurate master cutting diagram for making cuts.</p>				<p>F-BF.1</p> <p>G-MG.3</p>		
<p>9. Measurement</p> <p>a. Measure linear dimensions for printing materials in inches and fractions of inches.</p> <p>b. Measure type in points and line length in picas.</p> <p>c. Measure volume for mixing chemicals for pressroom operations.</p> <p>d. Measure original images for reduction and enlargement using various methods to determine the percentage for final reproduction.</p>				N-Q.1		1
<p>10. Basic Math</p> <p>a. Solve addition of whole number problems - two and three digits.</p> <p>b. Solve addition of fraction problems.</p> <p>c. Solve addition of decimal problems-two and three digits.</p>				N-Q.1		3

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<ul style="list-style-type: none"> d. Solve subtraction of whole number problems with two and three digits. e. Solve subtraction of fraction problems. f. Solve subtraction of decimal problems-two and three digits. g. Solve multiplication of whole numbers-two and three digits. h. Solve multiplication of decimal problems-two and three digits. i. Solve division of whole number problems-two and three digits. j. Solve various problems that require dividing a given dimension in half. k. Solve division of decimal problems-two and three digits. l. Solve decimals to percent conversion problems. m. Solve percent to decimal conversion problems. n. Solve basic ratio and proportion problems. o. Solve basic linear measurement problems. p. Solve basic type calculation problems. q. Solve basic liquid measurement problems. r. Solve basic paper cutting calculations. s. Solve word problems that require an understanding of estimating. 						
<p>ASSESSMENT DESCRIPTIONS*: (Write a brief overview here. Identify Formative/Summative. Actual assessments will be accessed by a link to PDF file or Word doc.)</p> <p>Lesson Plan 1 – Print Process Quiz – Formative Assessment</p> <p>Lesson Plan 3 – Imposition Quiz – Formative Assessment</p>						

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Lesson Plan 4 – Color Quiz – Formative Assessment Bindery Operations Quiz – Formative Assessment Lesson Plan 6-Points & Picas Quiz – Formative Assessment Estimating Quiz – Formative Assessment *Attach Unit Summative Assessment, including Scoring Guides/Scoring Keys/Alignment Codes and DOK Levels for all items. Label each assessment according to the unit descriptions above (i.e., Grade Level/Course Title/Course Code, Unit #.)	
Obj. #	INSTRUCTIONAL STRATEGIES (research-based): (Teacher Methods)
1	1. See Lesson Plan 1
2	2. See Lesson Plan 2
3, 4	3. See Lesson Plan 3
5	4. See Lesson Plan 4
7	5. See Lesson Plan 5
9	6. See Lesson Plan 6
10	7. Teacher presents powerpoint on basic math skills and then assists students through a variety of math activities
Obj. #	INSTRUCTIONAL ACTIVITIES: (What Students Do)
1	1. See Lesson Plan 1
2	2. See Lesson Plan 2
3, 4	3. See Lesson Plan 3
5	4. See Lesson Plan 4

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7	5. See Lesson Plan 5
9	6. See Lesson Plan 6
10	7. Students take notes on basic math skills and then practice with a variety of math activities.
<p>UNIT RESOURCES: (include internet addresses for linking)</p> <p>Resources@MCCE - BE 11.0101 W23 - Desktop Publishing BASICS, Suzanne Weixel, BOSTON, MA, THOMSON LEARNING, INC., 2004. This text provides introductory coverage of many desktop publishing topics, including working with, enhancing, and formatting documents. Additionally, there is coverage of the use of graphics and design concepts. Spiral-bound, 256 pages.</p> <p>Resources@MCCE - BE 50.0401 W344 - The Non-designer's Design Book, Second Edition, Robin Williams, BERKELEY, CA, PEACHPIT PRESS, 2004. Design and typographic principles for the visual novice. Author includes specific tips on designing newsletters, brochures, flyers and more.</p> <p>Resources@MCCE - TE DVD ROM 2 - Digital Photography: The Camera, Media West Home Video, LAKE GROVE, OR, MEDIA WEST HOME VIDEO, 2003. Learn the fundamentals of digital photography. Fundamentals of digital camera imaging. Includes choosing a camera, use, and more. Includes teachers guide, assignments, quizzes, terms, and glossary. 85 minutes</p> <p>Resources@MCCE - E 10.0000 B637 - Connecting Mathematics and Science to Workplace Contexts: A Guide to Curriculum Materials, Edward Britton, Mary Ann Huntley, Gloria Jacobs, Amy Shulman Weinberg, THOUSAND OAKS, CA, CORWIN PRESS, INC., 1999. In this comprehensive review of 23 exemplary curricula/programs, The authors of this comprehensive review of 23 curricula/programs offer an easy-to-use guide for tying curriculum to workplace experiences. From a hematology laboratory to an agricultural setting to a soda bottling company—these programs illustrate concrete real-life situations. This resource is designed to help: Meet the goals of science, mathematics, and technology education; Meet national curriculum standards; Chart key characteristics of successful curricula; Connect curriculum to workplace contexts; Create curriculum materials. For mathematics and science educators, curriculum developers and supervisors, and educators in school-to-work programs and vocational courses.</p> <p>Resources@MCCE - E 10.0000 L266 - Parallel Curriculum Units for Mathematics: Grades 6-12, Jann H. Leppien, Jeanne H. Purcell, THOUSAND OAKS, CA, CORWIN PRESS, 2011. Collection of lessons, building on material presented in the The Parallel Curriculum. Four sample units focus on fractions, linear programming, geometry, and quadratic relationships. The authors provide user-friendly methods for creating high-quality lessons and demonstrate how to differentiate these lessons for the benefit of all students. Included are field-tested and standards-based strategies that guide students through: Understanding secondary-level mathematics concepts; Discovering connections between mathematics and other subjects; Developing critical thinking skills; Connecting mathematics learning to society through the study of real-world data,</p>	

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proportional reasoning, and problem solving. Each unit includes subject matter background, a content framework, study components, teacher reflections, and sample lessons.