

## DESE Model Curriculum

GRADE LEVEL/UNIT TITLE: 11-12/Screen Printing

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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<b>UNIT DESCRIPTION:</b>  Students will understand the entire silkscreen process, including safety, frames and screen preparation, stencil systems, print production, cleanup process, and quality control.		<b>SUGGESTED UNIT TIMELINE: 3-4 weeks</b>  <b>CLASS PERIOD (min.): 150 minutes</b>				
<b>ESSENTIAL QUESTIONS:</b>  1. What elements should be considered when selecting screen mesh count? 2. What information should be included on a job ticket? 3. When loading screens on to a press what considerations should be taken to determine screen order? 4. Identify different applications of screen printing. 5. What would be some results you would get if you printed with an improperly stretched screen?						
ESSENTIAL MEASURABLE LEARNING OBJECTIVES  (PrintEd Standards)	CCSS LEARNING GOALS (Anchor Standards/Clusters)	CROSSWALK TO STANDARDS				
		GLEs/CLEs	PS	CCSS	OTHER	DOK
1. Safety a. Chemicals b. Flash units and dryers c. Spot guns d. Spray booth				SL.11-12.1c WHST.11-12.4 WHST.11-12.10 RST.11-12.4		2
2. Frames and Screen Preparation a. Choose appropriate frame size for the job. b. Choose appropriate mesh thread count & color for the job. c. Attach fabric on fixed and/or re-tensionable systems such as Hix Reten and Newman Roller Frames. d. Make adjustments to correct for fabric				WHST.11-12.1d N-Q.3		1, 2, 3

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<ul style="list-style-type: none"> <li>elongation or extension.</li> <li>e. Measure fabric tension with a tension meter.</li> <li>f. Abrade and degrease the screen.</li> <li>g. Dry the screen using appropriate screen drying methods.</li> <li>h. Choose appropriate type of emulsion for the job.</li> <li>i. Apply emulsion using appropriate methods.</li> </ul>						
<p>3. Stencil Systems</p> <ul style="list-style-type: none"> <li>a. Generate a job ticket to specify print size, colors and placement</li> <li>b. Create color separations and consider color trapping and white block if necessary.</li> <li>c. Output film or vellum separations to include registration marks, color information and quality control targets.</li> <li>d. Align positives on screen using correct placement and orientation.</li> <li>e. Determine correct screen exposure based on emulsion, screen type, positive material, and toner density.</li> <li>f. Wash out image area of stencil.</li> <li>g. Evaluate stencil quality and identify if screen is under or over exposed.</li> </ul>				SL.11-12.1b RST.11-12.4 L.11-12.4d N-Q.3 S-MD.7		<b>2, 3, 4</b>
<p>4. Print Production</p> <ul style="list-style-type: none"> <li>a. Identify different types of screen printing presses.</li> <li>b. Load screen onto printing press in proper order determined by ink color.</li> <li>c. Select appropriate squeegee for the job.</li> </ul>				RST.11-12.4 RST.11-12.9 SL.11-12.1 SL.11-12.2 L.11-12.4d		<b>1, 2, 3, 4</b>

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<ul style="list-style-type: none"> <li>d. Choose appropriate type of ink for the job.</li> <li>e. Confirm ink color to job specs.</li> <li>f. Prepare ink and apply to screen.</li> <li>g. Align screen(s) for proper registration.</li> <li>h. Set appropriate off contact to control image quality.</li> <li>i. Load and align substrate on printing press.</li> <li>j. Apply correct squeegee pressure and angle to flood and print strokes.</li> <li>k. Operate printing press and verify printing quality.</li> <li>l. Check color register and make adjustments as needed.</li> <li>m. Complete production run according to job specs.</li> <li>n. Dry or cure printed substrate using appropriate equipment. Identify when flash cure is needed.</li> <li>o. Organize or package finished product according to job specs.</li> </ul>						
<p>5. Clean-up Process</p> <ul style="list-style-type: none"> <li>a. Remove ink clean &amp; store squeegee(s).</li> <li>b. Remove ink from screen; store or dispose of ink as specified by Material Safety Data Sheets (MSDS).</li> <li>c. Clean additional auxiliary equipment as needed.</li> <li>d. Remove frame from press.</li> <li>e. Use personal protection safety equipment.</li> <li>f. Select/use appropriate chemistry and washout equipment to reclaim stencil.</li> </ul>				<p>RST.11-12.4 SL.11-12.1b</p>		<p><b>2, 3, 4</b></p>

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<ul style="list-style-type: none"> <li>g. Inspect screens to ensure they are reusable.</li> <li>h. Complete de-hazing procedures to ensure usability.</li> <li>i. Properly store screen.</li> </ul>					
6. Quality Control <ul style="list-style-type: none"> <li>a. Demonstrate block out process.</li> <li>b. Determine if ink is cured.</li> <li>c. Identify process to remove finger prints and/or spots.</li> <li>d. Verify correct image placement and colors.</li> <li>e. Verify print density and clarity.</li> <li>f. Verify registration.</li> </ul>				SL.11-12.4	1, 2, 3
<b>ASSESSMENT DESCRIPTIONS*:</b> (Write a brief overview here. Identify Formative/Summative. Actual assessments will be accessed by a link to PDF file or Word doc.)					
<b>*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 #.)</b>					
<b>Obj. #</b>	<b>INSTRUCTIONAL STRATEGIES (research-based): (Teacher Methods)</b>				
1	1. See Lesson Plan #1 – Screen Printing Safety.				
2	2. See Lesson Plan #2a – Preparing the Frame See Lesson Plan #2b – Preparing a Screen				
3	3. See Lesson Plan #3 – Stencil Systems				
4	4. See Lesson Plan #4 – Print Production				
5	5. See Lesson Plan #5 – Clean-up Process				

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6	<b>6. See Lesson Plan #6 – Quality Control</b>
<b>Obj. #</b>	<b>INSTRUCTIONAL ACTIVITIES: (What Students Do)</b>
1	<b>1. See Lesson Plan #1 – Screen Printing Safety.</b>
2	<b>2. See Lesson Plan #2a – Preparing the Frame See Lesson Plan #2b – Preparing a Screen</b>
3	<b>3. See Lesson Plan #3 – Stencil Systems</b>
4	<b>4. See Lesson Plan #4 – Print Production</b>
5	<b>5. See Lesson Plan #5 – Clean-up Process</b>
6	<b>6. See Lesson Plan #6 – Quality Control</b>
<b>UNIT RESOURCES: (include internet addresses for linking)</b>	