

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: **GRPH-422**

Department: **GRAPHIC ARTS
TECHNOLOGY**

Course Title: **Color Management**

Semester: Spring Year: 2006

Objectives/Competencies

Course Objectives	Competencies
1. The student will be able to measure and evaluate print quality.	<ol style="list-style-type: none">1. Make a visual evaluation with a magnifier.2. Measure density with a densitometer.3. Calculate dot area from a density reading.4. Measure color data with a densitometer.5. Measure color data with a spectrophotometer.6. Measure the resolution of various outputted materials.7. Measure the dot gain of various output materials.8. Calculate dot area from density measurements.

2. The student will be able to calibrate graphic arts devices and materials.

1. Calibrate imagesetting devices:
 - A. Evaluate D-max & D-min.
 - B. Determine the optimum exposure.
 - C. Evaluate dot gain and correct for it.
 - D. Determine the optimum development.
2. Calibrate densitometers for specific measurements.
3. Calibrate computer monitors for color accuracy.
4. Calibrate color print output devices.

3. The student will be able to create a closed quality loop for printed materials.

1. Use specific targets, gray scales, color bars, color profiles, etc.
 - A. Measure and calibrate print image carriers.
 - B. Measure and calibrate print proofing materials.
 - C. Measure and calibrate printed materials.
2. Use color management software programs to evaluate and maintain color consistency.
 - A. Calibrate the software for specific output.
 - B. Correct proofing materials to match specific output.
 - C. Correct image carrier materials to obtain a specific output.

4. The Student will be able to modify final output to meet specific printing requirements.

1. Modify balance between the black printer and CMY neutrals:
 - A. Undercolor Removal (UCR).
 - B. Gray Component Replacement (GCR)
 - C. Undercolor Addition (UCA).

5. The student will be able to utilize CIE color spaces to specify colors.

6. The student will be able to utilize the various prepress options to produce the most effective final output for a specific print job.

2. Compensate the final output for dot gain:
A. Apparent (ink) trap.
B. Printing speed.

1. Plot coordinates for the following CIE color spaces:
A. Yxy
B. $L^*a^*b^*$
C. $L^*C^*h^\bullet$

2. Correlate CIE coordinates with 4-color process (CMYK) printing colors.

3. 3. Correlate CIE coordinates with Pantone Matching System colors.

1. Choose the correct screen frequency for the substrate used.

2. Calculate the required output resolution to obtain the desired screen frequency.

3. Choose the correct dot shape (spot function) for specific image and printing variables.

4. Specify and implement the correct screen angles in order to minimize moiré and other visual artifacts.