

COLLEGE OF TECHNOLOGY
INFORMATION & LOGISTICS TECHNOLOGY
GRAPHIC COMMUNICATIONS TECHNOLOGY

Course Syllabus — subject to change with notice
**GRTC 4373: Graphic Production
Process Control III**

Spring 2009

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Course Web Site:	http://www.graphics.tech.uh.edu/courses/4373/
Course Location:	Lecture: Room 201-T2 (section #25414) Lab: Room 102A, 102B, & 102F T (section # 25416)
Course Day/Time:	Lecture: M 9:00–11:00 AM Lab: W 9:00–12:00 PM
Office Hours:	MWF: 8:00–8:30 am or by appointment
Open Lab:	When posted (separate handout).
Course Description:	Using graphic communication production control techniques to produce full-color documents. Includes an in-depth study of color theory, measurement, correction, modification, management, and separation techniques.
Prerequisite:	GRTC 3352
Credit:	3 semester hours
Course Goals:	This course is designed to familiarize students with multi-color reproduction theory and technique. It is not intended to produce proficient pre-press or press technicians. Rather, students com-

pleting the class will have a broad overview of multi-color printing processes so that they may effectively supervise or estimate printing operations, communicate technically with vendors or buyers, and/or design graphic products giving full consideration to the limitations inherent in multi-color printing processes.

Students completing the course will:

1. understand color theory and its application to color reproduction;
2. understand the impact and importance of lighting on original image capture as well as viewing on-screen and printed color reproductions;
3. be able to capture faithful reproductions with digital cameras and scanners;
4. understand the use of color spaces including: L^*a^*b , rgb, cmyk, hsb, spot color, and hexadecimal;
5. be able to measure colors using spectrophotometers, colorimeters, and densitometers;
6. be familiar with Color Management Systems;
7. be able to calibrate and characterize color monitors, scanners, proofers, platesetters, and printing presses;
8. be able to explain how color originals are separated into process colors and then recombined using the printing process;
9. be familiar with color separation production methods;
10. be able to explain the affects of ink, paper and lighting on color reproductions;
11. be familiar with the basic operation of a color editing program such as Adobe Photoshop;
12. be able to prepare and output multi-color pages using a page layout program such as InDesign;
13. be familiar with procedures used to trap color images;
14. be familiar with procedures used to deliver color electronic files to a printer or service bureau and the basics of preflighting;
15. be familiar with color proofing methods and their limita-

tions with regards to predicting actual press performance;

16. be able to use and explain printing process guidelines including SWOP, SNAP, GRACoL, and FIRST; and
17. be conversant with printing process control.

Required textbooks: Kipphan, H. *Handbook of Print Media*. Berlin: Springer-Verlag: 2001. ISBN 3-540-67326-1. (This is an expensive book, but it will also be used for GRTC 3350, 3351, and 3352.) Suggestion: buy this book on-line...\$55+ [used] from Amazon.

Fields, G, and Nichols, G. (2005). *CMYK Color: Digital Image Prepress for Designers & Photographers*. Houston: Metro Publishing. (ISBN 0-933745-18-4) Note: Buy this book directly from the publisher for the best price.

Marin, J. (2005). *Process Controls Primer*. Sewickley, PA: PIA/GATF Press Books. (ISBN: 0-88362-522-9). Suggestion: buy this book on-line...\$29.19+ [used] from Amazon.)

X-Rite. (2004). *The Color Guide and Glossary*. Grandville, MI: author. Available free for download on graphic technology website.

GRACoL Student Guide. Available free from Dr. Waite and can be downloaded on the graphic technology website.

Required tools: Ball point pen(s), scientific calculator.

Optional tools: (you'll need to get these sooner or later!) 20X magnifier (loupe), stainless steel ruler graduated in inches and picas.

Required disk: Blank CD-R disks for backing up and archiving your projects.

PDF files: Several handouts for the course will only be supplied in Adobe Acrobat Portable Document Format. These files can be read on any Windows, Mac, or Unix computer providing you have the correct Acrobat Reader Software. Acrobat Reader is available free of charge from the Adobe Website (www.adobe.com). You can read the files on-screen or print the files on your own printer. However, you may not print them using the Image Tech Lab's machine (we don't have the budget for all the paper and toner it would take). The PDF files for this course can be copied from the instructional materials folder on the lab's computers to your Zip disk or you may access the instructional materials server from any computer using your web browser (<http://www.graphics.tech.uh.edu>).

Week	Read Kipphan/ website articles	Read Fields et al <i>Read Marin</i>	Lecture Topic	Lab Topic	Lab Project	Lecture WebCT Quiz	Lab WebCT Quiz
1 1/21	<i>White balance and color correction</i>	pp 1–5	Introduction and orientation Reviewing capture, screening, resolution	Color comes from light interpreted by the camera	Photo shoot, gray balance tool	—	—
2 1/26	pp 519–520 <i>Traditional Trapping</i>		Trapping Lecture on Wednesday in the Lab	Trapping solid inks	Application-level trapping/in-RIP trapping Lab follows lecture on Wednesday	Quiz 1	
3 2/2	pp 68–69 <i>Color Guide/Glossary pp 4–6</i>	pp 18–29 <i>Chapter 2</i>	Fundamentals of color (additive and subtractive)	Fake color w/CMYK	Fake color with CMYK inks; rich black vs black;	Quiz 2	
4 2/9	pp 70–75 <i>Color Guide/Glossary pp 7–22</i>		Color models	Spot vs. CMYK	Spot vs. CMYK builds; printing of proof comps and separations.	Quiz 3	
5 2/16	pp 76–85 <i>Color Guide/Glossary pp 22–27</i>		Color measurement	Spectrophotometry	Measuring spectrums of printed and non- printed images; Delta E	Quiz 4	
6 2/23	pp 555–562 <i>Color Guide/Glossary pp 28–33</i>	pp 6–7 <i>Chapter 4</i>	Device calibration and characterization	Calibration	Monitor calibration with colorimeter; scanner calibration/characterization	Quiz 5	
7 3/2	pp 81–85; 481 <i>Basics of Color Separation Vis Aid</i>	28–29 <i>Chapter 5</i>	Color Separation Theory	Characterization	Output device characterization with scanning spectrophotometer	Quiz 6	—
8 3/9			Midterm Exam		Lab catch-up day. Mandatory portfolio review by end of session.	—	—
9 3/23	<i>Traditional Color Separation Electronic Color Separation</i>		Conversion: Traditional and digital color separation	Gray component replacement	Effect of GCR/UCR on process color builds and CMYK images	Quiz 7	—
10 3/30	pp 555–562 <i>Color Guide/Glossary 33–40</i>	<i>Rendering Intent Website</i>	Color management (engines/rendering intents)	Locally-created LUT	Create test template, print on two+ color devices, create LUT, separate RGB image	Quiz 8	—
11 4/6	<i>Objectives of Color Reproduction Preflighting Images</i>	pp 33–49	Global and local color correction and alteration	Color managed color separations	Conversion of photos from RGB to CMYK using several CMYK profiles; print seps.	Quiz 9	—
12 4/13	<i>Impact of Paper, Ink, and reproduction Process on Color</i>	pp 33–47	Impact of paper, ink, and printing process	Final project	Work on final project: original photo, corrected photo, altered corrected photo	Quiz 10	—
13 4/20	<i>Communicating About Color Giving a Color OK</i>	<i>Chapter 6</i>	Communicating about color	Final project	Work on final project: finish page layout, make proofs and plates	Quiz 11	—
14 4/27	<i>Best Practices in Color Reproduction by Joe Marin</i>	<i>Review entire Marin book</i>	Best practices in color reproduction	Final project	Print final project on offset press	Quiz 12	—
15 5/4	<i>GRACol Student Workbook</i>		GRACol training/exam	Final project	Catch up	Quiz 13	—
5/1 (11:00)	—	—	Final Exam (11 am)		Final portfolio evaluation	—	—

Why 5 hours per week? GRTC 4373 is a lecture/lab class and is governed by University policy as well as policies of the accrediting bodies. First, students should understand that each hour of class credit requires three hours per week: one hour in lecture and two hours of personal study/homework. Thus, a three-hour course requires nine hours per week: three in class and six on your own. However, lab earns in-class credit at one-third the rate of lecture. Thus, it takes three hours of lab to earn one hour of lecture credit. GRTC 4373 requires you to spend two hours in lecture. For those two hours, you receive two hours of credit. The three hours of lab, counted together, are worth one hour of credit. Thus, you spend five hours per week in a three-hour lecture/lab class. Remember that you still “owe” Dr. Waite a total of nine hours for the three-hour course. Nine minus five equals four. Thus, you should spend four hours per week on your own reading, studying, and working on homework and on-line quizzes. That’s the expectation of this course.

Important Information: As a student of the University of Houston, information available at http://www.uh.edu/provost/stu/stu_syllabsuppl.html will be critical to you in insuring that your academic pursuits meet with success and that you encounter the fewest financial and academic difficulties possible. Please take a few moments to review each of the areas, and become familiar with the resources detailed on the website with regard to: The UH Academic Honesty Policy; the UH Academic Calendar; Students with Disabilities; Religious Holy Day FAQs; and Other Information.

Lecture assignments: **On-Line Quizzes:**
There will be weekly quizzes on WebCT. These quizzes are open notes/open book and may be taken at your leisure during the week each quiz is available. They will form the basis of the midterm and final, although questions not appearing in the quizzes may be used in the exams.

Written Exams:

There will be two face-to-face exams given—a midterm and a final. The midterm will cover all lecture material covered up to the exam. The final will cover all material covered after the midterm. These exams will NOT be open book or notes. In general, plan to answer those on-line quiz questions that stumped a large percentage of the class.

Memo

Assume that you are the prepress supervisor and Dr. Waite is the General Manager of a full-service printing company. Read articles in print-related hard-copy or on-line magazines/journals

(check graphics.tech.uh.edu for links). Keep reading until you find an idea or product that you think would good for our company to buy or implement. Then, write a one-page (maximum) memo to Dr. Waite (use traditional memo format) in the form of a REQUEST FOR AUTHORIZATION. Explain the idea you'd like to implement or item you'd like to buy. Tell Dr. Waite the benefits you foresee as a result of such a purchase or implementation. Cite costs as well as benefits. Request approval to proceed. Submit the Memo on the day of your midterm.

If your paper has more than three spelling or grammatical errors, you will earn no higher than a **D** grade. If the idea is explained well and the English grammar and spelling are OK, you will earn a **C**. To earn an **A**, you must also provide realistic costs and benefits for proceeding with your idea. If either the costs or benefits are not provided, you will earn a **B**. If neither costs not benefits are provided, you will earn a **C**.

Extra credit: **Overall course extra credit** may be earned through participation in the University of Houston chapter of the International Graphic Arts Education Association (UH/IGAEA). Students who *join* UH/IGAEA *and* attend a minimum of three association meetings will earn three points extra credit on their final grades. UH/IGAEA *officers* will receive five points of extra credit on their final grades.

Should the IGAEA not meet during the semester, Dr. Waite will assign alternative course extra credit assignments.

Exam extra credit: Students may earn up to 3% extra credit on each **exam** by demonstrating Cougar Pride by wearing an article of Cougar clothing. *Note:* Wearing jerseys or other clothing advertising other universities at any time is **EXTREMELY** discouraged.

Attendance: Attendance at all class sessions is expected. There will be a grade penalty for **all** absences. In other words, **there is no such thing as an excused absence. Be on time for lectures and labs!** Tardies of more than 10 minutes count as 1/2 an absence. You may only accumulate three total absences—lecture or lab, full-days or tardies. You may be dropped after the fourth absence. Look at it this way: there is no way to make up any lecture or lab that you miss. Notes from friends or textbook readings are no substitute for actually being present in class when Dr. Waite explains a concept or process. Here's another thought: you and the taxpayers of the State of Texas are paying Dr. Waite to be present in the GRTC 4373 class. **Why**

pay money for something you don't take? Another notion: class minutes are like cell-phone minutes: if you don't use them, you lose them.

Grading:	Item	Percent of grade
	Attendance	10%
	Exams (2 @ 20% each)	40%
	Weekly quizzes	20%
	Paper	5%
	Laboratory activities	25%

Percent/letter grades:	A	94-100	A-	90-93
	B+	87-89	B	84-86
	B-	80-83	C	74-76
	C+	77-79	C-	70-73
	D+	67-69	D	64-66
			D-	60-63

Lab assignments: Lab assignments are to be completed as soon as possible. In addition, they are to be placed into a hard-copy portfolio (as appropriate) to be submitted on the lab day during midterm week (for review purposes) and on the day of the final exam (for grading). Include all the projects listed on the course schedule (page 4) unless otherwise instructed by your instructor or lab instructor. Hard-copy portfolios may be as simple or elaborate as desired. However, students should remember that they only get one opportunity to make a good first impression.

All lab assignments are also to be converted to web-optimized PDF format for placement on the student's on-line portfolio. Instructions will be given in class.

Lab assignments are all graded according to the following rubric:

Unsubmitted projects will receive an **F** grade.

If a project is submitted but has **any** technical flaw that will prevent it from working, it will receive a **D** grade. For example, if the project is submitted at the wrong size, it will receive a D.

C is the standard project grade. It means that the content of the project is technically accurate.

A **B** project is not only technically accurate, but also attractive. In addition to "working," the project shows that the student has applied the basic principles of graphic design (use of type, balance, and so forth).

A is assigned to projects in which the student has obviously

gone above and beyond the call of duty. Captions and attractive presentation are examples of "beyond the call of duty."

There is no need for a student to earn any less than a B on any project. Don't be meek! Show your work to Dr. Waite or to your lab instructor in advance for advice!

Projects are to be kept and submitted in a 13 X 19" portfolio (samples will be shown in class). This oversized format is necessary to support the printing plates you will make in class as well as the press sheets you will print.

Portfolios are due for preliminary review on the day of the midterm and again on the day of the final. *Any grade earned on a project during the midterm preliminary review can be upgraded by the student by repairing defects or improving the appearance of the work.* Simply resubmit your reworked projects to Dr. Waite or your lab instructor. Grades for projects submitted on the day of the final examination are final.

- Grade expectations: Dr. Waite expects students in the course to be capable and motivated professionals. No such student should be content with a grade less than "B." Please provide the attention, motivation and effort necessary to reach this grade expectation.
- Test/exam policy: WebCT quizzes: you may use any materials you'd like during these quizzes and you may take them at you leisure during the available period. Exams **are closed notes and books** and will be allotted the entire class session. Missed quizzes and exams cannot be "made-up." If a student is aware that s/he cannot be present for a test, arrangements must be made with Dr. Waite to take the test early. No student may begin taking a test or exam after the first person has completed it.
- Due date policy: Late work is "yesterday's news." In keeping with this idea, assignments must be turned in as scheduled. Please see the class schedule for specific due dates. Late work will receive a grade penalty of 10% per class session. If you cannot attend class on a day that an assignment is due, you must make arrangements to get the work to Dr. Waite no later than the next business day.
- Adds/drops: Please refer to the University's *Undergraduate Catalog* and the *Schedule of Classes* for the appropriate add/drop dates and procedures. Those procedures must be followed to the letter.
- Incompletes: An "incomplete" grade will only be issued if the student is maintaining an acceptable level of achievement and cannot, due to

some factor **beyond the control of the student**, complete one or more major assignment. If a student wishes an "incomplete" grade, s/he must explain the situation to Dr. Waite in advance and make specific arrangements to make up missing work no later than one year after the "incomplete" is issued.

Classroom cleanliness: Janitorial services are rarely provided in rooms 102A-T, 102B-T and 102F-T. For this reason, and to keep the equipment clean, **no food or drink is allowed in the room for any reason at any time. Please clean up after yourself!**

FAX: The college will not accept assignments that are faxed to the office. There is no use trying.

Americans with Disabilities Act: Any student who may be in need of additional help under the ADA guidelines should contact Dr. Waite ASAP.