

LSC # 111
 Action 9-3-92

COVER SHEET: Request for Approval to Use W-Designation

TYPE I. PROFESSOR COMMITMENT

- (X) Professor Dr. Mary E. Swinker Phone 2346/2336
 (X) Writing Workshop? (If not at IUP, where? when? yes May 1992)
 (X) Proposal for one W-course (see instructions below)
 (X) Agree to forward syllabi for subsequently offered W-courses?

TYPE II. DEPARTMENTAL COURSE

- (X) Department Contact Person Dr. Mary E. Swinker Phone 2346/2336
 (X) Course Number/Title CS 434 Quality Control in Textiles
 (X) Statement concerning departmental responsibility
 (X) Proposal for this W-course (see instructions below)

TYPE III. SPECIFIC COURSE AND SPECIFIC PROFESSOR(S)

- () Professor(s) _____ Phone _____
 () Course Number/Title _____
 () Proposal for this W-course (see instructions below)

SIGNATURES:

Professor(s) Mary E. Swinker

Department Chairperson Donna F. Stange Rice

College Dean Harold E. Wingard

Director of Liberal Studies D. C. M.

COMPONENTS OF A PROPOSAL FOR A WRITING-INTENSIVE COURSE:

I. "Writing Summary"--one or two pages explaining how writing is used in the course. First, explain any distinctive characteristics of the content or students which would help the Liberal Studies Committee understand your summary. Second, list and explain the types of writing activities; be especially careful to explain (1) what each writing activity is intended to accomplish as well as the (2) amount of writing, (3) frequency and number of assignments, and (4) whether there are opportunities for revision. If the activity is to be graded, indicate (5) evaluation standards and (6) percentage contribution to the student's final grade.

II. Copy of the course syllabus.

III. Samples of assignment sheets, instructions, or criteria concerning writing that are given to students.

Provide 12 copies to the Liberal Studies Committee.
 Please number all pages.

Proposal for Writing Intensive Course
CS 434 Quality Control in Textiles

CS 434 Quality Control in Textiles is a University approved course which will be offered for the first time in Spring 1993. Presently, it is listed as a major elective course in the Fashion Merchandising major. The Fashion Merchandising program is undergoing revisions. When the revisions are approved this course will become a major requirement for Fashion Merchandising majors. The course is an advanced level application textile course. It is predominately a lab course with the emphasis being on application of the concepts learned in the beginning course CS 314 Textiles. The class size will be limited to 20 because of the laboratory experience.

Writing Activities

1. Writing to stimulate critical thinking and problem solving.

Using information from the beginning textiles class, class discussions and information (test method) provided by the instructor the students will develop a one page flow chart for identifying unknown fibers within a fabric. This project will be done in lab with time for instructor and student evaluation and changes. Students will work as a group to develop a flow chart. The evaluation will be based on the logic of the flow chart.

2. Writing to enhance scientific writing, critical thinking, and understanding of basic concepts of textiles.

The students will complete fourteen 2 to 3 page lab reports. The students will report their findings in a scientific format which include purpose, data pages, results, and conclusions. The lab report also has a few short answer questions at the end which will reinforce the basic concepts learned and explore the question of why certain things happened in the test.

There are two additional reports which are in the form of two page worksheets. Because of the nature of the information a form is provided for the student to record the findings.

The lab reports will be evaluated as to the completeness of the work, accuracy, and understandings of the processes and basic textile concepts.

Each student will have the opportunity to discuss their first lab report with the instructor in order that corrections can be made in content, form and understanding of the process.

3. Writing to stimulate critical thinking, to aid in synthesizing, summarizing and evaluating information.

The final assignment is a three to four page typed summary paper (End Use Specification Paper) on the appropriateness of the fabric tested to a particular end use. In this paper the students will synthesis the information obtain from the different tests performed and evaluate the performance of the textile to a particular end use. The students will also have to summarize the findings and make recommendations as to changes in fabric structure and tests performed.

The end use specification paper will be evaluated according to organization of material, evaluation of test methods and results, correctness of information reported and an understanding of the concepts presented.

Students will be given class time to discuss their papers with other students and consult with the instructor.

Course Evaluation

Three exams	30%
Flow Chart for Fiber Identification (5%), Fabric Assessment Worksheet (5%), Atmospheric Conditions Worksheet (5%), and 14 Laboratory Assignments (40%)	55%
End Use Specification Paper	15%

Grading Scale

90% - 100%	= A
80% - 89%	= B
70% - 79%	= C
60% - 69%	= D
Below 60%	= F

Appendices

Syllabus (with directions for each of the assignments)
 Example of a Flow Chart
 Example of a Lab Assignment
 Evaluation of the Lab Assignment
 Worksheet for Fabric Assessment
 Evaluation of End Use Specification Paper

CS 434 - Quality Control in Textiles Spring 1993

Dr. Mary E. Swinker

Office 208 Ackerman Hall Telephone: x2346 Dept. Office: x2336

Office Hours: Posted on office door

CATALOG DESCRIPTION:

Physical properties explored through microscopic examination and use of textile testing equipment for fabric analysis.

Prerequisite: CS 314 Textiles or equivalent
(2c 2l 3 sh.)

COURSE COMPETENCIES:

Through study and analysis students will develop competencies in:
Specification buying
Use and understanding of standard test methods and procedures
Interpretation and utilization of test results
Improvement of available consumer information

COURSE OBJECTIVES: The students will be able to

Describe the principles of textile testing.

Test and evaluate the performance of textile products using testing equipment.

Describe the structure-property relationships underlying textile end-use performance.

Identify the organizations engaged in the development of textile standards and specifications.

Describe quality control/quality assurance programs in the textile and apparel industry and the specification of acceptable fabric performance based on end use.

TEXTBOOK:

Merkel, Robert. (1991). Textile Product Serviceability. New York: Macmillan.

SUPPLIES:

Three yards of Woven fabric, dyed or printed. No loose weaves, or plain white fabric. When purchasing the fabric, get all information available such as fiber content, manufacturer, cleaning instructions; one bottle of Fray-check seam sealant; and a pair of scissors.

COURSE REQUIREMENTS AND EVALUATION:

Three exams	30%
Flow Chart for Fiber Identification (5%), Fabric Assessment Worksheet (5%), Atmospheric Conditions Worksheet (5%), and 14 Laboratory Assignments (40%)	55%
End Use Specification Paper	15%

Grading Scale

90% - 100%	= A
80% - 89%	= B
70% - 79%	= C
60% - 69%	= D
Below 60%	= F

Exams

There will be three exams given throughout the semester. The week of each exam is listed on course outline. The exact date will be given one week before the exam. If an emergency arises and a student is unable to take an exam notification to the instructor must be made prior to the exam. If the instructor is not notified before the exam there will be no makeup exam. The exams will consist of objective questions and short essay questions. The exams will test the students comprehension and application of major concepts addressed in the course.

Flow Chart

In CS 314 Textiles, Fiber Identification was discussed and fibers were identified using the burning test, microscopic examination and some chemical solubility. Knowing the results of fibers under the above conditions and using the information provided in AATCC Test Method 20-1980 and from the class discussion on Fiber Identification develop a flow chart of the sequence of procedures used to identify unknown fibers in a fabric. This project will be done in lab with time for evaluation and changes. Students will work as a group to develop a flow chart.

Evaluation will be based on the logic of the flow chart.

Laboratory Assignments

Procedures for each of the lab assignments will be given to the students according to the lab schedule. For each lab assignment the students will report the following information:

1. Title and ASTM or AATCC Test Method Number used.

2. Purpose of the Test Method
3. Mount samples and control
4. Report Data (ratings or instrumental readings) in a table or list form dependent on experiment.
NOTE: It saves lab time if the data pages (tables) are set up prior to the lab.
5. Report results and conclusions include any calculations. The conclusions should include reasons for results in relation to fiber, yarn, and fabric structures and properties.
6. Answer the short answer questions at the end of each test.

For the Fabric Assessment Lab and the Atmospheric Condition Lab worksheets will be used instead of a lab report. The two worksheets will be evaluated on the completeness of the worksheet and accuracy of the information provided.

The laboratory reports will be evaluated according to the following criteria:

1. Followed the required report format
2. Clear presentation of work done and results learned
3. Completion of all experimentation required in lab and the report
4. Demonstration of an understanding of purpose of test method
5. Demonstration of an understanding of why the procedure produced the results
6. Neatness
7. Grammar and spelling

Note: No pages torn out of a notebook will be accepted.

End Use Specification Paper

The final assignment is a three to four page typed summary paper on the appropriateness of the fabric tested to an end use. In this paper the student will assume a role of a manufacturer for a specific end use product. The specific end-use product will be given to each student by the instructor.

The paper needs to include the following:

- 1) Record and discuss the results from the tests done during the semester which make the fabric acceptable or unacceptable for the end use. What changes in fiber, yarn, or fabric structures could be made in order for the fabric to get a favorable rating.
- 2) Identify the Test Methods that are essential in evaluating a fabric for the specific end use given. What would be the minimum specifications (ratings) that would be acceptable for the end use for each test method stated. For the given end use were there any

other physical properties which needed to be tested? How might you test for these? From the AATCC Technical Manual and the ASTM Annual Book of Standards were there any other test methods which should have been used to test for the specific end-use? Which test methods should be used? Why were these important tests for this specific end use?

- 3) Summarize your findings, conclusions and recommendations.

The end use specification paper will be evaluated according to the following criteria:

1. Complete evaluation of the test methods in relation to end use
2. Understanding of results obtained and the ability to interpret their appropriateness in relation to the end use
3. Correctness of information presented
4. Organization of material in a logical manner
5. Summary and recommendations
6. Neatness/Typing
7. Grammar and Spelling
8. Appropriate documentation where appropriate

NOTE: All papers must be typed. If information is obtained from a textbook, it must be cited.

CS 434 - QUALITY CONTROL IN TEXTILES
COURSE OUTLINE

- Week 1 Introduction to testing. Why are fabrics tested?
Reading: Chapter 1
Laboratory: Introduction to the laboratory experience. Discussion of lab procedures, responsibilities and equipment and supplies.
- Week 2 Government and industry regulating bodies, standards, test methods, and other definitions.
Reading: Chapter 2
Laboratory: Discussion of Test methods. AATCC Standard Test Methods and ASTM Standard Test Methods.

- Week 3 Overview of textile testing. Temperature and moisture relationships. Definition of the standard test environment. Effects of moisture content on test results.
 Reading: Chapters 3 and 5
 Laboratory: Measurement of Temperature and Humidity.
 Introduction to Fiber Identification AATCC
 Test Method 20-1980. Development of Flow
 Chart.
- Week 4 Characterizing a fabric. Fabric, yarn, and fiber assessment methods. Measurement of bow, skew, thread count, fabric thickness, and fabric weight.
 Reading: Chapter 6
 Exam 1: Chapters 1, 2, 3 & 5
 Laboratory: Fiber Identification Continued. Flow Chart
- Week 5 The use of statistics in evaluation of textile performance and quality control. Sampling, precision and bias, descriptive and inferential statistics and variation in test results.
 Reading: Chapter 4
 Laboratory: Fabric Assessment. Worksheet.
- Week 6 The use of statistics continued. Quality control/assurance programs in the textile and apparel industry.
 Laboratory: Fabric Assessment Continued.
 Pattern Layout for test specimens
- Week 7 Measures of fabric strength and elongation. Interpretation of a stress-strain curve. Breaking, bursting and tearing strengths.
 Reading: Chapter 7
 Laboratory: Fabric and Tear Strength
 Abrasion Resistance
 Pilling
- Week 8 Abrasion resistance and wear. Flat, flex methods. Pilling and snagging. Wear trials. Color change with abrasion/crocking.
 Reading: Chapter 8
 Laboratory: Week 7 Lab Continued.
 Evaluation of Fabric Assessment Worksheet
 and First Lab Report

- Week 9 Effects of Refurbishing textiles. Dimensional change, appearance retention, wrinkle resistance, and crease retention through laundering and dry cleaning. Soil and stain removal.
 Reading: Chapter 9
 Laboratory: Wrinkle Recovery, Crease and Appearance Methods. Dimensional Change in Laundering, Appearance Retention to Laundering-Flat Fabrics, Appearance Retention to Laundering Seams, Soil Release.
 Lab Reports Due
- Week 10 Colorfastness tests. Color change, both loss and transfer. Gray scales for evaluation of color loss and transfer.
 Reading: Chapter 10
 Exam II: Chapters 4, 6, 7, 8 and 9
 Laboratory: Week 9 Labs Continued.
- Week 11 Colorfastness tests for end-use exposure conditions. Stability to environmental conditions, light, water, perspiration, and chemicals. Microbiological and insect resistance evaluation.
 Reading: Chapter 11
 Laboratory: Colorfastness to Crocking, Colorfastness to Laundering, Colorfastness to Light, Fabric Drape, Resistance to Water (Spray Test).
- Week 12 Absorbency and Repellency. Water and oil absorbency and repellency. Heat transfer, air and moisture permeability.
 Reading: Chapter 13
 Laboratory: Week 12 Lab Continued.
 End-Use Project Assigned
- Week 13 Comfort, hand, and drape. Fabric aesthetics. Stiffness, thickness and compressibility. Psychological and subjective evaluation of hand. Evaluation of comfort.
 Reading: Chapter 14
 Laboratory: Fabric Flammability Demonstrated. Individual Assessment of End-Use Project.
 Lab Reports Due
- Week 14 Fabric flammability. History, theory, regulations and test methods.
 Reading: Chapter 12
 Laboratory: Presentation of End-Use Projects
 Lab Clean-up

Finals Final Exam: Chapters 10, 11, 12, 13, and 14
Week

NOTE: All assignments and reports are due during class on day assigned. The students grade will be deducted one letter grade for every class period it is late.

SELECTED REFERENCES:

American Association of Textile Chemists and Colorists (AATCC)
Technical Manual.

American Society for Testing and Materials (ASTM) Annual Book of
Standards, Section 7 Vols. 1 and 2.

Booth, J. E. (1969). Principles of textile testing. (3rd ed.).
New York: Chemical Publishing.

Cohen, A. C. (1986). Beyond basic textiles. New York: Fairchild.

Joseph, M. (1986). Introductory textile science. (5th ed.). New
York: Holt, Rinehart and Winston.

Grover, E. B. & Hamby, D. S. (1960). Handbook of textile testing
and quality control. New York: Wiley-Interscience.

Lyle, D. (1977) Performance of textiles. New York: Wiley.

Morton, W. E. & Hearle, J. W. S. (1975). Physical properties of
textile fibres. New York: Wiley.

Solinger, J. (1988). Apparel manufacturing handbook._

Smith, B. F. & Block, I. (1982). Textiles in perspective. New
Jersey: Prentice Hall.

STUDENT PROFILE

NAME _____
 LAST FIRST MIDDLE INITIAL

NICKNAME _____

SS NO. _____ MAJOR _____

YEAR _____ ADVISOR _____

LOCAL PHONE _____ HOME PHONE _____

CAMPUS ADDRESS _____

HOME ADDRESS _____

IS THIS CLASS AN ELECTIVE OR REQUIRED _____

PLEASE CIRCLE ANY OF THE FOLLOWING COURSES THAT YOU HAVE ALREADY TAKEN

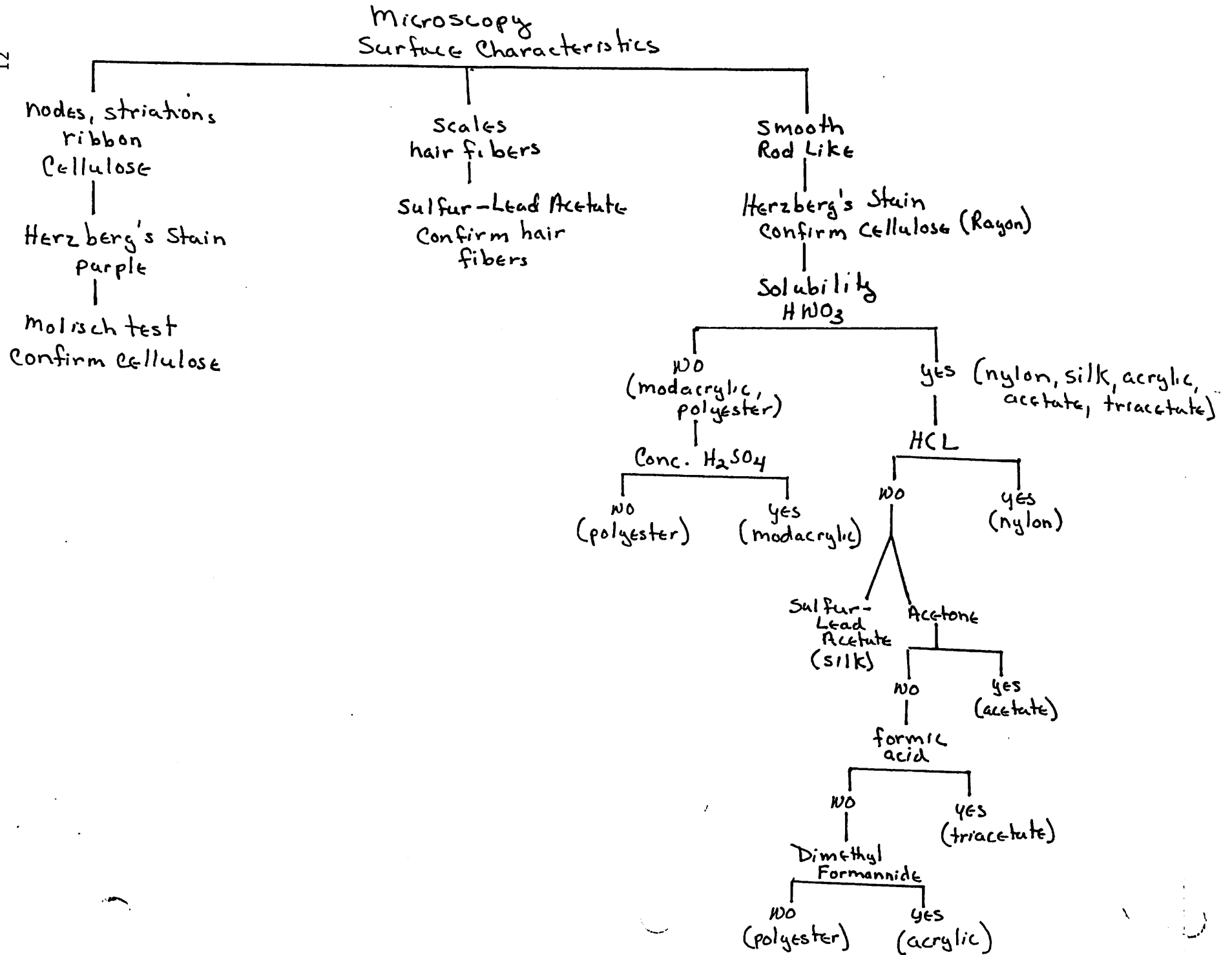
Textiles	Ready to Wear Analysis	Statistics
Chemistry I and II	Biology	Physics

PLEASE LIST CLASS SCHEDULE

DESCRIBE YOUR FEELINGS UPON ENTERING THIS CLASS ABOUT THE TOPIC OF TEXTILES AND THE CLASS IN GENERAL. USE THE BACK OF THIS PAGE IF NEEDED.

Flow Chart for Unknowns

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Example of Flow Chart

Example of a Laboratory Assignment
Colorfastness to Rubbing (Crocking)
AATCC 8-1988 AATCC Crockmeter Method

Purpose

The purpose of this test method is to determine the amount of color transferred from the surface of colored textile material to other surfaces by rubbing.

Supplies

AATCC Crockmeter
Crockmeter Cloth (2" X 2")
AATCC Chromatic Transference Scale
AATCC Gray Scale for Staining
AATCC Gray Scale for Color Loss
2 specimens (2" X 5"). One specimen cut with the long edge along warp and the other piece the long edge is along the weft

AATCC Crockmeter Method

Procedures:

Dry Crocking

- a) Place test specimen on top of abrasive paper at base of crockmeter with the long dimension in direction of rubbing.
- b) Mount a 2" square piece of white test cloth, over wooden finger, and secure with spring clip.
- c) With covered finger now resting on test specimen, make 20 back and forth rubs, or 10 turns of the crank at 1 turn/second.
- d) Remove and evaluate the white test cloth for color transference and staining and the test specimen for color loss.

Wet Crocking

- a) Weight white test cloth square. Wet white test cloth square with distilled water, and pressed firmly between filter paper. Weight again so that the wet pickup is 65% greater than its dry weight at standard conditions.
- b) Proceed as above. Air dry the white test square before evaluating.

Evaluation

Back the test square with 3 layers of clean white test cloth and evaluate the color transference using AATCC Chromatic Transference Scale and AATCC Gray Scale for Staining. Evaluate the test specimens using AATCC Gray Scale for Color Loss

Results

Report method of evaluation and class to nearest 0.5 value. Record both wet and dry.

Hand Test

This method is based on the premise that an index finger wrapped with any convenient white cotton cloth, e.g. handkerchief, makes a "rough and ready" but very effective portable crockmeter, either dry or wet.

Try this method using the white test cloth on the specimens, both wet and dry. Evaluate the same as above and report in the results the success of this method by comparing results to the above test.

Name _____

Short Answer Questions on Crocking

1. What is meant by crocking?

2. What kind of classes of fabric dyes or colorants are most susceptible to crocking?

3. What conditions in manufacture tend to increase the tendency of a color to crock in wear?

4. What causes dry crocking, how does it arise, can it be prevented?

5. Have you ever seen or personally experienced a crocking problem in a real life situation? Briefly explain if so.

Name _____
Date _____
Lab Assignment _____
Percentage _____

Lab Assignment Grading Sheet
CS 434 - Quality Control in Textiles

1. Followed the report format (2 pts.) _____
 2. Clear presentation of work done
and results learned. (4 pts.) _____
 3. Completion of all experimentation
required in lab. (3 pts.) _____
 4. Demonstration of an understanding
of purpose of test method (4 pts.) _____
 5. Demonstration of an understanding
of why the procedure produced
the results. (6 pts.) _____
 6. Neatness (2 pts.) _____
 7. Grammar and spelling (4 pts.) _____
-
- Total (25 pts.)

Comments:

QUALITY CONTROL
PRELIMINARY FABRIC EXAMINATION

Supplier: _____ Date of purchase: _____

Supplier's Information: _____ Sample: _____

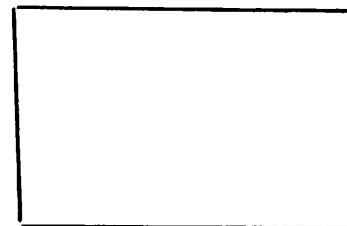
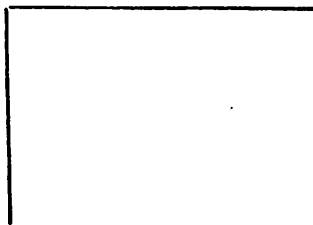
Price Per Yard: _____

Fiber Content: _____ Yarn Twist: Warp Filling _____

Fabric Construction: _____

Microscopic Identification: Warp Filling

Notes:



Fibers:

Identification Through Burning: _____

Manmade Fiber Identification Through Solubility: _____

Projected End Use: _____

Visual Inspection for Construction and Dye Defects:

Yarn (broken, slubs) _____

Runs _____

Tight Selvage _____

Tears _____

Holes _____

Shading (side to side) _____

Visual Inspection for Construction and Dye Defects Continued:

(end to end) _____

Croaking, mark-off _____

Streaks, roping, barring _____

Blotches, stains dirt _____

<u>Quality Specs:</u>	<u>Observations</u>	<u>Average</u>
Length _____		
Width _____		
Weight _____		
Thickness _____		
Count or Gauge _____		
Bow _____		
Skew _____		
Yarn Twist Per Inch _____		
Denier _____		

Additional Remarks:

Name _____
Date _____
Percentage _____

End Use Specification Summary Paper
CS 434 - Quality Control in Textiles

1. Complete evaluation of the test methods in relation to end use (7 pts.) _____
 2. Understanding of results obtained and the ability to interpret there appropriateness in relation to the end use (8 pts.) _____
 3. Correctness of information presented (6 pts.) _____
 4. Organization of material in a logical manner (4 pts.) _____
 5. Summary and recommendations (4 pts.) _____
 6. Neatness/Typing (3 pts.) _____
 7. Grammar and Spelling (3 pts.) _____
 8. Appropriate documentation where appropriate (3 pts.) _____
- Total (35 or 38 pts.) _____