OBJECTIVE: (U) Achieve commercial publication of a handbook (manual) that will, in a step-by-step procedure, guide garment designers in the development of new apparel styles that will be as efficient and economical to manufacture and assemble as the designer's overall concept will allow.

APPRAOCH: (U) Make a limited press run of the handbook, distribute copies to educators, etc. for review and comments. Submit also to apparel textbook publishers for inclusion in their lines.

PROGRESS: (U) All activities have been completed. General response to distributed copies has been favorable but publishers have declined to accept the handbook without extensive revision in order to reach widest possible market. The objectives of this project have not been achieved. The project has been terminated.
FASHION INSTITUTE OF TECHNOLOGY

RESEARCH REPORT

DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL, PART II,
PRINTING, PUBLISHING, AND DISTRIBUTION

Fashion Institute of Technology

94-11045

DLA900-87-D-0016-0009

MARCH 1994
ADVANCED APPAREL MANUFACTURING TECHNOLOGY
FASHION INSTITUTE OF TECHNOLOGY
DLA900-87-D-0016-0009

DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL

PART II
PRINTING, PUBLISHING, AND DISTRIBUTION
FINAL TECHNICAL REPORT A008

Debbie Gioello
Project Leader

March 1994

This project has been sponsored by the
Defense Logistics Agency
Cameron Station
Alexandria, VA 22304-6100

DTIC QUALITY INPECTED 3
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This report is herewith submitted to the Defense Logistics Agency office (DPMSO), Cameron Station, Alexandria, VA 22304-6100, in accordance with the Contract Data Requirements List, sequence A008.

Henry A. Siegelberg,
Director, Advanced Apparel Manufacturing Technology Programs,
Fashion Institute of Technology

Noah Brenner,
Research Coordinator, Advanced Apparel Manufacturing Technology Programs,
Fashion Institute of Technology

Accession For

DTIC QUALITY INSPECTED 3
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ACKNOWLEDGEMENTS

The project team wishes to acknowledge and express its special thanks to Mr. Charles Mannino, Manager of the F.I.T. Print Shop, for his invaluable advice, assistance, and participation in the completion of this project.

The project team also thanks the following members of the AAMTD facilities for their many and varied contributions: Henry A. Seesselberg, Director of Advanced Manufacturing Technology Programs; Nge Tung Wong, Administrative Assistant; and, Tammy Oberon, Clerical Assistant.
PREFAE

Design for Manufacturing and Assembly (DFMA) as a concept is defined as the methodology used by product designers which explicitly considers how the products they design will be manufactured.

The overriding purpose of this short term research and development project, Design for Manufacturing and Assembly in Apparel, has been to show how to design a garment for ease and efficiency of manufacture, how to apply the principles of design separately and independently of each of the processes, and to disseminate this information as widely as possible.

In Phase I of this project the project team documented the step-by-step procedures in the development and assembly of a tailored skirt that incorporated suitable military-use styling in five separate and distinctly different environments: sample room; traditional factory; automated plant; custom clothier; and, made-to-measure works. All operations that were performed and deemed necessary to the development of the design, pattern generation, and assembly of the skirt were photographed and documented. The assembly procedures were critically studied and appropriate data was collected in each case. Because of the differences in manufacturing techniques of each environment, the skirt was redesigned for each environment and internal details of the garment were changed in each case to take best advantage of each of the different manufacturing processes. Nonetheless, the overall integrity of each design and the size range of the garments for each study remained constant.

The end result of the Phase I work described above was the production of a prototype of the DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL handbook that illustrates the various processes necessary to design an item of apparel for ease and efficiency in manufacturing in any environment. It is a handbook that is intended to assist and guide apparel designers in utilizing the methodology of designing for ease of manufacture and maximization of the production efficiency that is inherent in the production process that is being used.

In Phase II of the DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL project the project team was charged with achieving the conversion of the prototype handbook developed in Phase I into a semi-finished printed product that could be distributed/circulated within the industry for comments and criticisms with the view toward obtaining commercial publication and distribution as a textbook.
Unfortunately, although the comments and criticisms of the in-house printed handbook were for the most part positive, commercial publication of the handbook could not be achieved without drastic revisions of content and format. The report that follows details the Phase II project activities.
INTRODUCTION

The concept and application of Design for Manufacturing and Assembly, a methodology used by designers which explicitly considers how the product will be made, has received a fair measure of success in the hard goods industries. DFMA, however, has not received any great measure of attention or consideration by the apparel manufacturing industry.

In order to introduce the concepts of Design for Manufacturing and Assembly to the apparel industry, a project team from the Fashion Institute of Technology/Advanced Apparel Manufacturing Technology Demonstration (F.I.T./AAMTD) developed a handbook entitled DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL which details the basic procedures for designing a garment for manufacturing efficiency and provides guidelines for the universal application of Design for Manufacturing and Assembly concepts by apparel industry designers. This work was accomplished under Short Term Research and Development Task DLA900-87-D-0016-0009, Design for Manufacturing and Assembly in Apparel, dated May 17, 1990.

The DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL handbook specifically addresses the designer’s role in creating garments for ease of manufacturing and assembling. Assembly procedures and methods of manufacture of a tailored skirt in five different production environments are followed. Design changes that are made in order to best utilize the production capabilities of each production environment are illustrated.

The handbook was fully drafted and a small number of copies were prepared in Phase I for distribution, review, and comment by a select group of industry designers and by appropriate representatives of the military services. There was almost universal approval of the handbook by the reviewers at that time. The project team’s own efforts, as well as a press release concerning the limited publication and distribution of the handbook, resulted in some limited trade press coverage and several requests for copies of the handbook to be sent to college professors, high school teachers, and other educators involved in apparel design training and instruction. Requests were also received from apparel designers, industry executives, and two textbook publishers.
Phase II of the project was funded on June 18, 1993 to enable the printing and publication of approximately 100 copies of the prototype handbook and their distribution to interested textbook publishers and other requesting parties. It was the objective of Phase II to complete the process of dissemination of DFMA concepts to the apparel industry by distributing the handbook to influential members of the industry, educators, and handbook/textbook publishers. It was hoped that one of the apparel-related textbook publishers would consider inclusion of the handbook in its commercial product line.
PROJECT PERSONNEL

The project team consisted of the following personnel from the faculty and staff of the Fashion Institute of Technology.

**Debbie Gioello**, Professor and Chairperson, Department of Fashion Design - Apparel. As project leader and principal investigator, she supervised all aspects of the Phase II project and participated in their execution.

**Noah Brenner**, Adjunct Assistant Professor, Textile Design and Marketing Department and F.I.T./AAMTD R&D Projects Coordinator. Assisted the project leader in all facets of the project.
PRINTING AND DISTRIBUTION OF THE HANDBOOK

The following basic steps were followed by the project team in the printing and distribution of the DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL handbook.

* Reviewed and considered all comments and recommendations of Phase I reviewers.

  - Re-edited the handbook and made all changes, corrections, additions, deletions, etc., as deemed appropriate, to text, format, and illustrations that had been developed in Phase I.

* Arranged for the in-house printing of the handbook by the Fashion Institute of Technology Print Shop.

  - Contracted for the outside preparation of new printing plates as required by the F.I.T. Print Shop.

  - Arranged to have 100 copies of the handbook printed, collated, and bound by the F.I.T. Print Shop.

  - A copy of the completed handbook is attached as free-standing appendix to this report.

* Distributed complimentary copies of the newly printed handbook to educators, manufacturing executives, clothing designers, and publishers who had previously requested them. Also, the project team developed an additional list of educators, industry people, etc. to whom complimentary copies should also be sent.

  - All recipients of the complimentary copies were requested to review their copy of the handbook and comment upon its usefulness and value (comment sheets and stamped, self-addressed envelopes were attached to all letters of transmittal) to them, their students, and/or their organizations.

  - A sample letter of transmittal is reproduced in the Appendix to this report.
- A list of recipients of the handbook is included in the Appendix to this report.

- Copies of all responses received are reproduced in the Appendix to this report.

* Sent complimentary copies of the newly printed handbook to the following Government personnel in appreciation of their contributions to its development:

  Mr. Donald O'Brien, DLA Manufacturing Engineering Branch;

  Ms. Julie Tsao, DLA Manufacturing Engineering Branch;

  Capt. Catherine McGinn, U.S. Air Force Clothing Division;

  Mr. Stephen Israeli, U.S. Army NRD&E Center; and,

  Mr. Harry Winer, U.S. Navy NCTR.

* Surveyed lists of textbook publishers to determine appropriate targets for discussions regarding large-scale printing and distribution

  - Narrowed contact list to following apparel-oriented publishers

    Bobbin Blenheim Media Corporation

    Fairchild Books & Visuals

    Prentice Hall/Paramount Publishing Education Group

    (Fairchild and Prentice Hall had previously been contacted during Phase I activities for the same purpose.)

  - Contacted, or recontacted the editorial offices of each of the three above noted publishers and discussed the inclusion of the handbook in their book lists. The results of those discussions are as follows:
Bobbin Blenheim advised that they were discontinuing new textbook publications effective January 1994 and would not, therefore, consider reviewing the handbook.

Both Fairchild Books & Visuals and Prentice Hall/Paramount once again expressed their willingness to review the handbook, each with a view toward acquiring the exclusive rights to the handbook and including it in their book list. Each requested additional copies of the handbook for distribution to their own group of reviewers, primarily college professors and secondary school teachers, for determination of its appropriateness for use as a required college or high school textbook.

The results of the two group-reviews were unsatisfactory to each of the publishers and to the project team: Both sets of reviewers tended to make the same recommendations - that substantial portions of the handbook be rewritten, that new sections be added, and that new/additional illustrations be produced and used. The project team determined that compliance with the recommendations for revision was too large a task to undertake at that time and that its cost, if undertaken, would have been prohibitive. It was concluded that it was not in the best interests of the project to undertake any major changes in the handbook. The prospective publishers were so notified. Consequently, both Fairchild and Prentice Hall declined to proceed with any negotiations that might lead to their adoption of the handbook for commercial publication and distribution.
PROFESSIONAL REVIEWS

In the project team's effort to have the handbook reviewed professionally, contacts were made with the following trade publications:

- Apparel Industry Magazine;
- Bobbin Magazine;
- Daily News Record; and,
- Women's Wear Daily.

In each case, the publishers noted that only commercially available publications would be considered for review by their journal. Since the DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL handbook did not meet this criteria none of the noted journals would accept it for review.
SUMMARY

The project did not achieve its two primary goals

* Complimentary professional reviews
* Acceptance for publication by a recognized publisher.

As a result of these failures the project, DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL, PART II, PRINTING, PUBLISHING, AND DISTRIBUTION, is considered to have not been effective and has been terminated.
Ms. Mary Stephens  
Chairperson  
Fashion Design Department  
Fashion Institute of Design and Merchandising  
919 South Grand Avenue  
Los Angeles, CA 90015  

Dear Ms. Stephens:

When we suggested the production of a handbook, such as the one enclosed, that would illustrate the design and modifying redesign of a garment for its ease and efficiency in manufacturing depending upon the production process, and that would apply the principles of design separately and independently to each of the processes, the responses of most prominent educators and industry executives were very good. Now that the handbook has been completed we would like to get the reaction to it of some of those same prominent educators and industry executives.

It is for this reason that we are attaching a copy of Design for Manufacturing and Assembly in Apparel by F.I.T.'s Debbie Gioello. It would be greatly appreciated if, in the next two weeks, you would review the handbook and jot down your thoughts and impressions, comments and criticisms, as you do so concerning its usefulness in the further education and guidance of fledgling fashion designers, whether they are still studying their craft or already practicing it.

Inasmuch as we do not want to influence your response in any way we are refraining from providing a prepared set of questions to which you would respond. We much prefer that you express yourself freely and without prompting on the comment sheet enclosed in the accompanying stamped self-addressed envelope. All comments will be kept strictly confidential.
We very much appreciate your cooperation and contribution of time and thought in this effort. Since we are a part of the State University of New York, we are unable to provide you with a monetary stipend for your assistance in this project. However, to thank you for your help we would like you to keep the attached copy of the handbook in your personal library. We look forward to your response.

Very truly yours,

Noah Brenner
Project Coordinator
Advanced Apparel Manufacturing Technology Programs

encl: sase
comment sheet

cc: H.A. Seesselberg
D.A. Gioello

dfmasurv.n30
DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL

COMMENT SHEET

In the space below please express your thoughts and impressions, comments and criticisms concerning the handbook. Place the completed Comment Sheet in the stamped self addressed envelope and drop it in the nearest mailbox. Thank you very much for your cooperation.
### COMPLIMENTARY COPIES

#### DISTRIBUTION LIST

**DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL HANDBOOK**

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<thead>
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<th>NAME</th>
<th>COMPANY</th>
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<tr>
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<td>Arena, Mr Al</td>
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<td>Armoni, Mr Amnon</td>
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<td>Bella, Ms Vanessa</td>
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<tr>
<td>Clark, Ms. Sandra</td>
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<td>Cushing, Ms Louise</td>
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<td>Dewind, Ms Ellen</td>
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<td>Lindholm, Ms Christina</td>
<td>University of Cincinnati</td>
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<td>McGee, Ms Nancy</td>
<td>Moore College of Art &amp; Design</td>
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In the space below please express your thoughts and impressions, comments and criticisms concerning the handbook. Place the completed Comment Sheet in the stamped self addressed envelope and drop it in the nearest mailbox. Thank you very much for your cooperation.

This handbook appears to be an invaluable tool for the student of fashion. It is clear and thorough, as well as excellently visual which is exceedingly important for the students to grasp the material. It should be especially valuable to the students in areas where access to factories is difficult or limited.

Mariana Broocker-Egelan
University of North Texas
In the space below please express your thoughts and impressions, comments and criticisms concerning the handbook. Place the completed Comment Sheet in the stamped self addressed envelope and drop it in the nearest mailbox. Thank you very much for your cooperation.

I feel the book would be a useful supplementary text for our courses in design and apparel production. Unfortunately the photo reproductions are not clear.

Delores Nolan
Associate Professor
Fashion Studies
Miami-Dade Community College
DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL

COMMENT SHEET

In the space below please express your thoughts and impressions, comments and criticisms concerning the handbook. Place the completed Comment Sheet in the stamped self addressed envelope and drop it in the nearest mailbox. Thank you very much for your cooperation.

1. Is the design of the cover attractive, informative, and functional?  

2. Is the layout of the text clear and easy to follow?  

3. Are the illustrations and photographs helpful and informative?  

4. Are the examples and case studies relevant and useful?  

5. Are the explanations and descriptions adequate and clear?  

6. Are the appendices and references comprehensive and informative?  

7. Are the references up to date and relevant?  

8. Are the overall design and layout of the handbook appealing and user-friendly?  

9. Are the conclusions and recommendations practical and useful?  

10. Are there any suggestions for improvement or additions that you would like to make?

Thank you for your feedback. Your comments are valuable and will help us improve future editions of this handbook.

Best Available Copy
12 January 1994

Noah Brenner
Project Coordinator
Education Foundation for Fashion Industries
227 West 27th Street
New York, NY 10001

Dear Mr. Brenner

I have received a copy of the handbook Design for Manufacturing and Assembly in Apparel written by Debbie Gioello. I sent the handbook on to our department head of Merchandising, Adrienne Zinn, who teaches a course on Manufacturing in the Apparel area. She has been a manufacturer in Los Angeles for the past 25 years and is currently revising the curriculum in the Merchandising and Design areas. Please see her comments regarding the handbook below:

"A simply and effectively written book. But I suggest that due to the rapid changes in the manufacturing flow and the updates in apparel computer technology, perhaps rather than three-year revisions, a yearly updated manual accompany the text at a minimal additional fee."

If you would like to contact Ms. Zinn, you may reach her at (213) 744-9476 or address her here at the College.

Sincerely,

Cynthia Morley
Instructional Assistant
Fashion Center

Adrienne Zinn
Lead Instructor
Fashion Merchandising
I. **UD18S1G FOR JERIUT71CTUZING lid ISSMEBLY IN IPPMHL COIDIZIT SHIRT**

In the space below please express your thoughts and impressions, comments and criticisms concerning the handbook. Place the completed Comment Sheet in the stamped self addressed envelope and drop it in the nearest mailbox. Thank you very much for your cooperation.

12-7- looked through your book quickly and noted it was predominantly composed of pictures. This is a negative factor because students have a hard time understanding charts without lecture. I think this book would be a good supplement to a book but not a text book.

[Signature]

Palm Beach Conn Co
In the space below please express your thoughts and impressions, comments and criticisms concerning the handbook. Place the completed Comment Sheet in the stamped self addressed envelope and drop it in the nearest mailbox. Thank you very much for your cooperation.

Upon review of "Design For Manufacturing and Assembly in Apparel", I found the book to be thorough, clear, and most informative. The step by step visuals were an excellent way to present the information.

I know that this book will be of help to me, since a good number of my high school students often come up with wonderful, creative ideas, have absolutely no consideration for what is practical, feasible, cost effective, or what is involved in the development of the garment. This book will be a handy teaching and resource guide.

Kudos to Ms. Giovello.

Sincerely,

Gina Bratcher

11/27/77
I think that the production handbook contains information important to students enrolled in an Apparel Design program. This type of material is unavailable in any of the resource materials I am currently using. However, I feel that the photographs are not clear enough and do not add to the information in the text. The visual material might better be depicted using either slides or a video. With either of these, tight close-ups of vital details would be more evident and supplement the written text. Would it be possible to transfer the visuals to either of these and use the text along with it?

This type of handbook would be very useful in our Apparel Design Seminar course. Please let me know when the finished edition is completed.

Professor Sharyne Wolfe
Nassau Community College
In the space below please express your thoughts and impressions, comments and criticisms concerning the handbook. Place the completed Comment Sheet in the stamped self addressed envelope and drop it in the nearest mailbox. Thank you very much for your cooperation.

- Exhibits organized in a realistic setting and approach to manufacturing for students.
- Simple to understand step-by-step design and assembly processes at different levels of manufacturing.
- Great teacher's aid - "Pictures are worth a thousand words".

Here are some suggestions:

1) Suggest specialized machine availability
2) Manufacturing techniques
3) Suggest to students how they might accommodate their designs to production requirements

Louise Cushing
Pattern Drafting & Grading
Instructor

The School of Fashion Design
136 Newbury St.
Boston, MA 02116

12/20/93
Thank you for the opportunity to review *Design for Manufacturing and Assembly in Apparel*. This manual is an excellent 'walking tour' and in depth view of the various industry production processes. The clear step by step analysis of the design process is further reinforced by the photos to provide an outstanding guide for upper level design students.

Perhaps a summery or questioning process at the end of each chapter, would be helpful to reinforce students understanding of the the various production and cost differences.

I intend to use this manual in my teaching of Apparel Design Seminar, and will add it to the suggested reading list for Garment Construction.

Yours truly,

Barbara Blumberg
Professor Barbara Blumberg
Associate Professor Apparel Design
Nassau Community College
DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL

COMMENT SHEET

In the space below please express your thoughts and impressions, comments and criticisms concerning the handbook. Place the completed Comment Sheet in the stamped self addressed envelope and drop it in the nearest mailbox. Thank you very much for your cooperation.

I am sorry to respond a bit late, but the end of semester period is always busier than any other during the academic year.

I applaud the concept behind Design for Manufacturing and Assembly in Apparel. I believe it provides more detail than any other book currently on the market. I also favor the largely visual format. That is an effective way to teach design students, because they usually orient themselves by accommodating visual information. This is so important, that we may choose a pattern-making book because of the clarity of the diagrams. The student has a better chance of succeeding if they understand what is expected by visual means.

Having said that, there are two aspects that cut down on the visual effectiveness of Design for Manufacturing and Assembly in Apparel. I doubt that these problems exist because of minimizing expenses in the execution of the book. The pictures are small, but most difficult to see because they are lacking in adequate contrast. Also, the pages are so thin that while studying one page, the images become confused with what is on the back. If the book could be printed again, I would suggest larger photographs, at least with greater contrast, and opaque, glossy paper.

I would use the book to explain the different manufacturing processes to my students. Not all books offer a special section on custom-fitting, so that is quite helpful.

Thank you for asking my opinion, Director of Research.

Chair, Fashion Design & Fashion Merchandising
Manhattan University.
February 3, 1994

Mr. Noah Brenner, Project Coordinator
Advanced Apparel Technology
Technology Programs
Fashion Institute of Technology
227 West 27th Street
New York NY 10001

Dear Mr. Brenner:

This letter is to acknowledge the receipt of the handbook, *Design for Manufacturing and Assembly in Apparel*. Regretfully, it has taken me longer to respond to your letter than I had anticipated.

I appreciate being sent a copy of the handbook. It appears to be an excellent resource for any aspect of education related to the design field, i.e. from traditional manufacturing to custom and made-to-measure production. It is good to have included as many photographs and visuals as possible.

In our particular setting here at Colorado State University, I would see it as a definite reference book for the Library and might also consider it as a textbook for one of our courses. What is the cost of the handbook? That would help make the decision.

Thanks again for sending me the copy for review.

Sincerely yours,

Janet J. Else
Assistant Department Head

JJE
February 16, 1994

Ms. Vicky Wong
Office Manager
Fashion Institute of Technology
227 West, 27th. Street
New York, NY 10001

Dear Ms. Wong:

I received a copy of the “Design for Manufacturing and Assembly in Apparel Handbook” in November 22, 1993 for our evaluation.

In our Design room we have two designers, two pattern makers and one grader and all have totally or partially studied the handbook. Our Design Room, an area of the Design Council for Puerto Rico is part of the Economic Development of Administration and develops new lines, patterns and grading for over forty different companies and serves as consulting office for a larger number of companies. We also keep contact with all of the Fashion Design Schools in Puerto Rico and the Vocational Department at the Department of Education.

We all consider the handbook is an excellent resource. This material gets the design students closer to reality, even if he is going to start his own hi-fashion business, knowing production equipment and short-cuts is helpful. Most of the fashion design and pattern making courses offered in Puerto Rico are directed to the self-employment and to made-to measure designs and patterns. What we have experienced is that each design school has its own approach towards design, pattern and garment development and construction, and only a few teachers in these design schools have some experience in manufacturing. When a designer wants to work full-time or free-lance for a manufacturer, he has to adjust designs, fabric, trimmings and patterns to the marketing, cutting and production systems of the manufacturer. It would be a great advantage for him learning about different manufacturing processes, so he can be aware and prepared to satisfy the manufacturers needs.

I particularly found attractive the step by step sequence presentation in pictures, making it easier to follow.
Ms. Vicky Wong  
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February 16, 1994

Maria Serrano, one of our designers considers this material too technical and specific for the fashion designer, that if is going to be part of a course it can turn to be confusing, but excellent for a management and production course. She also notes that the first three steps in the SEQUENCE OF PROCESSES IN THE SAMPLE GARMENT DEVELOPMENT (page 2) can vary according to the designer, since some could start by selecting fabric to get the inspiration. She also suggests a more accurate sketch (page 4) including a sketch with construction specifications.

Carmen Vázquez, one of our designers and pattern maker, teaches fashion design and pattern making at Bénédict Schools. She did her own evaluation as follows:

Evaluation of usefulness in fashion design education of the “DESIGN FOR MANUFACTURING AND ASSEMBLY IN APPAREL HANDBOOK”.

The following evaluation was produced after thoroughly examining the book, taking into consideration the classroom situation in which student designers don’t know much about the different manufacturing environments.

EVALUATION

<table>
<thead>
<tr>
<th>TITLE</th>
<th>Clearly depicts the theme</th>
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<tbody>
<tr>
<td>OBJECTIVES</td>
<td>The “Introduction” clearly states the fundamentals knowledge, concepts, attitudes and skills that should be obtained after studying the book.</td>
</tr>
<tr>
<td>MOTIVATION</td>
<td>Highly motivates the student to study and to realize that the process of development and manufacturing will not constrain the designer’s creativity, if the designer knows how to adapt the original idea and pattern to ease the manufacturing process; thus obtaining a better end product.</td>
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</table>
Ms. Vicky Wong  
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PRESENTATION Excellent illustrations and concise explanation throughout the book provide clear understanding of the different environments and processes.

APPLICATION After studying the book, the student designer may be able to understand and look forward to the environments in which he will be able to work.

COMMENTS This book accomplished its objectives and is a valuable and complete source of information for students.

I hope that our comments help in the total evaluation of this material. If you have any questions, please do not hesitate in contacting me.

Yours truly,

Sonia Acosta  
Supervisor  
Fashion Institute  

mgm