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# TRAINING COURSE

## APPAREL DESIGN AND PRODUCTION Part: 2D CAD Pattern Making

The course is developed under Erasmus+ Program Key Action 2:  
Cooperation for innovation and the exchange of good practices Knowledge Alliance

**ICT IN TEXTILE AND CLOTHING HIGHER EDUCATION AND BUSINESS**

Project Nr. 612248-EPP-1-2019-1-BG-EPPKA2-KA

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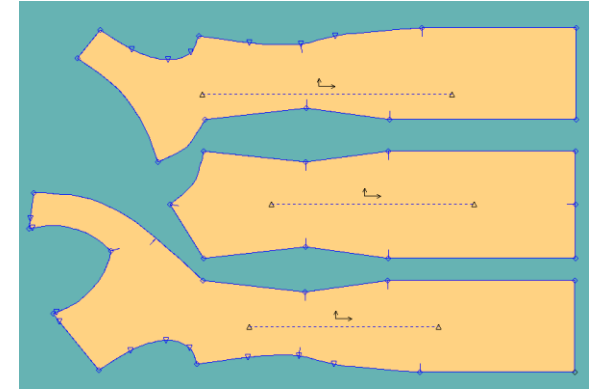
Course duration: 30 hours

Content: 12 lessons

## DESCRIPTION OF THE COURSE

- ✓ The program contains topics referring computer aided development of basic constructions and various styles of ladies' and men's garment
- ✓ The topics are illustrated with many examples
- ✓ Pictures, animations and video files have been developed to help the students
- ✓ The course is available on the Moodle platform
- ✓ The interactivity of the course is realized with the help of the "wiki" resource
- ✓ After each topic there is a Quiz to test the knowledge





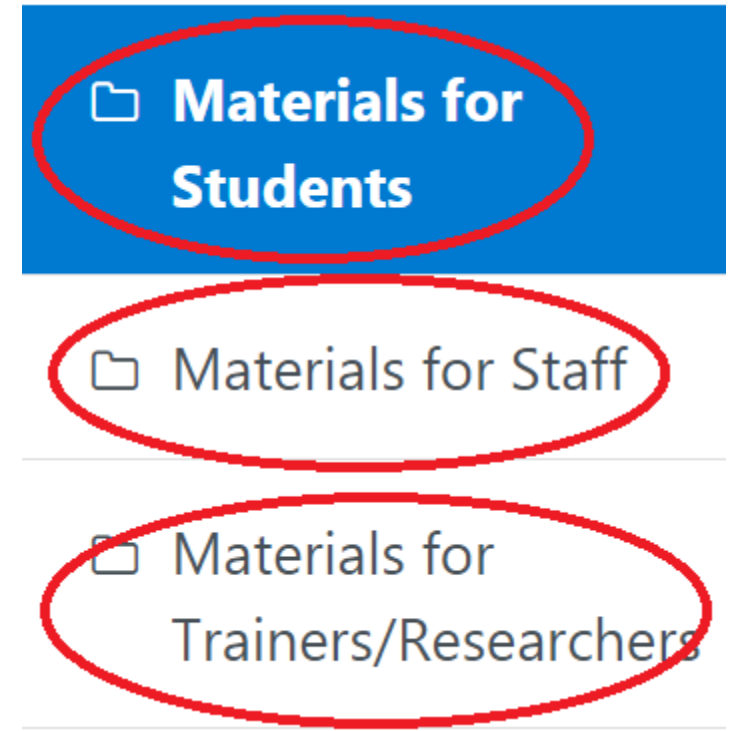
## AIMS AND OBJECTIVES OF THE COURSE

- ✓ The participants gain experience to use the functions of a specialized graphic system for clothing and to develop algorithms for design of the pieces
- ✓ Students who successfully complete this course acquire the necessary professional and practical knowledge for the use of CAD systems for two-dimensional design



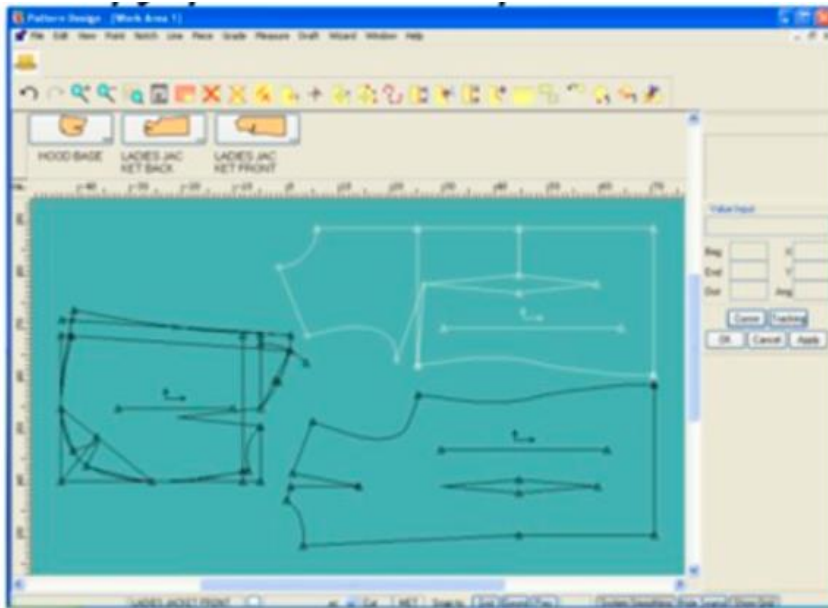
## TYPES OF LEARNING MATERIALS

- ✓ Materials for students
- ✓ The staff course contains additional training materials, which are drawings of details at a scale of 1:1 directly for import into CAD system
- ✓ The trainers' course contains additional training materials, which are algorithmically sequential steps and used functions in pictures





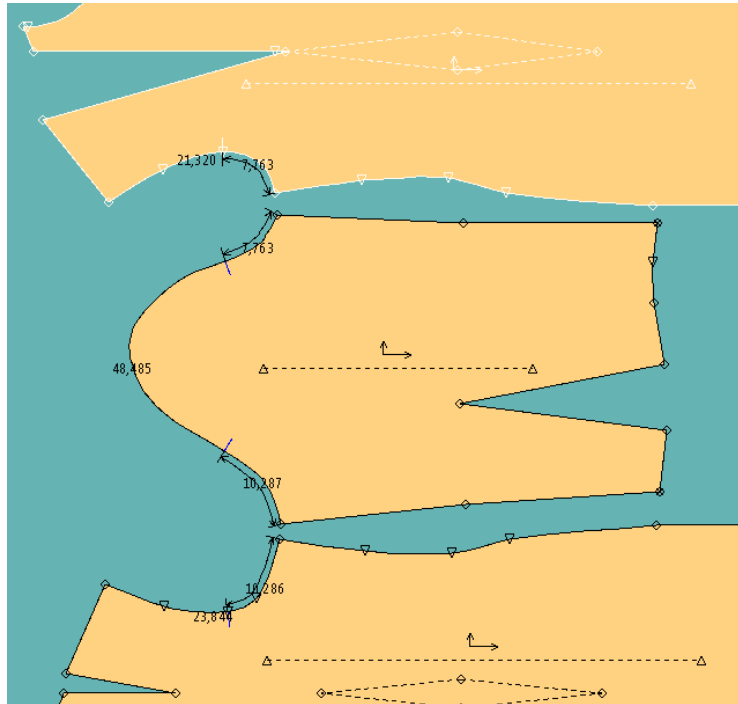
# LESSON 1. INTRODUCTION



1. General information
  - 1.1. What is CAD in the fashion industry?
  - 1.2. Advantages of CAD systems in the fashion industry
2. Data management. Data types
  - 2.1. Pieces
  - 2.2. Model
  - 2.3. Order
  - 2.4. Marker
3. Dialog mode of operation
4. Menus and functions
  - 4.1. Overview of the Create Menu
  - 4.2. Overview of the Edit Menu
  - 4.3. Overview of the Modify Menu
  - 4.4. Overview of the Advanced Menu
  - 4.5. Overview of the Verify Menu
  - 4.6. Overview of the Grade Menu
  - 4.7. Overview of the View Menu



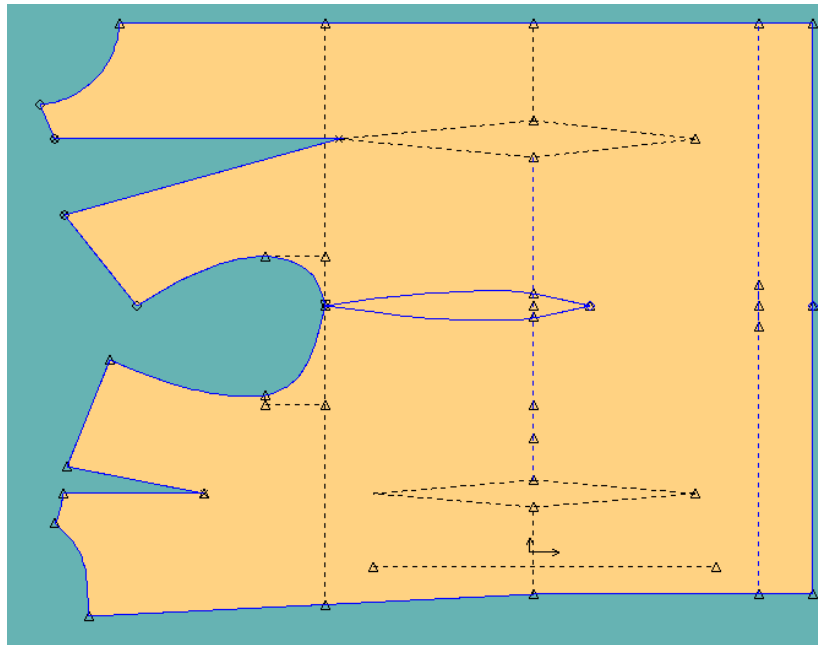
## LESSON 2. BASIC APPAREL CONSTRUCTIONS



1. General information
2. Grid of the construction
3. Neckline area
4. Shoulder area
5. Front shoulder dart area
6. Armhole curve area
7. Waist darts and side seam area
8. Output pieces
9. Sleeve
10. Verify the construction
  - 10.1. Set notches for assembly of the pieces



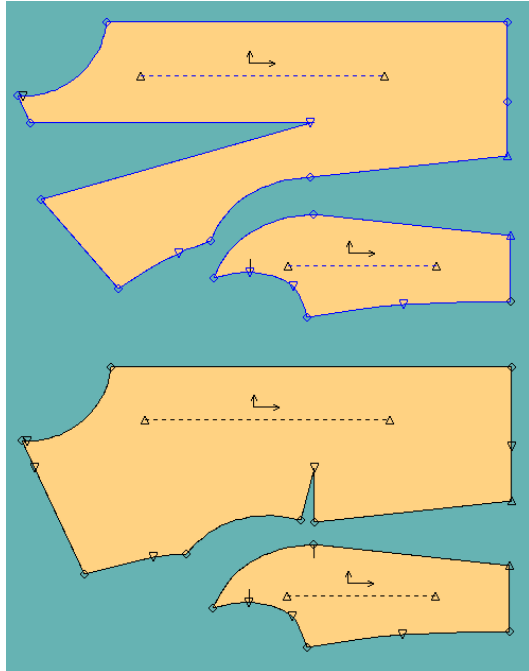
## LESSON 3. MANIPULATION OF PIECES



1. Yoke at the waist line
  - 1.1. Combine pieces
2. Waist shaped belt
  - 2.1. Low waist
  - 2.2. Front belt
  - 2.3. Back belt
3. Yoke in the shoulder area
  - 3.1. Split front piece
  - 3.2.
4. Jacket transformation
  - 4.1. Preliminary preparation of the pieces
  - 4.2. Combine the front and back piece
  - 4.3. Shape the seam between the back and the side piece
  - 4.4. Shape the seam between the front and the side piece
  - 4.5. Trace the pieces



## LESSON 4. DARTS MANIPULATIONS



### 1. General

1.1. Convert to dart

1.2. Fold/Close dart ends

1.3. Rotation of darts

### 2. Basic transformations

2.1. Rotate

2.2. Combine

2.3. Divide

### 3. Other transformations

3.1. Decorative dart

3.2. Princess seam in the shoulder line for top apparel parts

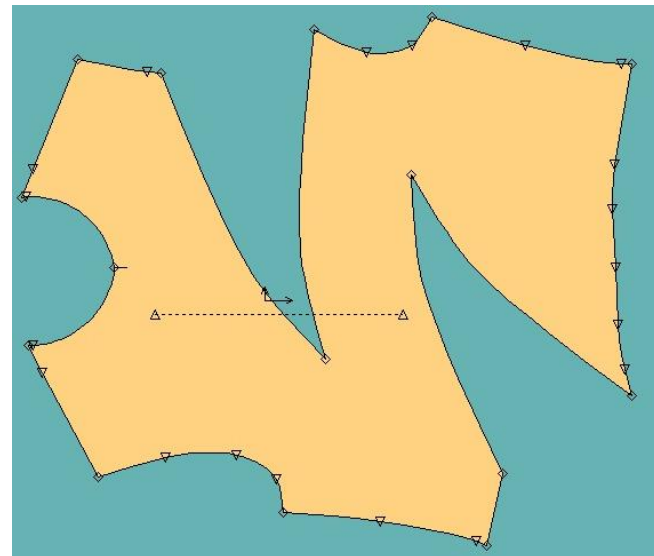
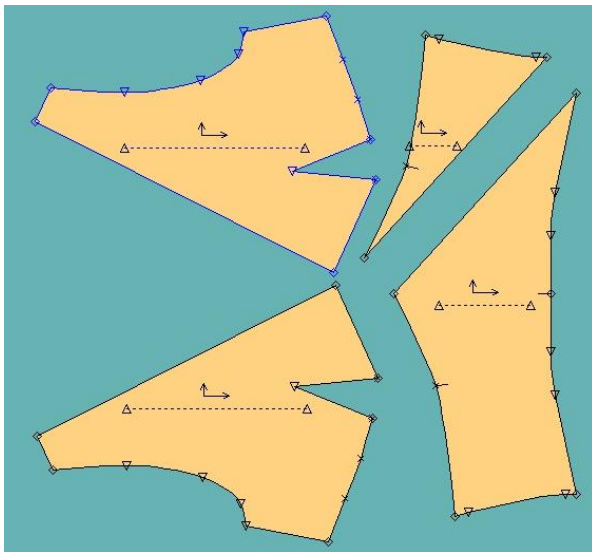
3.3. Princess seams in the armhole curve for top apparel parts Style 1

3.4. Princess seams in the armhole curve for top apparel parts Style 2





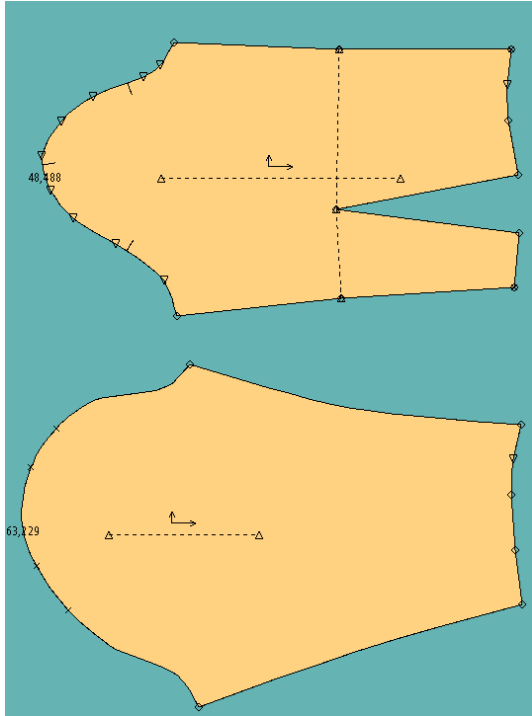
## LESSON 5. SYMMETRY AND ASYMMETRY OF THE PIECES



1. Ladies' blouse with overlapping in the front piece
  - 1.1. Rotate and combine the darts
  - 1.2. Shape dart legs
  - 1.3. Mirror piece
  - 1.4. Trace the pieces
2. Ladies' blouse with four pieces in the front
  - 2.1. Combine the darts
  - 2.2. Rotate the dart
  - 2.3. Mirror piece
3. Ladies' blouse with asymmetrical decorative darts
  - 3.1. Mirror piece
  - 3.2. Rotate the darts
  - 3.3. Replace the lines
4. Ladies' asymmetrical dress
  - 4.1. Deep the neckline
  - 4.2. Temporary rotate the shoulder dart in the side seam
  - 4.3. Shape dart legs
  - 4.4. Replace the lines
  - 4.5. Rotate the left side seam dart
  - 4.6. Output pieces



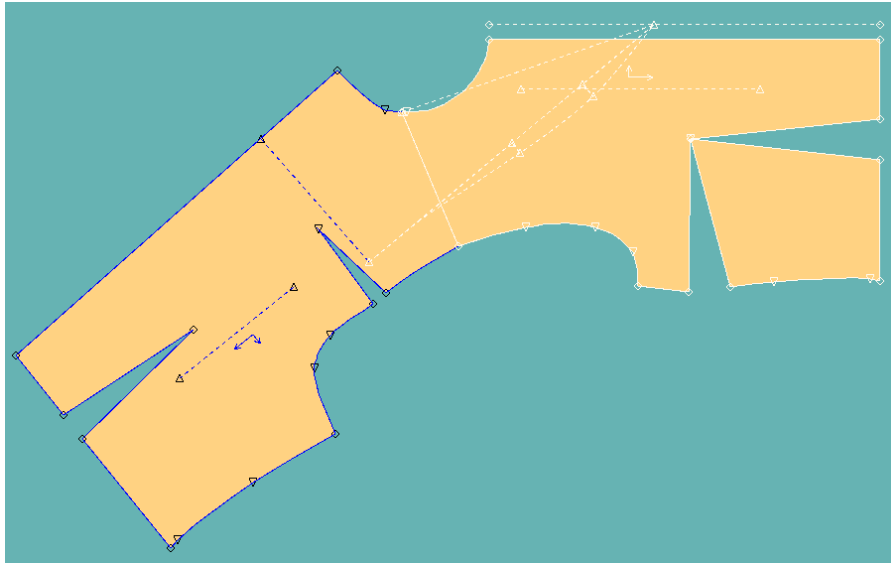
## LESSON 6. GATHERED ELEMENTS



1. Input data
2. Ladies' skirt with gathered elements and three pieces in the front part
  - 2.1. Description of the style
  - 2.2. Rotate the dart
  - 2.3. Split the piece point to point
  - 2.4. Add Tapered fullness
  - 2.5. Shape the contour lines
3. Ladies' skirt with gathered elements and a triangular yoke in the front part
  - 3.1. Description of the style
  - 3.2. Rotate the dart
  - 3.3. Construct a yoke with split the piece on digitized line
  - 3.4. Add tapered pleats
  - 3.5. Mirror pieces
4. Puff sleeve with gathered sleeve cup and gathered hem
  - 4.1. Shorten the sleeve
  - 4.2. Add parallel fullness
  - 4.3. Draw new sleeve cup and new hem line
5. Puff sleeve with gathered hem



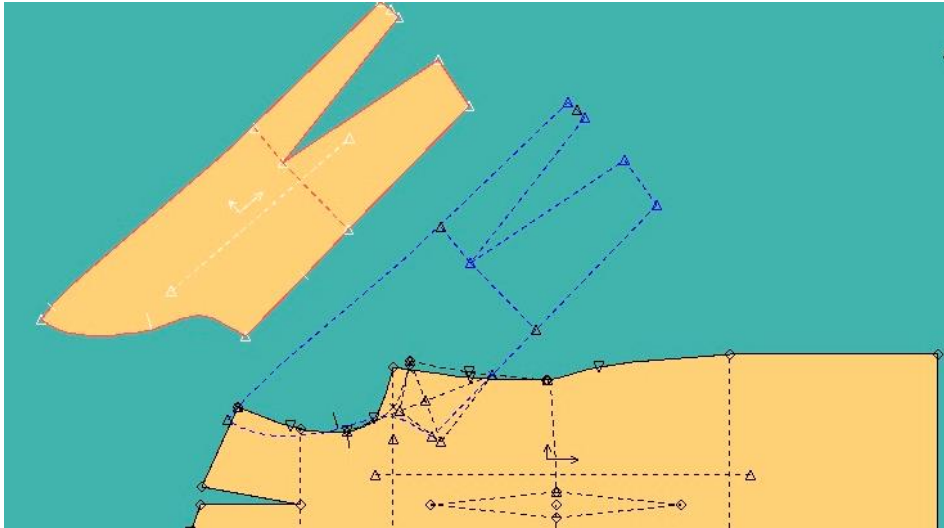
## LESSON 7. COLLARS AND LAPELS



1. Collars, developed in a separate drawing
  - 1.1. Band collar
  - 1.2. Classic collar with a band
2. Collars, developed in a joint drawing between the front and the back piece
  - 2.1. Collar in fantasy style ("sailor"- type)
3. Collars developed in a joint drawing with the front piece
  - 3.1. Basics
  - 3.2. Notch lapel collar



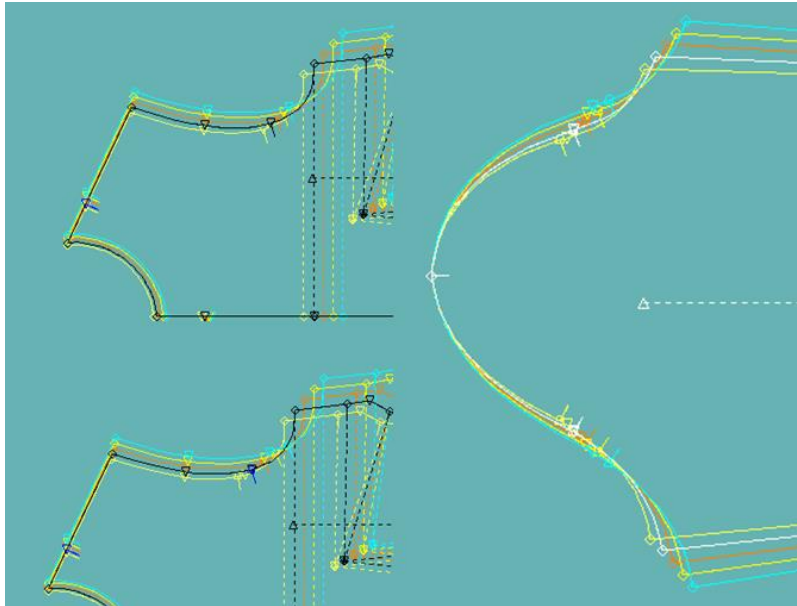
## LESSON 8. TYPICAL TYPES OF SLEEVES



1. Long kimono sleeve with arm pit gusset
  - 1.1. Deep the armhole of the front and back piece
  - 1.2. Copy the new curves from the front and back piece on the sleeve cup
  - 1.3. Split the sleeve
  - 1.4. Draw the arm pit gusset on the back and front piece
  - 1.5. Trace the arm pit gusset
  - 1.6. Merge the pieces
  - 1.7. Set the sleeve on to front piece at the end shoulder point
  - 1.8. Rotate the sleeve
  - 1.9. Replace the contour lines
2. Raglan sleeve
  - 2.1. Preliminary preparation of the front and back pieces
  - 2.2. Adjustment of the sleeve construction



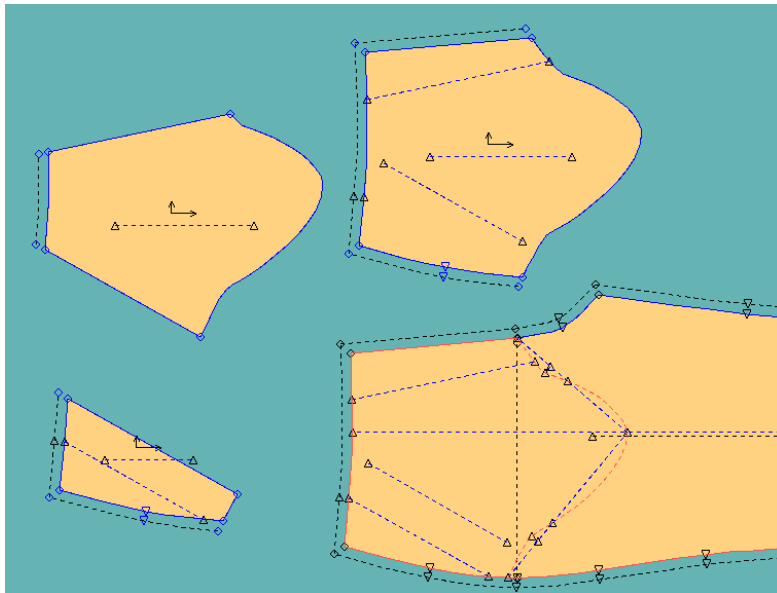
## LESSON 9. GRADING OF PIECES



1. Create Rule Table
2. Grading of skirt
  - 2.1. Size table
  - 2.2. Edit delta
  - 2.3. Copy rule, Flip rule
  - 2.4. Verify grading
3. Grading of top apparel parts
  - 3.1. Measuring table
  - 3.2. Grading of the neckline
  - 3.3. Verify grading of the neckline
  - 3.4. Grading of the armhole
  - 3.5. Verify grading of the armhole
4. Grading of sleeve
  - 4.1. Verify grading of the front part of the armhole
  - 4.2. Grading of notches of the sleeve
5. Grading of collar
6. Delete grading



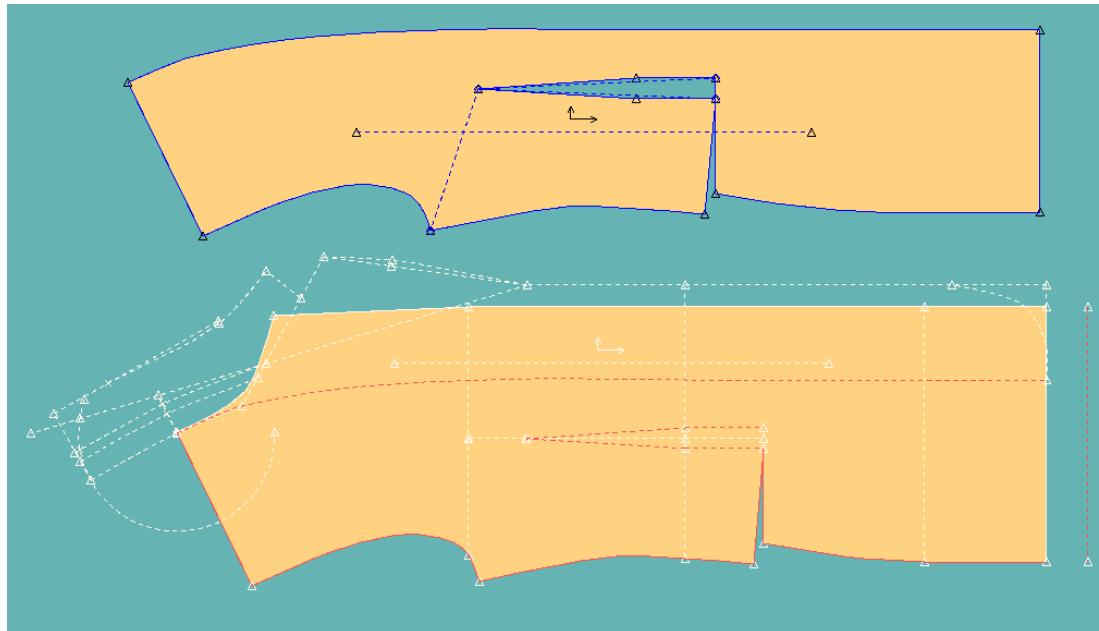
## LESSON 10. AUXILIARY PIECES FOR POCKETS



1. French pocket with two separate bags
  - 1.1. Technical drawing of the unit
  - 1.2. Input data of the style
  - 1.3. Draw pocket opening
  - 1.4. Draw pocket bags
  - 1.5. Trace the pieces
  - 1.6. Add seam allowance
  - 1.7. Adjust the front piece
  - 1.8. Complete the production patterns
2. French pocket with one piece bag
  - 2.1. Technical drawing of the unit 2
  - 2.2. Input data of the style 2
  - 2.3. Draw pocket opening 2
  - 2.4. Trace the pieces 2
  - 2.5. Add seam allowance 2
  - 2.6. Complete the production patterns 2
3. Welt pocket
  - 3.1. Technical drawing of the unit 3



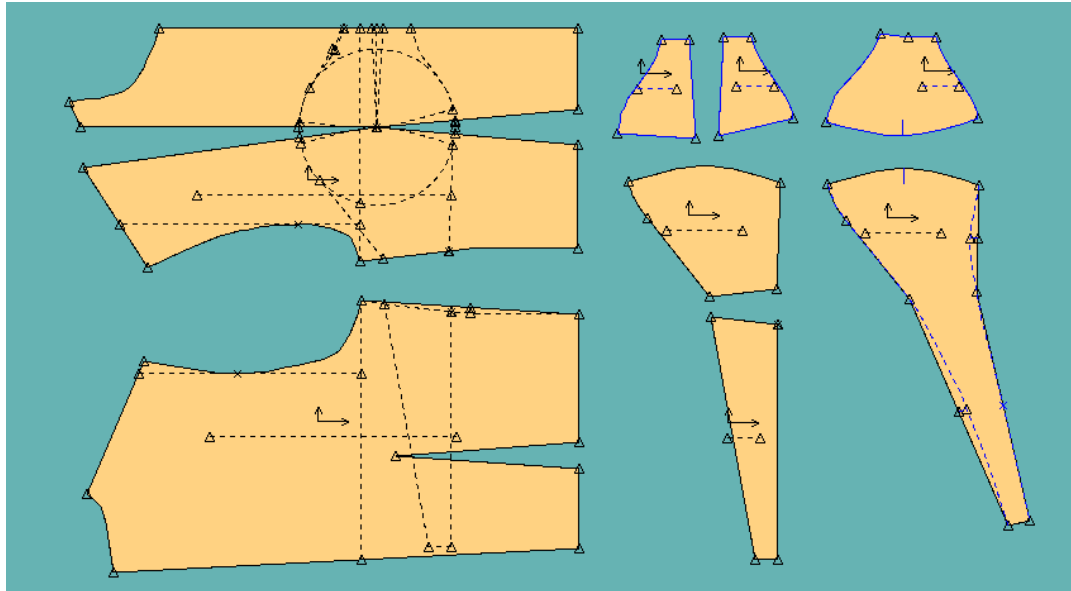
# LESSON 11. PRODUCTION PATTERNS



1. Seam allowance
  - 1.1. Define the seam allowance amount
  - 1.2. Regular corner
  - 1.3. Turn back corner
  - 1.4. Squared corner
  - 1.5. Match squared corner
  - 1.6. Create notches
2. Pattern making of auxiliary details
  - 2.1. Facing
  - 2.2. Interlining patterns (fusible)
3. Ladies' skirt lining
4. Men's jacket lining
  - 4.1. Front piece lining
  - 4.2. Back piece lining
  - 4.3. Sleeves lining



## LESSON 12. KNITWEAR CLOTHING



### 1. Underwear

1.1. Base construction

1.2. Men's underwear Style 1

1.3. Men's underwear Style 2

1.4. Men's underwear Style 3

### 2. Swimwear

2.1. Base construction

2.2. Ladies' swimwear Style 1

2.3. Ladies' swimwear Style 2





## QUIZ

Question **1**

Not yet  
answered

Marked out of  
1.00

▾ Flag question

⚙ Edit  
question

For transformation of shoulder dart to dart in the armhole:

- Change dart tip.
- Distribute dart.
- Rotate dart.
- Combine dart.

**Feedback** You have successfully solved the test. Go to the next lesson!

**Feedback** The test failed. Return to the current lesson!



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**THANK YOU FOR YOUR ATTENTION !**

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