

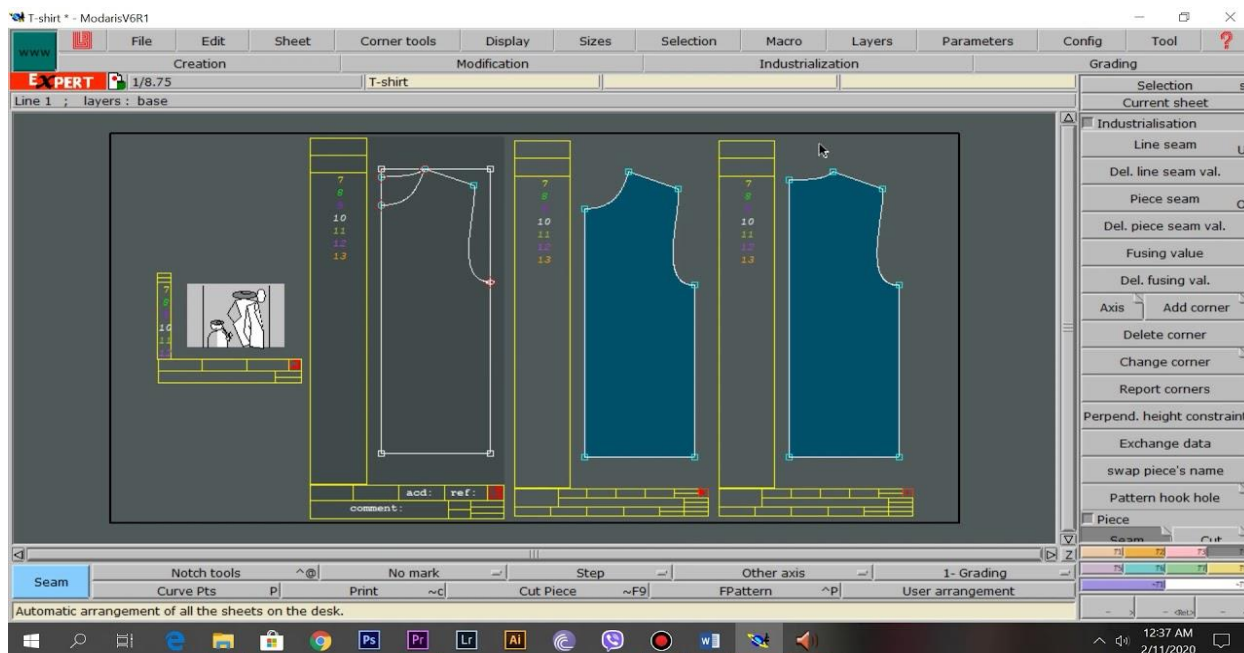


# Garment Production

## LEVEL – III

Based on March 2022, Curriculum Version 1

**Module Title: Implement CAD System in pattern production**



**Module code: IND GAP3 02 1221**

**Nominal duration: 104 Hour**

**September, 2023**

**Addis Ababa, Ethiopia**

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**ACRONYM**

OHS: - Occupational Health and Safety

CAD:-computerize aided designee

TVET: - Technical Vocational and Educational Training

TTLM: - Teaching, Training and Learning Materials

PPE:-Personal Protective Equipment

UPS: - Unit Production System

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## ACKNOWLEDGMENT

**Addis Ababa TVET Bureau** wishes to extend thanks and appreciation to the many representatives of TVET instructors and respective industry experts who donated their time and expertise to the development of this Teaching, Training and Learning Materials (TTLM).

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## INTRODUCTION OF THE MODULE

CAD System in pattern production is the use of computer-aided design (CAD) software to create and modify garment patterns. CAD systems offer a number of advantages over traditional manual patternmaking methods, including:

**Accuracy:** CAD systems allow patternmakers to create patterns with precise measurements and dimensions. This helps to ensure that garments fit well and are made to the correct specifications.

**Speed:** CAD systems can automate many of the tasks involved in patternmaking, such as calculating seam allowances and grading patterns for different sizes. This can save patternmakers a significant amount of time and effort.

**Flexibility:** CAD systems allow patternmakers to easily modify existing patterns or create new patterns from scratch. This makes it possible to quickly respond to changes in fashion trends or customer preferences.

**Creativity:** CAD systems can help designers to explore new ideas and create more complex designs.

**Communication:** CAD patterns can be easily shared with other team members, such as sewers and manufacturers.

CAD systems are used in a variety of ways in pattern production. Some of the most common applications include:

**Pattern creation:** CAD systems can be used to create patterns from scratch, using measurements from a sample garment or a computer-aided mannequin.

**Pattern modification:** CAD systems can be used to modify existing patterns to create new designs or to accommodate different body types.

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Pattern grading: CAD systems can be used to grade patterns for different sizes, from XS to XL

**This module covers the units:** and beyond.

### **Implement CAD System in pattern production**

**Unit 1:-** Prepare workstation

**Unit 2:** Interpret the design

**Unit 3:** Create block pattern

**Unit 4:** Develop Patterns

**Unit 5:** Modify and Finalize Pattern

**Unit 6:** Grade pattern

**Unit 7:** Produce marker

**Unit 8:** Complete work

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## Learning Objective of the Module

Preparing workstation

Interpreting the design

Creating block pattern

Developing Patterns

Modifying and Finalize Pattern

Grading pattern

Producing marker

Completing work

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## Module Instruction

For effective use this modules trainees are expected to follow the following module instruction:

1. Read the specific objective of this learning guide.
2. Follow the instruction describes.
3. Read the information, and try to understand what are being discussed. Ask your teachers for assistance if the content is hard.
4. Accomplish the self-check.
5. Ask Key answers from your teachers or you can request your teacher to correct. Answer.  
You are to get the key answer only after you finished answering the self-check.
6. Submit your accomplished self-check. This will from part of your training portfolio

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## UNIT 1: PREPARE WORKSTATION

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- 1.1 Set up Workstation and seat
- 1.2 Select Patternmaking tools and equipment.

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- 1.1 Setting up Workstation and seating.
- 1.2 Selecting Patternmaking tools and equipment

### 1. PREPARE WORKSTATION

- A workstation is a computer system that is designed for demanding technical or professional applications. Workstations typically have more powerful hardware than personal computers (PCs), including faster processors, more memory, and more advanced graphics cards. Workstations also often have specialized features, such as high-resolution displays and multiple graphics outputs.
- Workstations are used in a variety of industries, including engineering, design, media, and finance. They are used to run demanding applications such as CAD software, video editing software, and financial modeling software. Workstations are also used to create high-quality graphics and animations.
- ❖ Here are some examples of how workstations are used in pattern production:
- CAD software: Workstations are used to run CAD software to create and modify garment patterns. CAD software can help to improve the accuracy and efficiency of the patternmaking process.

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- 3D modeling software: Workstations are used to run 3D modeling software to create 3D models of garments. 3D models can be used to visualize garments and to identify potential fit problems.
- Visualization software: Workstations are used to run visualization software to create realistic images of garments. Visualization software can be used to create marketing materials and to help customers visualize how garments will look on them.
- Workstations can be a valuable tool for patternmakers and garment manufacturers who need to create high-quality garments quickly and efficiently.
- Here are some of the key benefits of using workstations in pattern production:
- Increased accuracy: Workstations can help to ensure that patterns are accurate and precise. This is because workstations have more powerful processors and graphics cards that can handle complex CAD software.
- Improved efficiency: Workstations can automate many of the tasks involved in patternmaking, such as digitizing patterns and creating marker patterns. This can save time and improve efficiency.
- Enhanced creativity: Workstations can help designers to explore new ideas and create more complex designs. This is because workstations have powerful graphics cards that can render complex 3D models.
- Improved communication: Workstation patterns can be easily shared with other team members, such as sewers and manufacturers. This can help to improve communication and collaboration throughout the pattern production process.
- Overall, workstations can be a valuable tool for patternmakers and garment manufacturers who want to improve the accuracy, efficiency, creativity, and communication of their pattern production process.

To prepare a workstation for implementing a CAD system in pattern production, the following steps can be taken:

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- 1) Choose a computer. The computer should have a powerful processor, plenty of RAM, and a good graphics card. This will ensure that the CAD software can run smoothly and efficiently.
- 2) Install the CAD software. Once you have chosen a computer, you will need to install the CAD software. This is usually a straightforward process, but you may need to contact the software vendor for assistance.
- 3) Configure the workstation. Once the CAD software is installed, you will need to configure the workstation. This includes setting up the display settings, keyboard shortcuts, and other preferences.
- 4) Install any necessary drivers. The CAD software may require you to install additional drivers for your hardware. Be sure to install all of the necessary drivers before you start using the CAD software.
- 5) Set up a workspace. You will need to set up a workspace for your CAD workstation. This includes providing a comfortable chair, a large monitor, and a good amount of desk space.

### 1.1 Set up Workstation and seat

Setting up a workstation is the process of configuring and organizing a physical or virtual workspace so that it is suitable for a specific purpose. In the context of implementing a CAD system in pattern production, setting up a workstation involves choosing and configuring the necessary hardware and software, as well as arranging the workspace in a way that is ergonomic and efficient.

### 1.2 Select Patternmaking tools and equipment.

When implementing a CAD system in pattern production, it is important to select the right pattern making tools and equipment. The specific tools and equipment that are needed will vary depending on the specific CAD system that is being used, but some of the most common tools and equipment include:

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- ✚ **CAD software:** The CAD software that is used will determine the specific tools and equipment that are needed. Some CAD software programs come with a set of tools and equipment, while others require users to purchase their own tools and equipment.
- ✚ **Digitizer:** A digitizer is a device that can be used to scan physical patterns into a CAD system. This can be useful for digitizing existing patterns or for creating new patterns from scratch.
- ✚ **Plotter:** A plotter is a device that can be used to print patterns from a CAD system. This can be useful for printing out patterns for cutting or for creating patterns for other uses, such as grading or marker making.
- ✚ **Pattern grading software:** Pattern grading software can be used to create patterns in different sizes. This can be useful for creating patterns for different garment sizes or for creating patterns for different brands.
- ✚ **Marker making software:** Marker making software can be used to create efficient layouts of patterns on fabric. This can be useful for reducing fabric waste and for ensuring that patterns are cut accurately.

In addition to these basic tools and equipment, pattern makers may also need to use a variety of other tools and equipment, such as:

- Measuring tape: A measuring tape is still needed for taking body measurements and garment dimensions, even when using CAD software.
- Pencils and pens: Pencils and pens are still needed for marking and drawing on patterns, even when using CAD software.
- Rulers: Rulers are still needed for measuring and marking lines on patterns, even when using CAD software.
- Tailor's chalk: Tailor's chalk is still needed for marking fabric and patterns, even when using CAD software.

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The specific tools and equipment that are needed will vary depending on the specific CAD system that is being used and the preferences of the pattern maker. However, the tools and equipment listed above are the most common and essential tools for pattern making when using a CAD system.

Here are some additional tips for selecting pattern making tools and equipment for implementing a CAD system in pattern production:

- Choose a CAD system that is compatible with the tools and equipment that you already have. This will save you money on having to purchase new tools and equipment.
- Invest in a digitizer if you plan on digitizing existing patterns or creating new patterns from scratch.
- Purchase a plotter if you plan on printing out patterns for cutting or for creating patterns for other uses.
- Invest in pattern grading software if you plan on creating patterns in different sizes.
- Purchase marker making software if you plan on creating efficient layouts of patterns on fabric.

## **SELF CHECK ONE**

### **PART ONE: TRUE/FALSE QUESTIONS**

1. The workstation should be placed in a well-lit area with good ventilation.
2. The monitor should be placed at eye level, so that you don't have to tilt your head up or down to look at it.
3. The keyboard and mouse should be placed at a comfortable height, so that your wrists are not bent at an awkward angle.
4. The chair should be adjustable, so that you can find a comfortable position.
5. You should take breaks every 20-30 minutes to avoid eye strain and fatigue.

### **PART TWO: SHORT ANSWER QUES**

1. What are some important factors to consider when setting up a workstation for CAD?

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2. Why is it important to take breaks when using CAD?
3. What are some common pattern making tools and equipment used in CAD?
4. What are the benefits of using CAD for pattern making?

### **PART THREE: MULTIPLE CHOICE QUESTIONS**

1. What is the best height for a monitor when using CAD?
  - a) At eye level
  - b) Slightly below eye level
  - c) Slightly above eye level
2. Which of the following is NOT an important factor to consider when setting up a workstation for CAD?
  - a) Lighting
  - b) Monitor placement
  - c) Keyboard and mouse placement
  - d) Room temperature
3. Why is it important to take breaks when using CAD?
  - a) To avoid eye strain and fatigue
  - b) To improve circulation
  - c) To reduce stress
  - d) All of the above
4. Which of the following is a common pattern making tool used in CAD?
  - a) Digitizer
  - b) Plotter
  - c) Scissors
  - d) All of the above
5. What is the benefit of using CAD for pattern making?
  - a) Accuracy
  - b) Efficiency
  - c) Versatility
  - d) All of the above

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## UNIT TWO: INTERPRET THE DESIGN

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- 2.1 Interpret and clarifying design drawings and specifications
- 2.2 Identify design lines and style features.
- 2.3 Obtain details of base size.
- 2.4 Determine ease and seam allowance.
- 2.5 Consider methods or trim details of garment in relation to the design.

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- 2.1 Interpreting and clarifying design drawings and specifications
- 2.2 Identifying design lines and style features.
- 2.3 Obtaining details of base size.
- 2.4 Determining ease and seam allowance.
- 2.5 Considering methods or trim details of garment in relation to the design.

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## 2. INTERPRET THE DESIGN

To interpret a design using a CAD system in pattern production, the patternmaker can follow these steps:

1. Review the designer's sketch or illustration. This can be done by importing the sketch or illustration into the CAD system.
2. Use the CAD system's drawing tools to create a technical sketch of the garment. This sketch should include all of the key details of the garment, such as the silhouette, neckline, sleeve, hemline, and fit.
3. Use the CAD system's patternmaking tools to create the technical pattern for the garment. This pattern should be created using the specifications that were developed in the technical sketch.
4. Create a prototype of the garment using the technical pattern. This will allow the patternmaker to test the fit of the garment and to make any necessary adjustments.

Here are some specific tips for interpreting a design using a CAD system:

- Use the CAD system's drawing tools to create a detailed technical sketch of the garment. This will help you to visualize the garment and to develop a pattern that is accurate and precise.
- Use the CAD system's patternmaking tools to create the technical pattern using the specifications that were developed in the technical sketch. This will help you to create a pattern that is easy to sew and that will result in a garment that meets the designer's requirements.
- Use the CAD system's grading tools to create a range of sizes for the garment. This will help you to ensure that the garment can be produced in a variety of sizes.
- Use the CAD system's marker making tools to create efficient marker patterns for the garment. This will help you to minimize fabric waste.

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By following these tips, patternmakers can use CAD systems to interpret designs accurately and efficiently.

In addition to the above, there are a few other things that patternmakers can do to use CAD systems to interpret designs more effectively:

- Use the CAD system's library of garment blocks and patterns. This can save time and effort when creating new patterns.
- Use the CAD system's simulation tools to visualize the garment as it would look on a person. This can help to identify any potential fit problems.
- Use the CAD system's collaboration tools to share patterns and designs with other team members, such as designers and sewers. This can help to improve communication and

## 2.1 Interpret and clarify design drawings and specifications collaboration throughout the pattern production process.

❖ To interpret and clarify design drawings and specifications in a CAD system, the patternmaker can follow these steps:

- 1) Review the design drawings and specifications carefully. This includes paying attention to the overall silhouette of the garment, the specific details of the garment, the desired fit, and the fabric that will be used to make the garment.
- 2) Identify any areas of the design that are unclear or ambiguous. This may involve asking the designer questions or seeking clarification from other team members.
- 3) Use the CAD system's drawing tools to create a detailed technical sketch of the garment. This sketch should include all of the key details of the garment, such as the silhouette, neckline, sleeve, hemline, and fit.
- 4) Use the CAD system's patternmaking tools to create a technical pattern for the garment. This pattern should be created using the specifications that were developed in the technical sketch.

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5) Create a prototype of the garment using the technical pattern. This will allow the patternmaker to test the fit of the garment and to make any necessary adjustments.

❖ Here are some specific tips for interpreting and clarifying design drawings and specifications in a CAD system:

- Use the CAD system's drawing tools to create a detailed technical sketch of the garment. This will help you to visualize the garment and to develop a pattern that is accurate and precise.
  - Use the CAD system's patternmaking tools to create the technical pattern using the specifications that were developed in the technical sketch. This will help you to create a pattern that is easy to sew and that will result in a garment that meets the designer's requirements.
  - Use the CAD system's grading tools to create a range of sizes for the garment. This will help you to ensure that the garment can be produced in a variety of sizes.
  - Use the CAD system's marker making tools to create efficient marker patterns for the garment. This will help you to minimize fabric waste.
  - Use the CAD system's simulation tools to visualize the garment as it would look on a person. This can help to identify any potential fit problems.
  - Use the CAD system's collaboration tools to share patterns and designs with other team members, such as designers and sewers. This can help to improve communication and collaboration throughout the pattern production process.
  - By following these tips, patternmakers can use CAD systems to interpret and clarify design drawings and specifications accurately and efficiently.
- ❖ In addition to the above, here are some specific things that patternmakers can do to interpret and clarify design drawings and specifications in a CAD system:
- Use the CAD system's library of garment blocks and patterns. This can save time and effort when creating new patterns.

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- Use the CAD system's annotation tools to add notes and comments to the design drawings and specifications. This can help to clarify any areas that are unclear or ambiguous.
- Use the CAD system's version control system to track changes to the design drawings and specifications. This can help to ensure that everyone is working on the same version of the design.

## 2.2 Identify design lines and style features.

Design lines and style features in a CAD system are the key elements that define the look and feel of a garment. They can be simple or complex, and they can be used to create a variety of different effects.

Some common design lines and style features include:

- Neckline: The neckline is the opening at the top of the garment. It can be round, V-neck, square, or scoop, and it can be high, low, or asymmetrical.
- Sleeve: The sleeve is the part of the garment that covers the arm. Sleeves can be long, short, puffed, or cap-sleeved.
- Hemline: The hemline is the bottom edge of the garment. It can be straight, flared, or asymmetrical.
- Waistline: The waistline is the natural waistline, which is located at the narrowest part of the torso. The waistline can be defined with a belt, tuck, or seam.
- Bust line: The bust line is the fullest part of the chest. The bust line can be defined with a dart, seam, or pleat.
- In addition to these basic design lines, there are a number of other style features that can be used to create a unique look for a garment. These features may include:
  - Lapels: Lapels are flaps of fabric that are attached to the collar of a jacket or coat.
  - Pleats: Pleats are folds of fabric that are created by stitching the fabric together at regular intervals.
  - Seams: Seams are lines of stitching that join two pieces of fabric together. Seams can be decorative or functional.
  - Embellishments: Embellishments are decorative elements that are added to a garment, such as beads, sequins, or embroidery.

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Patternmakers use CAD systems to identify and create design lines and style features. This allows them to create patterns that accurately reflect the designer's vision for the garment.

By following these tips, patternmakers can use CAD systems to identify design lines and style features more effectively and efficiently.

In addition to the above, here are some specific things that patternmakers can do to identify design lines and style features in a CAD system:

- Use the CAD system's library of garment blocks and patterns. This can be helpful for identifying the basic design lines and proportions of the garment.
- Use the CAD system's grading tools to create a range of sizes for the garment. This can be helpful for identifying how the design lines and style features will look on different body types.
- Use the CAD system's marker making tools to create efficient marker patterns for the garment. This can be helpful for identifying how the design lines and style features will be cut from fabric.

### **2.3 Obtain details of base size.**

The details of a base size in CAD are the key dimensions of the pattern that define the garment's silhouette and fit. These dimensions may include:

- Bust: The fullest part of the chest.
- Waist: The narrowest part of the torso.
- Hip: The fullest part of the buttocks.
- Shoulder: The top of the arm, where it meets the neck.
- Sleeve length: The length of the sleeve from the shoulder seam to the cuff.
- Rise: The distance from the crotch seam to the waistline.
- Inseam: The length of the leg from the crotch seam to the ankle.
- Out seam: The length of the leg from the hip seam to the ankle.
- Armhole depth: The distance from the shoulder seam to the underarm.

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- Neckline depth: The distance from the shoulder seam to the center of the neckline.
- Hemline length: The length of the garment from the waistline to the hem.

In addition to these basic dimensions, there may also be other details that are specific to the garment being created. For example, a garment with a pleated skirt may have dimensions for the pleat width and spacing. A garment with a fitted bodice may have dimensions for the bust dart depth and width.

The patternmaker uses the details of the base size to create a pattern that will fit the desired body type. The pattern can then be graded to create a range of sizes.

By using CAD systems, patternmakers can quickly and easily obtain the details of a base size and create patterns that are accurate and precise.

Here are some specific examples of how the details of a base size can be used in a CAD system:

- A patternmaker may use the bust dimension to create a pattern with a specific amount of ease.
- A patternmaker may use the waist dimension to create a pattern with a defined waistline.
- A patternmaker may use the hip dimension to create a pattern with a flared or straight skirt.
- A patternmaker may use the shoulder dimension to create a pattern with a fitted or relaxed bodice.
- A patternmaker may use the sleeve length dimension to create a pattern with a short or long sleeve.

To obtain the details of a base size in a CAD system, the patternmaker can follow these steps:

- 1) Open the CAD system and load the base size pattern.
- 2) Use the CAD system's measurement tools to measure the key dimensions of the base size pattern. This may include the bust, waist, hip, shoulder, and sleeve length.
- 3) Record the measurements in a spreadsheet or other document.

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- 4) Use the CAD system's annotation tools to add notes and comments to the base size pattern. This can help to clarify the measurements and to identify any specific features of the base size pattern.
- 5) Share the details of the base size pattern with the designer and other team members for feedback. This can help to ensure that everyone is on the same page and that there is a clear understanding of the base size requirements.

Here are some specific tips for obtaining the details of a base size in a CAD system:

- Use the CAD system's measurement tools to measure the key dimensions of the base size pattern accurately. This will help to ensure that the garment will fit well when it is made.
- Record the measurements in a spreadsheet or other document. This will make it easy to reference the measurements when grading the pattern to other sizes.
- Use the CAD system's annotation tools to add notes and comments to the base size pattern. This will help to clarify the measurements and to identify any specific features of the base size pattern.
- Share the details of the base size pattern with the designer and other team members for feedback. This will help to ensure that everyone is on the same page and that there is a clear understanding of the base size requirements.

In addition to the above, here are some specific things that patternmakers can do to obtain the details of a base size in a CAD system:

- Use the CAD system's library of garment blocks and patterns. This can be helpful for obtaining the basic dimensions of the base size.
- Use the CAD system's grading tools to create a range of sizes for the base size pattern. This can be helpful for verifying that the measurements are correct.
- Use the CAD system's simulation tools to visualize the garment as it would look on a person. This can be helpful for identifying any areas where the measurements need to be adjusted.

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## ***2.4 Determine ease and seam allowance.***

Ease and seam allowance are two important concepts in CAD patternmaking.

Ease is the amount of extra fabric that is added to a pattern to create a comfortable fit. It is typically measured as a percentage of the body measurement. For example, a garment with 10% ease would have 10% more fabric than the body measurement.

Seam allowance is the amount of fabric that is added to the pattern to allow for sewing and finishing the garment. It is typically measured in inches or centimeters. For example, a seam allowance of 1/2 inch would allow for a 1/2 inch seam on the garment.

Both ease and seam allowance are important for creating garments that fit well and are easy to sew.

Ease can be added to a pattern in a variety of ways. It can be added to the side seams, the shoulder seams, or the bust darts. The amount of ease that is added will depend on the style of the garment and the desired fit.

Seam allowance is typically added to all of the seams on the garment. It can be added to the pattern by drawing a line outside of the pattern pieces. The seam allowance line should be parallel to the pattern piece edge and should be the desired width of the seam.

CAD systems can be used to add ease and seam allowance to patterns in a number of ways. Some CAD systems have built-in tools for adding ease and seam allowance. Other CAD systems require the patternmaker to manually add ease and seam allowance to the pattern pieces.

Here are some specific examples of how ease and seam allowance can be used in a CAD system:

- A patternmaker may use ease to create a garment with a relaxed fit.
- A patternmaker may use ease to create a garment with a fitted waistline.
- A patternmaker may use seam allowance to create a garment with clean and professional seams.
- A patternmaker may use seam allowance to create a garment with a specific seam finish, such as a surged seam or a French seam.

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By using ease and seam allowance correctly, patternmakers can create garments that fit well and are easy to sew.

**Benefits of using CAD systems to add ease and seam allowance:**

- CAD systems can help patternmakers to add ease and seam allowance accurately and precisely.
- CAD systems can help patternmakers to save time and effort when adding ease and seam allowance to patterns.
- CAD systems can help patternmakers to create patterns that are consistent and repeatable.

**Overall, CAD systems can be a valuable tool for patternmakers who want to create garments that fit well and are easy to sew.**

To determine ease and seam allowance in a CAD system, the patternmaker can follow these steps:

1. Identify the style of the garment and the desired fit. This will help to determine the amount of ease and seam allowance that is needed.
2. Consult with the designer or other team members to get their input on the desired fit.
3. Use the CAD system's measurement tools to measure the key dimensions of the base size pattern. This may include the bust, waist, hip, shoulder, and sleeve length.
4. Use the CAD system's ease calculator to determine the amount of ease that needs to be added to the pattern.
5. Use the CAD system's seam allowance calculator to determine the amount of seam allowance that needs to be added to the pattern.
6. Add the ease and seam allowance to the pattern pieces. This can be done by drawing lines outside of the pattern piece edges.
7. Verify that the ease and seam allowance are correct by measuring the pattern pieces again.

Here are some specific tips for determining ease and seam allowance in a CAD system:

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- Use the CAD system's measurement tools to measure the key dimensions of the base size pattern accurately. This will help to ensure that the ease and seam allowance are correct.
- Use the CAD system's ease calculator and seam allowance calculator to determine the amount of ease and seam allowance that needs to be added to the pattern. These calculators can help to ensure that the ease and seam allowance are consistent throughout the pattern.
- Add the ease and seam allowance to the pattern pieces carefully. Make sure that the ease and seam allowance lines are parallel to the pattern piece edges and that they are the desired width.
- Verify that the ease and seam allowance are correct by measuring the pattern pieces again. This will help to ensure that the ease and seam allowance are consistent throughout the pattern. In addition to the above, here are some specific things that patternmakers can do to determine ease and seam allowance in a CAD system:
- Use the CAD system's library of garment blocks and patterns. This can be helpful for obtaining the basic dimensions of the base size and the recommended amount of ease and seam allowance.
- Use the CAD system's grading tools to create a range of sizes for the base size pattern. This can be helpful for verifying that the ease and seam allowance are correct for all sizes.
- Use the CAD system's simulation tools to visualize the garment as it would look on a person. This can be helpful for identifying any areas where the ease and seam allowance need to be adjusted.

By taking advantage of the features and capabilities of CAD systems, patternmakers can determine ease and seam allowance more effectively and efficiently, which can lead to better fitting garments.

## 2.5 Consider methods or trim details of garment in relation to the design.

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Methods or trim details of a garment in relation to the design in CAD system are the specific techniques and embellishments that are used to create the garment. These can include things like:

- Construction methods: This includes how the garment is assembled, such as sewing, stitching, or gluing.
- Finishing methods: This includes how the garment is finished, such as hemming, seaming, or pressing.
- Decoration methods: This includes how the garment is decorated, such as embroidery, printing, or appliqué.
- Trim details: This includes any additional embellishments that are added to the garment, such as buttons, beads, or lace.

Methods and trim details of a garment in relation to the design in a CAD system are the specific ways in which the garment will be constructed and finished. These details can include things like the stitching method, the seam finish, the hem finish, and the use of trims and embellishments.

To consider methods or trim details of a garment in relation to the design in a CAD system, the patternmaker can follow these steps:

- 1) Open the CAD system and load the garment pattern.
- 2) Use the CAD system's annotation tools to add notes and comments to the garment pattern. This can be helpful for documenting the different methods and trim details that are being considered.
- 3) Use the CAD system's visualization tools to visualize different methods and trim details on the garment. This can be done by using the CAD system's simulation tools or by creating prototypes of the garment with different methods and trim details.
- 4) Get feedback from the designer and other team members on the different methods and trim details. This can be done by sharing the CAD system files with the designer and other team

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members or by creating physical prototypes of the garment with different methods and trim details.

- 5) Optimize the methods and trim details for the fabric that will be used to make the garment. This can be done by considering the fabric's properties, such as its weight, drape, and stretch.

Here are some specific tips for considering methods or trim details of a garment in relation to the design in a CAD system:

- Use the CAD system's annotation tools to document the different methods and trim details that are being considered. This can be helpful for communicating with the designer and other team members.
- Use the CAD system's visualization tools to visualize different methods and trim details on the garment. This can help patternmakers to see how the methods and trim details will affect the overall look and feel of the garment.
- Get feedback from the designer and other team members on the different methods and trim details. This can help patternmakers to make informed decisions about which methods and trim details to use.
- Optimize the methods and trim details for the fabric that will be used to make the garment. This can help to ensure that the garment has a good fit and drape.

By following these tips, patternmakers can use CAD systems to consider methods and trim details of a garment in relation to the design more effectively and efficiently.

In addition to the above, here are some specific things that patternmakers can do to consider methods or trim details of a garment in relation to the design in a CAD system:

- Use the CAD system's library of garment blocks and patterns. This can be helpful for obtaining the basic dimensions of the garment and the recommended methods and trim details.

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- Use the CAD system's grading tools to create a range of sizes for the garment. This can be helpful for verifying that the methods and trim details are appropriate for all sizes.
- Use the CAD system's marker making tools to create efficient marker patterns for the garment. This can help to ensure that the methods and trim details are used in a way that is both efficient and cost-effective.

By taking advantage of the features and capabilities of CAD systems, patternmakers can consider methods and trim details of a garment in relation to the design more effectively and efficiently, which can lead to better fitting and more stylish garments.

## **SELF CHECK TWO**

### **PART ONE: TRUE/FALSE QUESTIONS**

1. It is important to carefully interpret and clarify design drawings and specifications before starting to work on a pattern in CAD.
2. Design lines and style features are important elements of a garment design that should be carefully considered when creating a pattern in CAD.
3. The base size of a garment is the size of the garment without any ease or seam allowance.
4. Ease and seam allowance are added to the base size to create a wearable garment.
5. Methods or trim details of a garment design, such as darts, pleats, and gathers, should be considered when creating a pattern in CAD.

### **PART TWO MULTIPLE CHOICE QUESTIONS**

1. Which of the following is NOT an important step in interpreting and clarifying design drawings and specifications?
  - a) Reading the drawings carefully and identifying all relevant information.
  - b) Asking the designer clarifying questions if needed.
  - c) Creating a list of all the materials and tools required to make the garment.
  - d) Making any necessary assumptions about the designer's intent.

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2. Which of the following is a common design line or style feature that should be considered when creating a pattern in CAD?

- A. Seam placement
- B. Dart placement
- C. Pleat placement
- D. All of the above

3. How can you obtain the details of the base size for a garment?

- A. Use a standard size chart.
- B. Take body measurements from the intended wearer.
- C. Look for the base size information in the design drawings or specifications.
- D. All of the above

4. What is the purpose of adding ease and seam allowance to a pattern?

- A. To create a wearable garment that allows for movement and comfort.
- B. To compensate for sewing inaccuracies.
- C. Both A and B
- D. Neither A nor B

5. When considering methods or trim details of a garment design in relation to the pattern, what is an important factor to keep in mind?

- A. The type of fabric being used.
- B. The construction techniques required to achieve the desired effect.
- C. The skill level of the person who will be sewing the garment.
- D. All of the above

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### UNIT THREE: CREATE BLOCK PATTERN

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- 3.1 Determine appropriate block for the development of pattern.
- 3.2 Produce block Patterns with CAD system.
- 3.3 Make alteration in according to design specifications.

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- 3.1 Determining appropriate block for the development of pattern.
- 3.2 Producing block Patterns with CAD system.
- 3.3 Making alteration in according to design specifications.

### 3 CREATE BLOCK PATTERN

Creating a block pattern in a CAD system is the process of using a computer-aided design (CAD) system to create a basic pattern for a garment. Block patterns are used as the foundation for all other garment patterns, and they are typically created based on the measurements of a specific body type.

CAD systems can be a valuable tool for creating block patterns because they offer a number of advantages over traditional drafting methods. CAD systems allow patternmakers to create block patterns quickly and accurately, and they can also be used to create block patterns for a variety of different body types.

To create a block pattern in a CAD system, the patternmaker will typically use the following steps:

1. Load the garment block template. The garment block template is a basic pattern that provides the foundation for the block pattern.
2. Measure the key dimensions of the garment block template. This may include the bust, waist, hip, shoulder, and sleeve length.

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3. Use the CAD system's drafting tools to create the block pattern. This may involve drawing lines, arcs, and circles.
4. Add notes and comments to the block pattern. This can be helpful for documenting the changes that have been made to the garment block template.
5. Save the block pattern file.

#### **Benefits of creating a block pattern in a CAD system:**

- **Accuracy:** CAD systems can help patternmakers to create block patterns that are very accurate. This is because CAD systems allow patternmakers to use precise measurement tools and drafting tools.
- **Consistency:** CAD systems can help patternmakers to create block patterns that are consistent. This is because CAD systems allow patternmakers to use the same measurement tools and drafting tools every time they create a block pattern.
- **Efficiency:** CAD systems can help patternmakers to create block patterns more efficiently. This is because CAD systems automate many of the tasks involved in creating a block pattern.
- **Flexibility:** CAD systems can help patternmakers to create block patterns that are flexible. This is because CAD systems allow patternmakers to easily make changes to the block pattern.

Overall, creating a block pattern in a CAD system can offer a number of advantages over traditional drafting methods. CAD systems can help patternmakers to create block patterns that are accurate, consistent, efficient, and flexible.

#### **3.1 Determine appropriate block for the development of pattern.**

The appropriate block for the development of a pattern in a CAD system will depend on the type of garment that is being created. However, some common blocks that are used for pattern development in CAD systems include:

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- **Basic block:** The basic block is a simple pattern that provides the foundation for all other garment patterns. It is typically created based on the measurements of a specific body type.
- **Sleeve block:** The sleeve block is a pattern that is used to create sleeves for garments. It is typically created based on the measurements of the arm and the desired sleeve style.
- **Waistband block:** The waistband block is a pattern that is used to create waistbands for garments. It is typically created based on the measurements of the waist and the desired waistband style.
- **Skirt block:** The skirt block is a pattern that is used to create skirts for garments. It is typically created based on the measurements of the hips and the desired skirt style.
- **Pants block:** The pants block is a pattern that is used to create pants for garments. It is typically created based on the measurements of the waist, hips, and thighs and the desired pants style.

Once the appropriate block has been selected, the patternmaker can use the CAD system's drafting tools to create the garment pattern. The garment pattern will be based on the block pattern, but it will be modified to create the desired garment style.

Here are some specific examples of how different blocks can be used to develop patterns in a CAD system:

- A patternmaker could use a basic block to develop a pattern for a basic dress.
- A patternmaker could use a sleeve block to develop a pattern for a shirt with a fitted sleeve.
- A patternmaker could use a waistband block to develop a pattern for a skirt with a fitted waistband.
- A patternmaker could use a skirt block to develop a pattern for a flared skirt.
- A patternmaker could use a pants block to develop a pattern for a pair of jeans.

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By using the appropriate block, patternmakers can use CAD systems to develop patterns for a variety of different garments. This can save time and money, and it can also help to ensure that the garment patterns are accurate and fit well.

In addition to the blocks listed above, there are a number of other blocks that can be used for pattern development in CAD systems. These blocks can be used to create patterns for a variety of specialized garments, such as swimwear, outerwear, and lingerie.

To determine the appropriate block for the development of a pattern in a CAD system, the patternmaker should consider the following factors:

- The type of garment that is being created. Different garments require different blocks. For example, a basic dress pattern would use a basic block, while a shirt pattern with a fitted sleeve would use a sleeve block.
- The desired style of the garment. The desired style of the garment will also affect the choice of block. For example, a flared skirt pattern would use a skirt block that is different from a pencil skirt pattern.
- The body type of the wearer. The body type of the wearer will also affect the choice of block. For example, a block for a plus-size garment would be different from a block for a petite garment.

Once the patternmaker has considered these factors, they can select the appropriate block for the development of the pattern.

Here are some specific tips for determining the appropriate block for the development of a pattern in a CAD system:

- Consult with the designer or other team members. The designer or other team members may have specific requirements for the garment style.
- Review the garment specification sheet. The garment specification sheet may list the specific blocks that are required for the garment.

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- Use the CAD system's library of blocks. The CAD system may have a library of blocks that can be used for specific garment styles.
- Experiment with different blocks. It is often helpful to experiment with different blocks to see which one produces the best results.

By following these tips, patternmakers can determine the appropriate block for the development of a pattern in a CAD system. This can help to ensure that the garment pattern is accurate and fits well.

In addition to the above, here are some specific things that patternmakers can do to determine the appropriate block for the development of a pattern in a CAD system:

- Use the CAD system's grading tools to create a range of sizes for the block pattern. This can help to ensure that the block pattern can be used to create garments for a variety of body types.
- Use the CAD system's marker making tools to create efficient marker patterns for the block pattern. This can help to ensure that the block pattern is used in a way that is both efficient and cost-effective.

### **3.2 Produce block Patterns with CAD system.**

To produce block patterns with a CAD system, the patternmaker can follow these steps:

- 1) Open the CAD system and load the garment block template. The garment block template is a basic pattern that provides the foundation for the block pattern.
- 2) Measure the key dimensions of the garment block template. This may include the bust, waist, hip, shoulder, and sleeve length.
- 3) Use the CAD system's drafting tools to create the block pattern. This may involve drawing lines, arcs, and circles.
- 4) Add notes and comments to the block pattern. This can be helpful for documenting the changes that have been made to the garment block template.
- 5) Save the block pattern file.

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Here are some specific tips for producing block patterns with a CAD system:

- Use the CAD system's measurement tools to measure the key dimensions of the garment block template accurately. This will help to ensure that the block pattern is accurate and precise.
- Use the CAD system's drafting tools to create the block pattern carefully. Make sure that the lines, arcs, and circles are drawn accurately and precisely.
- Use the CAD system's annotation tools to document the changes that have been made to the garment block template. This can be helpful for communicating with the designer and other team members.
- Save the block pattern file in a format that is compatible with the CAD system that will be used to create the garment pattern. This will help to ensure that the block pattern can be easily imported into the garment pattern software.

By following these tips, patternmakers can use CAD systems to produce block patterns that are accurate, precise, and easy to use.

In addition to the above, here are some specific things that patternmakers can do to produce block patterns with a CAD system:

- Use the CAD system's grading tools to create a range of sizes for the block pattern. This can help to ensure that the block pattern can be used to create garments for a variety of body types.
- Use the CAD system's marker making tools to create efficient marker patterns for the block pattern. This can help to ensure that the block pattern is used in a way that is both efficient and cost-effective.
- Use the CAD system's simulation tools to visualize the block pattern on a virtual model. This can help to identify any areas that need to be adjusted.

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### 3.3 Make alteration in according to design specifications.

Making alterations in a garment pattern according to design specifications is the process of modifying the pattern to meet the specific requirements of the garment design. This may involve making changes to the fit, style, or construction of the garment.

Patternmakers use a variety of techniques to make alterations in garment patterns, including:

- Moving lines: This may involve moving the grainline, centerline, or bustline of the pattern.
- Adding or removing darts: Darts are used to create shaping in garments. Patternmakers may add or remove darts to create the desired fit or style.
- Changing the seam allowances: Seam allowances are the extra fabric that is added to the pattern to allow for stitching and finishing. Patternmakers may change the seam allowances to accommodate different sewing techniques or to create a different look.
- Adding or removing details: Patternmakers may add or remove details such as pockets, collars, or sleeves to create the desired style of garment.
- Patternmakers use CAD systems to make alterations in garment patterns quickly and accurately. CAD systems provide a number of features that can be helpful for making alterations, such as:
  - Drafting tools: CAD systems provide a variety of drafting tools that can be used to move lines, add or remove darts, and change seam allowances.
  - Grading tools: CAD systems can be used to grade the altered pattern to all sizes. This can help to ensure that the garment will fit a variety of body types.
  - Marker making tools: CAD systems can be used to create efficient marker patterns for the altered pattern. This can help to ensure that the fabric is used in a way that is both efficient and cost-effective.
  - Simulation tools: CAD systems can be used to visualize the altered pattern on a virtual model. This can help to identify any areas that need to be adjusted.

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By taking advantage of the features and capabilities of CAD systems, patternmakers can make alterations in garment patterns quickly and accurately. This can help to ensure that the garment patterns meet the design specifications and that the garments will fit well.

Here are some specific examples of how CAD systems can be used to make alterations in

By using CAD systems to make alterations in garment patterns, patternmakers can save time and create patterns that are more accurate and precise. This can lead to better fitting garments for their customers.

To make alterations in a garment pattern according to design specifications, patternmakers can use a CAD system to follow these steps:

- 1) Open the CAD system and load the garment pattern.
- 2) Review the design specifications. This will help to identify the desired changes to the garment pattern.
- 3) Use the CAD system's drafting tools to make the necessary alterations to the garment pattern. This may involve moving lines, adding or removing darts, or changing the seam allowances.
- 4) Add notes and comments to the garment pattern. This can be helpful for documenting the changes that have been made.
- 5) Save the garment pattern file.

Here are some specific tips for making alterations in a garment pattern according to design specifications:

- Be sure to review the design specifications carefully. This will help to ensure that the necessary changes are made to the garment pattern.
- Use the CAD system's drafting tools to make the necessary alterations accurately and precisely.
- Add notes and comments to the garment pattern to document the changes that have been made.

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- Save the garment pattern file in a format that is compatible with the CAD system that will be used to create the garment.
- In addition to the above, here are some specific things that patternmakers can do to make alterations in a garment pattern according to design specifications:
- Use the CAD system's grading tools to make the necessary alterations to all sizes of the garment pattern. This can help to ensure that the garment pattern will fit a variety of body types.
- Use the CAD system's marker making tools to create efficient marker patterns for the garment pattern. This can help to ensure that the garment pattern is used in a way that is both efficient and cost-effective.
- Use the CAD system's simulation tools to visualize the garment pattern on a virtual model. This can help to identify any areas that need to be adjusted.

By taking advantage of the features and capabilities of CAD systems, patternmakers can make alterations in garment patterns quickly and accurately. This can help to ensure that the garment patterns meet the design specifications and that the garments will fit well.

Here are some specific examples of how CAD systems can be used to make alterations in garment patterns according to design specifications:

- A patternmaker could use a CAD system to make alterations to a basic dress pattern to create a flared dress pattern.
- A patternmaker could use a CAD system to make alterations to a sleeve block pattern to create a fitted sleeve pattern.
- A patternmaker could use a CAD system to make alterations to a waistband block pattern to create a belted waistband pattern.
- A patternmaker could use a CAD system to make alterations to a skirt block pattern to create a tiered skirt pattern.

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## ELF CHECK THREE

### PART ONE: TRUE/FALSE QUESTIONS

1. It is important to select the appropriate block for the development of a pattern in order to achieve the desired fit and style.
2. A sloper is a basic block pattern that can be used to create a variety of other garment patterns.
3. A CAD system can be used to create and edit block patterns quickly and accurately.
4. When making alterations to a block pattern, it is important to consider the design specifications of the garment.
5. A CAD system can be used to make alterations to block patterns quickly and easily.

### PART TWO MULTIPLE CHOICE QUESTIONS

1. Which of the following is the most important factor to consider when selecting the appropriate block for the development of a pattern?  
(A) The desired fit and style of the garment. (B) The type of fabric being used. (C) The skill level of the person who will be sewing the garment. (D) All of the above.
2. What is a sloper?  
(A) A basic block pattern that can be used to create a variety of other garment patterns. (B) A type of fabric that is often used for making garments. (C) A tool that is used to sew seams. (D) None of the above.
3. What is the benefit of using a CAD system to produce block patterns?  
(A) It is quick and accurate. (B) It can help to create complex patterns. (C) Both A and B. (D) Neither A nor B.
4. When making alterations to a block pattern, what is it important to consider?  
(A) The design specifications of the garment. (B) The type of fabric being used. (C) The skill level of the person who will be sewing the garment. (D) All of the above.
5. What is the benefit of using a CAD system to make alterations to block patterns

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#### **UNIT FOUR: DEVELOP PATTERNS**

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- 4.1 Identify appropriate software's.
- 4.2 Identify and apply advanced Pattern-making principles.
- 4.3 Produce pattern with design requirements.
- 4.4 Check labelling and completing Pattern pieces.
- 4.5 Document methods and formulas used.

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- 4.1 Identifying appropriate software's.
- 4.2 Identifying and applying advanced Pattern-making principles.
- 4.3 Producing pattern with design requirements.
- 4.4 Checking, labelling and completing Pattern pieces.
- 4.5 Documenting methods and formulas used.

#### **4 DEVELOP PATTERNS**

Developing patterns by CAD is the process of using a computer-aided design (CAD) system to create a blueprint for a garment. This blueprint includes all of the necessary information to create the garment, such as the shape of the garment, the size of the garment, and the placement of the seams.

CAD systems provide a number of features that can be helpful for developing patterns, such as:

- Drafting tools: CAD systems provide a variety of drafting tools that can be used to create and modify block patterns.
- Grading tools: CAD systems can be used to grade block patterns to all sizes.

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- Marker making tools: CAD systems can be used to create efficient marker patterns from fabric.
- Simulation tools: CAD systems can be used to visualize the garment pattern on a virtual model. This can help to identify any areas that need to be adjusted.

To develop patterns by CAD, patternmakers typically follow these steps:

1. Open the CAD system and load the block pattern.
2. Use the CAD system's drafting tools to make any necessary alterations to the block pattern.
3. Use the CAD system's grading tools to grade the modified block pattern to all sizes.
4. Use the CAD system's marker making tools to create efficient marker patterns from the graded block pattern.
5. Save the graded block pattern and marker patterns.

By following these steps, patternmakers can develop patterns quickly and accurately by CAD. This can help to ensure that the garment patterns meet the design specifications and that the garments will fit well.

Here are some specific examples of how CAD can be used to develop patterns:

- A patternmaker could use CAD to develop a basic dress pattern from a block pattern.
- A patternmaker could use CAD to develop a fitted sleeve pattern from a sleeve block pattern.
- A patternmaker could use CAD to develop a belted waistband pattern from a waistband block pattern.
- A patternmaker could use CAD to develop a tiered skirt pattern from a skirt block pattern.
- A patternmaker could use CAD to develop a cropped pants pattern from a pants block pattern.

By using CAD to develop patterns, patternmakers can save time and create patterns that are more accurate and precise. This can lead to better fitting garments for their customers.

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In addition to the above, CAD systems can also be used to develop patterns for more complex garments, such as those with multiple pieces or unusual shapes. CAD systems can also be used to develop patterns for garments that are made from special materials, such as leather or fur.

Overall, CAD is a powerful tool that can be used to develop patterns for a wide variety of garments. CAD systems can help patternmakers to save time, create more accurate and precise patterns, and develop patterns for more complex garments.

#### ***4.2 Identify and apply advanced Pattern-making principles.***

CAD systems can be used to apply advanced pattern-making principles in a number of ways. For example, CAD systems can be used to:

- Create more complex and sophisticated garment shapes. CAD systems allow patternmakers to create complex shapes with ease, such as asymmetrical garments, garments with multiple seams, and garments with unusual curves.
- Use seam allowances more efficiently. CAD systems can be used to create garment patterns with seam allowances that are tailored to the specific needs of the garment. This can help to reduce fabric waste and save money.
- Grade garment patterns more accurately. CAD systems can be used to grade garment patterns to a wide range of sizes with greater accuracy than manual grading methods. This can help to ensure that the garments fit well on a variety of body types.
- Create more efficient marker patterns. CAD systems can be used to create marker patterns that are more efficient than marker patterns created manually. This can help to reduce fabric waste and save money.
- Visualize garment patterns on virtual models. CAD systems can be used to visualize garment patterns on virtual models. This can help patternmakers to identify any areas of the pattern that need to be adjusted.

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Here are some specific examples of how advanced pattern-making principles can be applied using CAD systems:

- A patternmaker could use a CAD system to create a garment with a complex asymmetrical shape.
- A patternmaker could use a CAD system to create a garment with seam allowances that are tailored to the specific needs of the garment, such as a garment with a fitted bodice and a flared skirt.
- A patternmaker could use a CAD system to grade a garment pattern to a wide range of sizes with greater accuracy than manual grading methods.
- A patternmaker could use a CAD system to create a marker pattern for a garment with multiple pieces that is more efficient than a marker pattern created manually.
- A patternmaker could use a CAD system to visualize a garment pattern on a virtual model to identify any areas of the pattern that need to be adjusted, such as the fit of the shoulders or the length of the sleeves. By understanding and applying advanced pattern-making principles, patternmakers can use CAD systems to create garment patterns that are both stylish and functional.

In addition to the above, CAD systems can also be used to apply advanced pattern-making principles to create garments with special features, such as:

- Pleats: CAD systems can be used to create a variety of pleats, such as knife pleats, box pleats, and cartridge pleats.
- Gathers: CAD systems can be used to create a variety of gathers, such as shirring, smocking, and ruching.
- Darts: CAD systems can be used to create darts of different shapes and sizes.
- Seams: CAD systems can be used to create a variety of seams, such as princess seams, dart seams, and French seams.

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- Closures: CAD systems can be used to create a variety of closures, such as zippers, buttons, and snaps. By understanding and applying advanced pattern-making principles, patternmakers can use CAD systems to create garments with a wide range of special features.

#### ***4.3 Produce pattern with design requirements.***

To produce a pattern with design requirements means to create a garment pattern that meets the specific requirements of the garment design. This includes the shape of the garment, the type of fabric it will be made from, and the desired fit.

CAD systems can be used to produce patterns with design requirements by incorporating CAD pattern-making techniques. These techniques can be used to create complex garment shapes, special features, and custom fits.

Here are some examples of design requirements that can be met using CAD systems:

- Asymmetrical shape: A CAD system can be used to create a garment with an asymmetrical shape, such as a peplum dress or a wrap skirt.
- Multiple seams: A CAD system can be used to create a garment with multiple seams, such as a princess seam dress or a tailored jacket.
- Unusual curves: A CAD system can be used to create a garment with unusual curves, such as a bell-shaped skirt or a peplum top.
- Special features: A CAD system can be used to create garments with special features, such as pleats, gathers, darts, seams, and closures.
- Custom fit: A CAD system can be used to create patterns that are tailored to the individual needs of the wearer. By understanding and applying CAD pattern-making techniques, patternmakers can use CAD systems to produce patterns with design requirements to create garments that are both stylish and functional.

Here are some specific examples of how CAD systems can be used to produce patterns with design requirements:

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- A patternmaker could use a CAD system to create a garment with a flared skirt. This would involve using dart manipulation and seam allowances to create the flared shape.
- A patternmaker could use a CAD system to create a garment with a princess seam construction. This would involve using princess seams to create a fitted garment that flatters the wearer's figure.
- A patternmaker could use a CAD system to create a garment with a custom fit. This would involve using the CAD system's grading tools to create a pattern that is tailored to the individual needs of the wearer.

#### ***4.4 Checking, labelling and completing Pattern pieces.***

CAD systems can be used to check, label, and complete pattern pieces in a number of ways.

##### **Checking pattern pieces**

CAD systems can be used to check pattern pieces for accuracy and completeness. This can be done by using the CAD system's measurement tools to compare the pattern pieces to the garment design specifications. The CAD system can also be used to check for any errors in the pattern pieces, such as missing seams or incorrect markings.

##### **Labeling pattern pieces**

CAD systems can be used to label pattern pieces with the necessary information, such as the size, piece name, and directions. This information can be added to the pattern pieces automatically, or it can be added manually by the user.

##### **Completing pattern pieces**

CAD systems can be used to complete pattern pieces by adding seam allowances, hem allowances, and facing allowances. This can be done automatically, or it can be done manually by the user.

Here are some specific examples of how CAD systems can be used to check, label, and complete pattern pieces:

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- A patternmaker could use a CAD system to check a pattern piece for accuracy by comparing it to the garment design specifications. The patternmaker could use the CAD system's measurement tools to measure the length, width, and other dimensions of the pattern piece. The patternmaker could then compare these measurements to the garment design specifications to see if there are any discrepancies.
- A patternmaker could use a CAD system to label a pattern piece with the necessary information by automatically adding the size, piece name, and directions to the pattern piece. The patternmaker could also manually add this information to the pattern piece if desired.
- A patternmaker could use a CAD system to complete a pattern piece by automatically adding seam allowances, hem allowances, and facing allowances. The patternmaker could also manually add these allowances to the pattern piece if desired.

By using CAD systems to check, label, and complete pattern pieces, patternmakers can save time and improve the accuracy of their work.

In addition to the above, CAD systems can also be used to automate a number of other tasks related to pattern piece checking, labeling, and completion. For example, CAD systems can be used to:

- Generate reports that identify any errors or inconsistencies in the pattern pieces.
- Generate labels for the pattern pieces with the necessary information.
- Generate cutting patterns from the pattern pieces. By automating these tasks, CAD systems can help patternmakers to streamline their workflow and produce more accurate and complete pattern pieces.

#### ***4.5 Documents methods and formulas used.***

CAD systems use a variety of methods and formulas to create and manipulate garment patterns. Some of the most common methods and formulas include:

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- **Drafting:** Drafting methods are used to create basic pattern pieces from scratch. These methods are based on mathematical principles and are used to create patterns that are accurate and consistent.
- **Grading:** Grading methods are used to create patterns that fit a range of sizes. These methods are based on mathematical formulas that take into account the differences in body proportions between different sizes.
- **Marker making:** Marker making methods are used to create efficient cutting patterns from pattern pieces. These methods are based on mathematical formulas that take into account the fabric waste that is generated when cutting out patterns.

In addition to these common methods and formulas, CAD systems may also use a variety of other methods and formulas to create and manipulate garment patterns. For example, CAD systems may use methods and formulas to:

- Add seam allowances and hem allowances to pattern pieces.
- Notch pattern pieces.
- Generate reports that identify any errors or inconsistencies in the pattern pieces.
- Generate cutting patterns from the pattern pieces.

The specific methods and formulas that are used in a CAD system will vary depending on the specific software package. However, all CAD systems use methods and formulas that are based on mathematical principles.

Here are some examples of how CAD systems use methods and formulas to create and manipulate garment patterns:

- ❖ To create a basic pattern piece for a sleeve, a CAD system might use the following methods and formulas:
- 🚦 **Drafting method:** The CAD system would use a drafting method to create a basic sleeve pattern from scratch.

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- ✚ Grading method: The CAD system would use a grading method to create a sleeve pattern that fits a range of sizes.
  - ❖ To create a cutting pattern for a garment, a CAD system might use the following methods and formulas:
    - ✚ Marker making method: The CAD system would use a marker making method to create an efficient cutting pattern from the pattern pieces.
- By using methods and formulas, CAD systems can create and manipulate garment patterns accurately and efficiently.

CAD system documentation typically includes information about the methods and formulas that are used to create and manipulate garment patterns. This information can be helpful for patternmakers who want to understand how CAD systems work and how to use them effectively.

### ***SELF CHECK FOUR***

#### **PART ONE: TRUE/FALSE QUESTIONS**

1. There are many different CAD software programs available, and the best one for a particular task will depend on the specific needs of the user.
2. Advanced pattern-making principles can be used to create complex and unique patterns.
3. When producing a pattern with design requirements, it is important to consider the type of fabric being used, the desired fit, and the construction techniques required.
4. Checking labeling and completing pattern pieces is an important step in ensuring the accuracy of the pattern.
5. Documenting methods and formulas used is a good practice for keeping track of the pattern creation process and for sharing the pattern with others.

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## PART TWO MULTIPLE CHOICE QUESTIONS

1. Which of the following is an important factor to consider when choosing CAD software for pattern making?

(A) The type of patterns you will be creating (B) Your skill level (C) Your budget (D) All of the above

2. What is an example of an advanced pattern-making principle?

(A) Dart manipulation (B) Pleating (C) Gathering (D) All of the above

3. When producing a pattern with design requirements, what is it important to consider?

(A) The type of fabric being used (B) The desired fit (C) The construction techniques required (D) All of the above

4. What is the purpose of checking labeling and completing pattern pieces?

(A) To ensure the accuracy of the pattern (B) To make it easier to sew the garment (C) Both A and B (D) Neither A nor B

5. Why is it important to document the methods and formulas used to create a pattern?

(A) To keep track of the pattern creation process (B) To share the pattern with others (C) Both A and B (D) Neither A nor B

## PART THREE: SHORT ANSWER QUESTIONS

- 1) What are some factors to consider when choosing CAD software for pattern making?
- 2) What are some of the most popular CAD software programs for pattern making?
- 3) What are some examples of advanced pattern-making principles?
- 4) How can advanced pattern-making principles be used to create unique and innovative designs?
- 5) What are some important factors to consider when producing a pattern with design requirements?

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## UNIT FIVE: MODIFY AND FINALIZE PATTERN

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- 5.1 Identify modifications tools in software.
- 5.2 Perform modifications in according to design requirements.
- 5.3 Check Pattern pieces for accuracy of seam and ease allowances, seam match, hems and functional openings.
- 5.4 Complete and assessing pattern alterations to meet fit and design.
- 5.5 Check and finalize pattern to ensure completeness and compliance to design.
- 5.6** Label pattern information's.

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- 5.1 Identifying modifications tools in software.
- 5.2 Performing modifications in according to design requirements.
- 5.3 Checked Pattern pieces for accuracy of seam and ease allowances, seam match, hems and functional openings.
- 5.4 Completing and assessing pattern alterations to meet fit and design.
- 5.5 Checking and finalising pattern to ensure completeness and compliance to design.
- 5.6** Labelling pattern information's.

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## 5. MODIFY AND FINALIZE PATTERN

CAD systems can be used to modify pattern pieces by adding, subtracting, or moving material. This can be done to create different garment shapes, to accommodate different body types, or to make adjustments for different fabric types.

Here are some specific examples of how CAD systems can be used to modify pattern pieces:

- ❖ A patternmaker could use a CAD system to add a dart to a pattern piece to create a fitted garment.
- ❖ A patternmaker could use a CAD system to subtract material from a pattern piece to create a looser-fitting garment.
- ❖ A patternmaker could use a CAD system to move material from one part of a pattern piece to another to create a different garment shape.

### Finalizing pattern pieces

CAD systems can be used to finalize pattern pieces by adding seam allowances, hem allowances, and facing allowances. This can be done automatically, or it can be done manually by the user.

Here are some specific examples of how CAD systems can be used to finalize pattern pieces:

- ❖ A patternmaker could use a CAD system to automatically add seam allowances to all of the pattern pieces in a garment.
- ❖ A patternmaker could use a CAD system to manually add hem allowances to the bottom of a skirt pattern piece.
- ❖ A patternmaker could use a CAD system to manually add facing allowances to the neckline of a blouse pattern piece.

By using CAD systems to modify and finalize garment patterns, patternmakers can save time and improve the accuracy of their work.

In addition to the above, CAD systems can also be used to automate a number of other tasks related to pattern modification and finalization. For example, CAD systems can be used to:

- ❖ Generate reports that identify any errors or inconsistencies in the pattern pieces.
- ❖ Generate labels for the pattern pieces with the necessary information.
- ❖ Generate cutting patterns from the pattern pieces.

By automating these tasks, CAD systems can help patternmakers to streamline their workflow and produce more accurate and finalized pattern pieces.

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CAD system documentation typically includes information about how to modify and finalize garment patterns using the CAD system. This information can be helpful for patternmakers who want to learn how to use CAD systems to improve their workflow and produce more accurate and finalized pattern pieces.

### 5.1 Identify modifications tools in software.

CAD systems offer a variety of tools for modifying garment patterns. Some of the most common modification tools include:

- ✚ Dart manipulation: Dart manipulation tools allow patternmakers to add, subtract, or move darts. This can be used to create different garment shapes, to accommodate different body types, or to make adjustments for different fabric types.
- ✚ Seam allowance tools: Seam allowance tools allow patternmakers to add or remove seam allowances from pattern pieces. This can be used to create different garment finishes or to accommodate different fabric types.
- ✚ Hem allowance tools: Hem allowance tools allow patternmakers to add or remove hem allowances from pattern pieces. This can be used to create different garment lengths or to accommodate different fabric types.
- ✚ Facing allowance tools: Facing allowance tools allow patternmakers to add or remove facing allowances from pattern pieces. This can be used to create different garment finishes or to accommodate different fabric types.
- ✚ Notching tools: Notching tools allow patternmakers to add or remove notches from pattern pieces. This is necessary for assembling garments correctly.
- ✚ Marker making tools: Marker making tools allow patternmakers to create efficient cutting patterns from pattern pieces. This can help to reduce fabric waste and save time.

In addition to these common modification tools, CAD systems may also offer a variety of other tools for modifying garment patterns. For example, some CAD systems offer tools for:

- |                              |   |
|------------------------------|---|
| ❖ Adding or removing pleats  | ❖ Adding or removing zippers                |
| ❖ Adding or removing gathers | ❖ Adding or removing other garment features |
| ❖ Adding or removing pockets |   |

The specific modification tools that are available in a CAD system will vary depending on the specific software package. However, all CAD systems offer a variety of tools that can be used to modify garment patterns accurately and efficiently.



CAD system documentation typically includes information about the modification tools that are available in the CAD system. This information can be helpful for patternmakers who want to learn how to use the CAD system to modify garment patterns.

Here are some specific examples of how CAD modification tools can be used in pattern production:

- A patternmaker could use dart manipulation tools to add darts to a pattern piece to create a fitted garment.
- A patternmaker could use seam allowance tools to add seam allowances to all of the pattern pieces in a garment.
- A patternmaker could use hem allowance tools to add hem allowances to the bottom of a skirt pattern piece.
- A patternmaker could use facing allowance tools to add facing allowances to the neckline of a blouse pattern piece.
- A patternmaker could use notching tools to add notches to all of the pattern pieces in a garment.
- A patternmaker could use marker making tools to create an efficient cutting pattern from the pattern pieces in a garment.

## **5.2 Perform modifications in accordance with design requirements.**

To perform modifications in accordance with design requirements using CAD software, follow these steps:

1. Identify the design requirements. What are the specific requirements for the garment? What kind of shape does it need to have? What kind of fabric will it be made from?
2. Research CAD pattern-making techniques. There are a number of CAD pattern-making techniques that can be used to create different garment shapes. Research these techniques to find the ones that are best suited for the garment design requirements.
3. Use the CAD software to modify the pattern pieces. Use the CAD software's modification tools to add, subtract, or move material from the pattern pieces to create the desired garment shape.
4. Check the modified pattern pieces for accuracy and completeness. Make sure that the modified pattern pieces are the correct size and shape, and that they have all of the necessary markings.



5. Finalize the modified pattern pieces by adding seam allowances, hem allowances, and facing allowances. This can be done automatically, or it can be done manually by the user.

Here are some specific examples of how to perform modifications in accordance with design requirements using CAD software:

- To create a fitted garment, a patternmaker could use dart manipulation tools to add darts to the pattern pieces.
- To accommodate a different body type, a patternmaker could use seam allowance tools to add or remove seam allowances from the pattern pieces.
- To make adjustments for a different fabric type, a patternmaker could use hem allowance tools to add or remove hem allowances from the pattern pieces.
- To add a pleat to a garment, a patternmaker could use the CAD software's pleat creation tool.
- To add a pocket to a garment, a patternmaker could use the CAD software's pocket creation tool.

By following these steps, patternmakers can use CAD software to perform modifications in accordance with design requirements accurately and efficiently.

It is important to note that CAD software is a tool, and it is up to the patternmaker to use the tool effectively. Patternmakers need to have a good understanding of pattern-making principles in order to use CAD software to create accurate and wearable garment patterns.

### **5.3 Check Pattern pieces for accuracy of seam and ease allowances, seam match, hems and functional openings.**

To check the accuracy of pattern pieces for seam and ease allowances, seam match, hems, and functional openings in a CAD system, you can follow these steps:

1. Check seam and ease allowances. Use the CAD system's measurement tools to measure the seam and ease allowances on all of the pattern pieces. Make sure that they are consistent with your design specifications.



2. Check seam match. Place the pattern pieces together at the seams and make sure that they match up exactly. You can use the CAD system's overlay function to do this.
3. Check hems. Measure the hems on all of the pattern pieces to make sure that they are the correct length.
4. Check functional openings. Measure all of the functional openings on the pattern pieces, such as necklines, waistbands, and armholes. Make sure that they are the correct size and shape.

Here are some specific things you can look for when checking the accuracy of pattern pieces in a CAD system:

- ❖ Seam allowances: Make sure that the seam allowances are consistent on all of the pattern pieces and that they match your design specifications.
- ❖ Seam match: Make sure that all of the seams match up exactly when the pattern pieces are placed together.
- ❖ Hems: Make sure that all of the hems are the correct length.
- ❖ Functional openings: Make sure that all of the functional openings are the correct size and shape.
- ❖ Notches: Make sure that all of the notches are in the correct place and that they match up on the corresponding pattern pieces.
- ❖ Grain lines: Make sure that all of the grain lines are aligned correctly.

You can also use the CAD system's grading tools to check the accuracy of your graded patterns. Grading is the process of resizing a pattern for different sizes. To check the accuracy of your graded patterns, you can compare the seam lengths and hem lengths of the different sizes. You can also compare the placement of the notches and grain lines.

Once you have checked the accuracy of all of your pattern pieces, you can be confident that your garment will fit well and sew up smoothly.

Here are some additional tips for checking the accuracy of pattern pieces in a CAD system:

- ❖ Use the CAD system's layers function to keep your pattern pieces organized. This will make it easier to find and measure specific pattern pieces.
- ❖ Use the CAD system's zoom function to get a closer look at the pattern pieces. This can be helpful for checking the accuracy of small details, such as notches and grainlines.
- ❖ Print out the pattern pieces and check them manually. This can be a good way to catch any errors that you may have missed when checking the pattern pieces on the computer.



#### **5.4 Complete and assess pattern alterations to meet fit and design.**

To complete and assess pattern alterations to meet fit and design in a CAD system, you can follow these steps:

1. Identify the areas of the pattern that need to be altered. This may include the length, width, or overall shape of the garment.
2. Make the necessary alterations to the pattern in the CAD system. You can use the CAD system's tools to add or remove seams, adjust the size of notches, and move grainlines.
3. Assess the fit and design of the altered pattern. You can do this by placing the altered pattern pieces on a dress form or by draping them on your own body. Make any necessary adjustments to the pattern until you are satisfied with the fit and design.

Here are some specific tips for completing and assessing pattern alterations in a CAD system:

- ❖ Use the CAD system's layers function to keep your original pattern pieces separate from the altered pattern pieces. This will make it easier to go back to the original pattern if needed.
- ❖ Use the CAD system's grading tools to grade your altered patterns. This will ensure that your altered patterns fit different sizes accurately.
- ❖ Print out the altered pattern pieces and check them manually. This can be a good way to catch any errors that you may have missed when checking the pattern pieces on the computer.

Once you are satisfied with the fit and design of your altered pattern, you can cut out the pattern pieces and start sewing!

Here are some additional tips for assessing the fit and design of altered patterns:

- ❖ Consider the overall silhouette of the garment. Does the garment have the desired shape and drape?
- ❖ Check the fit of the garment at key points, such as the bust, waist, and hips. Are the seams aligned correctly? Is the garment comfortable to wear?
- ❖ Make sure that the functional openings of the garment are the correct size and shape. For example, the neckline should not be too tight or too loose, and the armholes should allow for enough movement.

#### **5.5 Check and finalise pattern to ensure completeness and compliance to design.**

To check and finalize a pattern to ensure completeness and compliance to design in a CAD system, you can follow these steps:





1. Check for missing pattern pieces. Make sure that all of the pattern pieces for your garment are present and accounted for.
2. Check the accuracy of the pattern pieces. Use the CAD system's measurement tools to measure the seam and ease allowances, seam match, hems, and functional openings on all of the pattern pieces. Make sure that they are consistent with your design specifications.
3. Check the overall design of the pattern. Make sure that the pattern pieces fit together correctly and that the overall silhouette of the garment is as desired.
4. Make any necessary adjustments to the pattern. If you find any errors or inconsistencies in the pattern, make the necessary adjustments using the CAD system's tools.
5. Finalize the pattern. Once you are satisfied with the accuracy and completeness of the pattern, save it as a final version.

Here are some specific tips for checking and finalizing a pattern in a CAD system:

- Use the CAD system's layers function to keep your pattern pieces organized. This will make it easier to find and check specific pattern pieces.
- Use the CAD system's zoom function to get a closer look at the pattern pieces. This can be helpful for checking the accuracy of small details, such as notches and grainlines.
- Print out the pattern pieces and check them manually. This can be a good way to catch any errors that you may have missed when checking the pattern pieces on the computer.
- Ask for feedback from a more experienced seamstress or tailor. They can help you to identify any potential problems with the pattern and make suggestions for improvements.

### ***5.6 Label pattern information's.***

To label pattern information in a CAD system, you can follow these steps:

1. Open the pattern file in the CAD system.
2. Select the pattern pieces that you want to label.
3. Use the CAD system's text tool to add labels to the pattern pieces.
4. Position the labels in a way that is clear and easy to read.
5. You can also use the CAD system's formatting options to change the font, size, and color of the labels.



## **SELF CHECK Five**

### **PART ONE: TRUE/FALSE QUESTIONS**

- 1) Most CAD software programs have tools that can be used to modify patterns.
- 2) It is important to carefully consider the design requirements before making any modifications to a pattern.
- 3) When checking pattern pieces for accuracy, it is important to check for seam and ease allowances, seam match, hems, and functional openings.
- 4) Pattern alterations should be completed and assessed to ensure that they meet the desired fit and design.
- 5) Before finalizing a pattern, it is important to check and ensure that it is complete and complies with the design specifications.
- 6) Pattern information, such as the designer's name, the pattern number, and the size, should be labeled on all pattern pieces.

### **PART TWO MULTIPLE CHOICE QUESTIONS**

1. Which of the following is a common modification tool found in CAD software?  
(A) Move tool (B) Scale tool (C) Rotate tool (D) All of the above
2. What is the most important factor to consider when making modifications to a pattern?  
(A) The design requirements (B) The type of fabric being used (C) The skill level of the person who will be sewing the garment (D) All of the above
3. When checking pattern pieces for accuracy, what is the most important thing to look for?  
(A) Seam and ease allowances (B) Seam match points (C) Hems and functional openings (D) All of the above
4. What is the purpose of completing and assessing pattern alterations?  
(A) To ensure that the alterations meet the desired fit and design (B) To troubleshoot any problems that may arise (C) Both A and B (D) Neither A nor B
5. What is the most important thing to check before finalizing a pattern?  
(A) Completeness (B) Compliance with design specifications (C) Both A and B (D) Neither A nor B
6. What information should be labeled on all pattern pieces?  
(A) Designer's name (B) Pattern number (C) Size (D) All of the above



## **UNIT 6: GRADE PATTERN**

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- 6.1 Identify grading system used in CAD.
- 6.2 Identify measurements of base size and subsequent spread.
- 6.3 Determine number of sizes in grading.
- 6.4 Establish grade increments between sizes.
- 6.5 Identify stacking grade points or lines.
- 6.6 Grade pattern using patternmaking technical skills on computer.
- 6.7 Preserve integrity of pattern attributes.
- 6.8 Label all pattern pieces with pattern marking symbols.
- 6.9 Check and rectify pattern.
- 6.10 Document graded patterns.

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- 6.1 Identifying grading system used in CAD.
- 6.2 Identifying measurements of base size and subsequent spread.
- 6.3 Determining number of sizes in grading.
- 6.4 Establishing grade increments between sizes.
- 6.5 Identifying stacking grade points or lines.
- 6.6 Grading pattern using patternmaking technical skills on computer.
- 6.7 Preserving integrity of pattern attributes.
- 6.8 Labelling all pattern pieces with pattern marking symbols.
- 6.9 Checking and rectifying pattern.
- 6.10 Documenting graded patterns.



## **6: GRADE PATTERN**

Grading a pattern in CAD is the process of resizing it for different sizes. This is done by adjusting the seam allowances and increasing or decreasing the size of the pattern pieces. Grading a pattern is important because it ensures that your garment will fit well on a variety of body types.

To grade a pattern in a CAD system, you will need to:

1. Open the pattern file in the CAD system.
2. Select the pattern pieces that you want to grade.
3. Use the CAD system's grading tools to adjust the size of the pattern pieces.
4. Save the graded pattern file.

There are two main types of grading in CAD:

- ✓ Proportional grading: This type of grading adjusts the size of all of the pattern pieces proportionately. This means that the overall shape of the garment remains the same, but the size of the garment is adjusted.
- ✓ Differential grading: This type of grading adjusts the size of different pattern pieces by different amounts. This is useful for grading patterns for garments that have different body proportions, such as women's and men's clothing.

Most CAD systems have a variety of grading tools available, so you can choose the method that is most appropriate for your needs.

Here are some tips for grading patterns in CAD:

- Use a grading chart to help you determine the correct size adjustments for each pattern piece.
- Grade the pattern pieces in a logical order. For example, you might want to start with the bodice pieces and then grade the sleeve pieces and skirt pieces.
- Check the fit of the graded pattern pieces by placing them on a dressform or by draping them on your own body. Make any necessary adjustments to the pattern pieces until you are satisfied with the fit.

Grading patterns in CAD can be a time-consuming process, but it is worth the effort to ensure that your patterns fit well and produce garments that look great.

### **6.1 Identify grading system used in CAD.**

There are two main grading systems used in CAD:



- Manual grading: This is the traditional method of grading patterns. It involves manually adjusting the seam allowances and increasing or decreasing the size of the pattern pieces.
- Automatic grading: This is a newer method of grading patterns that uses CAD software to automatically adjust the pattern pieces to the specified size range.

Automatic grading is the most common grading system used in CAD today. It is faster and more accurate than manual grading, and it allows you to grade patterns for a wider range of sizes.

To identify the grading system used in a CAD system, you can look for the following features:

- Manual grading: If the CAD system has tools for manually adjusting the seam allowances and increasing or decreasing the size of the pattern pieces, then it is using manual grading.
- Automatic grading: If the CAD system has tools for automatically grading patterns for a specified size range, then it is using automatic grading.

You can also consult the CAD system's documentation to determine the grading system that it uses.

Here are some additional tips for identifying the grading system used in a CAD system:

- Check the CAD system's toolbar for grading tools. If the CAD system has a toolbar with grading tools, then it is most likely using automatic grading.
- Check the CAD system's menu options for grading commands. If the CAD system has a menu with grading commands, then it is most likely using automatic grading.
- Consult the CAD system's documentation. The CAD system's documentation should explain how to grade patterns using the CAD system.

## ***6.2 Identify measurements of base size and subsequent spread.***

To identify the measurements of the base size and subsequent spread by CAD, you can follow these steps:

- 1) Open the pattern file in the CAD system.
- 2) Select the pattern pieces for the base size.
- 3) Use the CAD system's measurement tools to measure the key dimensions of the pattern pieces.
- 4) Record the measurements in a spreadsheet or table.
- 5) Repeat steps 2-4 for the subsequent sizes.



Here are some of the key dimensions that you may want to measure:

- Bust
- Waist
- Hips
- Length
- Sleeve length
- Shoulder width
- Armhole depth
- Neckline width

Once you have measured the key dimensions of the pattern pieces for all of the sizes, you can calculate the spread between the sizes. To do this, simply subtract the measurement for the base size from the measurement for the subsequent size.

For example, if the bust measurement for the base size is 36 inches and the bust measurement for the subsequent size is 38 inches, then the spread between the sizes for bust is 2 inches.

You can repeat this process for all of the key dimensions to calculate the spread between the sizes for each dimension.

Once you have calculated the spread between the sizes, you can use this information to grade your pattern for different sizes.

Here are some additional tips for identifying the measurements of the base size and subsequent spread by CAD:

- Use the CAD system's layers function to keep the pattern pieces for the different sizes separate. This will make it easier to measure the pattern pieces and calculate the spread between the sizes.
- Use the CAD system's measurement tools to measure the key dimensions of the pattern pieces to the nearest 1/8 inch.
- Record the measurements in a spreadsheet or table. This will make it easier to compare the measurements for the different sizes and calculate the spread between the sizes.

If you are new to identifying the measurements of the base size and subsequent spread by CAD, there are many online tutorials and resources available to help you get started. You can also ask for help from a more experienced seamstress or tailor.

### ***6.3 Determine number of sizes in grading.***

To determine the number of sizes in grading in CAD, you can follow these steps:

1. Open the pattern file in the CAD system.
2. Select the pattern pieces for the base size.



3. Use the CAD system's measurement tools to measure the key dimensions of the pattern pieces.
4. Record the measurements in a spreadsheet or table.
5. Repeat steps 2-4 for the subsequent sizes.
6. Calculate the spread between the sizes for each dimension by subtracting the measurement for the base size from the measurement for the subsequent size.
1. Decide how many sizes you want to grade your pattern for. A good rule of thumb is to grade your pattern for at least 3 sizes, but you may want to grade your pattern for more sizes if you are designing for a wide range of sizes or if you are designing a garment that is typically offered in a wide range of sizes.
2. Use the CAD system's grading tools to grade your pattern for the desired number of sizes.

Once you have graded your pattern for the desired number of sizes, you can save the file and start sewing!

Here are some additional tips for determining the number of sizes in grading in CAD:

- Use the CAD system's layers function to keep the pattern pieces for the different sizes separate. This will make it easier to measure the pattern pieces and calculate the spread between the sizes.
- Use the CAD system's measurement tools to measure the key dimensions of the pattern pieces to the nearest 1/8 inch.
- Record the measurements in a spreadsheet or table. This will make it easier to compare the measurements for the different sizes and calculate the spread between the sizes.
- Consider the size range of your target audience and the type of garment you are designing when deciding how many sizes to grade your pattern for.

#### ***6.4 ESTABLISH GRADE INCREMENTS BETWEEN SIZES.***

To establish grade increments between sizes by CAD system, you will need to follow these steps:

- 1) Choose your CAD system. There are many different CAD systems available, so it is important to choose one that is right for you and your needs. Some popular CAD systems for pattern grading include Grafis, Lectra, and Gerber.



- 2) Create a grading chart. A grading chart is a table that lists the grade increments for each size. The grade increments are typically determined based on the body measurements of the different sizes. You can find grading charts online or in pattern grading books.
- 3) Import your pattern into the CAD system. Once you have created your grading chart, you will need to import your pattern into the CAD system. This can be done by scanning the pattern or by digitizing it with a digitizer.
- 4) Define your grading points. Grading points are the key points on the pattern that will be used to calculate the grade increments. You can define your grading points manually or by using the CAD system's automatic grading point placement tools.
- 5) Apply the grading rules. Once you have defined your grading points, you will need to apply the grading rules. The grading rules will tell the CAD system how much to increase or decrease each grading point for each size. You can use the CAD system's pre-programmed grading rules or you can create your own custom grading rules.
- 6) Generate the graded patterns. Once you have applied the grading rules, you can generate the graded patterns. The CAD system will create a new pattern for each size, based on the grade increments that you specified.

Here are some additional tips for establishing grade increments between sizes by CAD system:

- Use a grading chart that is appropriate for the type of garment that you are making. For example, there are different grading charts for women's wear, men's wear, and children's wear.
- Consider the ease of the garment when establishing your grade increments. Ease is the amount of room that is added to the garment to allow for movement and comfort. More ease will be required for looser-fitting garments.
- Use the CAD system's grading tools to preview the graded patterns before you generate them. This will help you to identify any potential problems with the grading.
- Make sure to test the graded patterns on a sample garment before sewing the final garment. This will help you to ensure that the garment fits properly in all sizes.

Here are some examples of grade increments for different types of garments:

- Women's tops: Bust: 1 inch, waist: 1/2 inch, hip: 1 inch, length: 1/4 inch
- Women's dresses: Bust: 1 inch, waist: 1/2 inch, hip: 1 inch, length: 1/2 inch
- Men's shirts: Chest: 1 inch, waist: 1/2 inch, length: 1/4 inch





- Men's pants: Waist: 1 inch, hip: 1 inch, length: 1/2 inch
- Children's clothing: All measurements: 1/2 inch

### ***6.5 Identify stacking grade points or lines.***

To identify stacking grade points or lines in CAD, you can use the following methods:

**Method 1: Use the CAD system's grading tools :-**Most CAD systems have grading tools that can help you to identify stacking grade points or lines. These tools typically work by highlighting the grade points or lines that are overlapping.

To use the CAD system's grading tools to identify stacking grade points or lines, follow these steps:

1. Open the CAD system and import your pattern.
2. Select the grading tools from the CAD system's toolbar.
3. Click and drag over the area of the pattern where you think the stacking grade points or lines are located.
4. The CAD system will highlight the grade points or lines that are overlapping.

**Method 2: Use the CAD system's layer visibility:-**Another way to identify stacking grade points or lines in CAD is to use the CAD system's layer visibility. You can turn off the visibility of all of the layers except for the grading layer. This will make it easier to see the grade points or lines that are overlapping.

To use the CAD system's layer visibility to identify stacking grade points or lines, follow these steps:

1. Open the CAD system and import your pattern.
2. Open the layer manager and turn off the visibility of all of the layers except for the grading layer.
3. The CAD system will only display the grade points or lines.

**Method 3: Manually inspect the grade points or lines :-**If you are unable to use the CAD system's grading tools or layer visibility to identify stacking grade points or lines, you can manually inspect the grade points or lines. To do this, you will need to zoom in on the area of the pattern where you think the stacking grade points or lines are located.

Once you have zoomed in, you can use the CAD system's selection tools to select the grade points or lines. If the grade points or lines are overlapping, you will be able to select them both.



Once you have identified the stacking grade points or lines, you can correct them by moving one of the grade points or lines out of the way. You can also use the CAD system's grading tools to adjust the grade increments for the affected grade points or lines.

Here are some additional tips for identifying stacking grade points or lines in CAD:

- Look for grade points or lines that are overlapping or touching each other.
- Look for grade points or lines that are on different layers.
- Use the CAD system's zoom and selection tools to inspect the grade points or lines more closely.
- If you are unsure whether or not a grade point or line is overlapping, you can try moving it out of the way to see if there is another grade point or line underneath it.

### ***6.6 Grade pattern using patternmaking technical skills on computer.***

To grade a pattern using pattern making technical skills on a computer, you will need to follow these steps:

1. Choose your CAD system. There are many different CAD systems available, so it is important to choose one that is right for you and your needs. Some popular CAD systems for pattern grading include Grafis, Lectra, and Gerber.
2. Open the CAD system and import your pattern.
3. Identify the grading points. Grading points are the key points on the pattern that will be used to calculate the grade increments. You can identify the grading points manually or by using the CAD system's automatic grading point placement tools.
4. Apply the grading rules. The grading rules will tell the CAD system how much to increase or decrease each grading point for each size. You can use the CAD system's pre-programmed grading rules or you can create your own custom grading rules.
5. Preview the graded patterns. Once you have applied the grading rules, you can preview the graded patterns. This will help you to identify any potential problems with the grading.
6. Generate the graded patterns. Once you are satisfied with the graded patterns, you can generate them. The CAD system will create a new pattern for each size, based on the grade increments that you specified.

Here are some additional tips for grading a pattern using pattern making technical skills on a computer:



- Use a grading chart that is appropriate for the type of garment that you are making. For example, there are different grading charts for women's wear, men's wear, and children's wear.
- Consider the ease of the garment when establishing your grade increments. Ease is the amount of room that is added to the garment to allow for movement and comfort. More ease will be required for looser-fitting garments.
- Use the CAD system's grading tools to preview the graded patterns before you generate them. This will help you to identify any potential problems with the grading.
- Make sure to test the graded patterns on a sample garment before sewing the final garment. This will help you to ensure that the garment fits properly in all sizes.

Here are some specific examples of how to use pattern making technical skills to grade a pattern on a computer:

- To grade a dart:
  1. Select the dart points and the dart seam.
  2. Use the CAD system's grading tools to increase or decrease the dart points and the dart seam by the appropriate grade increments.
  3. Make sure that the dart points are still aligned and that the dart seam is still smooth.
- To grade a neckline:
  1. Select the neckline edge.
  2. Use the CAD system's grading tools to increase or decrease the neckline edge by the appropriate grade increments.
  3. Make sure that the neckline edge is still smooth and that it still matches the center front and center back of the pattern.
- To grade a sleeve:
  1. Select the sleeve cap, the sleeve hem, and the sleeve seam.
  2. Use the CAD system's grading tools to increase or decrease the sleeve cap, the sleeve hem, and the sleeve seam by the appropriate grade increments.
  3. Make sure that the sleeve cap is still smooth and that it still matches the armhole of the pattern.



These are just a few examples of how to use pattern making technical skills to grade a pattern on a computer. There are many other ways to grade patterns, and the specific steps that you take will vary depending on the type of garment that you are making and the style of the garment.

### ***6.7 Preserve integrity of pattern attributes.***

To preserve the integrity of pattern attributes in CAD, you can follow these steps:

1. Use layers. Layers are a great way to organize your pattern and keep the different attributes separate. For example, you could have one layer for the pattern pieces, another layer for the grading points, and another layer for the attributes.
2. Use groups. Groups are another way to organize your pattern and keep the different attributes together. For example, you could group all of the pattern pieces for a particular size together, or group all of the attributes for a particular pattern piece together.
3. Use blocks. Blocks are a great way to create reusable patterns and attributes. For example, you could create a block for a sleeve that you could then use in different garment patterns.
4. Use templates. Templates can be used to create new patterns and attributes with consistent settings. For example, you could create a template for a new pattern piece that includes the default layer, group, and block settings.
5. Use a pattern grading system. A pattern grading system can help you to ensure that your pattern attributes are preserved when you grade your pattern. For example, a pattern grading system can automatically update the grading points and seam allowances for your pattern.

### ***6.8 Label all pattern pieces with pattern marking symbols.***

To label all pattern pieces with pattern marking symbols in CAD, you can follow these steps:

1. Open the CAD system and import your pattern.
2. Select the pattern pieces that you want to label.
3. Use the CAD system's text tool to add the pattern marking symbols to the pattern pieces.
4. Use the CAD system's alignment tools to align the pattern marking symbols correctly.
5. Repeat steps 3 and 4 for all of the pattern pieces that you want to label.

Here are some additional tips for labeling all pattern pieces with pattern marking symbols in CAD:

- Use a consistent font and size for all of the pattern marking symbols.



- Place the pattern marking symbols in a location where they will be easy to see and understand.
- Use the CAD system's layer visibility to turn off the visibility of the pattern marking symbols when you are not using them.
- Make sure to label all of the pattern pieces, even if the pattern marking symbols are self-explanatory.

Here are some examples of how to label pattern pieces with pattern marking symbols in CAD:

- To label a dart:
  1. Select the dart points and the dart seam.
  2. Use the CAD system's text tool to add the text "Dart" to the dart points.
  3. Use the CAD system's alignment tools to align the text "Dart" so that it is centered between the dart points.
- To label a neckline:
  1. Select the neckline edge.
  2. Use the CAD system's text tool to add the text "Neckline" to the neckline edge.
  3. Use the CAD system's alignment tools to align the text "Neckline" so that it is centered along the neckline edge.
- To label a sleeve:
  1. Select the sleeve cap, the sleeve hem, and the sleeve seam.
  2. Use the CAD system's text tool to add the text "Sleeve" to the sleeve cap, the sleeve hem, and the sleeve seam.
  3. Use the CAD system's alignment tools to align the text "Sleeve" so that it is centered along the sleeve cap, the sleeve hem, and the sleeve seam.

These are just a few examples of how to label pattern pieces with pattern marking symbols in CAD. There are many other ways to label pattern pieces, and the specific steps that you take will vary depending on the type of garment that you are making and the style of the garment.

### **Using CAD system tools to label pattern pieces with pattern marking symbols**

Most CAD systems have tools that can help you to label pattern pieces with pattern marking symbols. These tools typically work by providing you with a library of pre-made pattern marking symbols that you can insert into your pattern.



To use the CAD system's tools to label pattern pieces with pattern marking symbols, follow these steps:

1. Open the CAD system and import your pattern.
2. Select the pattern pieces that you want to label.
3. Click on the pattern marking symbol tool in the CAD system's toolbar.
4. Select the pattern marking symbol that you want to insert into the pattern.
5. Click on the pattern piece where you want to insert the pattern marking symbol.
6. Repeat steps 3-5 for all of the pattern pieces that you want to label.

### **Using templates to label pattern pieces with pattern marking symbols**

You can also use templates to label pattern pieces with pattern marking symbols. A template is a pre-made pattern that you can use as a starting point for creating new patterns.

To use a template to label pattern pieces with pattern marking symbols, follow these steps:

1. Open the CAD system and create a new pattern from the template.
2. Select the pattern pieces that you want to label.
3. Use the CAD system's text tool to add the pattern marking symbols to the pattern pieces.
4. Use the CAD system's alignment tools to align the pattern marking symbols correctly.
5. Repeat steps 3 and 4 for all of the pattern pieces that you want to label.

### **Benefits of labeling pattern pieces with pattern marking symbols**

Labeling pattern pieces with pattern marking symbols has a number of benefits, including:

- It makes it easier to understand how the pattern pieces go together.
- It helps to avoid mistakes when sewing the garment.
- It makes it easier to make alterations to the pattern.
- It makes it easier to share the pattern with others.

## ***6.9 Check and rectify pattern.***

To check and rectify a pattern in CAD, you can follow these steps:

1. Open the CAD system and import your pattern.
2. Inspect the pattern for any errors, such as:
  - Overlapping or intersecting pattern pieces
  - Missing or duplicate pattern pieces
  - Incorrect seam allowances
  - Incorrect grading



- Incorrect pattern marking symbols

1. Use the CAD system's tools to rectify any errors that you find.
2. Preview the pattern to make sure that all of the errors have been fixed.
3. Generate the corrected pattern.

Here are some additional tips for checking and rectifying a pattern in CAD:

- Use the CAD system's layer visibility to turn on and off different layers of the pattern. This can help you to identify and fix errors more easily.
- Use the CAD system's zoom and selection tools to inspect the pattern in detail.
- Use the CAD system's grading tools to check the grading of the pattern.
- Use the CAD system's pattern marking symbol tool to check the pattern marking symbols of the pattern.
- Make sure to check the pattern for errors before you start sewing the garment.

Here are some specific examples of how to check and rectify pattern errors in CAD:

- To check for overlapping or intersecting pattern pieces:
  1. Turn on the visibility of all of the pattern pieces.
  2. Zoom in on the areas where the pattern pieces overlap or intersect.
  3. Use the CAD system's selection tools to select the overlapping or intersecting pattern pieces.
  4. Use the CAD system's tools to move or resize the pattern pieces so that they no longer overlap or intersect.
- To check for missing or duplicate pattern pieces:
  1. Make a list of all of the pattern pieces that should be included in the pattern.
  2. Compare the list of pattern pieces to the actual pattern pieces in the CAD system.
  3. If any pattern pieces are missing, create the missing pattern pieces using the CAD system's tools.
  4. If any pattern pieces are duplicated, delete the duplicate pattern pieces.
- To check for incorrect seam allowances:
  1. Select the seam allowance edges of the pattern pieces.
  2. Use the CAD system's measurement tools to measure the seam allowances.
  3. Make sure that the seam allowances are correct for the type of garment that you are making and the fabric that you are using.



4. If any of the seam allowances are incorrect, use the CAD system's tools to adjust them.
- To check for incorrect grading:
    1. Select the grading points on the pattern.
    2. Use the CAD system's grading tools to check the grading of the pattern.
    3. Make sure that the grading is correct for the size range that you are making.
    4. If any of the grading is incorrect, use the CAD system's grading tools to adjust it.
  - To check for incorrect pattern marking symbols:
    - a. Select the pattern marking symbols on the pattern.
    - b. Make sure that the pattern marking symbols are correct for the type of garment that you are making.
    - c. Make sure that the pattern marking symbols are placed in the correct locations on the pattern.
    - d. If any of the pattern marking symbols are incorrect, use the CAD system's tools to correct them.

### ***6.10 Document graded patterns.***

To document graded patterns in CAD, you can follow these steps:

1. Open the CAD system and import your graded patterns.
2. Create a new drawing for each graded pattern.
3. Label each drawing with the grade size and the garment name.
4. Add a title block to each drawing. The title block should include the following information:
  - Garment name
  - Grade size
  - Date
  - Designer's name
  - Company name
5. Save each drawing as a PDF file.

Here are some additional tips for documenting graded patterns in CAD:

- Use a consistent layer structure for all of your graded patterns. This will make it easier to find and edit the patterns later on.





- Use the CAD system's annotation tools to add notes and instructions to the graded patterns.
- Use the CAD system's measurement tools to add measurements to the graded patterns.
- Use the CAD system's grading tools to generate a grading table for each graded pattern.
- Save the graded patterns in a central location where they can be easily accessed.

Here are some specific examples of how to document graded patterns in CAD:

- To label a graded pattern drawing:
  1. Open the graded pattern drawing in the CAD system.
  2. Click on the text tool in the CAD system's toolbar.
  3. Type the grade size and the garment name in the text box.
  4. Click on the drawing where you want to insert the text.
  5. Use the CAD system's alignment tools to align the text correctly.
- To add a title block to a graded pattern drawing:
  - 1) Open the graded pattern drawing in the CAD system.
  - 2) Click on the title block tool in the CAD system's toolbar.
  - 3) Select the title block style that you want to use.
  - 4) Click on the drawing where you want to insert the title block.
  - 5) Use the CAD system's alignment tools to align the title block correctly.
  - 6) Edit the title block information to include the garment name, grade size, date, designer's name, and company name.
- To save a graded pattern drawing as a PDF file:
  - 1) Open the graded pattern drawing in the CAD system.
  - 2) Click on the "File" menu and then select "Save As".
  - 3) Select the "PDF (\*.pdf)" file format from the drop-down menu.
  - 4) Type a name for the PDF file and click on the "Save" button.



## ***SELF CHECK six***

### **PART ONE: TRUE/FALSE QUESTIONS**

- 1) There are many different grading systems used in CAD software programs.
- 2) The base size is the size of the pattern without any ease or seam allowance.
- 3) The number of sizes in grading is determined by the required size range and the desired grade increments.
- 4) Grade increments are the amount by which the pattern is increased or decreased for each size.
- 5) Stacking grade points or lines are used to align pattern pieces when grading.
- 6) When grading patterns on a computer, it is important to use patternmaking technical skills to ensure that the integrity of the pattern is preserved.
- 7) All pattern pieces should be labeled with pattern marking symbols to indicate seam allowances, notches, and other important details.
- 8) It is important to check and rectify graded patterns before using them to sew a garment.
- 9) Graded patterns should be documented to keep track of the grading process and to make it easier to share the patterns with others.

### **PART TWO MULTIPLE CHOICE QUESTIONS**

1. Which of the following is a common grading system used in CAD?  
(A) Proportional grading system (B) Block grading system (C) Both A and B (D) Neither A nor B
2. What is the base size?  
(A) The size of the pattern without any ease or seam allowance (B) The size of the pattern with ease and seam allowance (C) The size of the pattern with ease but without seam allowance (D) The size of the pattern without ease but with seam allowance
3. How is the number of sizes in grading determined?  
(A) By the required size range and the desired grade increments (B) By the base size and the desired grade increments (C) By the required size range and the base size (D) By the desired grade increments and the base size



4. What are grade increments?

(A) The amount by which the pattern is increased or decreased for each size (B) The amount by which the base size is increased or decreased for each size (C) The amount by which the ease is increased or decreased for each size (D) The amount by which the seam allowance is increased or decreased for each size

5. What is the purpose of stacking grade points or lines?

(A) To align pattern pieces when grading (B) To ensure that the pattern pieces fit together properly when sewn (C) Both A and B (D) Neither A nor B

6. What is important to keep in mind when grading patterns on a computer?

(A) To use patternmaking technical skills to ensure that the integrity of the pattern is preserved (B) To understand how to grade different types of pattern features, such as darts, seams, and hems (C) Both A and B (D) Neither A nor B

7. Why is it important to label all pattern pieces with pattern marking symbols?

(A) To indicate seam allowances (B) To indicate notches (C) To indicate other important details (D) All of the above

8. What is the purpose of checking and rectifying graded patterns before using them to sew a garment?

(A) To check for errors (B) To make any necessary corrections (C) Both A and B (D) Neither A nor B

9. Why is it important to document graded patterns?

(A) To keep track of the grading process (B) To make it easier to share the patterns with others (C) Both A and B (D) Neither A nor B



## ***UNIT 7:PRODUCE MARKER***

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- 7.1 Collect and Check requires pattern pieces by computer.
- 7.2 Identify marker requirements.
- 7.3 Manipulate and Position Pattern pieces in automatic software system.
- 7.4 Check Pattern 'grain' indication against grain of material.
- 7.5 Create marker with required pattern pieces, size and fabric requirements.
- 7.6 Check marker against order requirements.
- 7.7 Document marker and maintain records.

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- 7.1 Collecting and Checking required pattern pieces by computer.
- 7.2 Identifying marker requirements.
- 7.3 Manipulating and Positioning Pattern pieces in automatic software system.
- 7.4 Checking Pattern 'grain' indication against grain of material.
- 7.5 Creating marker with required pattern pieces, size and fabric requirements.
- 7.6 Checking marker against order requirements.
- 7.7 Documenting marker and maintaining records.



## 7 :PRODUCE MARKER

PRODUCE MARKER in CAD is a process of automatically generating a cutting layout for a set of pattern pieces. This process is typically used in the garment industry to optimize fabric usage and reduce waste.

To produce a marker in CAD, the user will first need to import the pattern pieces into the CAD system. The user will then need to specify the fabric width, the seam allowances, and the desired marker layout. The CAD system will then generate a marker that places the pattern pieces on the fabric in the most efficient way possible.

Once the marker has been generated, the user can preview it to make sure that it is correct. The user can then export the marker to a printer or to a cutting machine.

Here are some of the benefits of using CAD to produce markers:

- Increased fabric efficiency: CAD markers can optimize fabric usage by placing the pattern pieces on the fabric in the most efficient way possible. This can help to reduce fabric waste and save money.
- Improved accuracy: CAD markers are generated using computer software, which eliminates the risk of human error. This helps to ensure that the markers are accurate and that the garments will be cut correctly.
- Increased productivity: CAD markers can be generated quickly and easily, which can help to improve the productivity of the cutting process.

Overall, using CAD to produce markers is a more efficient and accurate way to cut garments than traditional manual methods.

Here are some examples of CAD software that can be used to produce markers:

- Grafis OptiNest
- Gerber Accumark
- Lectra Diamino

These software packages offer a variety of features to help users produce efficient and accurate markers, such as:

- Automatic marker generation
- Manual marker editing
- Grading
- Reporting
- Fabric defect avoidance
- Piece matching
-



## *7.1 Collect and Check requires pattern pieces by computer.*

To collect and check required pattern pieces by computer, you can follow these steps:

1. Identify the pattern pieces that you need. This can be done by consulting a pattern drawing, a garment construction guide, or a sewing blog.
2. Import the pattern pieces into a CAD system. Most CAD systems have a way to import pattern pieces from a variety of file formats, such as PDF, AI, and EPS.
3. Check the pattern pieces for errors. This includes checking for overlapping or intersecting pattern pieces, missing or duplicate pattern pieces, incorrect seam allowances, incorrect grading, and incorrect pattern marking symbols.
4. Use the CAD system's tools to correct any errors that you find.
5. Save the corrected pattern pieces in a central location where they can be easily accessed.

Here are some additional tips for collecting and checking required pattern pieces by computer:

- Use a consistent naming convention for all of your pattern pieces. This will make it easier to find and organize the pattern pieces later on.
- Use the CAD system's layer visibility to turn on and off different layers of the pattern pieces. This can help you to identify and fix errors more easily.
- Use the CAD system's zoom and selection tools to inspect the pattern pieces in detail.
- Use the CAD system's grading tools to check the grading of the pattern pieces.
- Use the CAD system's pattern marking symbol tool to check the pattern marking symbols of the pattern pieces.
- Make sure to check the pattern pieces for errors before you start sewing the garment.

Here are some specific examples of how to collect and check required pattern pieces by computer:

- To import a pattern piece into a CAD system:
- Open the CAD system.
- Click on the "File" menu and then select "Import".
- Select the file format of the pattern piece that you want to import.
- Click on the pattern piece file and click on the "Open" button.
- To check a pattern piece for errors:
- Select the pattern piece in the CAD system.
- Use the CAD system's zoom and selection tools to inspect the pattern piece in detail.



- Look for any errors, such as overlapping or intersecting pattern pieces, missing or duplicate pattern pieces, incorrect seam allowances, incorrect grading, and incorrect pattern marking symbols.
- To correct an error in a pattern piece:
  - Select the pattern piece in the CAD system.
  - Use the CAD system's tools to correct the error.
  - For example, if two pattern pieces are overlapping, you can use the CAD system's tools to move one of the pattern pieces so that it is no longer overlapping.
- To save a pattern piece in a CAD system:
  - Select the pattern piece in the CAD system.
  - Click on the "File" menu and then select "Save As".
  - Type a name for the pattern piece file and click on the "Save" button.

## ***7.2 Identify marker requirements***

To identify marker requirements by CAD, you can follow these steps:

1. Identify the pattern pieces that you need to mark. This can be done by consulting a pattern drawing, a garment construction guide, or a sewing blog.
2. Import the pattern pieces into a CAD system. Most CAD systems have a way to import pattern pieces from a variety of file formats, such as PDF, AI, and EPS.
3. Specify the fabric width and the seam allowances. This information is typically provided by the fabric manufacturer.
4. Specify the desired marker layout. This can be done by selecting from a variety of pre-defined marker layouts or by creating your own custom marker layout.
5. Use the CAD system's tools to generate a marker. The CAD system will place the pattern pieces on the fabric in the most efficient way possible, based on the specified fabric width, seam allowances, and marker layout.
6. Review the marker to make sure that it meets your requirements. This includes checking the following:
  - Are all of the pattern pieces included in the marker?
  - Are the pattern pieces placed in the correct orientation?
  - Are the seam allowances correct?
  - Is the marker layout efficient?



7. Make any necessary adjustments to the marker.
8. Export the marker to a printer or to a cutting machine.

Here are some additional tips for identifying marker requirements by CAD:

- Use a consistent naming convention for all of your pattern pieces. This will make it easier to find and organize the pattern pieces later on.
- Use the CAD system's layer visibility to turn on and off different layers of the pattern pieces. This can help you to identify and fix errors more easily.
- Use the CAD system's zoom and selection tools to inspect the pattern pieces in detail.
- Use the CAD system's grading tools to check the grading of the pattern pieces.
- Use the CAD system's pattern marking symbol tool to check the pattern marking symbols of the pattern pieces.
- Make sure to check the pattern pieces for errors and the marker for accuracy before you start cutting the fabric.

Here are some specific examples of how to identify marker requirements by CAD:

- **To specify the fabric width and the seam allowances:**
  - Open the CAD system.
  - Click on the "Marker" menu and then select "Settings".
  - Enter the fabric width and the seam allowances in the appropriate fields.
  - Click on the "OK" button.
- **To specify the desired marker layout:**
  - Open the CAD system.
  - Click on the "Marker" menu and then select "Layout".
  - Select the desired marker layout from the list of pre-defined marker layouts.
  - Alternatively, you can create your own custom marker layout by clicking on the "Create New Layout" button.
- **To generate a marker:**
  - Open the CAD system.
  - Click on the "Marker" menu and then select "Generate".
  - The CAD system will generate a marker based on the specified fabric width, seam allowances, and marker layout.
- **To review a marker:**
  - Open the CAD system.





- Click on the "Marker" menu and then select "Preview".
- The CAD system will display a preview of the marker.
- Inspect the marker to make sure that all of the pattern pieces are included, that they are placed in the correct orientation, and that the seam allowances are correct.
- To export a marker:
  1. Open the CAD system.
  2. Click on the "Marker" menu and then select "Export".
  3. Select the file format that you want to export the marker to.
  4. Type a name for the marker file and click on the "Save" button.

### ***7.3 Manipulate and Position Pattern pieces in automatic software system.***

Automatic software systems can be used to manipulate and position pattern pieces in a variety of ways. Some common operations include:

- **Moving and resizing:** Automatic software systems can be used to move and resize pattern pieces with ease. This is useful for making adjustments to the fit of a garment or for creating new patterns from existing ones.
- **Mirroring and copying:** Automatic software systems can be used to mirror and copy pattern pieces. This is useful for creating symmetrical garments or for creating multiple copies of a pattern piece for different sizes.
- **Grading:** Automatic software systems can be used to grade pattern pieces for different sizes. This is a complex process that involves adjusting the pattern pieces to maintain the same proportions in different sizes.
- **Nesting:** Automatic software systems can be used to nest pattern pieces on a fabric layout. This helps to minimize fabric waste and maximize the efficiency of the cutting process.

Here are some specific examples of how to manipulate and position pattern pieces in automatic software systems:

- To move a pattern piece:
  1. Select the pattern piece in the software system.
  2. Click and drag the pattern piece to the desired location.
- To resize a pattern piece:
  1. Select the pattern piece in the software system.



2. Click and drag a corner of the pattern piece to resize it.
- To mirror a pattern piece:
    1. Select the pattern piece in the software system.
    2. Click on the "Mirror" button in the software system's toolbar.
    3. Select the axis along which you want to mirror the pattern piece.
  - To copy a pattern piece:
    1. Select the pattern piece in the software system.
    2. Click on the "Copy" button in the software system's toolbar.
    3. Click and drag the copied pattern piece to the desired location.
  - To grade a pattern piece:
    1. Select the pattern piece in the software system.
    2. Click on the "Grade" button in the software system's toolbar.
    3. Enter the desired grading increments in the software system's dialog box.
  - To nest pattern pieces:
    1. Select the pattern pieces in the software system.
    2. Click on the "Nest" button in the software system's toolbar.
    3. The software system will automatically arrange the pattern pieces on a fabric layout in the most efficient way possible.

Automatic software systems can be a valuable tool for manipulating and positioning pattern pieces. By using these systems, you can save time and effort, and create more accurate and efficient patterns.

Here are some of the benefits of using automatic software systems to manipulate and position pattern pieces:

- Increased accuracy: Automatic software systems can help to ensure the accuracy of pattern pieces. This is because they can be used to make precise adjustments to pattern pieces and to grade patterns for different sizes.
- Increased efficiency: Automatic software systems can help to improve the efficiency of the pattern making process. This is because they can be used to quickly and easily perform tasks such as moving, resizing, mirroring, copying, grading, and nesting pattern pieces.



- Reduced waste: Automatic software systems can help to reduce fabric waste. This is because they can be used to nest pattern pieces on a fabric layout in the most efficient way possible.

## ***7.4 Checking Pattern 'grain' indication against grain of material.***

To check the pattern grain indication against the grain of the material in CAD, you can follow these steps:

1. Import the pattern into the CAD system.
2. Identify the grain direction on the pattern. This is typically indicated by a single arrow or a double arrow.
3. Identify the grain direction of the material. This can be done by looking at the weave of the fabric or by using a grain checker.
4. Compare the grain direction on the pattern to the grain direction of the material.
5. Make sure that the grain direction on the pattern is aligned with the grain direction of the material.

Using CAD tools to check pattern grain indication against grain of material:

Most CAD systems have tools that can help you to check the pattern grain indication against the grain of the material. These tools typically work by overlaying a grid on the pattern and the material. The grid lines are aligned with the grain direction of the material. You can then use the grid lines to check that the pattern grain indication is aligned with the grain direction of the material.

Here are some specific examples of how to use CAD tools to check pattern grain indication against grain of material:

In **Grafis OptiNest**, you can use the Grain Checker tool to check the pattern grain indication against the grain direction of the material. To do this, select the Grain Checker tool from the toolbar and then click on the pattern. The Grain Checker tool will overlay a grid on the pattern and the material. The grid lines are aligned with the grain direction of the material. You can then use the grid lines to check that the pattern grain indication is aligned with the grain direction of the material.

In **Lectra Diamino**, you can use the Grain Map tool to check the pattern grain indication against the grain direction of the material. To do this, select the Grain Map tool from the toolbar and then click on the pattern. The Grain Map tool will overlay a grid on the pattern and the material.



The grid lines are aligned with the grain direction of the material. You can then use the grid lines to check that the pattern grain indication is aligned with the grain direction of the material.

In **Gerber Accumark**, you can use the Grain Direction tool to check the pattern grain indication against the grain direction of the material. To do this, select the Grain Direction tool from the toolbar and then click on the pattern. The Grain Direction tool will overlay a grid on the pattern and the material. The grid lines are aligned with the grain direction of the material. You can then use the grid lines to check that the pattern grain indication is aligned with the grain direction of the material.

### ***7.5 Create marker with required pattern pieces, size and fabric requirements.***

To create a marker with required pattern pieces, size and fabric requirements in CAD, you can follow these steps:

1. Open the CAD system and import the required pattern pieces.
2. Select the required pattern pieces and place them on the fabric layout.
3. Make sure that the pattern pieces are placed in the correct orientation and that the seam allowances are correct.
4. Use the CAD system's tools to nest the pattern pieces on the fabric layout. This will help to minimize fabric waste and maximize the efficiency of the cutting process.
5. Once the pattern pieces have been nested, generate the marker.
6. Preview the marker to make sure that it is correct.
7. Export the marker to a printer or to a cutting machine.

Here are some additional tips for creating a marker with required pattern pieces, size and fabric requirements in CAD:

- Use a consistent naming convention for all of your pattern pieces. This will make it easier to find and organize the pattern pieces later on.
- Use the CAD system's layer visibility to turn on and off different layers of the pattern pieces. This can help you to identify and fix errors more easily.
- Use the CAD system's zoom and selection tools to inspect the pattern pieces in detail.
- Use the CAD system's grading tools to check the grading of the pattern pieces.
- Use the CAD system's pattern marking symbol tool to check the pattern marking symbols of the pattern pieces.
- Make sure to check the pattern pieces for errors and the marker for accuracy before you start cutting the fabric.



Here are some specific examples of how to create a marker with required pattern pieces, size and fabric requirements in CAD:

**In Grafis OptiNest:**

1. Open Grafis OptiNest and import the required pattern pieces.
2. Select the required pattern pieces and place them on the fabric layout.
3. Make sure that the pattern pieces are placed in the correct orientation and that the seam allowances are correct.
4. Use the Nest tool to nest the pattern pieces on the fabric layout.
5. Once the pattern pieces have been nested, generate the marker by clicking on the Generate Marker button.
6. Preview the marker by clicking on the Preview Marker button.
7. Export the marker to a printer or to a cutting machine by clicking on the Export Marker button.

**In Lectra Diamino:**

1. Open Lectra Diamino and import the required pattern pieces.
2. Select the required pattern pieces and place them on the fabric layout.
3. Make sure that the pattern pieces are placed in the correct orientation and that the seam allowances are correct.
4. Use the Nest tool to nest the pattern pieces on the fabric layout.
5. Once the pattern pieces have been nested, generate the marker by clicking on the Generate Marker button.
6. Preview the marker by clicking on the Preview Marker button.
7. Export the marker to a printer or to a cutting machine by clicking on the Export Marker button.

**In Gerber Accumark:**

1. Open Gerber Accumark and import the required pattern pieces.
2. Select the required pattern pieces and place them on the fabric layout.
3. Make sure that the pattern pieces are placed in the correct orientation and that the seam allowances are correct.
4. Use the Nest tool to nest the pattern pieces on the fabric layout.
5. Once the pattern pieces have been nested, generate the marker by clicking on the Generate Marker button.



6. Preview the marker by clicking on the Preview Marker button.
7. Export the marker to a printer or to a cutting machine by clicking on the Export Marker button.

## ***7.6 Check marker against order requirements.***

To check a marker against order requirements in CAD, you can follow these steps:

1. Open the marker in the CAD system.
2. Identify the order requirements. This typically includes the following:
  - Garment style
  - Garment size
  - Quantity
  - Fabric type
  -
3. Inspect the marker to make sure that it meets all of the order requirements. This includes checking the following:
  - Are all of the required pattern pieces included in the marker?
  - Are the pattern pieces placed in the correct orientation?
  - Are the seam allowances correct?
  - Is the fabric width correct?
  - Is the quantity of pattern pieces correct?
4. If the marker does not meet all of the order requirements, make the necessary adjustments.
5. Once the marker is correct, save it and export it to a printer or to a cutting machine.

Here are some additional tips for checking a marker against order requirements in CAD:

- Use the CAD system's layer visibility to turn on and off different layers of the marker. This can help you to identify and fix errors more easily.
- Use the CAD system's zoom and selection tools to inspect the marker in detail.
- Use the CAD system's measurement tools to check the fabric width and the quantity of pattern pieces.
- Make sure to check the marker carefully before you start cutting the fabric.

Here are some specific examples of how to check a marker against order requirements in CAD:

In Grafis OptiNest:

1. Open the marker in Grafis OptiNest.
2. Click on the Order Requirements button in the toolbar.



3. The Order Requirements dialog box will appear.
4. Enter the order requirements, such as the garment style, garment size, quantity, and fabric type.
5. Click on the OK button.
6. Grafis OptiNest will check the marker against the order requirements.
7. If the marker does not meet all of the order requirements, Grafis OptiNest will display an error message.
8. Make the necessary adjustments to the marker and then check it again.
9. Once the marker is correct, save it and export it to a printer or to a cutting machine.

#### **In Lectra Diamino:**

1. Open the marker in Lectra Diamino.
2. Click on the Order Requirements tab in the properties window.
3. Enter the order requirements, such as the garment style, garment size, quantity, and fabric type.
4. Click on the Apply button.
5. Lectra Diamino will check the marker against the order requirements.
6. If the marker does not meet all of the order requirements, Lectra Diamino will display an error message.
7. Make the necessary adjustments to the marker and then check it again.
8. Once the marker is correct, save it and export it to a printer or to a cutting machine.

#### **In Gerber Accumark:**

1. Open the marker in Gerber Accumark.
2. Click on the Order Requirements button in the toolbar.
3. The Order Requirements dialog box will appear.
4. Enter the order requirements, such as the garment style, garment size, quantity, and fabric type.
5. Click on the OK button.
6. Gerber Accumark will check the marker against the order requirements.
7. If the marker does not meet all of the order requirements, Gerber Accumark will display an error message.
8. Make the necessary adjustments to the marker and then check it again.
9. Once the marker is correct, save it and export it to a printer or to a cutting machine.



## ***SELF CHECK SEVEN***

### **PART ONE: MULTIPLE CHOICE QUESTIONS**

1. Which of the following CAD commands can be used to import a pattern piece from a PDF file?
  - A. OPEN
  - B. IMPORT
  - C. INSERT
  - D. All of the above
2. Which of the following CAD commands can be used to check a pattern piece for errors, such as duplicate pattern pieces and missing pattern pieces?
  - A. AUDIT
  - B. CHECK
  - C. ANALYZE
  - D. All of the above
3. Which of the following is a marker requirement?
  - A. Pattern piece names
  - B. Pattern piece sizes
  - C. Fabric type
  - D. All of the above
4. Which of the following CAD commands can be used to calculate the total fabric usage for a marker?
  - A. MATERIAL USAGE
  - B. FABRIC USAGE
  - C. MARKER USAGE
  - D. All of the above
5. Which of the following CAD tools can be used to drag-and-drop a pattern piece on the marker layout?
  - A. The pointer tool
  - B. The selection tool
  - C. The move tool
  - D. All of the above
6. Which of the following CAD commands can be used to snap a pattern piece to another pattern piece on the marker layout?
  - A. SNAP
  - B. ALIGN
  - C. CONSTRAIN
  - D. All of the above
7. Which of the following CAD commands can be used to display the grain direction of a pattern piece on the marker layout?
  - A. GRAIN
  - B. ORIENTATION
  - C. DIRECTION





D. All of the above

9. Which of the following CAD commands can be used to display the grain direction of the fabric on the marker layout?

A. FABRIC GRAIN

C. MATERIAL GRAIN

B. FABRIC DIRECTION

D. All of the above

10. Which of the following CAD commands can be used to automatically generate a marker layout?

A. CREATE MARKER

C. GENERATE MARKER

B. NEST MARKER

D. All of the above

11. Which of the following CAD commands can be used to specify the marker size?

A. MARKER SIZE

C. MARKER AREA

B. MARKER DIMENSIONS

D. All of the above

12. Which of the following CAD commands can be used to check the number of pattern pieces on the marker layout?

A. COUNT PATTERN PIECES

C. VERIFY PATTERN PIECES

B. CHECK PATTERN PIECES

D. All of the above

13. Which of the following CAD commands can be used to check the total fabric usage for the marker layout?

A. CHECK FABRIC USAGE

C. CALCULATE FABRIC USAGE

B. VERIFY FABRIC USAGE

D. All of the above

14. Which of the following CAD commands can be used to save the marker layout as a CAD file?

A. SAVE MARKER

C. SAVE AS

B. EXPORT MARKER

D. All of the above

15. Which of the following CAD commands can be used to create a marker documentation sheet?

A. CREATE MARKER

C. EXPORT MARKER

DOCUMENTATION

DOCUMENTATION

B. GENERATE MARKER

D. All of the above

DOCUMENTATION



## UNIT 8: COMPLETE WORK

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- 1.1 Complete Pattern pieces and marker in according to design.
- 1.2 Establish plotting requirements in according to required information.
- 1.3 Plot finished markers.
- 1.4 Fill and document completed patterns and marker.

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- 1.1 Completing Pattern pieces and marker in according to design.
- 1.2 Establishing plotting requirements in according to required information.
- 1.3 Plotting finished markers.
- 1.4 Filing and documenting completed patterns and marker.



## 8: COMPLETE WORK

Completing work in a CAD system means finishing a task or project using computer-aided design software. This can involve a wide range of activities, such as:

- Creating new designs
- Modifying existing designs
- Generating technical drawings
- Creating photorealistic renderings
- Simulating real-world conditions
- Fabricating products

CAD systems are used in a variety of industries, including engineering, architecture, manufacturing, and design. They can be used to create everything from simple 2D drawings to complex 3D models.

To complete work in a CAD system, users typically follow these steps:

1. Import the necessary files, such as sketches, 3D models, or other CAD data.
2. Use the CAD system's tools to create or modify the design.
3. Review the design to make sure that it is accurate and meets all requirements.
4. Save the design and export it to the desired file format.
5. The specific steps involved in completing work in a CAD system will vary depending on the type of project, the CAD software being used, and the user's experience level. However, the general principles are the same.

Here are some examples of how CAD systems are used to complete work in different industries:

- **Engineering:** CAD systems are used to design and engineer everything from bridges and buildings to cars and airplanes. Engineers use CAD software to create detailed drawings and models that can be used to simulate real-world conditions and test different design scenarios.
- **Architecture:** CAD systems are used to design buildings and other structures. Architects use CAD software to create 3D models of their designs, which can then be used to generate floor plans, renderings, and other construction documents.
- **Manufacturing:** CAD systems are used to design and manufacture products. Manufacturers use CAD software to create 2D drawings and 3D models of their products, which can then be used to generate machine tool code for CNC machines.
- **Design:** CAD systems are used to design a wide range of products, including furniture, clothing, and consumer goods. Designers use CAD software to create 3D models of their designs, which can then be used to generate prototypes and marketing materials.



Overall, CAD systems are essential tools for completing work in a variety of industries. By using CAD software, users can create accurate and efficient designs that can be used to improve the quality and productivity of their work.

## **8.1 Complete Pattern pieces and marker in according to design.**

To complete pattern pieces and marker according to design in CAD, you can follow these steps:

1. Import the design into the CAD system. This can be done by scanning a hand-drawn design or by importing a digital file, such as a PDF or AI file.
2. Create or modify the pattern pieces. Use the CAD system's drawing tools to trace the pattern pieces from the design or to create new pattern pieces from scratch.
3. Grade the pattern pieces. Use the CAD system's grading tools to grade the pattern pieces for different sizes.
4. Nest the pattern pieces on a fabric layout. Use the CAD system's nesting tools to arrange the pattern pieces in the most efficient way possible.
5. Complete the marker. Add seam allowances, notches, and other markings to the pattern pieces.
6. Save and export the marker. Save the marker in a file format that can be used by your cutting machine or plotter.

Here are some additional tips for completing pattern pieces and marker according to design in CAD:

- Use a consistent naming convention for all of your pattern pieces and markers. This will make it easier to find and organize your files later on.
- Use the CAD system's layer visibility to turn on and off different layers of your pattern pieces and markers. This can help you to identify and fix errors more easily.
- Use the CAD system's zoom and selection tools to inspect your pattern pieces and markers in detail.
- Use the CAD system's measurement tools to check the dimensions of your pattern pieces and markers.
- Make sure to back up your files regularly.

Here are some specific examples of how to complete pattern pieces and marker according to design in CAD:

- To create a new pattern piece:



1. Use the CAD system's drawing tools to trace the pattern piece from the design or to draw a new pattern piece from scratch.
  2. Add seam allowances and other markings to the pattern piece.
  3. Save the pattern piece.
- To grade a pattern piece:
    1. Select the pattern piece in the CAD system.
    2. Click on the CAD system's grading tool.
    3. Enter the grading increments in the CAD system's dialog box.
    4. Click on the "OK" button.
    5. The CAD system will grade the pattern piece for different sizes.
  - To nest pattern pieces on a fabric layout:
    1. Select the pattern pieces in the CAD system.
    2. Click on the CAD system's nesting tool.
    3. The CAD system will arrange the pattern pieces on a fabric layout in the most efficient way possible.
  - To complete the marker:
    1. Review the marker to make sure that all of the pattern pieces are included, that they are placed in the correct orientation, and that the seam allowances are correct.
    2. Add any additional markings to the marker, such as notch placement and grain direction.
    3. Save the marker.

## **8.2 Establish plotting requirements in accordance with required information**

To establish plotting requirements in accordance with required information in CAD, you can follow these steps:

1. Identify the required information. This may include the following:
  - Plot size
  - Plot scale
  - Plot orientation
  - Plot color
  - Plot linotype
  - Plot line weight
  - Plot text size
  - Plot text font
  - Plot title block
  - Plot legend



2. Configure the CAD system's plotting settings. This will involve setting the plot size, plot scale, plot orientation, plot color, plot linetype, plot lineweight, plot text size, and plot text font.
3. Add a title block and/or legend to the plot. This is optional, but it can be helpful for identifying the plot and its contents.
4. Preview the plot to make sure that it meets your requirements.
5. Plot the drawing to the desired output device.
6. Save the plot file for future reference.

Here are some additional tips for establishing plotting requirements in accordance with required information in CAD:

- Use a consistent naming convention for all of your plot files. This will make it easier to find and organize your files later on.
- Use the CAD system's layer visibility to turn on and off different layers of your drawing. This can help you to preview and plot your drawing more easily.
- Use the CAD system's zoom and selection tools to inspect your drawing in detail.
- Use the CAD system's measurement tools to check the dimensions of your drawing.
- Make sure to back up your files regularly.

Here are some specific examples of how to establish plotting requirements in accordance with required information in CAD:

**In Lectra Diamino:**

1. To configure the plotting settings, click on the Plot button in the toolbar.
2. The Plot Settings dialog box will appear.
3. Set the plot size, plot scale, plot orientation, plot color, plot linetype, plot lineweight, plot text size, and plot text font.
4. To add a title block, click on the Title Block tab.
5. Select the title block style that you want to use.
6. Click on the plot where you want to insert the title block.
7. Edit the title block information to include the garment style, garment size, quantity, fabric type, date, designer's name, and company name.
8. To add a legend, click on the Legend tab.

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9. Select the legend style that you want to use.
10. Click on the plot where you want to insert the legend.
11. Edit the legend information to include the symbols and descriptions of the different layers in your drawing.
12. To preview the plot, click on the Preview button.
13. To plot the drawing, click on the Plot button.

#### **In Gerber Accumark:**

1. To configure the plotting settings, click on the Plot button in the toolbar.
2. The Plot Settings dialog box will appear.
3. Set the plot size, plot scale, plot orientation, plot color, plot linetype, plot lineweight, plot text size, and plot text font.
4. To add a title block, click on the Title Block tab.
5. Select the title block style that you want to use.
6. Click on the plot where you want to insert the title block.
7. Edit the title block information to include the garment style, garment size, quantity, fabric type, date, designer's name, and company name.

### **8.3 Plot finished markers.**

To plot finished markers in CAD, you can follow these steps:

1. Open the finished marker in the CAD system.
2. Configure the plotting settings. This will involve setting the plot size, plot scale, plot orientation, plot color, plot linetype, plot lineweight, plot text size, and plot text font.
3. Preview the plot to make sure that it meets your requirements.
4. Plot the marker to the desired output device.
5. Save the plot file for future reference.

Here are some specific examples of how to plot finished markers in CAD:

#### **In Grafis OptiNest:**

1. To open the finished marker, click on the Open button in the toolbar.
2. Navigate to the folder where the finished marker is saved and select the file.
3. The finished marker will open in the CAD system.
4. To configure the plotting settings, click on the Plot button in the toolbar.
5. The Plot Settings dialog box will appear.



6. Set the plot size, plot scale, plot orientation, plot color, plot linetype, plot lineweight, plot text size, and plot text font.
7. To preview the plot, click on the Preview button.
8. To plot the marker, click on the Plot button.

**In Lectra Diamino:**

1. To open the finished marker, click on the Open button in the toolbar.
2. Navigate to the folder where the finished marker is saved and select the file.
3. The finished marker will open in the CAD system.
4. To configure the plotting settings, click on the Plot button in the toolbar.
5. The Plot Settings dialog box will appear.
6. Set the plot size, plot scale, plot orientation, plot color, plot linetype, plot lineweight, plot text size, and plot text font.
7. To preview the plot, click on the Preview button.
8. To plot the marker, click on the Plot button.

**In Gerber Accumark:**

1. To open the finished marker, click on the Open button in the toolbar.
2. Navigate to the folder where the finished marker is saved and select the file.
3. The finished marker will open in the CAD system.
4. To configure the plotting settings, click on the Plot button in the toolbar.
5. The Plot Settings dialog box will appear.
6. Set the plot size, plot scale, plot orientation, plot color, plot linetype, plot lineweight, plot text size, and plot text font.
7. To preview the plot, click on the Preview button.
8. To plot the marker, click on the Plot button.

## **8.4 Fill and document completed patterns and marker.**

To fill and document completed patterns and markers in CAD, you can follow these steps:

1. Open the completed pattern or marker in the CAD system.
2. Select the pattern pieces or marker elements that you want to fill.
3. Click on the CAD system's fill tool.
4. Select the fill type and color.
5. Fill the pattern pieces or marker elements.





## **SELF CHECK EIGHT**

### **PART ONE: TRUE/FALSE QUESTIONS**

1. Complete Pattern pieces and marker in according to design.
2. Establish plotting requirements in according to required information.
3. Plot finished markers.
4. Fill and document completed patterns and marker IN CAD.

### **PART TWO: SHORT ANSWER QUESTIONS**

1. What is the difference between a pattern and a marker in CAD?
2. What are the steps involved in creating a marker in CAD?
3. What are the factors to consider when establishing plotting requirements for markers?
4. How can you fill and document completed patterns and markers in CAD?
5. What are the benefits of using CAD for marker making?



## **REFERENCE**

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Pattern Making for Fashion Design by Gerry Cooklin

The Art of Fashion Draping by Connie Amaden-Crawford



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