PRINTING – PART XVIII

REF: TT/ SEPT 2021/ WK 1

c) Digital Printing Machine

Process Flow in Digital Printing Machine

- **Design development –** First the design is converted into soft file from the paper. The design is developed by two ways 1) **By digitization process** where designer's imagination, CAD (Computer aided design), graphic design and photographic images are combined. The changes required in color combinations, brightness of the images is done in this stage. 2) **By scanning pictures** in the **cases** where changes are not required.

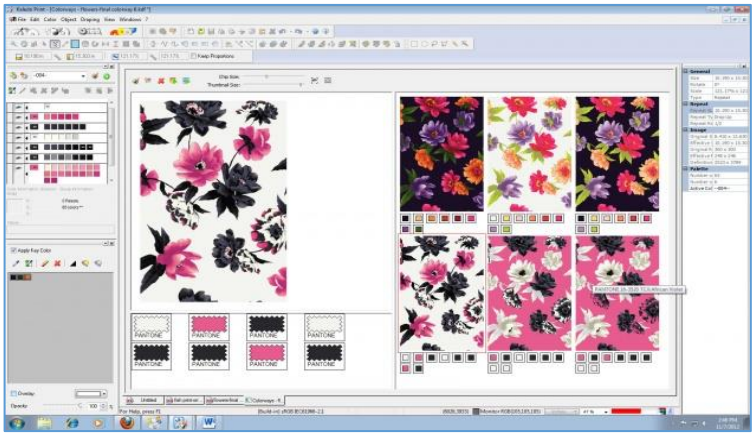

Fig 1.1 Computer-aided design for Digital Printing

Ref: bitlanders.com

WHAT IS CAD?
Computer aided design or CAD is the use of computers to aid or help in the creation and modification of a design.
CAD Software is used to improve the speed and quality of a design.

- **Fabric preparation -** Fabric is processed before printing. In this stage, fabrics are padded with chemicals, containing sizing materials. It helps to remove the fabric creases and makes it stiffer for better feeding during printing. Padding is done on the flat bed with the help of scrapper.

- **Printing-** Then the printing is done on the substrate by using proper dye classes. First, fabric is set properly without any looseness and creases. Then the head of the printers are set according to the fabric thickness. Different types of printers are available in the market based on types of ink or fabric feeding methods. There is a type of printer which is used in the cases where sublimation/disperse dyes in combination with transfer papers are used for printing. Another type of printers is for direct to fabric printing. These printers are with

a gutter for printing strike through, the gutter is an extra margin to allow space. This is especially useful in banner printing. They use sublimation/ disperse inks but can print direct to non-stretch treated polyester fabrics. There is third type of printers; those are designed to print fabrics with stretch. The feeding system has been developed to make sure there is minimal shift in the fabric as it is fed through the printer. There are mainly two types of stretch fabric feeders. One has a large blanket on which glue is applied so that fabric is held firm while being printed. The other type is via a roll fed device with a pressure roller.
Printer comes with software which converts the data generated in the design created on a computer into information that printer understands. It optimizes the colors of the design to get a close color match. It tells the printer where to place the ink drops and in what size. Some software programs also can manipulate an image with steps and repeats.

- **Dye Fixation-** In the time of printing dyes only remain on the surface of the fabric, not fixed permanently and if we use this material the dye will be washed out during its use. So, it is necessary to fix the dyes for the good fastness property. For the fixation printed material is kept into the steam chamber. Here dye molecules enter into the fibers from the fabric surface and they are fixed permanently. This process is called fixation process. The fixation process depends on the ink and the type of substrate used.
  - Pigment Ink – Dry heat through a roll fixation calendar or heat press
  - Acid Ink – Steam – Wash – Dry
  - Reactive Dye Ink – Steam – Wash – Dry
  - Dispersed Dye/ Sublimation – Dry heat through a roll fixation calendar or heat press

- **Washing:** After completion of the fixation the material is washed and dried properly.

References:

1. https://www.onlineclothingstudy.com/
2. https://gotxfabricprinter.com/
3. https://cdn2.hubspot.net/
4. https://www .spgprints.com

.....To be continued.....

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ALMINIM
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Last week`s Answers: 1) SCANNING 2) ADVANTAGE 3) REDUCTION 4) PASS

Wishing you a great week ahead!

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