**Subject: Apparel Manufacturing I Lab**

**Experiment no. 10**

**Experiment name: Study on Straight knife cutting machine.**

**Student Name:**

**Student ID with level & term:**

**Semester:**

**Introduction:** Fabric cutting means to cut out the garment pieces from the lays of fabric with the help of cutting template or marker. In other word, cutting is the process of separating garment parts from the fabric lay in precise size and shape.

**Straight Knife Cutting Machine:** widely used cutting machine which cut fabrics in bulk with high precision.

**Features:**

* Cutting knife is straight in shape.

Blade length= 08’’-13”

Blade width= (1 ½ -3) cm.

Blade thickness= ½ mm.

* Knife is driven by electric power.
* Grinding wheel is present to sharp the knife during cutting.
* The machine consists of base plate, electric motor, handle, knife, knife guard, stand, roller wheel.
* Base plate usually on roller wheel.
* Handle for the cutter to direct the blade.
* Most commonly (99%) used in garment industry of Bangladesh.

**Machine description:**

* 1. An Electric motor.
  2. Base plate: Usually in rollers for ease movement.
  3. Handle: to direct the blade.
  4. Knife: reciprocating motion
  5. Knife guard
  6. Grinding wheel: To sharp the knife during cutting
  7. Stand.
  8. Roller wheel: To move the machine over cutting table easily

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**Draw the figure of machine:**

**Working principle:**

Two kind of power are required to operate a straight knife.

* Motor power drives the reciprocating blade.
* Operator power drives the knife through the lay.

The motor power needed is determined by:

* The height of the ply.
* The construction of the fabric.
* The curvature of the line being cut.
* The stroke of the blade.

The greater the power of the motor, the heavier will be the machine. If the blade movement is faster, it cuts the fabric better. Operator effort is affected by the weight of the motor, the shape of the standard, handle weight, stroke, and sharpness of the blade and effect of the base plate rollers on the table surface.

**Precaution to avoid blade deflection:**

* + Reducing the lay height.
  + The weight of the motor should be light.
  + The operator should be skilled and conscious.
  + Speed of the machine may be reduced.

**Conclusion:**