Conclusions

1) To study the **handle characteristics of fabric** objectively, an instrument namely IITD Fabric Feel Tester is successfully developed indigenously, based on the most widely discussed topic in recent past, nozzle extraction, Some of the salient feature of the said instrument are highlighted below:

   a) The said instrument is very simple and does not require skilled operator to operate the same.

   b) It is very low cost instrument. Therefore, even many small firms, academic institute, research institute can afford the same.

   c) It is perfectly a table top instrument, can fit in any corner of testing laboratory.

   d) Interpretations of the test data taken by the instrument are very simple.

   e) The area of application of the said instrument is without boundaries and one can use it for multifaceted directions.

   f) The instrument doesn't demand much maintenance. Hence cost of running the instrument is substantially low.

   g) The said instrument is fully computerised and automatic instrument. The test data can be stored in a desk top PC attached to the instrument for future reference.

2) A validation test carried out for the instrument shows that the reproducibility of the test results is quite satisfactory. It is hereby concluded that the newly developed fabric feel tester suitable and accurate enough to conduct study on handle characteristics of textile fabrics. Hence, it is hereby claimed that the

said instrument is validated for its use to study the handle characteristics in various format depending upon the researchers or application areas as applicable.

3) A good correlation has been observed between nozzle extraction forces with the different physical properties of fabric like GSM (gram per square metre), fabric thickness, bending length and bending rigidity of fabric. Therefore, instead of many test the nozzle extraction test data alone can predict the behaviour of fabric in terms of end use of the fabric.

4) The test data have been tried to regress in various ways. Statistically, almost all the cases have been found to be within the acceptable range. Hence the regressed fabric feel factor can be directly used to predict from the single test data of the said instrument.

5) The effects of various machine and test parameters like nozzle diameters, testing speed, nozzle material, etc have been studied. It is hereby concluded that nozzle extraction testing parameters like nozzle diameters, speed of testing, materials used in nozzles, etc are very much in conjunction with the age old established theory of physics and textile engineering.

6) Node formations and the changing of nodes in drape study or any study where fabric sample is hanged freely is very important aspect. It has been observed that if the pattern of node formation changes, the resistance to draw the sample through the nozzle increases. Therefore, resilience of the fabric, which is very much useful for a designer, can be predicted from the repeat test in the instrument.

SCOPE FOR FURTHER STUDY

- ➢ The general fabric feel factor calculated here is just a guideline or path to understand the utility of the newly developed IITD Fabric Feel Tester. More specific equations can be developed for category wise fabric like suiting or shirting – heavy, medium or light fabric construction; denim fabric etc..

- ➢ Artificial Neural Network (ANN) can applied to predict the fabric feel factor based on physical parameters of the fabric.

- ➢ Data bank can be generated and the fabric feel factor can be predicted even before actual manufacturing of fabric.