Technical Textile; Design & Methodology

Tamer F. Khalifa
Associate Professor, Spinning, Weaving, and Knitting Dept.,
Faculty of Applied Arts – Helwan University, Egypt

Abstract:
Currently, the use of Textile is being continuously expanded in fields including medical, military, structural, telecommunications, electronics, and aerospace etc. applications. Thus the importance of the textiles increases constantly. The specific and critical character of the technical applications imposed a dynamic change in the fields of the design, engineering, production and testing. The traditional empirical approach has been replaced by the careful modeling, calculation of the properties, prediction of the behavior and the final evaluation of the performance. The modern approach is reflected on the majority of the recent research results, the patents and the scientific publications of the academic and industrial research community.

Design is set to be a process for formulation of ideas and needs, then transforming these ideas to a product through adequate technology, technical characterization, and production processes. Meanwhile when dealing with technical textiles design, we are addressing different design innovation concepts related to application; function, performance, manufacturing, and sustainability. Technical textile design is a structured engineered creative process depending on special needs of performance and functionality associated with industrial technical product design. One of the major challenges for technical textile designers is the compromisation of all these needs, parameters, and requirements in a design that fulfill of all these. Meanwhile the issue of aesthetics for the technical textile products became an interesting matter, where special fields of application of technical textiles can endure both, functionality and aesthetics.

However, for product design it is becoming essential to look at the entire Life Cycle Analysis of the material to address out both positive and negative values for using that particular material or method. For that reason designers should think about materials to be used in a different way through the design process in addition to production techniques and technology.

Keywords:
Technical textiles, Engineered design, Design process, Design materials