3. **Accuracy of results, evaluation of findings**

In most of the cases results are accurate. In some cases e.g knife resistance, more number of testings should have been done to get average of the results and find the variation coefficient.

4. **Advantages and benefits for practical applications**

To overcome the problems associated with the production and mechanical behaviors of other kinds of composites, various methods have been used. These include the application of tough resin, interleafing, and chemical or plasma treatment of fibers in order to improve their adhesion strength with the resin. These methods, however, are superseded by the textile production of composites. This is probably due to the ability to produce large volumes of textile preforms in a short time thus reducing the manufacturing cost and the cycle times. There are currently a number of ways used to produce 3 dimensional textiles. Woven structures are the mostly produced due to ease of production and diversity of different 3-dimentional structures to produce. All these type of composites are suitable for aerospace, automotive and ballistic applications.

5. **Any deficiencies, errors**

A few spelling mistakes.

6. **General assessment: EXCELLENT**

Rajesh Mishra,PhD
FT, TUL

DIPLOMA THESIS EVALUATION

Name of student: Ayanda Mavuso

Title of diploma thesis: Characterization of woven fabric composites

1. Theoretical and professional level of work, the solved problems

The overall quality of this thesis is excellent. There is a lot of experiment done to develop fabrics made from glass filament. The composites are made with application of nanparticles and various mechanical, thermal, electrical properties have been evaluated. The properties which were investigated in this study were mechanical, thermal and electrical properties. The stab resistance increased with addition of filler. This was due to the fact that the filler particles added obstruction on the surface and within the structure thus making penetration not easy. This is because stab or rather penetration of a sharp object like a knife is achieved by sliding through between the spaces in the fabric. When the resin coats the fabric, it closes the interstices in between the yarns. But when the filler particles are added, they don't only close the spaces, they also create obstruction due to their large surface area and enhanced interaction with the matrix. The defined objectives are achieved in terms of the comparison made between normal and nanocomposites. The thesis gives new information about understanding composites made from textile reinforcements and nanoparticles dispersed in epoxy resin.

2. Work performance, suitability of solution procedure, the formal level

The reinforcement used for the preparation of composites was based on glass fibers. Yarns of glass fiber were woven into four different structures. These are plain 2-D fabrics, 3-D multilayer fabrics; 3-D orthogonal fabrics and the 3-D angle interlock fabrics. The matrix used was an epoxy resin LH 288. This type of epoxy resin is characterized by low viscosity. It offers high quality properties such as high mechanical properties, good thermal properties and good chemical resistance. Fly ash is a residue generated during combustion that contains fine particles that rises with flue gases. The fly ash used in these experiments was collected from a source in Plzeň, Czech republic. Before use, the fly-ash was mechanically activated by a high energy planetary ball mill. The procedures adopted for development and evaluation of composites are based on state of the art techniques and instruments.