

### Supervisor's opinion of PhD thesis

Thesis title: Clothing Patternmaking Method for Stretch Fabrics  
Study programme: P3106 – Textile Engineering  
Study branch: 3106V015 – Textile Technics and Materials Engineering  
Author's name: Nareerut Jariyapunya, M.Eng.  
Supervisor: Ing. Blažena Musilová, Ph.D.  
Department: Department of Clothing Technology

The thesis addresses the specific problems of understanding how to optimize a clothing pattern making method to generate a cut of a specific tight fit garment which is made from stretch fabric. Due to its highly speculative nature, that research project was challenging.

Referring to this work, Ms. Nareerut Jariyapunya has proposed and developed a novel method to define pattern construction parameters of garment to achieve its accurate size and a required specific pressure.

She was able to meet very well all the main objective.

The experimental investigation was divided into two steps:

1. To define the method for determining the dimension of a particular structural segment of the pattern construction net that is capable of calculating the size of that pattern construction segment according to the dimension of human body thereof.
2. To define the method for calculating the extensibility of fabric from elastic coefficients of clothing that expresses the capability of its specific pressure required for correction of the dimension of a particular structural segment of the pattern construction net.

The main key parameter of her research was to define elastic coefficients in two dimensions of width (ECW) and length (ECL) of patternmaking by multiplying construction abscissa formula at the important points of particular structural segment.

The elastic coefficient in width dimension (ECW) was obtained from the result of stress - strain curve while elastic coefficient in length dimension (ECL) was detected by observing the deformation of fabric stretched behaviour by uniaxial loading and evaluated by digital image analysis using the MATLAB and NIS-Element software.

The prediction of the strain value from the mathematical modelling was related to the geometric model of the cylindrical shape as well as the human body shape. This modelling confirmed the correctness of the strain results by mathematical modelling to calculate the elastic coefficient from the stress-strain curve.

The formulas of the 2D patternmaking of blouse were derived from elastic coefficient which were applied to the human body under a certain pressure that is necessary to ensure the amount of pressure required for compression garment applications. A default algorithm has been developed in order to calculate the size of pattern construction net only in particular part as a cylindrical shape of body including fuselage, arms, thighs etc. This construction algorithm has successfully been tested to create an automated the block pattern by CAD system which allows the structural segment lines to be modified by inputting the parameter of elasticity coefficients in both ECW and ECL.

The research methods used within this work are appropriately chosen and appropriate to the topic of it. The implementation of experimental results achieved during internship can also be positively evaluated.

Ms. Jariyapunya's activity when she writing her thesis was excellent. We only discussed the general content in the thesis, and she was able to produce a good draft of experimental research steps. Likewise, while we discussed a few times the experimental design and result, everything else, including the details of the experiment and implementation of special software, were entirely done by herself without further input.

Formal level, language level and the scope of work is excellent. Although the work contains several formal mistakes, they did not affect the good quality of the work.

The publication quality is excellent also. The total number of publications is 19, 2 of them are published in IF magazines with Q2, 3 publications are published in SCOPUS and 16 publications are listed as the first author. Some more are submitted and under a review and expected to be published soon.

Checking of plagiarism provided within the IS STAG system on 30.04.2019 showed no relevant similarity to other work. The result is 0%.

I therefore recommended the thesis for defense.

Ing. Blažena Musilová, Ph.D.  
Supervisor