

Applying the SITAM Protocol in Fashion Design and Controlling the Industrial Engineering Model for Egyptian Garments

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Abstract:

The ready-made clothing industry is one of the important industries in many countries of the world, and it has witnessed great developments using all technical methods, and one of the stages that used this is the stage of preparing models of all kinds, which is one of the basics of the clothing industry, which is good control of measurements, especially inside factories, so Egyptian clothing factories rely on tables. Measurements appropriate to the nature of Egyptian objects. The research paper aims to introduce the SITAM method and ways to apply it to Egyptian objects. The method was analyzed and experiments were conducted using the SITAM method on research samples in order to measure the ability of this method to be applied inside Egypt. However, many defects appeared during application. This approach was processed, modified, and developed to suit Egyptian bodies. Experiments were conducted after making the required modifications, and in comparison, the statistical results and answers to the research hypotheses showed the suitability of the approach to Egyptian bodies after making the required modifications.

Statement of the Problem: Despite the multiplicity of ready-made clothing factories in Egypt and the high rate of sales and exports of Egyptian clothing, a fixed table of measurements has not been created for Egyptian bodies, especially for casual clothing suitable for women's daily life. On the other hand, there are many schools, universities and private academies for teaching Implementing a complete piece of clothing, but illiterate women who did not know anything about the numbers and multiple mathematical equations that are constantly present when implementing the engineering model were not looked at. Given this, it has become an urgent necessity to pay attention to these elements and present sophisticated and accurate creative ideas that have the measurements of Egyptian bodies. For women, the implementation method is simple and suitable for illiterate women.

The research problem is summarized in the following questions: 1.How suitable is the SITAM methodology for Egyptian bodies to draw the industrial engineering model? 2. To what extent is it possible to reduce the design time of the industrial engineering model in ready-made garment factories using the SITAM methodology? 3. To what extent is it possible for non-specialized people to use the SITAM approach to draw the industrial engineering model?

Objectives Research: 1.Using the SITAM methodology helps facilitate the preparation of the industrial flat geometric model. 2.Benefiting from the SITAM methodology in reducing the time of preparing and designing the flat geometric model in ready-made clothing factories for ease of application. 3. Developing the SITAM methodology for drawing the engineering model to suit Egyptian measurements and objects.

Significance Research: The importance of the research is due to- :Disclosing the SITAM method for drawing the engineering model and ways to benefit from it in the manufacture of ready-made clothing. Raising the level of knowledge and skill of how to draw an engineering model using simple scientific methods. Preparing the flat geometric model in the shortest time for ready-made clothing factories.

Keywords:

Industrial Engineering Model, SITAM, Fashion Design, Egyptian Measurements, Anthropometry

References:

- 1- Al-Bahadly, Samar Ziadeh Matroud (2013) "Study of technological methods for custom-made design in the ready-to-wear garment sector," unpublished master's thesis, Faculty of Applied Arts, Helwan University.
- 2- Somaya Mustafa Mohamed Al-Sayed, "Introducing a new method for constructing the basic model for women by comparing three methods," Egyptian Journal of Home Economics, Issue Thirty, 2014.
- 3- Wang, J., Thornton, J. C., Kolesnik, S., & Pierson Jr, R. N. (2000). Anthropometry in body composition: an overview. Annals of the New York Academy of Sciences, 904(1), 317-326.
- 4- Heymsfield, S. B., Bourgeois, B., Ng, B. K., Sommer, M. J., Li, X., & Shepherd, J. A. (2018). Digital anthropometry: a critical review. European journal of clinical nutrition, 72(5), 680-687.
- 5- <https://ar.wikipedia.org>
- 6- Abdel Majeed, Naglaa Mohamed Farag El-Shazly (2008) "The impact of different girls' body dimensions on design in the clothing industry", PhD thesis, Faculty of Home Economics, Helwan University.

- 7- <https://www.sciencephoto.com>
- 8- Balach, M., Lesiakowska-Jablonska, M., & Frydrych, I. (2020). Anthropometry and size groups in the clothing industry. *Autex Research Journal*, 20(1), 56-62
- 9- Leong, I. F., Fang, J. J., & Tsai, M. J. (2013). A feature based on anthropometry for garment industry. *International Journal of Clothing Science and Technology*, 25(1), 6-23
- 10- Rafiq, Suha Rafiq Ibrahim. (2019) "The concept of women's ideal figure and its relationship to compression-fitting clothing," *Egyptian Journal of Specialized Studies*, issue (21), p. 337.
- 11- Ali, Sahar Ali Zaghloul (2017) "Design treatments with padding fabrics inspired by the art of sculpture for a woman's thin body pattern," *Journal of Specific Education Research*, no. 45, 260 - 320. Retrieved from <http://search.mandumah.com/Record/912325>
- 12- Bahdi, Bahdi Bilal (2014-2015) "Determining the somatotype of students of the Institute of Sciences and Technologies, Physical and Sports Activities," a field study of students of the First Master's Institute in Biskra State. pp. 26-28
- 13- Shukri, Najwa Muhammad Moamen, Nabih, Hanan Al-Zaftawi, Muhammad, Doaa Abboud (2014) "Modern techniques in preparing mannequins for shaping", Alam Al-Kutub Publishing House, Egypt.
- 14- Mamoun, Majda Muhammad Raslan Salim; Ibrahim, Sarah Muhammad Mahran; Fathi, Yasmine Salem (2019) "A comparative study of methods for constructing and adjusting a women's trousers model to benefit from it in the ready-made garment industry," *Egyptian Journal of Home Economics*, Issue Thirty-Five, p. 207.
- 15- Suleiman, Tahani Ali Al-Kharaz (2023) "The effectiveness of the task analysis strategy for acquiring the skills of drawing the basic model of children's clothing among deaf female students," *Arab Journal for Scientific Publishing*, Qassim University, Issue (2)
- 16- Ali, Hind Abdel Hamid Al-Taweel (2018) "The effectiveness of using the Gemini program in learning the basic model of a child's dress," *Journal of the Faculty of Specific Education*, Benha University, Issue (1), February 2018
- 17- Mamoun, Majda Selim (1993) "Using programmed instruction in teaching the basic, flat, complete pattern for women's clothing," Master's thesis, Faculty of Home Economics, Helwan University.
- 18- Abdel Moneim, Shaima Al-Sakhawi (2020) "A comparative study between five methods for constructing the basic model of the men's shirt," *Journal of Architecture, Arts and Humanities*, Issue (23), Volume ().

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