

Some trends in modern mathematics resulting from the integration of science, engineering and interior design (Algorithm, Ornamatics)

Prof.dr. said hassan

Professor of administrative design - Faculty of Applied Arts - Helwan University

dr.saidhassan49@gmail.com

Assist.prof. dr. noha fakhry

Professor at the Higher Institute of Applied Arts - Fifth Settlement

royalscale2021@gmail.com

Assist.dr. rana Ibrahim

Assistant Lecturer at the Higher Institute of Applied Arts - Fifth Settlement

ransarafa2@gmail.com

Abstract:

In their research, the West was interested in finding integration between engineering sciences, mathematics and the fundamentals of engineering designs in Islamic architecture. The research problem appears in the Arab world's lack of this type of research that seeks to establish a link and integration between engineering sciences, mathematics and the fundamentals of engineering designs in Islamic architecture. The research aims to display the effect of integration between these sciences in finding modern trends in design thinking as well as design steps to arrive at new engineering formations.

The research assumes that the integration of these sciences produces new trends in thinking and in designing new engineering formations. The importance of the research highlights the effect of integration between these sciences and the modern trends that it produces that serve the interior design. The research presents: the effect of engineering and mathematics sciences on the development of design thinking for Islamic geometric motifs, then an analysis of some mathematical scientists of geometric motifs, then a discussion of algorithmic direction and Hanken's style on the star system. Then he presented the application of Bonner on geometric shapes, then the steps of designing Islamic engineering decorative units by computer programming, such as the program of Tabart and Alkerah, PATGENM, GRASSHOPPER, and the research was concluded with a complete study of the direction of aromatics and mechanisms to achieve it

The most important results came that algorithm is one of the most important modern ways of thinking derived from mathematics and engineering as an entry point for new ways to solve design problems, and that the direction of auromatics is an integrated scientific direction that combines engineering and mathematics.

And computer design in the field of interior design. Among the most important recommendations: the generalization of the use of algorithms to solve design problems, as well as the use of the orientation of aromatics in digital education in the field of interior design. The research followed the descriptive, analytical and historical approach.

Key words:

Geometry, mathematics, Algorithm, Ornamatics