



## TOPOLOGICAL STRUCTURES USING MIXED DEGREE SYSTEMS IN GRAPH THEORY

YOUSIF YAQOUB YOUSIF & SARA SAAD OBAID

Department of Mathematics, Faculty of Education for Pure Science (Ibn Al-Haitham),  
Baghdad University, Baghdad, Iraq

### ABSTRACT

This paper is concerned with introducing and studying the  $M$ -space by using the mixed degree systems which are the core concept in this paper. The necessary and sufficient condition for the equivalence of two reflexive  $M$ -spaces is super imposed. In addition, the  $m$ -derived graphs,  $m$ -open graphs,  $m$ -closed graphs,  $m$ -interior operators,  $m$ -closure operators and  $M$ -subspace are introduced. From an  $M$ -space, a unique supratopological space is introduced. Furthermore, the  $m$ -continuous ( $m$ -open and  $m$ -closed) functions are defined and the fundamental theorem of the  $m$ -continuity is provided. Finally, the  $m$ -homeomorphism is defined and some of its properties are investigated.

**KEYWORDS:** Digraph, In-Degree System, Mixed Degree System,  $M$ -Space, Out-Degree System

**2000 Mathematics Subject Classification:** 04A05, 54A05, 05C20.