Abstract

Let $G(V,E)$ simple connected graph, with $|E| = \varepsilon$. In this paper, we define an edge-set graph $G_G$ constructed from the graph $G$ such that any vertex $V_s,i$ of $G_G$ corresponds to the $i$-th $s$-element subset of $E(G)$ and any two vertices $V_s,i$ of $G_G$, $V_k,m$ of $G_G$
are adjacent if and only if there is at least one edge in the edge-subset corresponding to \( V_{s,i} \) which is adjacent to at least one edge in the edge-subset corresponding to \( V_{k,m} \) where \( s, k \) are positive integers. It can be noted that the edge-set graph \( G \) of a graph \( G \) is dependent on both the structure of \( G \) as well as the number of edges \( c \). We also discuss the characteristics and properties of the edge-set graphs corresponding to certain standard graphs.

**References**

5. F. Harary, Graph Theory, Addison-Wesley, 1994.

**Index Terms**

Computer Science  
Applied Mathematics

**Keywords**
Edge-set graph, Total edge-degree of a graph, Edge-degree of vertex, Connected edge dominating set, Artificial edge-set element