

ABSTRACT

Due to the huge size of the data and quick transmission of data between the nodes present in the optical network, a condition of network traffic is created among the nodes of the network. Hence research in this field revives day by day to satisfy the present end users with the needed Quality of Service (QoS). Security issues and attack management is also become an emerging field in the optical network to provide end-user QoS. This issue of traffic can be overcome by employing proper Routing and Wavelength Assignment (RWA) proactive and reactive techniques. In this research work, the best suitable path is determined by the multi-objective modified Particle Swarm Optimisation (PSO) algorithm and it is used for locating the position of the failure through finding the fitness value of the aforementioned links. The greedy algorithm is used for wavelength assignment. The novelty of this work exists in the form of a fitness function that uses bandwidth availability and packet delay as parameter metrics that ensure the quality of the link paths. The proposed work has been extended by employing an innovative visibility graph-based Iterative Hungarian Traffic grooming algorithm is implemented to reduce the blocking ratio by improving the allocation of bandwidth between the users. Then finally the performance analysis is carried out employing performance measures such as traffic throughput, transceivers count, average propagation delay, blocking ratio, and success ratio. It can be inferred that the proposed work obtains enhanced outcomes when compared to the other existing techniques.