National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: TLBTO: A Teaching Learning Based Task Offloading model in IoT-Fog Network
Speaker	: Abhishek Kumar
Supervisor	: Sumanta Pyne, PIC Seminar
Venue	: Convention Room, CSE Dept.
Date and Time	: 26 May 2025 (16:00)
Abstract	: Efficient task offloading to fog nodes (FNs) is necessary in addressing the computational requirements and the strict deadlines for Internet of Things (IoT) tasks within the IoT-fog system. This research provides a model that will improve the offloading process through the usage of fog computing (FC). A Teaching Learning Based Task Offloading model (TLBTO) is proposed here for assignment of IoT tasks to fog nodes. The TLBTO model reduces overall offloading delay as well as the consumption of energy with equal sharing of tasks in the FNs available. To address these challenges, a hybrid CRITIC-TOPSIS-based decision algorithm is introduced, considering both computation and deadline aspects of tasks. Thorough simulations are done comparing the approach against the existing models such as RANDOM, METO and SMRETO. The results reflect significant advantages of TLBTO in terms of offloading delay and energy efficiency improvement, showing lower completion times, reduced energy use, and fewer outages across varying loads. These findings confirm TLBTO as an effective solution for deadline-constrained, energy-aware offloading in IoT-fog networks devices.