National Institute of Technology Rourkela

Registration Seminar

Seminar Title	: Energy Efficient Scheduling & Routing in Software-Defined Data Center Networks
Speaker	: Dipan Das (Rollno : 921cs5001)
Supervisor	: Bibhudatta Sahoo
Venue	: Convention Hall (CS-208), CSE Department
Date and Time	: 07 Mar 2025 (5.00PM)
Abstract	: **Software-Defined Data Center Networks (SDDCN)** represent a transformative approach to data centre architecture, integrating **Software-Defined Networking (SDN)** principles to efficiently manage and optimize network resources. With the rapid proliferation of **Internet technologies, IoT, smart devices, and fog & edge computing**, data centre traffic has surged over the past decade and is expected to grow exponentially. Given the **dynamic and unpredictable** nature of data centre workloads and traffic patterns, **Traffic Engineering (TE)** is crucial in optimizing resource utilization and enhancing overall network performance. Survey reports highlight an increasing demand for data centre services, driving **unprecedented global expansion**. However, data centres are among the most energy-intensive IT infrastructures, with energy consumption projected to surpass other sectors. As a result, **energy optimization** must be a primary TE objective, ensuring reduced power consumption **without compromising performance**. TE in SDDCN is an **NP-hard continuous optimization problem**, making designing an **energy-efficient traffic engineering algorithm** particularly challenging. This study explores key challenges in this domain and emphasizes the need for innovative TE mechanisms prioritising **energy efficiency and network performance**.