National Institute of Technology Rourkela

Registration Seminar

Seminar Title	: PREDICTION OF BLAST INDUCED GROUND VIBRATIONS IN OPENCAST MINES USING STATISTICAL AND SOFT COMPUTING TECHNIQUES
Speaker	: Srikant Vairagare (Rollno : 922mn5003)
Supervisor	: Prof. Debi Prasad Tripathy
Venue	: Seminar Room, Department of Mining Engineering
Date and Time	: 19 Feb 2025 (11 am)
Abstract	: Blasting is the most essential process for mining minerals. Blasting is associated with many unwanted environmental effects such as ground vibrations, fly rock, and noise. While at lower levels ground vibrations are not harmful, at elevated levels they are detrimental to structural safety. With the increasing demand for minerals, mines are becoming deeper and bigger and are forced to expand toward inhabitants, thus forcing researchers to find better solutions to predict and control ground vibrations. There are number of uncontrollable factors and controlling factors that affect the propagation of ground vibrations. Numerous aspects, such as the vertical distance of the blast from the ground level, effects of total charge per round, etc., are still not well studied. Preliminary field studies have shown that the depth of the blast has a negative correlation with the PPV (Peak Particle Velocity) due to the dampening effect of the increased rock mass. In this study, various factors, mainly blast design parameters, rock parameters, and instrument readings, will be studied in detail using statistical and computational techniques to find out the most suitable predictor equations and techniques.