National Institute of Technology Rourkela

Synopsis Seminar

Seminar Title	: Parametric Analysis of Tailings Dam Breach
Speaker	: Ayashkant Sahoo (Rollno : 620ce6001)
Supervisor	: Prof. Chittaranjan Patra
Venue	: Seminar Room, Civil Engineering Department
Date and Time	: 16 Apr 2024 (03:30 PM)
Abstract	: Tailings storage facilities (TSF) are engineered structures that retain mixed waste material from mining processes in liquid or slurry form. Absence of laboratory data regarding the geotechnical properties of mine tailings materials make difficult the prediction of flood wave, since the composition of the mixture is unknown. Therefore, the aim of this research is to study the flow behavior of mine tailings materials in case of failure of tailings storage facilities. The results of such forward-analyses are used in risk assessments and emergency planning. The research is computed with FLO2D, with the variables parameters such as breach volume, breach duration, sediment concentration, and outflow hydrograph of leaked tailings flow at downstream arrival. The results analyzed were the initial flooding area (short moment after failure) and the final inundated area (after a certain time of failure). With an engineering background, this research dynamically and numerically simulates the evolution process of tailings flow from dam failure and the influence scope of any resulting disaster in context. From analysis, the volumetric concentration was found to be the most influential property that affects the initial inundated area.