National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: PROBABILITY OF CASTING DEFECTS IN CONCAST BILLET USING MACHINE LEARNING
Speaker	: Prof. Chandan Kumar Biswas
Supervisor	: Prof. Saurav Datta (2524), PIC Departmental Seminar
Venue	: ME Seminar Hall (ME-001)
Date and Time	: 30 Jul 2025 (04:30 PM)
Abstract	: In modern day steel manufacturing, the continuous casting process plays an important role in the manufacturing of billet, bloom, and slab. Normally these products are in semi-finished condition so it will further go for processing for end products like TMT, channel, rail etc. Here quality of the product from caster plays an important role as a deviation in the quality standard of the product may lead to rejection of the end product or it may cause disruption in the process. So, this discussion aims to discuss the prediction of the probability of having a defective billet from the chemical composition of the molten metal which is casted. Random Forest Regressor (RFR) algorithm is used for the prediction and the percentage composition of the elements like Mn, C, S, Si, P and N2ppm are used as input features. SHAP value analysis is employed to find the important input features which effect the prediction. It has been found that Mn and S are the two most influencing features.