National Institute of Technology Rourkela

Registration Seminar

Seminar Title	: Effect of environment on the degradation behaviour of corrosion resistive low alloy steel used for gas pipelines in steel industries with remedial measures
Speaker	: Aniket Chandra (Rollno : 921mm5003)
Supervisor	: Prof. Archana Mallik
Venue	: UG Class Room, MS 214
Date and Time	: 17 Dec 2024 (11 AM)
Abstract	: The aim of the work is to observe and analyse the corrosion behaviour of AISI type corrosion resistance low alloy steel which is used to supply mixed gases in steel plants. The analysis was done in different mediums i.e. borate buffer solution (BB), borate buffer with 3.5% NaCl (BCl) and simulating working condition (solution obtained from deposits at the pipe bottom, hence onwards referred as green solution). The characterization of the above specimen was done by various techniques including SEM, optical microscopy, Raman spectroscopy and X-ray diffraction. Corrosion and passivation studies were performed by potentio-dynamic scans. In this work the corrosion study is based on passivity breakdown and corrosion point in borate buffer solution as a function of pH and Cl ions. The pitting corrosion studies of CRLA is carried out in BB solution at pH 8.3, BCl and green solution. Higher passivation region is obtained in BCl solution for all type of steel specimen. Electrochemical impedance spectroscopy (EIS) test was done in BB, BCl and green solution to identify the corrosion mechanism. The EIS test was employed in a frequency range from 10^5 Hz to 0.01 Hz with 10 mV AC potential