National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Conference Return Seminar: Enhancing Geopolymer Concrete Performance Using Copper Slag as a Sustainable Fine Aggregate
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Supervisor	: Prof. Pradip Sarkar
Venue	: Civil Engineering Seminar Hall
Date and Time	: 01 Oct 2024 (10:00AM)
Abstract	: Geopolymer concrete (GPC), utilizing aluminosilicate precursor materials as binders, stands as an eco-friendly alternative to ordinary Portland cement concrete (OPCC). These precursors commonly include natural resources like metakaolin, volcanic ash, and industrial solid waste such as fly ash (FA) and ground granulated blast furnace slag (GGBFS). However, despite not utilizing cement, GPC still faces environmental challenges due to the use of natural aggregates, leading to resource depletion. To mitigate this issue, researchers have explored replacing natural aggregates with waste materials, aiding both resource conservation and waste management. Copper slag (CS) is one such waste material with potential as fine aggregate in GPC. This study conducts a comprehensive evaluation of FA-GGBFS-based GPC incorporating CS as fine aggregate. It was found that, GPC exhibited superior performance compared to OPCC in various aspects, including strength, transport and durability properties.