National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Enhancing High-Speed Machinery Performance using Inconel and Other Material
Speaker	: Pranabini Panda (523me7009)
Supervisor	: Prof. S Datta (PIC, Departmental Seminar)
Venue	: Seminar Hall (Department of Mechanical Engineering)
Date and Time	: 10 Jul 2025 (04:00 PM)
Abstract	: The evolution of high-speed machinery has been significantly influenced by the development and integration of advanced materials, particularly high-performance alloys and smart materials. Inconel 718, a nickel-based super alloy, stands out for its exceptional mechanical strength, corrosion resistance, and thermal stability, making it a preferred choice in aerospace, automotive, and power generation sectors. When compared to conventional alloys such as stainless steel or titanium alloys, Inconel 718 demonstrates superior performance under extreme operational conditions, including high temperatures and stresses. These materials enable real-time responsiveness, increased efficiency, and predictive maintenance capabilities. This paper explores the comparative advantages of Inconel 718and other advanced materials, highlighting their impact on the performance, durability, and intelligence of high-speed machinery.