
Defence Seminar

Seminar Title	: Study on Improvement in the quality of rolled products by innovation in rolling process
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Venue	: Seminar Hall, Mechanical Engineering Department
Date and Time	: 30 Jul 2025 (04.30PM)
Abstract	: Thermo-mechanical control process (TMCP) is a microstructural control technique combining controlled rolling and cooling. The thermo mechanical rolling is defined as a rolling process leading to a finer microstructure, which cannot be obtained by a heat treatment alone. To overcome the limitations of thermo mechanical rolling, accelerated cooling process of plates after rolling has been developed. Thermo-mechanical control process is used to obtain excellent properties for steel plates, such as high strength, excellent toughness with accelerated cooling control. Different rolling schedule generate different microstructure and there is no detailed study of microstructure evolution and different tensile properties (for a plain carbon steel) with different reduction schedules along with accelerated cooling control. A study is made with New Plate Mill of Rourkela Steel Plant (which can impart heavy loads at different temperatures) for producing high strength plates with plain carbon steel and alloy steel under different TMCP regimes. Here innovation in the thermomechanical rolling was done and excellent properties with lean & cost effective chemical composition could be achieve leading to the development of some new grades of steel. Furthermore, innovative TMCP regimes were deployed with minimal micro-alloying elements while maintaining high impact strength.