
Seminar Title	: Development of Prediction Models for Estimation of Heat Stress Conditions in Underground Metalliferous Mines
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Abstract	<p>: Underground mines are moving deeper day by day due to the depletion of mineral deposits at shallow depths and the ever-growing demand for mineral resources. Working in deeper depths results in thermal risks due to the large amount of heat generated from geothermal heat, mining machines, and auto compression. People working underground are more susceptible to heat stress if exposed to a hot and humid environment for a longer period. Although there are various methods available for assessing the heat stress condition of underground workers, the majority of these do not consider the human physiological response along with the environmental parameters, whereas determining heat stress conditions relies on both environmental and physiological parameters. Therefore, the present research work proposed to evaluate the heat stress conditions in underground metal mines by considering both environmental factors (air velocity, dry bulb temperature, wet bulb temperature, wet bulb globe temperature, and barometric pressure) as well as the physiological response of the human body in terms of skin temperature. During a field investigation in one of the underground metal mines, it was observed that the skin temperature of the workers was more than the normal range due to the thermal condition of their workplace. As a result, there will be a cut down in worker efficiency, which ultimately affects mine productivity.</p> <p>Further, this research aims to develop prediction models for estimating the heat stress conditions in underground metal mines. Subsequently, the upper limit of heat stress levels will be proposed to protect underground workers from heat-related hazards. Moreover, a suitable ventilation system will be recommended to lower the heat stress levels and make the underground workplace thermally comfortable.</p>

Keywords: Underground mines, Heat and humidity, Skin temperature, Heat stress, Ventilation.