Online Training on Turbine Model Testing by Independent Turbine Laboratory at HRED IIT Roorkee
Dec. 17-18, 2020

ABOUT HT R&D LAB, HRED

With the support of Ministry of New and Renewable Energy (MNRE), Government of India, an International-level Hydraulic Turbine R&D Laboratory has been established at Hydro and Renewable Energy Department, IIT Roorkee as design and validation facility in addition to conducting research in hydro turbines and other hydro mechanical equipment conforming to national and international standards.

The laboratory conducts tests on scaled models of hydraulic turbines, reversible turbines and pumps for weighted average efficiency and turbine output, cavitation performance, pressure pulsation, run away speed, characteristic curves, hydraulic thrust and torque. Four quadrants for reversible pump turbine. The guiding framework for laboratory is meeting international standards (IEC 60193 and ISO/IEC 17025) requirements. The laboratory has been accredited by National Accreditation Board for Testing and Calibration (NABL) as per ISO/IEC 17025 for fluid flow testing as well as Flow calibration. Laboratory has conducted witness test for MNC successfully

Major advantage of using an independent laboratory is the testing is considered unbiased. There is less chance of business pressures influencing the outcome. This perception can be advantageous from a quality assurance (QA) perspective as well as for Power project owner

OTHER FACILITY AT HT R&D LAB, IIT Roorkee

Erosion of hydro-turbine components through sediment-laden river water is one of the most challenging problems in the Himalayan region. This leads to weight loss of turbine and subsequent reduction in the turbine's efficiency due to silt erosion. Facility for on-line/off-line measurement of silt content & erosion is available.

CFD (Computational Fluid dynamics) is one of the latest techniques for investigating in the flow pattern and its behavior. Facility for CFD analysis of hydro turbine using latest software and high performance server is available latest technique.

WORKSHOP DETAILS

Workshop would provide training on model testing which is in specialized field. This would equip the participants with knowledge for attending witness test and understand the model test report, both for new and refurbished turbine. This would also provide an opportunity for witnessing the demonstration via video of model testing. The program shall be conducted using MS Team platform The operation of laboratory, parameters, instruments shall be shown and using the live video of the laboratory and test etc.

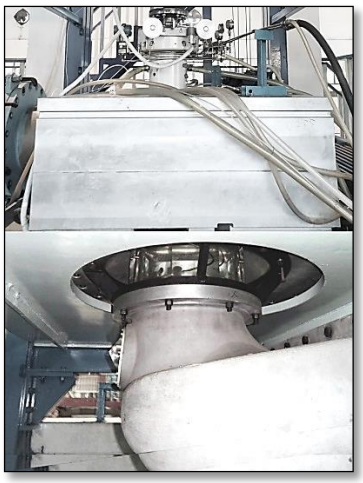
Target participants are professionals involved in hydro turbine/ large pumping stations tender specification preparation, procurement, operation of power house, maintenance, selection of turbine.

There is no fee for attending the online workshop. However the participation is through email confirmation by HT R&D Lab, HRED, IIT Roorkee

WORKSHOP PROGRAM

Date 17.12.2020

03.00 – 04.30 PM Technical Session-I
03.00 PM-04.15 PM Turbine Model Testing & Testing Facilities
04.15PM-04.30PM Discussion



Date 18.12.2020

03.00 – 04.30 PM Technical Session-II
03.00 PM-03.45 PM Main Hydraulic Performance Test and its demonstration
03.45PM- 04.15 PM Additional Performance test and its demonstration
04.15PM-04.30PM Discussion

ABOUT HRED (Formerly AHEC), IIT R

Indian Institute of Technology - Roorkee is among the foremost of institutes of national importance in higher technological education and in engineering, basic and applied research now it has completed more than 170 years of its existence. Hydro and Renewable Energy Department (formerly AHEC) was set up initially at IIT Roorkee by MNRE, government of India, in the year 1982. It provides expert services on all aspects of hydro power to utilities in both govt. and private sector.

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