

EXPERT DETAILS

Mr. OM PRAKASH PANDIT

M.Tech in Thermal Engineering (IIT ISM Dhanbad), 10 years research experience in CSIR-Central Institute of Mining and Fuel Research Dhanbad and CSIR-Central Mechanical Engineering Research Institute Durgapur. 6 Years+ Experience as Faculty in MAKAUT affiliated colleges.

PROF (DR). SHANTANU DUTTA

PhD in Fluid Mechanics and Heat Transfer (NIT Dgp), 14.5 years industrial experience in Central government (Ministry of Defence) Government of WB [Minerals and Power department] and Reputed MNCs (TIL caterpillar and Siemens). 12 Years+ Experience as Faculty in MAKAUT affiliated colleges and Research Experience in IIT Kgp.

COURSE IS FOR

Mechanical Engineers
(ITI, Diploma and B.Tech.)

Technicians and operators working in these areas

Industrial designers working in these areas

Hobbyists and students with a basic understanding of Thermal Engineering

REGISTRATION FEES

Rs. 350/-

ABOUT THE COURSE

This course offers an in-depth understanding of fluid flow dynamics in hydraulic turbines, specifically focusing on performance of Pelton wheel, Francis turbine, Kaplan turbine, and centrifugal pump. The performance of hydraulic turbines is important for maximizing efficiency of hydraulic machines, reliability, and power output. Participants will engage in hands-on learning on experimentation, modeling and simulation sessions to gain comprehensive knowledge of the principles, working mechanisms, and performance analysis of these turbines, and pumps for real-world applications.

COURSE HIGHLIGHTS

In this 5 day course, participants will understand :

- The fundamentals of fluid mechanics in hydraulic turbines.
- Explore the working principles and design aspects of Pelton wheel, Francis turbine, Kaplan turbine and Centrifugal Pump.
- Analyze the performance of these turbines under various operating conditions.
- Gain hands-on experience in experimental setups for Pelton wheel, Francis, Kaplan turbine and centrifugal pump.
- Apply computational tools such as ANSYS software to simulate and analyze fluid flow in centrifugal pump.

CONTACT DETAILS :

Prof (Dr).Shantanu Dutta
Mobile No: 8967045634

REGISTRATION

Scan the QR Code for Registration



www.icampus.setgoi.ac.in

SHORT TERM CERTIFICATE COURSE

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**Utilizing Experimental &
Simulation Techniques to
Optimize the Performance
of Hydraulic Machines**
”



**SANAKA EDUCATIONAL
TRUST'S GROUP
OF INSTITUTIONS**

DURGAPUR

A UNIT OF SANAKA EDUCATIONAL TRUST

MALANDIGHI, DURGAPUR - 713212

DEPARTMENT OF
MECHANICAL ENGINEERING

NBA ACCREDITED

Day 1

Introduction to Hydraulic Turbines and Fluid Flow in Pelton Turbine

Lectures covering :

Hydraulic Turbines, Fundamentals of Fluid Flow in Turbines Energy conversion in turbines, Characterization of Fluid Flow in Pelton Turbine, Flow measurement techniques in Pelton turbine , Performance analysis of Pelton turbine, etc.

Hands-On Activity session on

“Experimental setup for measuring the performance of a Pelton turbine”.

Day 2

Characterization of Fluid Flow in Francis Turbine

Lectures covering :

Francis Turbine, Design and working principles, Flow dynamics specific to Francis turbines.

Hands-On Activity session on

“Experimental setup for measuring performance and optimization of input parameters of Francis turbine”.
Optimized models.

Day 3

Characterization of Fluid Flow in Kaplan Turbine and Centrifugal Pumps

Lectures covering :

Kaplan Turbine Design and working principles and Flow dynamics specific to Kaplan turbines, Flow dynamics specific to centrifugal pump, flow measurement techniques of centrifugal pump.

Hands-On Activity session on

“Experimental setup for measuring performance of Kaplan turbine and Centrifugal Pump”.

Day 4

Basics of Hydrodynamic Modelling and Model generation of Francis turbine

Lectures covering :

Introduction to different modelling tools and software including Key parameters and variables for modelling Francis turbines in CFD; Understanding the role of computational fluid dynamics (CFD) using simulation software to create a model of a Francis turbine.

Hands-On Activity session on

Acquaintance and how to work on ANSYS work Bench.

Day 5

Basics of Hydrodynamic Modelling and Model generation of Francis turbine

Lectures covering :

Fundamentals of Fluid Mechanics, Navier-Stokes equations, continuity equation, and energy equation, and Boundary Conditions.

Hands-On Activity session on

“Advanced Modelling Techniques, Optimizing the Model and simulation results and Interpreting Results”.