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Admission Requirements

- Applicants should hold minimum bachelor's degree in civil engineering/geology/hydrology from a recognized university and should have experience in hydropower project design, construction supervision or operation
- Hydropower Developers with experience in project development can also apply
- A minimum of 5 years of working experience
- Proficiency in English Language is mandatory

The admission fee of the course is NRs. 30,000.00 for IPPAN Members (Nepalese participants), NRs. 35,000.00 for Non-IPPAN Members (Nepalese Participants) and US\$ 400 for International participants. The organizers will cover the cost of lectures, materials, accommodation, meals during the training period and necessary travel arrangement from Kathmandu only. Other expenses are not covered by the fee and should be borne by the participants.

Women participants are encouraged to apply.

Application Procedure

Please fill in the electronic application form available at www.ich.no within the deadline. In case of any queries regarding the application or course you may directly contact Mr. Prabal Bhattarai at +977-1-4169175 or email at prabal@ippan.org.np or any other person assigned by him.

Notice of selected candidates will be given shortly after the application closing date.

The organizers reserve the right to accept or reject any application on the basis of their qualification and experience and availability, as the space for the program is limited.

Organizers



INTERNATIONAL CENTRE FOR HYDROPOWER

S.P. Andersens veg 7, N-7031 Trondheim, Norway

E-mail: tom@ich.no | **Web:** www.ich.no

CONTACT PERSON

Tom Solberg, Project Director



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CONTACT PERSON

Prabal Bhattarai, Executive Manager

Co-Organizers



Nepal Tunneling Association (NTA)

Hydro Lab

in cooperation with NTNU, Norway

HYDRO LAB PVT. LTD.

GPO Box: 21093, Kathmandu, Nepal

E-mail: info@hydrolab.org | **Web:** www.hydrolab.org



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GEOLOGICAL AND HYDROLOGICAL ISSUES FOR HYDROPOWER DESIGN

1ST APRIL - 5TH APRIL 2019

APPLICATION DEADLINE: 1ST MARCH 2019



pc:NTA

About the organizers

The **International Center for Hydropower (ICH)** is a non-profit organization based on institutional membership for organizations and companies in the hydropower sector. The purpose of ICH is to raise the standards of competence of personnel in the hydropower industry and promote the sustainable development of hydropower resources.

The **Independent Power Producers' Association, Nepal (IPPAN)** is a membership organization of hydropower developers, grid connected solar power developers, and stakeholders organization, established with a vision to become the umbrella organization of independent power producers to advocate for an investor friendly environment for power development in Nepal. Since 2001, IPPAN has been lobbying for private sector friendly policies, regulations and effective implementation, disseminating information through media, seminar, conferences to political parties, government officials, civil societies and the people, building capacity of IPPs and related stakeholders and developing regional co-operation in power sector. Its members include power companies, both national and international, banks, insurance companies, equipment suppliers, consulting companies etc.

Nepal Tunneling Association (NTA) was established in the year 2011 with the intention of promoting use, research and knowledge dissemination of underground space for safe, sustainable and eco-friendly infrastructure development in the country.

NTA is primarily a membership organization and one of its main purposes is to act as a link between the private sector and government organizations involved in developing underground space in the country so that Nepalese citizens can get the maximum benefit from the development effort. Besides this, the organization also helps exchange technology, expertise, knowledge, financial and management information among the independent power producers in the country.

Hydro Lab (HL) was initially started as River Research Laboratory in 1988 in the premises of Institute of Engineering, Tribhuvan University. Later in 1998, it was established as an independent organization

through the financial support of the Norwegian Agency for Development Cooperation (NORAD) and scientific support of the Norwegian University of Science and Technology (NTNU) through the facilitation of International Centre for Hydropower (ICH), Norway. The laboratory facilities were initially started for the first hydraulic model study in the country between 1989 and 1991 for 12 MW Jhimruk Hydropower Project. Following this, more than 20 model studies for projects with size ranging from 10 MW to 1,200 MW have been conducted at this laboratory. HL is a research organization specialized in the field of hydraulics, sediment research, field measurements, power plant performance evaluations and ground engineering. Being located at the premises of Institute of Engineering - Tribhuvan University (IoE-TU) Nepal, it has close cooperation with IoE-TU on academic and applied research (MSc and PhD research). It is also involved in the field of training and research activities in cooperation with other institution/association within Nepal and abroad.

Course Objective

The main objective is to conduct a training/workshop on 'Geological and Hydrological Studies for Hydropower Design'. The workshop is intended to provide understanding of the importance of geological and hydrological studies for hydropower and design implication based on the study.

Course Content

The training/workshop shall be conducted in a participatory approach covering the following topics:

- Geological Classification
- Geotechnical Investigation and Laboratory Testing
- Seismic aspect and Hazard Mapping
- Quantifying Risks for project cost calculation
- Geological Risk Sharing through contracts
- Using time series data and rating equation
- Digitizing river flow information
- Using Hydro-met data

- Energy Generation Sensitivities owing to change in hydrology
- Climate Change Impact on river hydrology and energy generation
- Basic Design Criteria based on Hydrology and Geology
- Resilient Design for extreme climatic variation
- Safeguarding Structure through early warning

Target Group

The course is aimed for Geologists, Hydrologist, Civil Engineers, Project Managers, and Hydropower Developers. Participants can be from private hydropower sector or government officials engaged in hydropower.

Duration of Training

Five days (including two days of travel and site visit)

Course Dates and Venue

The course will be conducted from April 1 to April 5 2019 in Nepal. Detailed course program and other relevant information will be provided to all selected participants in due course.

General

All resources persons are well-known specialists within their field and they have extensive international, regional and national experience. The course would provide an opportunity to discuss and learn about current issues related to hydrology and geology necessary for hydropower development.

Participants are encouraged to bring along information about hydrology and geology relevant to hydropower development which can be shared during the training.



pc: Bhatav Kunda HEP