

# Supplementary Application Call Document



Research Based Education for the Development of  
Hydropower Professionals (Hydro-Himalaya)



“The Graduate programs at Hydro-Himalaya Project attract people who share a deep aspiration to continue their career as Hydropower Professionals in the Himalaya Region.”



Web: <http://hhp.ku.edu.np> (In case of trouble from Chrome, use another web browser)

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## 1 PROJECT BACKGROUND

Norwegian Program for Capacity Development in Higher Education and Research for Development (NORHED), aims to strengthen the capacity of higher education institutions in developing countries to produce high-quality graduates, high-quality research, and more inclusive higher education.

The NORHED-II program has funded the project, “**Research Based Education for Development of Hydropower Professionals for the Himalayan Region (Hydro-Himalaya)**”. The Hydro-Himalaya project has three thematic areas: Effective Production of Hydro Energy, Effective Transmission of Hydro Energy and Effective End-use of Hydro Energy.

### 1.1 Objectives

- i. Strengthen the research-based education within hydropower engineering at Kathmandu University by producing a better-qualified workforce in the Himalayan region.
- ii. Transfer of academic and research competence from Kathmandu University to the Nepalese and Himalayan region universities in the field of hydropower engineering.
- iii. Bridge academia and industry for sustainable solutions and practices.

### 1.2 Expected Results of the Project

- **Overarching goal** – The Himalaya region has increased access to sustainable and resilient energy infrastructure, educated nationals able to maintain and further develop the energy sector and industry utilizing and promoting sustainable solutions.
- **Education** - The Himalaya region has increased access to local personnel with relevant education and skills to maintain and further develop the energy infrastructure in a sustainable matter.
- **Technology Development** - The Himalaya region has increased access to sustainable and resilient technology specifically developed or adapted for the technical challenges in the region.
- **Industry development** – Domestic and regional industry are matured and ready to implement new innovations.

### 1.3 Partners

**Applicant Institution:** Norwegian University of Science and Technology, Trondheim, Norway ([www.ntnu.edu](http://www.ntnu.edu))

**Local University Partner:** Kathmandu University, Dhulikhel, Nepal ([www.ku.edu.np](http://www.ku.edu.np))

**Partner at North:** University of South-Eastern Norway, Norway ([www.usn.no](http://www.usn.no))

**Partner at South:** Wuhan University, Wuhan, China ([en.whu.edu.cn/](http://en.whu.edu.cn/))

**Regional supporting partner:** Himalayan University Consortium, Kathmandu, Nepal (<https://www.icimod.org/initiative/huc/>)

## 2 ACADEMIC BACKGROUND

The holistic approach for the research is to have ‘Effective Production of Hydro Energy’, ‘Effective Transmission of Hydro Energy’, and ‘Effective End-use of Hydro Energy’ in the Himalayan region. The academic focus is on the innovations and solutions to the regional challenge induced by high sediment flows and the effective use of spilled energy.

**Table 1** Academic Details for 2021-2026

Thematic Area	Specific Area	Research Domain	Degrees	Total
Effective Production of Hydroelectricity	Sediment Erosion in hydro turbine	Basic research, Design, Production, Operation and Maintenance	Post Doc	1
			PhD	3
			Masters	10
			Double Degree	2
			PhD	
Effective Transmission of Hydroelectricity	Electrical Control, and Effective Transmission	Quality and reliability of power, Surveillance, VFD Control and grid stability	PhD	1
			Double Degree	2
			Masters	6
Effective End-use of Hydroelectricity	Green Hydrogen	H2H: Feasibility, Design cases, develop research facilities, prototype, safety, process control	Post Doc	1
			PhD	1
			Double Degree	1
			Masters	4
<b>Total</b>				<b>32</b>

The Masters, Ph.D. and Post-Doc program of Hydro-Himalaya at Kathmandu University is a research-intensive graduate program primarily focused on conducting active research in the several domains of Hydropower Engineering.

### Masters Degree

The Program is distributed over the period of two years in which the students engage in finding solutions to research questions under the guidance of designated supervisors. The Masters degree is offered by KU upon successful completion of Masters by Research.

### PhD Degree

The program is distributed over three years period in which the students engage in finding solutions to PhD research questions. KU provides the PhD degree upon the completion of the study program.

### Double Degree PhD

The study program will award PhD degrees from both KU and the partner university jointly after fulfilling the requirements at both universities. The Double Degree PhD is also three years long.

### Post-Doc

The Postdoc position has been planned with an aim to train the faculty members and researchers for strengthening research competence at KU.

### 3 KNOWLEDGE EXCHANGE AND MOBILITY

What sets Hydro-Himalaya apart is its unique partnership model – involving two Norwegian universities, one university in Nepal, and one in China. A time-tested partnership with NTNU in developing education and research capacity at KU will be the major foundation for the collaboration in this project. The strength of Wuhan University for fundamental research on sediment erosion of hydro turbines will add a new dimension to the existing competence. The expertise of the University of South-Eastern Norway in electrical and control aspects of hydropower systems will expand the project horizon to effective transmission of power. The collaboration between four academic institutions along with HUC has made Hydro-Himalaya possible with the aim to develop the academic and research activities coming out from the university and transfer to the industrial adaptation. The regional network of the Himalayan University Consortium will ensure better representation of project stakeholders and dissemination of project outcomes with impactful visibility.

*All of HHP's masters, doctoral and post-doctoral programs are coupled within one of three institutions: Norwegian University of Science and Technology (NTNU), Wuhan University (WHU) and University of South-Eastern Norway (USN).*

**Table 2** Yearly Recruitment Plan

<b>Year</b>	<b>Masters</b>	<b>PhD</b>	<b>Double PhD</b>	<b>Post-Doc</b>
2021	8	2	2	
2022	8	1	3	1
2023	4	2	-	1
<b>Total</b>	<b>20</b>	<b>5</b>	<b>5</b>	<b>2</b>

All the applicants enrolled under this application framework will have an opportunity to have an exchange program with at least one partner university during the academic program period. The mobility of the student to the partner university will depend on the domain of the specific research. The students enrolled under the domain of ‘Design and Operation of Sediment Resistant Turbines’ and ‘Green Hydrogen’ will have an exchange program with NTNU. Similarly, students enrolled under the domain of ‘Fundamental Study on Sediment Erosion’ will have the exchange program with Wuhan University and the students enrolled under the domain ‘Quality and Reliability of Power and Effective Transmission’ will have the exchange program with USN. The duration of stay at the partner university for a double degree PhD will be of 3 semesters (50% of the academic time) and will award PhD degrees from both KU and partner university after fulfilling the requirements at both universities. The duration of stay at the partner university for a normal PhD will be of 2 semesters (33% of the academic time) and the duration of stay at the partner university for a Masters degree will be of 1 semester (25% of the academic time).

## 4 SUPPLEMENTARY APPLICATION CALL FOR 2021

Hydro-Himalaya project welcomes applications from individuals interested to further their academic career as hydropower professionals in the fall term of 2021. Details of the available position is provided in **Table 3**.

**Table 3** Details of available position for 2021

Research Degree	Code	Research Domain	No	Study Period*
Ph.D. (KU)	<i>P3-21</i>	Green Hydrogen; Application of Green Hydrogen Technologies in Nepal	1	Sept 2021- Aug 2024

*\*Dates are subject to change*

*\*Follow the Program code in Annexes for more details of the position.*

## 5 APPLICATION PROCESS

### 5.1 General Eligibility Criteria

The applicant must be a Nepali citizen.

#### **For Ph.D. Degree**

The candidate must have a minimum CGPA of 3.0 or B grade or equivalent in his/her Masters degree in Engineering and must have completed a minimum of 17.5 years of education (10+2+4+1.5).

*The applicant must have gained the required qualification within the start date of the position, so applicants in the last semester of their masters degree are also eligible to apply for Ph.D. In such case, instead of a transcript and degree certificate, students must submit a letter from their current University/College with the expected completion date.*

### 5.2 Expected Qualifications

Higher CGPA, experience in paper publication and relevant work experience is an advantage. Proof of excellent written and oral English language skills are required. The application will be further strengthened if documentation of publications and thesis in relevant area of study is provided by the candidate.

The candidate with an ability to work independently and having the motivation to share knowledge and take part in teamwork is preferred. Cooperation between staff members is an integrated part of the working atmosphere at the Kathmandu University and the partner university. The candidate should be motivated and demonstrate a proven ability to work effectively within a team to formulate and realize common objectives. Personal suitability for the post will be emphasized.

*Please refer to the specific program document in Annex for more details about the specific program of study.*

### 5.3 Related information

The Department has fewer women in scientific positions; therefore, women are particularly encouraged to apply. The project aims that the students reflect the diversity of general population. An expert assessment of applicants will be carried out and the candidates deemed best qualified will be invited to an interview. The person appointed must comply with the laws, regulations and agreements that apply at any given time to the post.

### 5.4 Personal characteristics

- Strongly motivated and determined
- Be structured, targeted and solution-oriented
- Have the motivation to work interdisciplinarity
- The candidate should be creative and actively contribute to the team he/she will be a part of
- Have good communication and dissemination skills
- Personal skills such as a positive and friendly attitude, a strong appreciation for diversity, and contributing to a sustainable social environment will also be valued

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience, and personal suitability, in terms of the qualification requirements specified in the advertisement.

### 5.5 What to Expect

The candidate enrolled in Ph.D. can expect the following:

**Tuition Fee Scholarship:** The tuition fees and expenses incurred during research activities will be covered by internal resources of Kathmandu University.

**Monthly Stipend:** All the students enrolled to this program will be provided with a monthly stipend as per the regulations at Kathmandu University via Hydro Cen.

**Leadership Mentoring:** Himalayan University Consortium, a partnering institution, conducts a wide range of practical support training for students in order to build their leadership and confidence throughout the program aiming to achieve all-rounded readiness for their future careers.

### 5.6 What We Offer

- A stimulating and growing research environment, with good opportunities to develop your career and your academic skills
- An open and inclusive work environment with dedicated colleagues
- A healthy social environment where diversity is celebrated
- Team and individual mentoring support to build communication and leadership skills and achieve all-rounded readiness for future career
- Opportunity for physical activities within working hours

### 5.7 How to Apply

Students should submit the complete application with the attached documentation in the project's email at [hydro.himalaya@ku.edu.np](mailto:hydro.himalaya@ku.edu.np) :

The following documents shall be attached while applying for **Ph.D. position**:

- Transcripts and degree certificates of Bachelors and Masters Degrees. The transcript should clearly show the grades obtained for different courses taken at the Bachelor and Masters Degree. Must have a minimum 3 CGPA on a 4-point scale or equivalent.
- Research Statement (three pages at most)
- A citizenship document
- Two Letters of Recommendation
- Curriculum Vitae
- Other relevant work and academic certificates (Optional)

### **5.8 Special initiatives to ensure social inclusion**

Initiatives that will ensure equal opportunities for higher education, research, professional development, and leadership for underrepresented or disadvantaged students are encouraged. This could include, but is not limited to:

- Small grants to cover personal expenses enabling disadvantaged students/students with disabilities to attend and complete studies at graduate/post-graduate level.
- Personal assistance during the program where required.
- Special interest groups at university.

### **5.9 Gender mainstreaming initiative**

Any initiatives that will ensure equitable opportunities for higher education, research, professional development, and leadership for females can be supported. This could include, but is not limited to:

- Compensation for up to 3 months maternity leave for those receiving full scholarships and fellowships.
- Assistance in a visa application for spouse and children if required.
- Small grants are provided to cover personal expenses like hygiene articles, local transport, stationaries, etc. to ensure that female students in need can attend and complete the studies at the graduate/post-graduate level within project thematic areas and in countries where women's underrepresentation is clear.
- Leadership training and mentoring group

## **6 RIGHT TO APPEAL AND OUR RESERVATIONS**

You have a right to appeal if you believe you have been wrongfully rejected for admission or if there has been a mistake in the processing of your application. The individual himself/herself has to appeal to the Hydro-Himalaya Project Admissions committee via email to register their appeal.

Not all applications that meet the minimum requirements will be selected. Admission to the program is highly competitive with many strong applicants. If you have received the rejection 'not admitted due to competition', you cannot appeal on the basis that you meet the requirements.

## **Deadline**

The deadline to appeal is 1 week from the decision that was sent to you. You will receive a reply to your appeal approximately within 3 weeks.

**The application will be assessed on the basis of the attached documentation as requested above. Each applicant is responsible for ensuring that the required documentation has been uploaded within the application deadline.**

## ANNEX 1

*Supplementary Admission call for position as Ph.D. Research Fellow (single degree) at:  
Kathmandu University (KU)*

<b>Academic Supervision</b>	KU: Department of Mechanical Engineering, School of Engineering NTNU: Department of Energy and Process Engineering				
<b>Thematic Area</b>	The effective End-use of Hydropower			<b>Research Domain</b>	Green Hydrogen
<b>Ph.D. Topic (P3-21)</b>	Application of Green Hydrogen Technologies in Nepal			<b>Degree Awarded by</b>	KU
<b>Application called date</b>	2021.10.03	<b>Application deadline</b>	2021.10.08	<b>Expected Decision Date</b>	2021.10.22

### About the Positions

The Green Hydrogen work package will concentrate on the effective end-use of Hydroelectricity focusing on Hydropower to Hydrogen (H2H) as a means of energy transition towards a sustainable and low carbon economy in Nepal. The scope of the study includes production, storage, transport, and end-use of Green Hydrogen in the Himalaya region by effective use of locally available renewable energy resources.

Department of Mechanical Engineering at KU has a vacancy for a full-time position as Ph.D. Research Fellow. The academic and research work will be jointly carried out at Green Hydrogen Lab, KU and NTNU Energy Team Hydrogen, NTNU. The Masters and Ph.D. candidates will have the provision of one and three semesters exchange with NTNU respectively.

### Expected Knowledge Base

Fundamental knowledge within i) hydrogen technologies ii) hydropower systems iii) Energy Modelling iv) fuels and emissions