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On-line Training of SAARC Professionals on Small, Mini and Micro Hydro Power (SMMHP) Generation Sept 13 – 17, 2021 Timetable for online training

Day/Date	Pakistan Standard Time	Title & Speaker	Broad content to be covered
Theme of the session: Introduction to SMMHP and Site Selection			
Day 1 September 13, 2021	11:00 – 11:20 am	Inauguration of the Training program	- Inaugural address by Director SAARC Energy Centre - Inaugural address by Director/Dean SRIC, IIT Roorkee
	11:20 – 12:45 pm	Slot 1: Introduction to Small, Medium and Micro Hydropower by Prof. Arun Kumar, HRED IIT Roorkee, India	- Prospects, opportunities, and challenges of SMMHP in SARRC. - Categorization of SMMHP plants will also be explained - Above topics with Europe and global perspectives will also be covered
	12:45 – 2:00 pm	Lunch Break	
	2:00 – 3:00 pm	Slot 2: Site selection and investigation of SMMHP plants by Prof. Sunil Kumar Singal, HRED IIT Roorkee, India	- This lecture will focus on the various considerations for selecting sites for SMMHP plants - Investigations required for site selection will also be covered
	3:00 – 3:05 pm	Break	
	3:05 – 3:55 pm	Slot 3: Socioeconomic and environmental aspects of SMMHP plants by Mr. Arun Tyagi, UREDA, India	The socioeconomic and environmental considerations that should be made while planning for SMMHP projects will be covered in this lecture
	3:55 – 4:00 pm	Break	
	4:00 – 4:30 pm	Slot 4: Discussions on the problems being faced by SHP sector by different stakeholders by Prof Arun Kumar, HRED IIT Roorkee, India	Participants shall share their problems about the challenges being faced by them in SHP
	4:30 – 5:10 pm	Slot 4: Hybridization with SMMHP plants by Prof. Himanshu Jain, HRED IIT Roorkee, India	In this lecture hybridization opportunities and challenges with SMMHP plants will be discussed
	5:10 – 5:20 pm	Evaluation	This session will have an MCQ quiz



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Theme of the session: SMMHP Planning and Design			
Day 2 September 14, 2021	11:30 am – 12:45 pm	Slot 1: Technical considerations in planning of SMMHP plants by Prof. Arun Kumar	- SMMHP potential estimation - Challenges in SMMHP planning - Ownership models - Major consideration and requirement for prefeasibility and feasibility studies
	12:45 – 2:00 pm	Lunch Break	
	2:00 – 3:00 pm	Slot 2: Selection and dimensioning of major components of SMMHP plants by Prof. Bernhard Pelikan, Carinthia University of Applied Science, Austria	The focus of this lecture will be on explaining the considerations made in selecting the major components of SMMHP plants and how these should be dimensioned based on the type of SMMHP plant
	3:00 – 3:05 pm	Break	
	3:05 – 4:05 pm	Slot 3: Civil engineering aspects of designing SMMHP plants by Prof. Mukesh Kumar Singhal, HRED IIT Roorkee, India	This lecture will cover key engineering considerations in the design phase for the civil works
	4:05 – 4:10 pm	Break	
	4:10 – 5:10 pm	Slot 4: Mechanical and electrical engineering of designing SMMHP plants by Prof. Rajeshwar Prasad Saini, HRED IIT Roorkee, India	This lecture will cover key mechanical and electrical engineering considerations in the design phase of the SMMHP plants
	5:10 – 5:20 pm	Evaluation	This session will have an MCQ quiz
Theme of the session: SMMHP Construction and Operations & Maintenance			
Day 3 September 15, 2021	11:30 am – 12:45 pm	Slot 1: Construction of SMMHP plants by Prof. Sunil Kumar Singal, HRED IIT Roorkee, India	Major considerations, requirements, and challenges during construction of SMMHP plants will be covered in this lecture
	12:45 – 2:00 pm	Lunch Break	
	2:00 – 3:00 pm	Slot 2: SMMHP operations, monitoring, and control by Mr. AK Goel, Aleo Manali SHP, India	- SMMHP monitoring and control - Safety, and reliable operation of SMMHP plants
	3:00 – 3:05 pm	Break	



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	3:05 – 4:05 pm	Slot 3: Operation and maintenance of SMMHP plants by Mr. Satyendra Kumar Tyagi, Formerly UPJVN, India	• maintenance of SMMHP plants will be covered
	4:05 – 4:10 pm	Break	
	4:10 – 4:40 pm	Slot 4: Understanding SMMHP plants operations using software by Prof. Himanshu Jain, HRED IIT Roorkee, India	• Software (e.g., PSSE) that can be used for electrical operations of SMMHP plants will be discussed
	4:40 – 5:10 pm	Slot 5: Online training on Real Time Hydropower Digital Simulator by Prof Mukesh Kumar Singhal	• Real time hydropower simulator for training of different aspects of operation and maintenance of SHP plants • Hardware-in-the-loop simulations between software model of real SHP plants in India and the hardware replica of their electrical controls
	5:10 – 5:20 pm	Evaluation	• This session will have an MCQ quiz
Theme of the session: SMMHP Cost Estimation, Financial, Regulatory, and Policy Considerations			
Day 4 September 16, 2021	11:30 am – 12:15 pm	Slot 1: Economic considerations in planning of SMMHP plants by Prof. Sunil Kumar Singal, HRED IIT Roorkee, India	• Cost estimation of SMMHP plants • Techno-economic aspects of SMMHP plants
	12:15 – 1:00 pm	Slot 2: Tariff structures and power purchase agreements of SMMHP plants by Prof. Anand Kumar, HRED IIT Roorkee, India	• In this lecture the fundamentals of tariff structures and power purchase agreements for SMMHP plants will be covered along with examples from SAARC countries
	1:00 – 2:00 pm	Lunch Break	
	2:00 – 3:00 pm	Slot 3: Financing mechanisms and business models of SMMHP plants by Prof. Arun Kumar, HRED IIT Roorkee, India	• Financing mechanisms and business models for SMMHP plants that are relevant for SAARC Member States will be covered • Fundamentals of these topics along with actual financing and business models used in SMMHP plants in SAARC will be covered
	3:00 – 3:05 pm	Break	



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	3:05 – 4:15 pm	Slot 4: Policies and regulations for SMMHP development by Prof. Arun Kumar, HRED IIT Roorkee, India and Dr. RP Dhital, Member (Nepal Electricity Regulatory Commission), Mr. Tula Poudel (SEC)	- In this lecture the existing policies and regulations that govern SMMHP development in SAARC and outside SAARC will be covered - An overview of the application process for SMMHP plants in Nepal will also be covered
	4:15 – 4:20 pm	Break	
	4:20 – 5:10 pm	Slot 5: Discussion on policy gaps and approaches to address them by Prof Arun Kumar, Dr RP Dhital, Member (Nepal Electricity Regulatory Commission) and Mr. Arun Tyagi	- This slot will be structured as a panel discussion with the three experts who will discuss the gaps in the existing regulations and provide recommendations for addressing these gaps. - Panel presentation will be followed by Q&A with the trainees
	5:10 – 5:20 pm	Evaluation	This session will have an MCQ quiz
Theme of the session: Performance Evaluation of SMMHP/ Software and Online Laboratory Training			
Day 5 September 17, 2021	11:30 am – 12:45 pm	Slot 1: Discussion on operation and maintenance and performance evaluation by Prof. Rajeshwer Prasad Saini, Mr. AK Goel, Mr. SK Tyagi, and Mr. AK Tyagi	This slot will be structured as an open discussion where trainees can ask questions to the four experts on operation and maintenance and performance evaluation of SMMHP plants
	12:45 – 2:30 pm	Lunch Break	
	2:30 – 3:00 pm	Slot 2: Online laboratory training by Prof. Himanshu Jain, HRED IIT Roorkee, India	Live demonstration of Hydraulic turbine model testing and sediment erosion measurement
	3:00 – 4:00 pm	Slot 3: Measurement of performance of SMMHP plants by Prof. Rajeshwar Prasad Saini, HRED IIT Roorkee, India	Key practical considerations in operations and Focus on the standard approaches for measuring the performance of SMMHP plants
	4:00 – 4:15 pm	Feedback on the training by the trainees	This slot is intended to obtain trainees' feedback on the entire training program
	4:15 – 4:30 pm	Valedictory session	Closing remarks