

**Short Term Training Course on  
“ Hydro Power Engineering (Civil)” for Teachers of Polytechnics in Uttarakhand  
May 31–June 04, 2007**

Time	0900-1015	1015-1130	1130-1200	1200-1315	1315-1430	1430-1545	1545-1600	1600-1700
<b>Day</b>								
<b>May 31, 07</b>	Registration	Inauguration	L1(1/2) MPS	<b>TEA BREAK</b>	L1(2/2) MPS	L2 AK	<b>TEA BREAK</b>	L3 SNS
<b>June 01, 07</b>	L4 SKS	L5 AK	L6 RPS		L7 (1/4) GCG	L7 (2/4) GCG		
<b>June 02, 07</b>	L7 (3/4) GCG	L7 (4/4) GCG	L8 AKS		L9 (1/2) NS	L9 (2/2) NS		
<b>June 03, 07</b>	L10 (1/4) UCC	L10 (2/4) UCC	L11 (1/2) MKS		<b>Visit to Chilla Power House, MKS/SS</b>			
<b>June 04, 07</b>	L10 (3/4) UCC	L10 (4/4) UCC	Test		L11 (2/2) MKS	L12 DKG		Valedictory Function

Lecture: CCE Lecture Room

Stay, Breakfast, Lunch &amp; Dinner at Continuing Education Guest House

**Faculty:**

AK - Shri Arun Kumar, Head, AHEC  
 AKS - Prof. A. K Saraf, Dept. of Earth Sciences  
 GCS - Dr. Girish Chand Gaur, Consultant Dehradun  
 MKS - Shri M.K. Singhal, SSO, AHEC  
 MPS - Dr. M. P. Sharma, SSO, AHEC

NS - Shri Narender Singh, Advisor, Rehabilitation, THDC  
 RPS - Dr. R. P. Saini, SSO, AHEC  
 SKS - Shri S.K. Sangal, SSO, AHEC  
 UCC - Prof U.C. Chaube Professor, WRDTC  
 SNS - Shri S. N. Singh, SSO, AHEC  
 SS - Shri S. S. Patnaik, SRF, AHEC

**(M.K. Singhal)**  
Course Coordinator

**(ARUN KUMAR)**  
Course Director

**HYDRO POWER ENGINEERING (CIVIL)**  
**COURSE CONTENTS**

Sl. No.	<i>Particulars</i>	Contact Hours
L-1	Renewable Energy Sources: Brief idea about Solar, Wind, Bio-mass, and Small Hydro. Potential of Renewable Energy Sources in India. Advantages of Renewable Energy Sources over Conventional Energy Sources.	2
L-2	Hydropower development in India and Uttaranchal State.	1
L-3	Hydropower Development: Sources of energy, Importance of electric power. Power Plants, Different Types of Power Plants, Importance of Hydropower Plant, and Merits of Hydropower Plant over Thermal & Nuclear power plant.	1
L-4	Site Investigations and Determination of power potential of any site.	1
L-5	Layout Plan of Different Hydropower Stations.	1
L-6	Brief idea about Generators and Turbines used in Major/Small/Mini/Micro Hydropower Stations. Installation of Generators and Turbines in civil engineering point of view and their maintenance.	1
L-7	Investigation and Management of Landslide: Introduction to landslide and other mass movements, their mechanism and causes. Landslide identification, investigation and mapping. Landslide hazard zonation and risk mapping. Preventive/corrective measures of landslide control. Landslide instrumentation and monitoring. Dissemination of information, their use in disaster mitigation and management.	4
L-8	Use of geographical information system in landslide hazard mapping and database management.	1
L-9	Re-habilitation: Techno-economic survey of affected area. Survey of land for Rehabilitation of affected people. Rehabilitation Policy of Government.	2
L-10	Environmental Impact Assessment for Hydropower Projects: Environmental impact of canal, dams, hydropower generation. Environmental impact assessment methodology including statutory requirement & procedures for obtaining environmental clearance for hydropower Projects. Modeling & Forecasting of Environmental parameters including as an environmental management tours & other environmental survey techniques.	4
L-11	Hydropower Station: Brief idea about Design of Water conductor system for Major/Small/Mini/Micro Hydropower Stations.	2
L-12	Hydropower Stations in Tunnel.	1