

Organization of Training Courses on various physical parameters in the area of Metrology/ Standards for personnel belonging to Industries, Testing & Calibration Laboratories and other S&T Organizations is an important activity of the NPL. The Courses are conducted as per the Training Calendar, which is updated every year. Given below is the Training Calendar for the year 2010-2011.

NPL Training Calendar For 2010-2011

S.No.	Title of Training Programme	Date & Duration	Content of Programme	Technical Co-ordinator (s) with Contact Details
1	Dimensional Metrology	05-09 April 2010 (5 Days)	Basics of Metrology, Calibration Practice in Dimensional Metrology, Calibration of gauge blocks, surface plates, length measuring machines and Angle Metrology.	Dr. K. P. Chaudhary kpc@nplindia.org 011-45608673 Dr. Rina Sharma rina@nplindia.org 011-45609412
2	Calibration of Thermocouples (0 to 1100 °C)	28-30 April 2010 (3 Days)	(1) Lectures on Details of calibration work and equipment used (2) Practical Demonstration & Training on Calibration procedures, calculations, reports, etc.	Dr. Y.P. Singh ypsingh@nplindia.org 011-45609390
3	Estimation of Uncertainty in Measurements	04-06 May 2010 (3 Days)	Estimation and Evaluation of Uncertainty in Measurements.	Dr. V.N. Ojha vnojha@nplindia.org 011-45608273 Dr. Rina Sharma rina@nplindia.org 011-45609412
4	Materials Characterisation Techniques	12-16 July 2010 (5 Days)	Familiarization & demonstration of various Materials Characterization Techniques, such as -SIMS, XRD, EPR, SEM, TEM, etc.	Dr. B. R. Chakraborty brc@nplindia.org 011-45608280
5	Photometry & Colorimetry	28-30 July 2010 (3 Days)	Principles of Photometry, Measurement Techniques, Calibration of Light sources for Luminous intensity, Luminous flux and Luminance, Calibration of Detectors for Intensity and Illuminance, Goniophotometry -Measurement of Light Distribution of light sources for colour temperature and chromaticity coordinates, Detectors for spectral Irradiance and Spectral Responsivity (Principles of Radiometry and Spectroradiometry, Measurement Techniques for calibration of spectral Radiance /Irradiance).	Dr. H.C. Kandpal hckandpal@nplindia.org 011-45608315 Dr. Ranjana Mehrotra ranjana@nplindia.org 011-45608366
6	Quality System – Laboratory Management, Need for Calibration / Accreditation (ISO-17025)	10-12 August 2010 (3 Days)	The content of the programme would be tailor-made and it would generally cover different aspects of laboratory management, like (1) ISO-17025 Element (2) Quality Manual, and (3) Technical Documents.	Dr. R.K. Garg rkgarg@nplindia.org 011-45609162
7	Lumped Parameter Impedance Measurement at Low Frequency	25-26 August 2010 (2 Days)	(1) Lectures on precision impedance measurement at low frequency (2) Familiarization of different calibration procedures including bench training on precision impedance measurement involved in the calibration of high quality capacitors, inductors, resistors and associated instruments like LCR meters, GR 1620 and GR 1621 capacitance bridge etc.	Sh. A.K. Saxena aksaxena@nplindia.org 011-45609314 Sh. M.A. Ansari

8	DC High Voltage Measurements up to 100 kV & Equipment Calibration	26-27 August 2010 (2 Days)	One or two lectures on high voltage measurement techniques, safety aspects, uncertainty in measurement & bench calibration of HV equipment.	Sh. A.K. Saxena aksaxena@nplindia.org 011-45609314 Sh. K.B. Rawat
9	Calibration of Standard Platinum Resistance Thermometers (SPRTs) (0 to 420 °C)	06-07 September 2010 (2 Days)	(1) Lectures on Details of calibration work and equipment used (2) Practical demonstration and training on calibration procedures, Calibration reports, etc.	Sh. J.K. Gupta jkgupta@nplindia.org 011-45609231 Sh. Hansraj Meena
10	Force, Torque and Hardness Measurements	10-12 November 2010 (3 Days)	(1) Calibration of Force proving devices (2) Verification of testing machines using calibrated proving devices (3) Calibration of Torque Meters (4) Wrench Calibrator; Calibration of Hardness blocks on Rockwell scale.	Dr. S.K. Jain skjain@nplindia.org 011-45608680
11	Mass Metrology - Training in Mass, Volume, Density & Viscosity Measurements	21-24 September 2010 (4 Days)	(1) Basics in Mass Measurements and Calibration of Weights & Weighing Instruments (2) Volume Standards and Calibration of Volumetric Measures (3) Density of Solids & Liquids and Calibration of Hydrometers (4) Viscosity Measurements and Calibration of Viscosimeters.	Sh. Anil Kumar anil_apir127@nplindia.org 011-45608348 Sh. Gautam Mandal goutam@nplindia.org 011-45609367
12	Precision DC Measurements and Calibration	27-30 September 2010 (4 Days)	(1) 5 Lectures on precision DC measurements (2) Familiarization of different calibration procedures including bench training on precision DC equipment like Calibrators, Multi-meters, DC reference standards, standard resistors, by DC bridge.	Dr. V.N. Ojha vnojha@nplindia.org 011-45608273 Sh. Ajeet Singh ajeet@nplindia.org 011-45608233
13	Training Course on Noise and its Abatement	19-21 October 2010 (3 Days)	Basic Acoustic & Terminology, Measurement, Instrumentation & Techniques, Indoor Noise, Outdoor Noise along with Practical Demonstration	Dr. Omkar Sharma osharma@nplindia.org 011-45608317
14	Time & Frequency Dissemination & Calibration	26-29 October 2010 (4 Days)	(1) Fundamentals of Time & Frequency, (2) Definition: Accuracy, Stab Uncertainty etc. (3) Dissemination Techniques, (4) STFS via INSAT (5) Tele-clock, (6) Techniques of Calibration.	Dr. P. Banerjee pbanerjee@nplindia.org 011-45608391
15	Measurement of AC High Voltage & High Current and AC Power & Energy	09-12 November 2010 (4 Days)	(1) AC High Current & High Voltage and AC Power & Energy measurements (2) Traceability in High current, High voltage, AC Power & Energy measurements (3) CT & PT Ratio and burden measurements (4) Calibration of High current & High voltage and AC Power & Energy meters and uncertainty calculations (5) Temper Test conditions including AC/DC magnetic influence on Energy meters.	Dr. S.R. Gupta srgupta@nplindia.org 011-45608597 . Sh. M.K. Mittal mkmittal@nplindia.org 011-45609335
16	Calibration of Glass Thermometers (80 to 300 °C)	18-19 November 2010 (2 Days)	Lectures on Details of calibration work and equipment used, Practical demonstration and training on calibration procedures, calibration reports etc.	Dr. Y.P. Singh ypsingh@nplindia.org 011-45609390

17	Measurement Standards and Calibration Techniques for LF Voltage and LF Current	23-25 November 2010 (3 Days)	(1) Fundamentals of LF Voltage and Current Measurements (2) Standards for LF Voltage and Current (3) Techniques of calibrating LF voltage and current measuring and generating instruments (4) Practical training on calibration set-ups.	Sh. A.K. Govil akgovil@nplindia.org 011-45609312
18	Dimensional Metrology	06-10 December 2010 (5 Days)	Advance Training Course on Coordinate Metrology, Roughness, Roundness and Laser Measuring System.	Dr. K. P. Chaudhary kpc@nplindia.org 011-45608673
19	Pressure & Vacuum Standards and Procedures for Calibration of Industrial gauges, Transducers and Dead weight testers	18-21 January 2011 (4 Days)	Measurement of Pneumatic Pressure, Hydrostatic Pressure, Barometric Pressure, Medium & High Vacuum and Calibration Procedures.	Dr. A.K. Bandyopadhyay akband@nplindia.org 011-45608476 Dr. Pradeep Mohan pardeep@nplindia.org 011-45608533 Dr. D.R.Sharma drsharma@nplindia.org 011-45608496
20	Calibration of Industrial Platinum Resistance Thermometers [(0 to 600° C) & (-196 to 0° C)]	03-04 February 2011 (2 Days)	Lecture Details of Calibration work and equipment used (2) Practical demonstration & training on calibration procedures, calculations, reports, etc.	Sh. J.K. Gupta jkgupta@nplindia.org 011-45609231
21	Mass Metrology - Training on Mass, Volume, Density and Viscosity Measurements	21-24 February 2011 (4 Days)	(1) Basics in Mass Measurements and calibration of weights & weighing Instruments (2) Volume Standards and Calibration of Volumetric Measures (3) Density of Solids & Liquids and Calibration of Hydrometers (4) Viscosity Measurements and Calibration of Viscometers.	Sh. Anil Kumar anil_apir127@nplindia.org 011-45608348 Sh. Gautam Mandal goutam@nplindia.org 011-45609367

GENERAL INFORMATION

Academic Level of Participants :

Ph.D./ M.Sc./ B.E./ Engg. Diploma Holders / Science Graduates / Their Equivalent.

Pre-Requisites :

Some relevant experience.

Training Fee / Charges :

Indian participants -Rs. 3000 /-per day per participant. Foreign participants -US \$ 120 per day per participant.

A discount of 50% in the training fee will be allowed to participants belonging to CSIR laboratories /institute only. No request from any other Govt. /Pvt. organization for any discount will be entertained.

The Training fee includes Course Material, Training kit, Lunch, Tea / Coffee, etc.

The Training fee should be sent at least two weeks prior to the commencement of the desired training programme, through a Demand Draft drawn in favour of the "DIRECTOR, NATIONAL PHYSICAL LABORATORY", payable at "NEW DELHI".

Lodging & Boarding :

As per prevailing rates in the NPL Guest House / Hostel for CSIR / Non-CSIR personnel (Subject to availability) -- Charges to be borne by the Trainees.

GENERAL INSTRUCTIONS

NPL may accept a proposal to conduct a training programme on a particular parameter / topic to personnel of an organization at an unscheduled time w.r.t. the present training calendar, if the number of participants are at least 05.

In case of inadequate number of participants (less than 05) for a particular training programme, the NPL may drop the execution of that programme. In view of this, before sending the DD, the prospective participants are advised to confirm with the Head, HRD or the concerned Technical Co-ordinator about its dates and execution.

For Technical Queries about a training course, the prospective participants may contact the concerned Technical Co-ordinator.

For General Enquiries, the candidates are advised to contact the following persons :

<p><i>Dr. R. K. Aggarwal</i> Scientist 'G' Head, Human Resource Development National Physical Laboratory, New Delhi – 110 012 Ph.: 91-11-4560 9366/8612(O); 2685 6392(R) Fax : 91-11-4560 9310 e-mail : hrd@nplindia.org</p>	<p><i>Dr. Rajeev Chopra</i> Scientist 'F' Human Resource Development Group National Physical Laboratory, New Delhi Ph.: 91-11-4560 9361(O) Fax : 91-11-4560 9310 e-mail : hrd@nplindia.org</p>
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