

Organisation 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 Organisations 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 2009-2010.

NPL Training Calendar For 2009-2010

S.No.	Title of Training Programme	Date & Duration	Content of Programme	Technical Co-ordinator (s) with Contact Details
1	Mass Metrology - Training in Mass, Volume, Density & Viscosity Measurements	08-12 June 2009 (5 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. Tripurari Lal tlal@nplindia.org 011-45608348 Sh. Gautam Mandal goutam@nplindia.org 011-45609367
2	Materials Characterization Techniques	13-17 July 2009 (5 Days)	Familiarization & Practical Training on various Materials Characterization Techniques such as - SIMS, XRD, EPR, SEM, TEM, etc.	Dr. B. R. Chakraborty brc@nplindia.org 011-45608280
3	Estimation of Uncertainty in Measurements	22-24 July 2009 (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	Quality System – Laboratory Management, Need for Calibration / Accreditation (ISO-17025)	10-12 August 2009 (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. A.K. Hanjura hanjura@nplindia.org 011-45609378
5	Dimensional Metrology	24-28 August 2009 (5 Days)	Calibration of (1) Dimension measuring instruments (2) Handling of these instruments (3) Determination of Uncertainty (4) Application of instruments, e.g., Vernier Caliper, Micrometer, Dial gauges, Depth gauges, Ring gauges, Snap gauges & Slip gauges.	Dr. K. P. Chaudhary kpc@nplindia.org 011-45608673 Dr. Rina Sharma rina@nplindia.org 011-45609412
6	Lumped Parameter Impedance Measurement at Low Frequency	16-18 September 2009 (3 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

S.No.	Title of Training Programme	Date & Duration	Content of Programme	Technical Co-ordinator (s) with Contact Details
7	Photometry & Colorimetry	05-09 October 2009 (5 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
8	DC High Voltage Measurements up to 100 kV & Equipment Calibration	13-14 October 2009 (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	Time & Frequency Dissemination & Calibration	19-23 October 2009 (5 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 Mrs. A. Chatterjee arundhati@nplindia.org 011-45608601
10	Precision DC Measurements and Calibration	26-30 October 2009 (5 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
11	Measurement Standards and Calibration Techniques for LF Voltage and LF Current	09-13 November 2009 (5 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
12	Pressure & Vacuum Standards and Procedures for Calibration of Industrial gauges, Transducers and Dead weight testers	16-20 November 2009 (5 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
13	Calibration of Glass Thermometers (80 to 300 ° C)	03-04 December 2009 (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
14	Force, Torque and Hardness Measurements	14-18 December 2009 (5 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 Sh. Anil Kumar anil_april27@yahoo.com 011-45608672

S.No.	Title of Training Programme	Date & Duration	Content of Programme	Technical Co-ordinator (s) with Contact Details
15	Calibration of Thermocouples (0 to 1100 °C)	06-08 January 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
16	Calibration of Standard Platinum Resistance Thermometers (SPRTs) (0 to 420 °C)	13-14 January 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
17	Dimensional Metrology	18-22 January 2010 (5 Days)	Advance Training Course on Coordinate Metrology, Roughness, Roundness and Laser Measuring System.	Dr. K. P. Chaudhary kpc@nplindia.org 011-45608673
18	Calibration of Industrial Platinum Resistance Thermometers [(0 to 600° C) & (-196 to 0° C)]	04-05 February 2010 (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
19	Metallurgical & Mechanical Characterization Techniques	10-11 February 2010 (2 Days)	Practical Demonstration & training on Metallurgical Characterization Techniques like optical microscopy, tensile testing, compressive testing, microhardness testing with emphasis on sample preparation & standards.	Mr. R.C. Anandani rcanandani@nplindia.org 011-45609421 Dr. Ajay Dhar adhar@nplindia.org 011-45609472
20	Mass Metrology - Training on Mass, Volume, Density and Viscosity Measurements	22-26 February 2010 (5 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. Tripurari Lal tlal@nplindia.org 011-45608348 Sh. Gautam Mandal goutam@nplindia.org 011-45609367
21	Measurement of AC High voltage & High Current and AC Power & Energy	15-19 March 2010 (5 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

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 / institutes.

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 Head, HRD, at the following address :

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