

# CSIR Integrated Skill Initiative 'Transforming India Through Skilling and Training '

**COURSE BROCHURE - 2017**



**सीएसआईआर - राष्ट्रीय भौतिक प्रयोगशाला**



**CSIR - NATIONAL PHYSICAL LABORATORY**

**(Council of Scientific & Industrial Research, New Delhi)**

**Dr. K. S. Krishnan Marg, New Delhi – 110 012.**

**CERTIFICATION COURSE IN PRECISION MEASUREMENTS  
AND QUALITY CONTROL (PMQC-2017)**

**IMPORTANT KEY DATES**

<b>Activities for Admission</b>	<b>Key Dates</b>
<b>Last Date for submitting the Application Form</b>	<b>30-12-2016</b>
<b>Display of candidate names on website after screening</b>	<b>20-01-2017</b>
<b>Final list of selected candidates on website</b>	<b>27-02-2017</b>
<b>Date of commencement of the course</b>	<b>03-04-2017</b>

**IMPORTANT NOTES**

- **The valid email id of the applicant/parents/guardian is mandatory for applying and future communication.**
- **Students are advised to visit institute websites ([www.nplindia.org](http://www.nplindia.org)) regularly for latest information and updates.**
- **All information given by the candidate in the Application Form will be taken as final and no changes will be permitted under any circumstances at later stage.**
- **Incomplete application in any form is liable to be rejected at any stage.**
- **In case of any discrepancy, the decision of the competent authority of the institute will be final.**
- **All disputes are subject to New Delhi Jurisdiction only.**
- **In case of any discrepancy in interpretation, the English version may be taken as final.**

# **CERTIFICATION COURSE IN PRECISION MEASUREMENTS AND QUALITY CONTROL**

## **About CSIR-NPL**

CSIR-National Physical Laboratory (NPL, India) is mandated to be India's 'National Measurement Institute (NMI)' and is the custodian of "National Standards" with a responsibility of the dissemination of measurements to the needs of country.

The CSIR-National Physical Laboratory was conceptualized in 1943 by the Governing Body of Council of Scientific and Industrial Research (CSIR), with a view to pave the way utilizing science and technology as a means for industrial growth and development, as well as to give fillip to the fledgling Indian industries. Over the years, the Laboratory has not only fulfilled its primary mandate as the custodian of National Measurement Standards for the nation but has also expanded its research activities substantially to emerge as a leading national institution for research in a wide gamut of areas.

NPL, India's services in areas of calibration, testing and consultancy are used by various sectors be it manufacturing, calibration and certification services sector, or strategic sector in India and neighbouring countries. NPL, India is a national hub in the area of precision measurements.

## **Why this Course?**

The recent policies of Government of India have created vast opportunities in India in various programme, one of them is the "Skill Development" programme for various industries and other stakeholders. In view of increasing global competition many industries are going for ISO certification, using precision measurements and implementing quality control techniques is the key to success. The industries in India need support in terms of providing specific trained manpower. Lack of the trained manpower is not only a major constraint for industries and manufacturing/production sector but also for calibration and testing laboratories. NPL, India, being the NMI of India, is uniquely positioned to cater the needs of training in these areas of industrial importance.

Today due to increasing pressure of demand of high quality products as well as their global acceptability at the same time, Industries and production units are standardizing their products with ISO/IEC conformity assessments following several International Standards of quality control, namely; ISO/IEC 17025: 2005 (General Requirements for the Competence of

Testing and Calibration Laboratories), ISO/IEC 17043: 2010 (Conformity assessment - General requirements for Proficiency testing), ISO 15189: 2012 (Medical laboratories -- Requirements for quality and competence), ISO Guide 34: 2009 (General requirements for the competence of reference material producers) etc. to overcome technical trade barriers, compete globally and also to cater international needs making their brand recognized internationally.

During interactions with Industry, it is emerged that knowledge of precision measurements and quality control is generally, available with senior management and Technical persons. However, the people at shop floor level who are involved in day to day production and measurement do not have adequate knowledge of the subject. In today's competitive world, in order to maintain the quality of products and reduce the rejection ratio, it is essentially required that the staff actually working at shop floor level must have training exposure.

NPL, India, being NMI of the country, therefore, decides to create trained manpower in areas of precision measurements and quality control to accelerate the growth of industry. This course would also contribute to 'National Accreditation Board for Testing and Calibration Laboratories (NABL)' accredited testing and calibration labs, legal metrology labs and improvement in efficiency of manpower and industries.

### **Why NPL, India for this Course**

NPL, India, being National Metrology Institute (NMI) of India, has got excellent infrastructure for standards and measurements, is at par with international level in precision measurements. It has earned its reputation internationally by signing Mutual Recognition Arrangement (MRA) of CIPM, ([www.bipm.org](http://www.bipm.org)). It implements a quality system as per ISO/IEC 17025 Standard and undergoes international peer review for technical expertise and Calibration and Measurement Capabilities (CMCs), regularly. NPL, India is uniquely positioned to cater the emerging needs of training in these areas because of the availability of relevant expertise.

Young certificate holders trained in CSIR-NPL in the field of metrology have ample opportunities to become professional in precision measurements and quality controls to serve Industries, accredited testing and calibration laboratories, MSMEs, strategic sectors at their various key positions.

### **Course Offered and Objective of the Course**

**One year Certification Course in Precision Measurement and Quality Control - 2017**

Participants will be introduced to basic concepts and role of precision measurements and quality control in manufacturing, inspection, and accreditation process. The course basically focuses on precision measurements and quality control aspects and their applications which would help participants to acquire knowledge, develop skills in precision measurements and quality control.

### **Employment Opportunities**

The young minds trained in this discipline would have opportunities to become professional in precision measurements and quality controls to serve Industries, accredited testing and calibration laboratories, MSMEs, strategic sectors and other related areas. They will have unique advantage of getting exposure and hands on training on best measuring equipment through this course. The manpower trained by NPL, India will be a brand attractive to these sectors.

They will not only be the most suited candidates for Government or private industries, manufacturing sectors but would also be a brand attractive to Government run legal entities, e.g. National Accreditation Board for Testing and Calibration Laboratories (NABL), Quality control sections, Testing and Calibration Laboratories from Private/ public/ Government sector, Legal Metrology Department, Standardisation, Testing and Quality Certification (STQC), Quality Council of India (QCI), Defence Research Development Organisation's (DRDO's) Laboratories, Bhabha Atomic Research Centre (BARC), Standards Bodies namely, Bureau of Indian Standards (BIS) and CSIR-NPL itself. The demand of skilled manpower in precision measurements in manufacturing sector and quality sectors identified above will be increasing day by day. This way the trained manpower in precision measurements through is Certification course would have ample job opportunity.

### **Course Structure and Detail**

The Certification course in precision measurements and quality control is designed to create competent professionals in this field of Physico-Mechanical, electro-technical measurements, quality control and management.

This Certification course will be of one year full time duration. The lectures will be delivered by eminent scientists and metrologists of NPL, India who have decades of experience and expertise in precision measurements. It consists of four quarters with modules of theory classes and practicals, projects and industrial training. The course modules are,

<b>S. No.</b>	<b>Course</b>
<b>1</b>	Basic Metrology
<b>2</b>	Quality Control and Management
<b>3</b>	Mass, Force and Related Parameters
<b>4</b>	Pressure, Vacuum and Fluid Flow
<b>5</b>	Optical Radiation
<b>6</b>	Length and Dimension
<b>7</b>	Temperature, Humidity, Acoustics and Ultrasonics
<b>8</b>	AC and DC Standards
<b>9</b>	AC Power, Energy, High voltage, High Current, Time and Frequency
<b>10</b>	Quality Manual Writing (project)
<b>11</b>	Writing Calibration Procedure and Preparing Uncertainty Budget (project)
<b>12</b>	Protocol for Inter-Comparison or Proficiency Testing (project)
<b>13</b>	Industrial Training

The total course shall be covered in 4 quarters (total 1 Year). The quarter wise credit details are given below,

<b>Quarter</b>	<b>Modules</b>	<b>Credits</b>
<b>1</b>	3 modules + 1 project QM	09
<b>2</b>	3 modules + 1 Project	10
<b>3</b>	3 modules + 1 Project	09
<b>4</b>	Industrial Training	12

### **Eligibility for Admission**

- B.Sc. (Physics and Maths) or
- B.Sc. Engg. (Mechanical/Electrical/Electronics & Communication/ Instrumentation) or
- 3 year Diploma (Mechanical/Electrical/Electronics & Communication / Instrumentation)

### **Age Limit**

22 yrs. for fresh candidates as on 01-01-2016

40 yrs. as on 01-12-2016 for industry sponsored candidates.

### **Number of Seats**

The total numbers of seats are 25 (Twenty five).

### **Admission Procedure**

The application format will be available at CSIR-NPL website ([www.nplindia.org](http://www.nplindia.org)). The application form duly filled and printed, should be **submitted to, HRD, CSIR-National Physical Laboratory, Dr K S Krishnan Marg, New Delhi-110 012**. There is no application fee.

### **Selection Procedure**

Candidates will be selected on the basis of aptitude test (objective type) / Interview. The final decision will be taken by the Competent Authority.

### **Course Fee**

The fee is Rs 50,000/- (Rs. Fifty thousand only) for fresh candidates and Rs 1,00,000/- (Rs. one lakh only) for Industry sponsored candidates.

### **Reservation Policy**

We shall follow the reservation policy applicable for CSIR as per GOI. The reservation of seats shall be made as 15% for Schedules Casts (SC), 7.5% for Scheduled Tribes (ST), 27 for Other Backward Classes (OBC) and 3% for Persons with Disability (PwD) candidates.

**[For any further queries, please email to Project Co-ordinator or HRD:](#)**

**Dr. V.N. Ojha (Chief Scientist):**      **[vnojha@nplindia.org](mailto:vnojha@nplindia.org)**

**Dr. R.P. Pant (Chief Scientist):**      **[hrd@nplindia.org](mailto:hrd@nplindia.org)**