



## PROSPECTUS

National Training Course on the

### **“Design & Evaluation of Physical Protection System for Nuclear Material and Nuclear Facilities”**

**HRDD, BARC, Anushaktinagar, Mumbai**

**6 – 17 November 2017**

- Title :** National Training Course on “Design & Evaluation of Physical Protection System for Nuclear Material and Nuclear Facilities”
- Place :** HRDD, BARC, Anushaktinagar , Mumbai - 400094
- Dates :** 6 to 17 November 2017
- Last date for Nominations :** 6 October 2017
- Organizers :** Control Instrumentation Division, Bhabha Atomic Research Centre ( BARC) and School of Nuclear Security Studies, Global Centre for Nuclear Energy Partnership (GCNEP)
- Course Director :** **Shri. P P Marathe**  
OS & Head Control Instrumentation Division  
Control Instrumentation Division  
Bhabha Atomic Research Centre  
Trombay, Mumbai-400085 , INDIA  
Tel : +91-22-25591833 Fax: +91-22-25591803  
Email : cnidppm@barc.gov.in
- Participation :** The course is open to 30 participants. The target audience for the course includes persons who are responsible for designing and/or assessing physical protection systems, for operators and managers of such systems, for those associated regulations of these systems and from the competent authorities. It is assumed that they will have a basic technical background and some experience in physical protection of nuclear material and/or nuclear facilities.
- Objective :** The objective of the course is to establish awareness of the need for an integrated system of physical protection of nuclear material and nuclear facilities that is effective against such threats as radiological sabotage and theft of nuclear material. The course will familiarize participant with current physical protection concepts and technologies, as well as provide information that will assist participants in developing and implementing physical protection systems based on systems engineering, state-of-the-art technology and facility analysis.

**Nature of  
the course :**

The course will mainly consist of lectures and small-group working sessions for sub group exercises. During the small group sessions, the participants will apply the course contents, teaching methods and their experience as they work through sub group exercises on a hypothetical facility. Visit to existing facility will be organized where feasible. Guest lectures on information security, transportation security, specific concept of Physical Protection System in some DAE units etc. will also be arranged as possible.

**Brief description  
of the contents :**

***1. Introduction***

The course will begin with an introductory session on Nuclear Fuel Cycle, Radiation fundamentals, and the physical protection design process, which will familiarize the participants with the overall integrated process they will be working through as the course progresses.

***2. Physical Protection System (PPS) Design Requirement***

This set of sessions will allow the participants to determine the environment in which the protection system will exist (facility operations and conditions), what the system must protect against (threats), and what the physical protection system must protect (targets).

***3. Physical Protection Technologies and Systems***

This session will begin with an overview of physical protection systems, followed by sessions on specific systems and technologies, such as intrusion detection, access control, alarm assessment, communication and display, access delay and response.

***4. Evaluation Techniques***

A brief summary of techniques for analysing physical protection systems and evaluating their effectiveness will be presented. The path and neutralisation analysis will be presented. Scenario and insider analysis will also be considered.

***5. Application of PPS***

The functions of a physical protection system and the integration of these functions into an effective system will be reviewed. Participants will be introduced to a hypothetical facility as the basis for exercises on the upgrade and design of physical protection systems. These practical exercises will require the use of all the major concepts presented in the course, resulting in reinforcement and a review of the design and evaluation process.

**Nomination  
Procedure:**

Nominations should be submitted using the attached Nomination Form. Completed form should be endorsed by nominating organization through official channels.

**Nominations should be submitted to the Course Co-ordinator:**

Shri. Anand Laddha  
Physical Protection System Section  
Control Instrumentation Division  
Bhabha Atomic Research Centre  
Trombay, Mumbai-400085, INDIA  
Tel : +91-22-25594828 Fax: +91-22-25591803  
Email : [anandl@barc.gov.in](mailto:anandl@barc.gov.in)

The completed nomination form shall be submitted only by **scanned e-mail copy on or before 6<sup>th</sup> October 2017**. Nominations received after due date or nominations which have not been routed through official channel will not be considered.

**Kindly send scanned copy of approved nominations by e—mail to :**  
[anandl@barc.gov.in](mailto:anandl@barc.gov.in) & [sharmaak@barc.gov.in](mailto:sharmaak@barc.gov.in)  
and CC to [cnidppm@barc.gov.in](mailto:cnidppm@barc.gov.in)

**Kindly do not send paper copy or fax copy of the nominations.**

**For further queries contact Local Organizer:**

Mr A K Sharma  
SO/F, Physical Protection System Section  
Control Instrumentation Division  
Bhabha Atomic Research Centre  
Trombay, Mumbai-400085 , INDIA  
Tel : +91-22-25594820 Fax: +91-22-25591803  
Email : [sharmaak@barc.gov.in](mailto:sharmaak@barc.gov.in)

**Administrative  
and  
Financial  
arrangements :**

No training fee will be charged. Participants are requested to make their own travel, accommodation and other arrangements. All other expenditure towards this training course for the participant(TA/DA) shall be borne by individual organization nominating the participant. Limited no. of rooms on double occupancy basis will be arranged at NBH, Anushaktinagar on request.