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GLOBAL CENTRE FOR NUCLEAR ENERGY PARTNERSHIP

Title of the Program : Training Program on

"Physical Protection for Nuclear Facilities" &

"Nuclear Radiation Emergency Preparedness and Response

Venue : GCNEP, Bahadurgarh, Haryana, India

Dates & Duration : 29th July – 9th August, 2019

Target Participants : Bangladesh Armed Force Personnel

Schools Conducting the Program : School of Nuclear Security Studies &
School of Radiological Safety Studies

“Physical Protection for Nuclear Facilities”

Time	Module Number	Module Title	Faculty
Day 1 (29th July 2019), Monday			
09:30 - 10:00		Registration of participants	
10:00 - 10:45		Inauguration session	
10:45 - 11:00		Introduction of the participants	
11:00 - 11:30		Group Photograph & High Tea	
11:30 - 11:45		Course Introduction	V K Sinha, GCNEP
11:45 - 12:15		GCNEP – A glimpse	PD, GCNEP
12:15 - 13:00	L-1	Radiation Fundamentals	S. Seth, DAE
13:00 - 14:00		Lunch Break	
14:00 - 14:45	SL-1	IAEA Guidelines on Nuclear Security	Garima Sharma, DAE
14:45 - 15:30	L-2	Nuclear Fuel Cycle Facilities	S. Seth, DAE
15:30 - 15:45		Tea Break	
15:45 - 16:30	L-3	Introduction to DEPO & Design of PPS	Ansul Kumar, GCNEP
16:30 - 17:15	L-5	Legal & Regulatory Framework in India	Garima Sharma, DAE
19:00 onward		Welcome Dinner- GCNEP-Guest House	
Day 2 (30th July 2019), Tuesday			
09:30 - 09:45		Review of Previous Day	
09:45 - 10:30	L-4	Facility Characterization & Target Identification	V K Sinha, GCNEP
10:30 - 11:15	L-6	Threat Definition	Ansul Kumar GCNEP
Laddha, BARC			
11:15 - 11:30		Tea break	
11:30 - 12:15	Q-1	Quiz on Define Phase	Ansul Kumar, GCNEP
12:15 - 13:00			
13:00 - 14:00		Lunch Break	
14:00 - 14:45	L-7	Intrusion Detection System	Ansul Kumar, GCNEP
14:45 - 15:30	L-9	Alarm Assessment, Comm. & Display	V K Sinha, GCNEP
15.30 - 15:45		Tea Break	
15:45 - 16:30	E-1	CCTV Lab Visit & Exercise	
16:30 - 17:15		GCNEP Facility Visit	

Time	Module Number	Module Title	Faculty
Day 3 (31st July 2019), Wednesday			
09:30 - 09:45		Review of Previous Day	
09:45 - 10:30	L-8	Access Control	Meghla Choudhary, BARC
10:30 - 11:15	E-2	ACS Lab Visit & Exercise	
11:15 - 11:30		Tea Break	
11:30 - 12:15	Q-2	Quiz on Design Phase/Videos	Ansul Kumar, GCNEP
12:15 - 13:00			
13:00 - 14:00		Lunch Break	
14:00 - 14:45	L-10	Access Delay	Meghla Choudhary, BARC
14:45 - 15:30	L-12	Evaluation of PPS-1 (ASD, Path Analysis,)	Ansul Kumar, GCNEP
15:30 - 15:45		Tea Break	
15:45 - 16:30	SL-2	Evaluation of PPS-2 (Vulnerability Analysis- Scenario Analysis)	V K Sinha, GCNEP
16:30 - 17:15	Q-3	Quiz on Evaluation Phase	
Day 4 (01th August 2019), Thursday			
09:30 - 09:45		Review of Previous Day	
09:45 - 10:30	L-13	Insider Protection	Ranjana Kulgod, BARC
10:30 - 11:15	L-11	Response	Subhash Sinha, DIG, CISF (HQ)
11:15 - 11:30		Tea Break	
11:30 - 12:15	SL-3	Nuclear Material Accounting & Control	Vipin Kabra, GCNEP
12:15 - 13:00	SL-4	Computer Security	Ashish Thakur, GCNEP
13:00 - 14:00		Lunch Break	
14:00 - 14:45	SL-5	Integrated PPS for Nuclear Power Plant	Vice Admiral (Retd.) Sanjay Chaubey
14:45 - 15:30	SL-6	Nuclear Security Culture	Ranjana Kulgod, BARC
15:30 - 15:45		Tea Break	
15:45 - 16:30	SL-7	Overview of Nuclear Security & PP Regime in India	Vinayak Apte, IG Security, DAE
16:30 - 17:15	SL-8	Response Force Tactics & Table Top Exercise	Ansul Kumar, GCNEP

Time	Module Number	Module Title	Faculty
Day 5 (02nd August 2019), Friday			
09:30 - 09:45		Review of Previous Day	
09:45 - 10:30	SL-9	Transport Security for Nuclear& RAM	S K Aggrawal, DAE
10:30 - 11:15	SL-10	Safety, Security & Safeguard Interface	S K Aggrawal, DAE
11:15 - 11:30		Tea Break	
11:30 hrs		Departure for NAPP	
13:30 hrs		Lunch Break	
19:30 hrs		Arrival at NAPS GH, Dinner & overnight stay at NAPS GH	Coordination NAPS & GCNEP
Day 6 (03rd August 2019), Saturday			
09:00-12:00		NAPS Visit	Coordination NAPS & GCNEP
12:30-13:30		Lunch at NAPS	
14:00		Departure from NAPS for GCNEP	
22:00		Arrival at GCNEP GH Dinner & overnight stay at GCNEP GH	
Day 7 (04th August 2019), Sunday at Leisure			
"Nuclear Radiation Emergency Preparedness and Response"			
Day 8 (05th August 2019), Monday			
09:30 - 09:45		Summary of NAPS Visit	
09:45 - 10:30		Opening Remarks Objectives of Training Course Introduction of Participants & Faculties	
10:30 - 11:15	G-01	Historical overview of response to nuclear / radiological emergency and their challenges	S Murali, BARC
11:15 - 11:30		Tea Break	
11:30 - 12:15	L-01	Basic Nuclear Physics (Atomic Structure & Radioactivity, Units)	S Murali, BARC
12:15 - 13:00	L-02	Interaction of Radiation with Matter	Anilkumar S, BARC
13:00 - 14:00		Lunch break	
14:00 - 14:45	L-03	Fundamentals of Radiation Protection	RKBY, BARC
14:45 - 15:30	L-04	Radiation Detection, Measurement	Anilkumar S, BARC
15:30 - 15:45		Tea Break	
15:45 - 16:30	L-05	Biological effects of Ionizing Radiation	RKB Yadav, BARC
16:30 - 17:15		Hands on – Radiation Monitoring Gadgets: ERC-GCNEP	Anilkumar S, BARC & RKB Yadav, BARC

Time	Module Number	Module Title	Faculty
Day 9 (06th August 2019), Tuesday			
09:30 - 09:45		Review of Previous Day	
09:45 - 10:30	L-06	Medical Management including Psychological aspects during Emergency	S Murali, BARC
10:30 - 11:15	L-07	Nuclear Reactors and Safety Systems in NPPs	Kapil Deo Singh, BARC
11:15 - 11:30		Tea Break	
11:30 - 12:15	L-08	L-08/09: Accidental Release (Source Term)	Kapil Deo Singh, BARC
12:15 - 13:00	L-09		S Anand, BARC
13:00 - 14:00		Lunch Break	
14:00 - 14:45	L-10	Case Study – Reactor Accidents	Kapil Deo Singh, BARC
14:45 - 15:30	L-11	(TMI, Chernobyl, Fukushima)	S Anand, BARC
15.30 - 15:45		Tea Break	
15:45 - 16:30	L-12	Case Study – Radiological Emergency –	S Murali, RSSD, BARC
16:30 - 17:15		Goiânia	
Day 10 (07th August 2019), Wednesday			
09:30 - 09:45		Review of Previous Day	
09:45 - 10:30	L-13	Threats / Potential Radiological Terrorism, Challenges of Radiological	S Murali, RSSD, BARC
10:30 - 11:15	L-14	Emergency	
11:15 - 11:30		Tea Break	
11:30 - 12:15	L-15	Prevention, Preparedness and Response for	S Murali, RSSD, BARC
12:15 - 13:00	L-16	Radiological Emergency	
13:00 - 14:00		Lunch break	
14:00 - 14:45	L-17	Radiological Impact during any Nuclear /	Shashank Saindane, BARC
14:45 - 15:30	L-18	Radiological Emergency	
15.30 - 15:45		Tea Break	
15:45 - 16:30		Field Exercise: Response to Simulated	M Harikumar, BARC &
16:30 - 17:15		Re - Source Search	Shashank Saindane, BARC

Time	Module Number	Module Title	Faculty
Day 11 (08th August 2019), Thursday			
09:30 - 09:45		Review of Previous Day	
09:45 - 10:30	L-19	Response: Radiation Emergency in	M Harikumar, BARC
10:30 - 11:15	L-20	Public Domain and Infrastructure	
11:15 - 11:30		Tea Break	
11:30 - 12:15	T-01	Table Top Exercise: Response to	M Harikumar, BARC &
12:15 - 13:00		Radiological Emergency	Shashank Saindane, BARC
13:00 - 14:00		Lunch break	
14:00 - 14:45	L-21	Management of Radioactive Waste following a	Keyur Pancholi, BARC
14:45 - 15:30	L-22	Radiation Accident	
15.30 - 15:45		Tea Break	
15:45 - 16:30	T-02	Table Top Exercise: Response to Radiological	M Harikumar, BARC &
16:30 - 17:15		Emergency	Shashank Saindane, BARC
Day 12 (09th August 2019), Friday			
09:30 - 09:45		Review of Previous Day	
09:45 - 10:30	T-03	Group Presentations by Participants on	
10:30 - 11:15		Simulated RE Scenario	
11:15 - 11:30		Tea Break	
11:30 - 12:15	T-04	Discussions on Tutorial Exercises	
12:15 - 13:00			
13:00 - 14:00		Lunch break	
14:00 - 15:30		Closing Ceremony, Feedback from Participants & Distribution of Certificates	
15.30 - 16:00		High Tea	
16:00 hrs		End of Program	