



The Abdus Salam
International Centre for Theoretical Physics



Joint ICTP-IAEA School of Nuclear Energy Management

Organizer(s): Y. Yanev (IAEA), C. Tuniz (ICTP)
Trieste - Italy, 08 - 26 August 2011

Venue: **Adriatico Guest House Kastler Lecture Hall**

Programme

8 August 2011 (Room:Adriatico Guest House Kastler Lecture Hall)

Chairperson: Y. Yanev

8 August 2011

- 08:30 - 10:00** **Registration and Administrative Formalities**
After you have Registered: Administrative Formalities (daily living allowances/travel reimbursements, bank transactions, etc.) at the E. Fermi Building - just above the Leonardo da Vinci Bldg.
- 10:00 - 10:15** **Y. Amano / Director General, IAEA**
Opening Video
- 10:15 - 10:45** **Alexander Bychkov/Claudio Tuniz / IAEA/ICTP**
Opening Ceremony
- 10:45 - 11:00** **Tatiana Karseka / IAEA**
Introduction of Participants
- 11:00 - 12:00** **Nandakumar Janardhanan / Institute for Global Environmental Strategies, Japan**
Last Year School ? Memories and Impression
- 12:00 - 12:30** **Tatiana Karseka / IAEA**
Programme Overview, Logistics, Group Projects Introduction
- 12:30 - 14:00** --- Lunch Break ---
- 14:00 - 14:30** **Yanko Yanev / IAEA**
Introduction to the IAEA ? history, structure, roles.

- 14:30 - 15:00** **Yanko Yanev, Holger Rogner / IAEA**
 Movie
Video Session on the IAEA History, Discussion on the Video Session ? Q&A
- 15:00 - 15:30** **Alexander Bychkov / IAEA**
Nuclear Power, Present, Past and Future
- 15:30 - 16:00** --- Coffee Break and Q&A Session ---
- 16:00 - 17:00** **Naoto Sekimura / School of Engineering, the University of Tokyo, Japan**
Overview of the Accident in Fukushima Daiichi Nuclear Power Plant
- 17:00 - 17:30** **Tatiana Karseka / IAEA**
Introduction to the Group Projects Tasks
- 17:30 - 18:00** **Tatiana Karseka / IAEA**
Q&A on the projects, instructions for Day 2
- 18:00 - 18:50** **Faculty briefing and summary**

9 August 2011; World Energy Balance, Nuclear Power and Nuclear Power Economics (Room:Adriatico Guest House Kastler Lecture Hall)

Chairperson: H. Rogner

9 August 2011

- 08:50 - 09:00** **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 10:30** **Holger Rogner / IAEA**
World Energy Demand and Supply; Why Nuclear Power?
- 10:30 - 11:00** --- Coffee Break ---
- 11:00 - 12:00** **Mark Howells / IAEA**
Energy Planning
- 12:00 - 13:00** --- Lunch Break ---
- 13:00 - 14:00** **Ahmed Irej Jalal / IAEA**
 Videoconference
IAEA Capacity Building in Energy Planning + Q&A
- 14:00 - 14:30** **Holger Rogner / IAEA**
Economics of Nuclear Power
- 14:30 - 15:30** **Nadira Barkatullah / IAEA**
 Videoconference
Financing Nuclear Projects
- 15:30 - 16:00** --- Coffee Break ---
- 16:00 - 17:00** **Mark Howells / IAEA**
Case Studies in Strategic Energy Investment

- 17:00 - 17:30 **Mark Howells / IAEA**
Group activity on Strategic Investment I
- 17:30 - 18:00 **Mark Howells / IAEA**
Group activity on Strategic Investment II
- 18:00 - 18:30 **Mark Howells / IAEA**
Plenary ? Presenting Group Case studies
- 18:30 - 18:50 **Mark Howells / IAEA**
Faculty briefing and summary

10 August 2011; Climate Change and Nuclear Power (Room:Adriatico Guest House Kastler Lecture Hall)
Chairperson: M. Howells

10 August 2011

- 08:50 - 09:00 **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 09:30 **Filippo Giorgi / ICTP**
Climate Change: from observations of current trends to future climate projections
- 09:30 - 10:30 **Ferenc Toth / IAEA**
Videoconference
Climate Change: Impacts, Adaptation and Vulnerability
- 10:30 - 11:00 --- Coffee Break ---
- 11:00 - 12:00 **Holger Rogner / IAEA**
Mitigation of Climate Change and Role of the IAEA in the Climate Change Dialogue
- 12:00 - 13:00 **Johann Lindner / Excel Services Corporation, USA**
New Nuclear Build Licensing & Large/Small Modular Reactor Technology
- 13:00 - 14:00 --- Lunch Break ---

Nuclear Applications Fundamentals (Room:Adriatico Guest House Kastler Lecture Hall)

10 August 2011

- 14:00 - 15:00 **Danas Ridikas / IAEA**
Nuclear Infrastructure for Research, Development and Applications I (Research Reactors) Nuclear Infrastructure for Research, Development and Applications II (Accelerators)
- 15:00 - 15:30 **Danas Ridikas / IAEA**
Materials for fission and fusion technology
- 15:30 - 16:00 --- Coffee Break ---
- 16:00 - 17:00 **Robin Forrest / IAEA**
Nuclear Data
- 17:00 - 18:30 **Work on the Projects**

18:30 - 18:50 Faculty briefing and summary

11 August; National Nuclear Industry from planning to decommissioning ? Milestone Approach (Room:Adriatico Guest House Kastler Lecture Hall)

Chairperson: A. Bychkov

11 August 2011

08:50 - 09:00 **Tatiana Karseka / IAEA**
Start up and Administration

09:00 - 10:00 **Mohammad Subki / IAEA**
Current Reactor Technology, Advanced Reactor Development

10:00 - 10:30 **Randall Beatty / IAEA**
Advanced Reactor Development

10:30 - 11:15 **Anne Starz / IAEA**
Videoconference
Milestone Approach to Develop a National Nuclear Power Programme

11:15 - 12:00 --- Coffee Break and Q&A Session ---

12:00 - 12:30 **Vincent Nkong Njock / IAEA**
Commissioning, Operation and Life Management of NPPs

12:30 - 13:00 **Randall Beatty / IAEA**
INPRO

13:00 - 14:00 --- Lunch Break ---

14:00 - 14:30 **Movie**
Video Session on Reactor Technologies

14:30 - 15:00 **Randall Beatty / IAEA**
Discussion on the Video Session ? Q&A

15:00 - 15:30 **Vincent Nkong Njock / IAEA**
Case Study on Nuclear Power Infrastructure Development

15:30 - 16:00 **Vincent Nkong Njock / IAEA**
Group activity on Nuclear Power Infrastructure Development

16:00 - 16:30 --- Coffee Break and Q&A Session ---

16:30 - 17:30 **Vincent Nkong Njock / IAEA**
Plenary ? Presenting Group Case studies

17:30 - 18:30 **Work on the Projects**

18:30 - 18:50 **Faculty briefing and summary**

12 August; Nuclear Fuel Cycle and Waste Management (Room:Adriatico Guest House Kastler Lecture Hall)

Chairperson: Gary Dyck

12 August 2011

- 08:50 - 09:00** **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 10:00** **Gary Dyck / IAEA**
The Nuclear Fuel Cycle
- 10:00 - 11:00** **Alexander Bychkov/ Gary Dyck / IAEA**
Spent Fuel Management
- 11:00 - 11:30** --- Coffee Break and Q&A Session ---
- 11:30 - 12:00** **Paul Degnan / IAEA**
The Fundamentals of Radioactive Waste Management
- 12:00 - 13:00** **Paul Degnan / IAEA**
National Policy & Strategy for Spent Fuel and Radioactive Waste Management
- 13:00 - 14:00** --- Lunch Break ---
- 14:00 - 15:30** **Paul Degnan & Gary Dyck / IAEA**
Group activity on the Development of Policy and Strategies for Managing Spent Fuel
- 15:30 - 16:00** --- Coffee Break and Q&A Session ---
- 16:00 - 17:00** **Gary Dyck & Paul Degnan / IAEA**
Group activity (Continued)
- 17:00 - 18:00** **Plenary ? Presenting the Group studies**
- 18:00 - 18:30** **Gary Dyck & Paul Degnan**
Discussion
- 18:30 - 18:50** **Faculty briefing and summary**

Saturday, 13 August, 8:00am; a technical tour to the Nuclear Training Centre "Milan Copic" (Saturday)

Chairperson: Tatiana Karseka

15 August; Nuclear Law (Room:Adriatico Guest House Kastler Lecture Hall)

Chairperson: A. Wetherall

15 August 2011

- 08:50 - 09:00** **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 10:00** **Anthony Wetherall / IAEA**
What is Nuclear Law? The International Legal Framework for Nuclear Safety and Security

- 10:00 - 10:45** **Anthony Wetherall / IAEA**
The International Legal Framework for Civil Liability for Nuclear Damage
- 10:45 - 11:15** --- Coffee Break and Q&A Session ---
- 11:15 - 12:00** **Ionut Suseanu / IAEA**
Overview of the Nuclear Non-proliferation Regime
- 12:00 - 13:00** **Ionut Suseanu / IAEA**
Export Control
- 13:00 - 14:00** --- Lunch Break ---
- 14:00 - 14:30** **Anthony Wetherall & Ionut Suseanu / IAEA**
Case Study on Developing National Nuclear Legislation
- 14:30 - 15:00** **Anthony Wetherall & Ionut Suseanu / IAEA**
Group activity on Developing National Nuclear Legislation
- 15:00 - 16:00** **Anthony Wetherall & Ionut Suseanu / IAEA**
Plenary ? Presenting Group Case studies
- 16:00 - 16:30** **Anthony Wetherall / IAEA**
Q&A
- 16:30 - 18:30** **Work on the Projects**
- 16:40 - 17:00** **Faculty briefing and summary**

16 August; Nuclear safety for operation (Room:Adriatico Guest House Kastler Lecture Hall)
Chairperson: D. Delattre

16 August 2011

- 08:50 - 09:00** **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 09:30** **Dominique Delattre / IAEA**
Global Nuclear Safety Framework
- 09:30 - 10:00** **Dominique Delattre / IAEA**
Capacity Building, Education and Training in Nuclear and Radiation Safety
- 10:00 - 10:30** **Denis Flory / DDG NS, IAEA**
Videoconference
Current Issues of Nuclear Safety
- 10:30 - 11:00** --- Coffee Break and Q&A Session ---
- 11:00 - 12:00** **Dominique Delattre / IAEA**
The IAEA Safety Standards
- 12:00 - 13:00** **Stephen Koenick / IAEA**
Regulatory Infrastructure; A roadmap to apply the safety standards to safety infrastructure
- 13:00 - 14:00** --- Lunch Break ---

- 14:00 - 15:30** **Javier Yllera / IAEA**
Safety Assessment
- 15:30 - 16:00** **Pierre Gest / IAEA**
Videoconference
Peer Reviews and Advisory Services
- 16:00 - 16:30** --- Coffee Break and Q&A Session ---
- 16:30 - 17:00** **Monica Haag / IAEA**
Videoconference
Management Systems and Safety Culture
- 17:00 - 18:00** **Rafael Martincic / IAEA**
Videoconference
Emergency Preparedness and Response
- 18:00 - 18:30** **Dominique Delattre / IAEA**
Discussions ? Q&A
- 18:30 - 18:50** **Faculty briefing and summary**

17 August; Nuclear Safeguards (Room:Adriatico Guest House Kastler Lecture Hall)
Chairperson: R. Stevens

17 August 2011

- 08:50 - 09:00** **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 10:00** **Dieter Zahradnik / IAEA**
Safeguards Implementation
- 10:00 - 11:00** **Rebecca Stevens / IAEA**
Drawing Safeguards Conclusions
- 11:00 - 12:00** --- Coffee Break and Q&A Session ---
- 12:00 - 12:30** **Dieter Zahradnik / IAEA**
Proliferation Analysis of the Fuel Cycle
- 12:30 - 13:00** **Rebecca Stevens / IAEA**
SSAC Support (training, advisory service)
- 13:00 - 14:00** --- Lunch Break ---
- 14:00 - 15:00** **Rebecca Stevens & Dieter Zahradnic / IAEA**
Case Study ? The IAEA Safety System for Safeguards
- 15:00 - 15:30** **Rebecca Stevens & Dieter Zahradnic / IAEA**
Group activity on the IAEA safety system
- 15:30 - 16:00** --- Coffee Break and Q&A Session ---
- 16:00 - 17:00** **Rebecca Stevens & Dieter Zahradnic / IAEA**
Plenary ? Presenting Group Case studies

- 17:00 - 18:30 **Work on the Projects**
- 18:30 - 18:50 **Faculty briefing and summary**

18 August; Nuclear Security (Room:Adriatico Guest House Kastler Lecture Hall)
Chairperson: M. Gregoric

18 August 2011

- 08:50 - 09:00 **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 10:00 **Miroslav Gregoric**
Nuclear Terrorism: target, consequences and threats
- 10:00 - 10:30 **Andrea Braunegger-Guelich / IAEA**
Fundamentals of a State's Nuclear Security Regime
- 10:30 - 11:00 --- Coffee Break ---
- 11:00 - 13:00 **Andrea Braunegger-Guelich & Miroslav Gregoric / IAEA**
Exercise on Threat Characteristics
- 13:00 - 14:00 --- Lunch Break ---
- 14:00 - 15:00 **Miroslav Gregoric**
Nuclear Security Regime for Nuclear Material and Nuclear Facilities. Nuclear Security Regime for Radioactive Material and Associated Facilities.
- 15:00 - 16:00 **Andrea Braunegger-Guelich / IAEA**
Nuclear Security Regime for nuclear and other radioactive material out of regulatory control
- 16:00 - 16:30 --- Coffee Break ---
- 16:30 - 17:00 **Andrea Braunegger-Guelich / IAEA**
IAEA Nuclear Security Programme
- 17:00 - 17:30 **Andrea Braunegger-Guelich / IAEA**
Capacity Building, Education and Training in Nuclear Security
- 17:30 - 18:30 Video
The work of the IAEA Office of Nuclear Security
- 18:30 - 18:50 **Faculty briefing and summary**

19 August; Nuclear Leadership and Management (Room:Adriatico Guest House Kastler Lecture Hall)
Chairperson: J. LeClair

19 August 2011

- 08:50 - 09:00 **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 10:00 **Andrey Kosilov / IAEA**
National Nuclear Programme ? Internal and External Stakeholders

- 10:00 - 10:30** **Andrey Kosilov / IAEA**
Integrated Management Systems
- 10:30 - 11:00** --- Coffee Break and Q&A Session ---
- 11:00 - 12:00** **Jane LeClair / Excelsior College, Albany, USA**
Confidence and Trust
- 12:00 - 13:00** **Jane LeClair / Excelsior College, Albany, USA**
Nuclear Leadership and Management
- 13:00 - 14:00** --- Lunch Break ---
- 14:00 - 15:00** **Jane LeClair / Excelsior College, Albany, USA**
Changing Behaviour in Nuclear Industries
- 15:00 - 15:30** **Tatiana Karseka / IAEA**
Nuclear Ethics and Organizational Culture
- 15:30 - 16:00** --- Coffee Break and Q&A Session ---
- 16:00 - 17:00** **Luz Marina Duenas / IAEA**
How does the IAEA work? How to Work with the IAEA?
- 17:00 - 17:45** **Javier Guarnizo / IAEA**
Technical Cooperation for National Nuclear Programme
- 17:45 - 18:30** **Individual Time**
- 18:30 - 18:50** **Faculty briefing and summary**

Saturday 20 August, 7:30am; A technical Tour to the Krsko Nuclear Power Plant, Slovenia (Saturday)
Chairperson: Tatiana Karseka

22 August; Nuclear Knowledge Management (Room:Adriatico Guest House Kastler Lecture Hall)
Chairperson: Y. Yanev

22 August 2011

- 08:50 - 09:00** **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 10:00** **Yanko Yanev / IAEA**
Nuclear Knowledge Management ? Why and for what?
- 10:00 - 10:30** **Tatiana Karseka / IAEA**
Knowledge Management Basics
- 10:30 - 11:00** **Andrey Kosilov / IAEA**
Methods and Tools for KM
- 11:00 - 11:30** --- Coffee Break and Q&A Session ---

11:30 - 12:00 **Andrey Kosilov / IAEA**
Case Study on Assessment of organizational KM Maturity

12:00 - 13:00 **Andrey Kosilov / IAEA**
Plenary ? Presenting Group Case studies

13:00 - 14:00 --- Lunch Break ---

14:00 - 15:00 **Andrey Kosilov / IAEA**
Case Study on Knowledge Loss Risk Assessment

15:00 - 16:00 **Andrey Kosilov / IAEA**
Plenary ? Presenting Group Case studies

16:00 - 16:30 --- Coffee Break and Q&A Session ---

16:30 - 18:30 **Work on the Projects**

16:40 - 17:00 **Faculty briefing and summary**

23 August; Human Resource Development (Room:Adriatico Guest House Kastler Lecture Hall)
Chairperson: A. Kosilov

23 August 2011

08:50 - 09:00 **Tatiana Karseka / IAEA**
Start up and Administration

09:00 - 10:00 **Brian Molloy / IAEA**
Human Resource Development

10:00 - 11:00 **Brian Molloy / IAEA**
Workforce Planning and Training

11:00 - 12:00 --- Coffee Break and Q&A Session ---
A Group Photograph will be taken at 11.00am on the Terrace during the Coffee Break 20'

12:00 - 13:00 **Yanko Yanev / IAEA**
Competence Building and Nuclear Education

13:00 - 14:00 --- Lunch Break ---

14:00 - 15:00 **Brian Molloy / IAEA**
Case Study on HR Development

15:00 - 16:00 **Brian Molloy / IAEA**
Plenary ? Presenting Group Case studies

16:00 - 16:30 --- Coffee Break and Q&A Session ---

16:30 - 18:30 **Work on the projects/ Test Preparation**

16:30 - 16:50 **Faculty briefing and summary**

24 August; Communication, Public Acceptance and Nuclear Sociology (Room:Adriatico Guest House Kastler Lecture Hall)
Chairperson: Brian Molloy

24 August 2011

- 08:50 - 09:00** **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 10:00** **Brian Molloy / IAEA**
Building Public Support ? Stakeholder Involvement
- 10:00 - 10:30** **Rejane Spiegelberg / IAEA**
Public Communications: communicating the safety significance of events - INES
- 10:30 - 11:00** **Rejane Spiegelberg / IAEA**
Case Study --Rating events using INES
- 11:00 - 11:30** --- Coffee Break and Q&A Session ---
- 11:30 - 12:00** **Rejane Spiegelberg / IAEA**
Plenary ? Presenting Group Case studies
- 12:00 - 13:00** **Yanko Yanev / IAEA**
Nuclear Sociology
- 13:00 - 14:00** --- Lunch Break ---
- 14:00 - 15:30** **Tatiana Karseka / IAEA**
Nuclear Energy in Social Media
- 15:30 - 16:00** --- Coffee Break and Q&A Session ---
- 15:40 - 16:00** **Faculty briefing and Summary**
- 16:00 - 18:30** **Work on the Projects/ Test Preparation**

25 August; Test and Nuclear Applications (Room:Adriatico Guest House Kastler Lecture Hall)
Chairperson: Piero Danesi

25 August 2011

- 08:50 - 09:00** **Tatiana Karseka / IAEA**
Start up and Administration
- 09:00 - 09:30** **Bin Mohamad Daud / IAEA**
Videoconference
Current Issues in Nuclear Applications
- 09:30 - 10:30** **Piero Danesi**
Present and Future (non-power) Nuclear applications
- 10:30 - 11:00** --- Coffee Break and Q&A Session ---
- 11:00 - 12:30** **Piero Danesi**
Nuclear Power and Radiation Risk
- 12:30 - 14:00** --- Lunch Break ---

14:00 - 16:30 **Tatiana Karseka / IAEA**
TEST

16:30 - 17:00 --- Coffee Break and Q&A Session ---

17:00 - 18:30 **Work on the Projects**

26 August; Presentation of the Projects and Graduation Ceremony (Room:Adriatico Guest House Kastler Lecture Hall)
Chairperson: Board of Mentors

26 August 2011

08:45 - 08:55 **Tatiana Karseka / IAEA**
Start up and Administration

09:00 - 09:45 Videoconference
Project 1

09:45 - 10:30 Videoconference
Project 2

10:30 - 11:00 --- Coffee Break and Q&A Session ---

11:00 - 11:45 Videoconference
Project 3

11:45 - 12:30 Videoconference
Project 4

12:30 - 13:30 --- Lunch Break ---

13:30 - 14:15 **Project 5**

14:15 - 15:00 **Project 6**

15:00 - 15:45 **Project 7**

15:45 - 16:00 **Concluding remarks**

16:00 - 19:00 --- Visit to Elettra Synchrotron Light Laboratory ---

20:00 - 23:00 --- Gala Dinner and Graduation Ceremony ---
at the Restaurant "Principe di Metternich", Grignano