Technische Hochschule
Brandenburg
University of
Applied Sciences
Institute for Security
and Safety

ISS Training Strategy

Guido Gluschke – February 7, 2019

Overview

- Introduction
- Capacity and Competence Building Activities
  - Master programs
  - Professional Development Courses
  - Advanced Training Courses
  - Cyber Exercises
  - eLearning Activities
- Training Strategy

Brandenburg University of Applies Sciences In A Nutshell

Institute for Security and Safety (ISS) belongs to the Brandenburg University of Applied Sciences (THB), Brandenburg, Germany

THB founded in 1992

Fields of study:

engineering, information science, media, economy

~3,000 students,

~70km away from Berlin (SW)

Institute for Security and Safety (ISS) In A Nutshell

ISS founded by Prof. Friedrich Holl and Guido Gluschke in 2012 as an interface between THB and international organisations in order to implement activities for the IAEA

In between, ISS supported IAEA, UN, ITU, EU, NATO, OSCE, WEF and others in the security domain

ISS's focuses on advise and capacity and competence Building in the fields of nuclear and cyber security

ISS was in 2010 founding member of the IAEA International Nuclear Security Education Network (INSEN)

IAEA International Nuclear Security Education Network (INSEN)

Mission:

to enhance global nuclear security by developing, sharing and promoting excellence in nuclear security education

INSEN institutions: 178

INSEN Member States: 63

According to the mission three Working Groups (WGs) exist:

- WG I – Educational materials
- WG II – Faculty development & cooperation
- WG III – Promote nuclear security education

Int'l Initatives On Cyber Security ISS Was Involved In (IAEA, OSCE, EU, Chatham House, NTI, WEF, ISS)

IAEA Nuclear Security Series No. 17, Computer Security at Nuclear Facilities, IAEA Vienna, Mar 2011

NS 22 Computer Security for Nuclear Security Professionals, INSEN, Oct 2013

Cyber Security at Nuclear Facilities: National Approaches, Institute for Security and Safety, Potsdam, Jun 2015

Cyber Security at Civil Nuclear Facilities: Understanding the Risks, Chatham House, London, Oct 2015

Outpacing Cyber Threats: Priorities for Cybersecurity at Nuclear Facilities, Nuclear Threat Initiative, Washington, Dec 2016

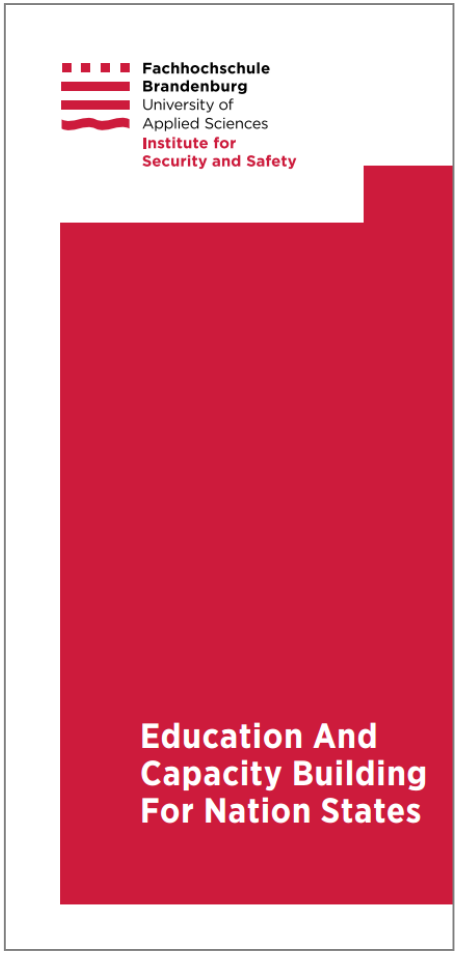
Cyber Security in the Energy Sector - Recommendations for the European Commission on a European Strategic Framework and Potential Future Legislative Acts for the Energy Sector, European Commission, Brussels, Feb 2017

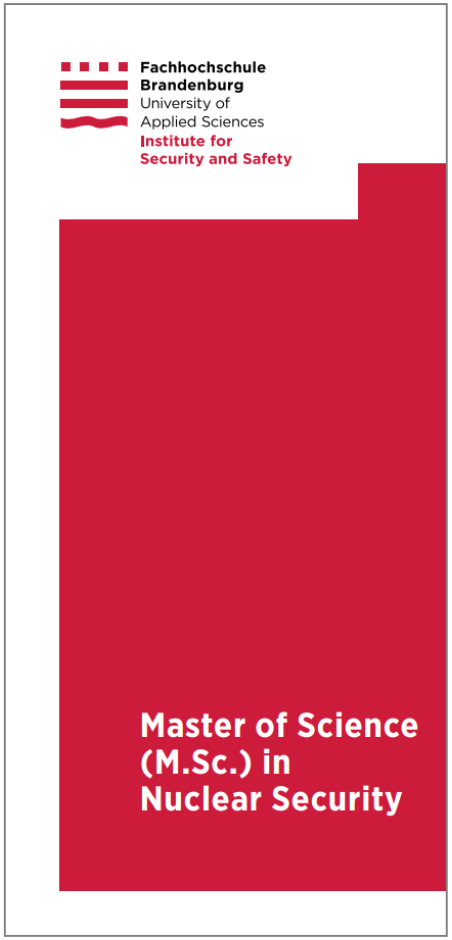
Analysis of the Implementation of the Initial Set of Confidence-Building Measures to Reduce the Risks of Conflict Stemming from the Use of Information and Communication Technologies, OSCE, Vienna, Feb 2017

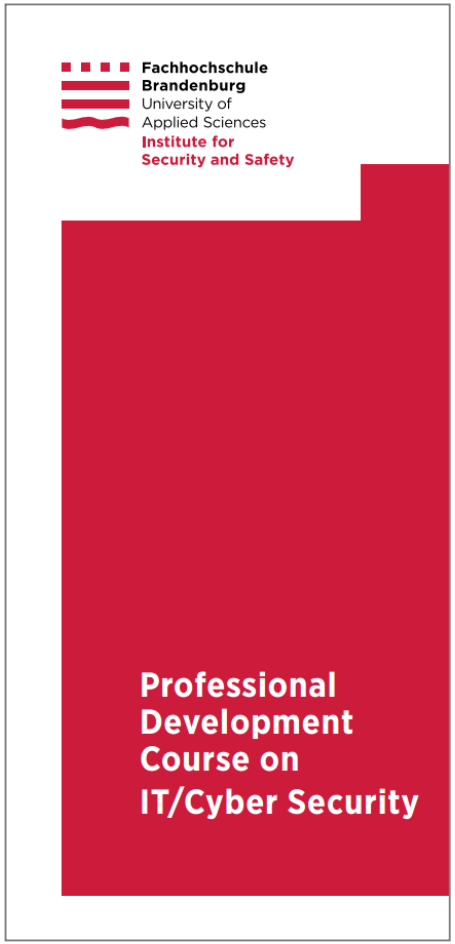
Cyber Security Policies and Critical Infrastructure Protection, Gluschke, Casin, Potsdam, Sep 2018

Cyber Resilience in the Electricity Ecosystem: Principles and Guidance for Boards, World Econimic Forum, Geneva, Feb 2019

Capacitity Building On Cyber And Nuclear Security (www.uniss.org)







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Pilot Master in Nuclear Security 2011-2014

MiNS
Master in Management of Nuclear Security

Education and Culture DG
Lifelong Learning Programme

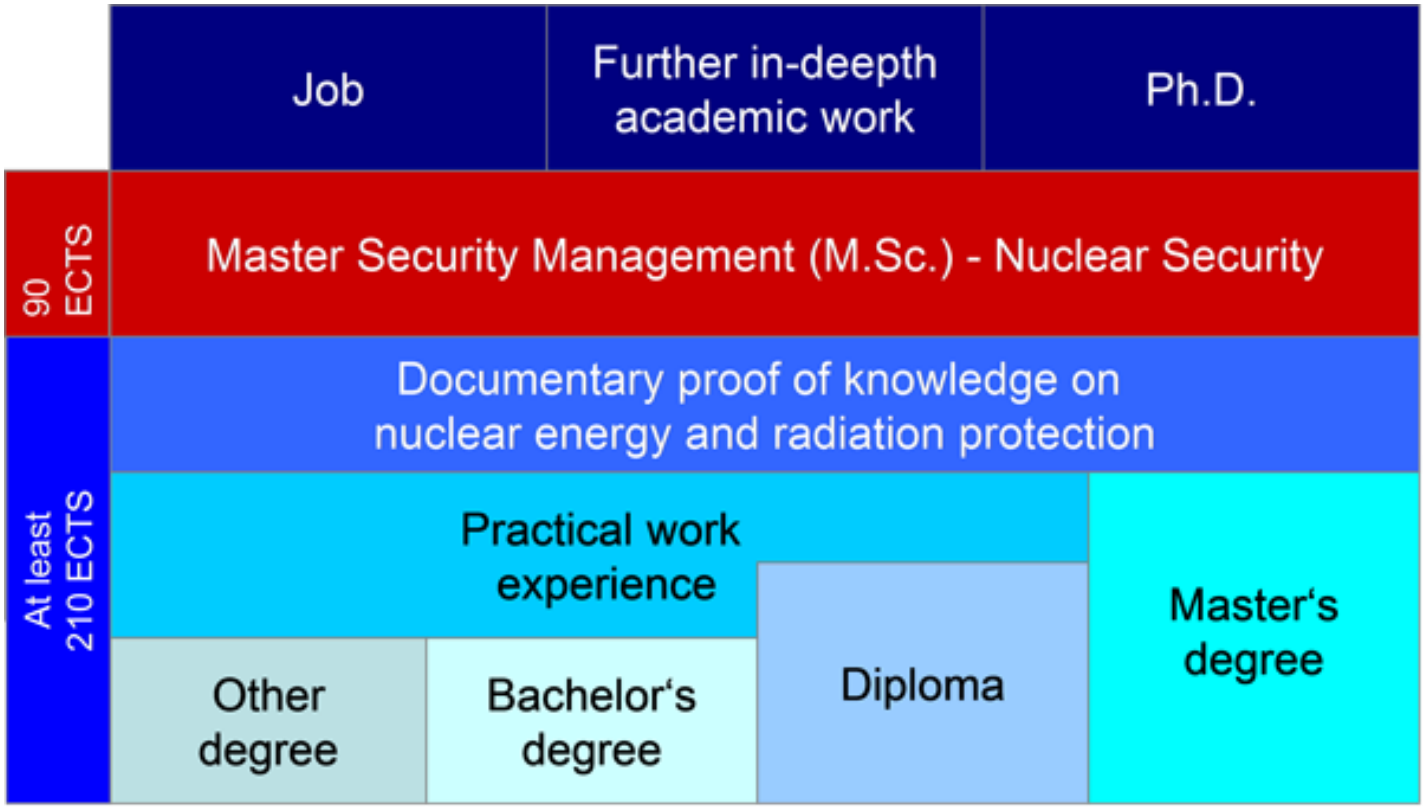
Project start	First draft of curriculum	Final version of curriculum/ Drafts of syllabi	Assignments of work and final budget	Participants applied / First content ready	Start of first block in Brandenburg	End of Classroom Teaching	Master Certificates in Delft
2011-10	2011-12	2012-07	2012-11	2013-01	2013-03	2013-12	2014-12

Content And Dissamination
6 Modules, 2 Weeks Each

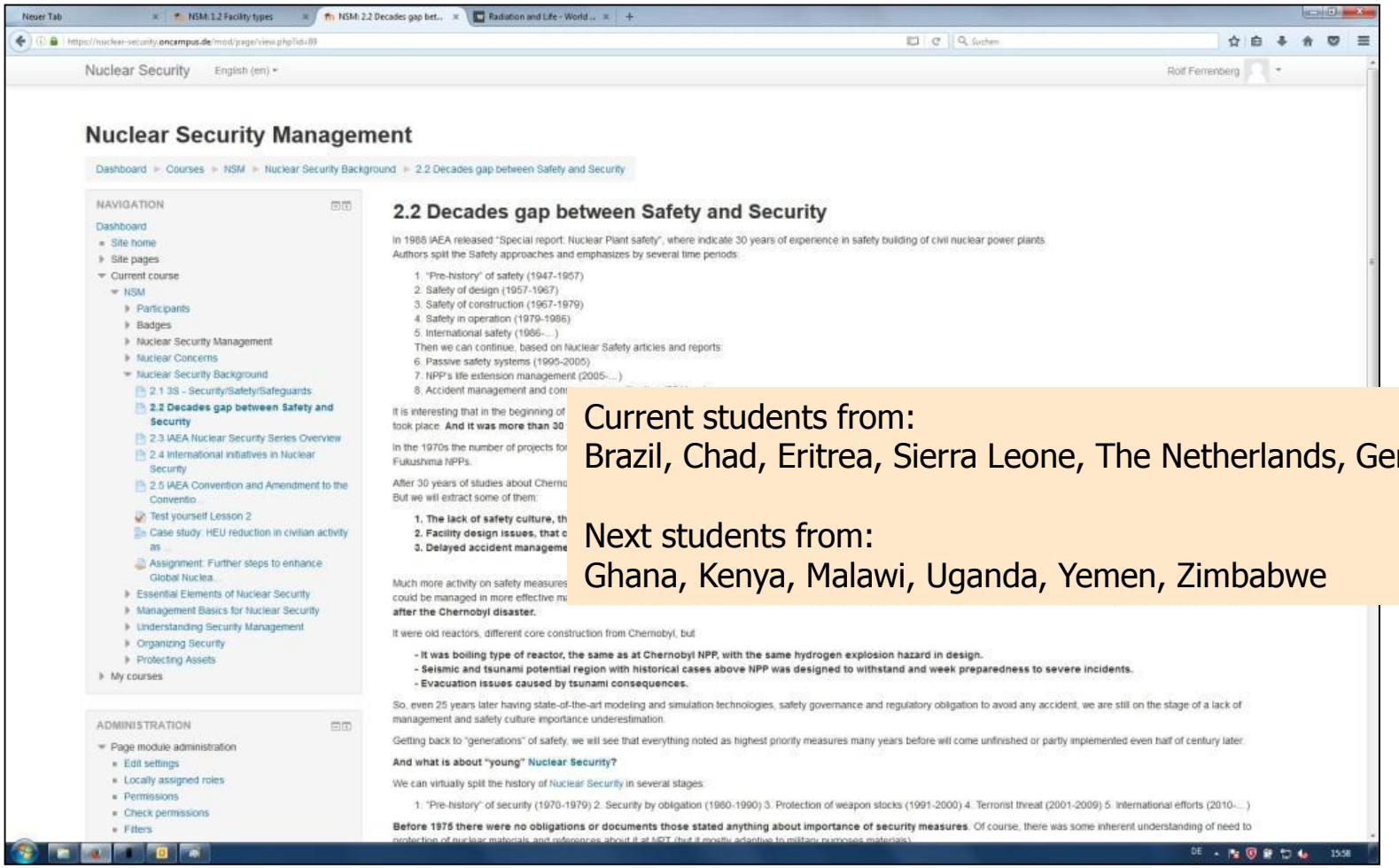
First module - Germany	*Second module - Netherlands*	*Third module - Austria*
March 2013	**April 2013**	**June 2013**
Legal framework The European approach Threat Intelligence Threat Assesment	Nuclear energy Nuclear fuel cycle Effects and Protection Protection systems	Protection Technologies Methods and instruments Measurements
Academic Skills		
Fourth module - Austria	*Fifth module - Germany*	*Sixth module - Netherlands*
August 2013	**October 2013**	**December 2013**
Unauthorized acts Interdiction and response	Security Management Governance Policy IT and Cyber Security Audit	Transport, Culture, Ethics Crises management Risk management Crime Scene Investigation Forensic techniques
Academic Skills		
Thesis and Examination - Netherlands		**Jan - Sep 2014**

Current Master in Nuclear Security (www.mins.study)

MiNS Career


Job
Further in-deepth academic work
Ph.D.
90 ECTS
Master Security Management (M.Sc.) - Nuclear Security
At least 210 ECTS
Documentary proof of knowledge on nuclear energy and radiation protection
Practical work experience
Other degree
Bachelor‘s degree
Diploma
Master‘s degree

MiNS Impemented As A Distance Learning Program



Current students from:
Brazil, Chad, Eritrea, Sierra Leone, The Netherlands, Germany

Next students from:
Ghana, Kenya, Malawi, Uganda, Yemen, Zimbabwe

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Nuclear IT/Cyber Security Professional Development Course (PDC) Learning Model

Learning phase
(first PDC week)

Participants should understand the objectives and the contents of the NSS17 and NSS12-NS22 module

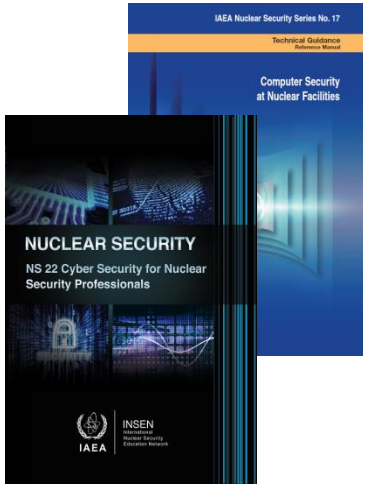
Every participants is assigned to one of the NS22 modules

Guidance session should prepare them to produce a teaching concept for their NS22 module

Homework phase
(during the PDC weeks)

Participants are assisted by mentors to complete their assignments

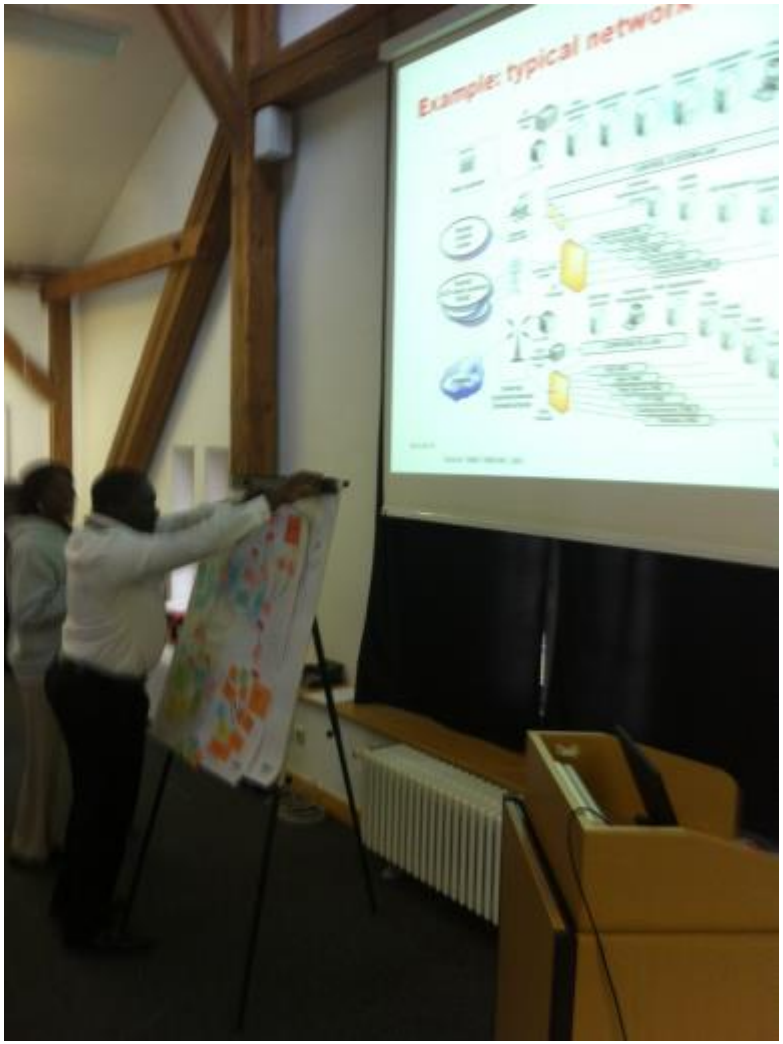
NSS12 Textbooks and NSS17 Guideline



Teaching phase
(Last PDC week)

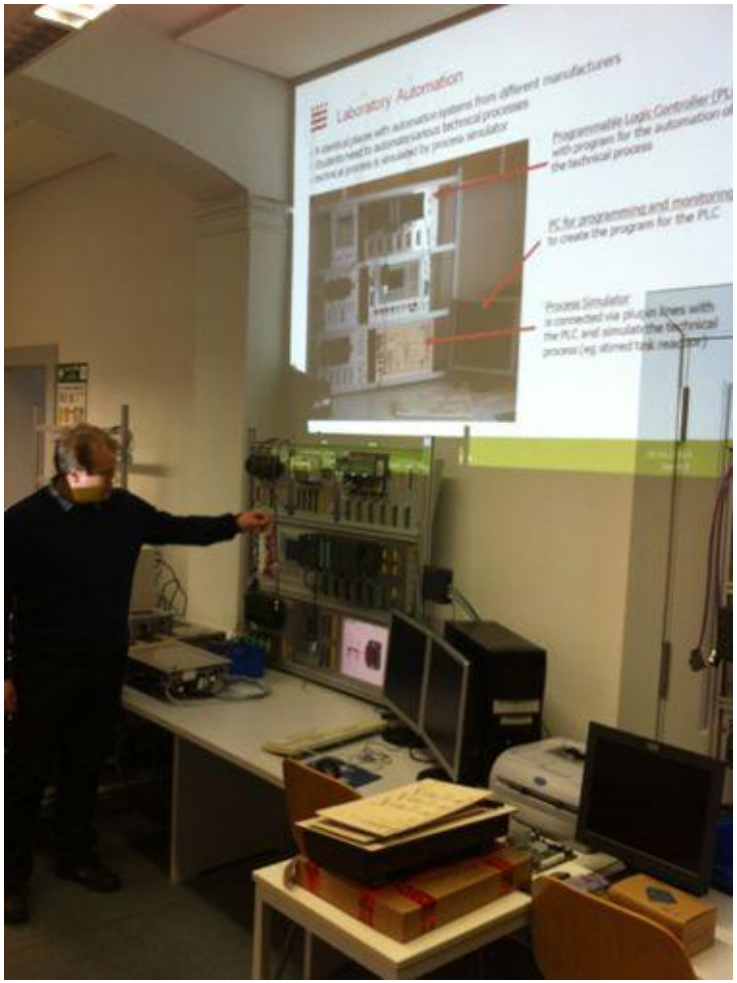
Participants present a teaching concept and a teaching session for their NS22 module

PDC Classroom-Work



Labs at Brandenburg University of Applied Sciences

- ICS and IT/Cyber Security Labs at Brandenburg University of Applied Sciences



Four Nuclear IT/Cyber Security PDCs 2012-2014

Four Nuclear IT/Cyber Security PDCs 2012-2014

- 4 Nuclear IT/Cyber Security PDCs
- 59 Participants
- 21 Countries
  - Austria
  - Canada
  - Egypt
  - Ghana
  - Iraq
  - Jamaica
  - Jordan
  - Kenya
  - Malaysia
  - Morocco
  - Nigeria
  - Poland
  - Republic of Macedonia
  - Russian Federation
  - South Africa
  - South Korea
  - Tanzania
  - Thailand
  - UK
  - Ukraine
  - US

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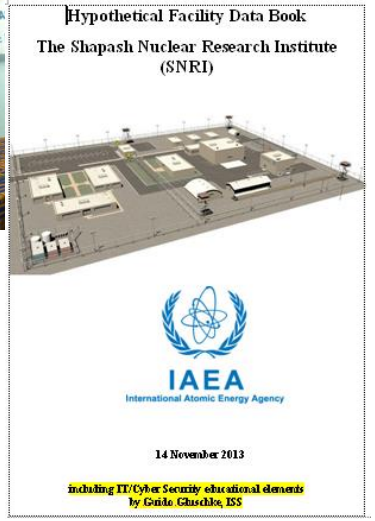
Advanced Training Courses

ISS supported IAEA, US State Department, US DoE by providing trainer for Nuclear Cyber Security Training Courses and Schools, i.a. in

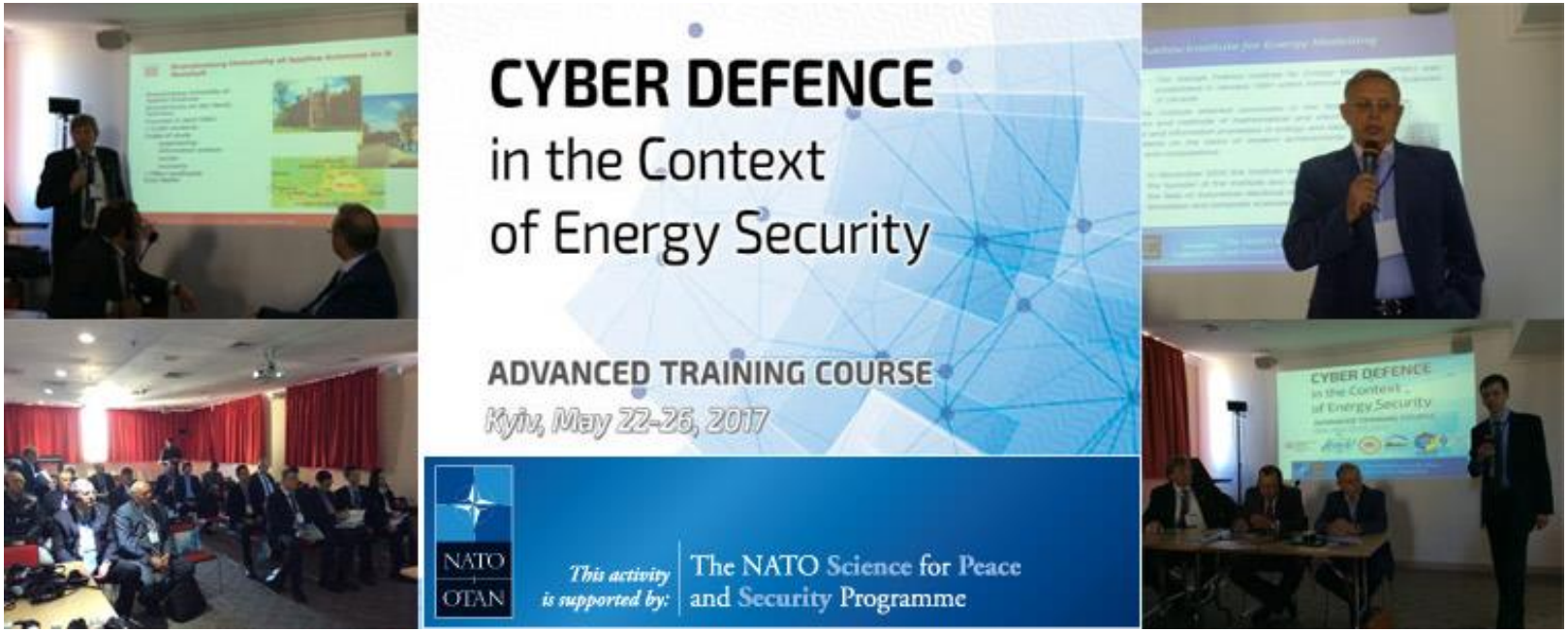
- Triest, Italy
- Rio de Janeiro, Brazil
- Moskau, Russia
- Accra, Ghana
- Mumbai, India
- Idaho Falls, US
- Budapest, Hungry
- Karlsruhe, Germany
- Vienna, Austria

IAEA works in training courses and exercises with hypothetical facilities and mock-ups



Advanced Training Courses

ISS supported NATO by developing and conducting a one-week Cyber Defence ATC in Kiev for the energy sector in Ukraine



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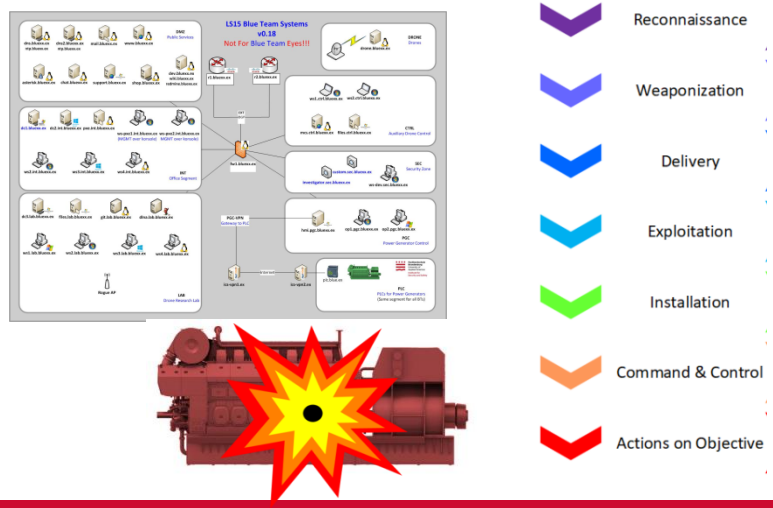
ISS Cyber Security Exercises

ISS supported various Cyber Security Exercises, e.g.

- NATO Locked Shield Exercise 2015 in ICS Security
- Guardtime Cyber Security Exercise for the UK Nuclear Sector 2018 and 2019
- New IAEA ITC Cyber Security Exercise on ICS Security 2018

ISS develops currently an Cyber Security Exercise on attacks against SCADA and Physical Protection Systems for the nuclear sector of Kazakhstan which will be held in February 2018



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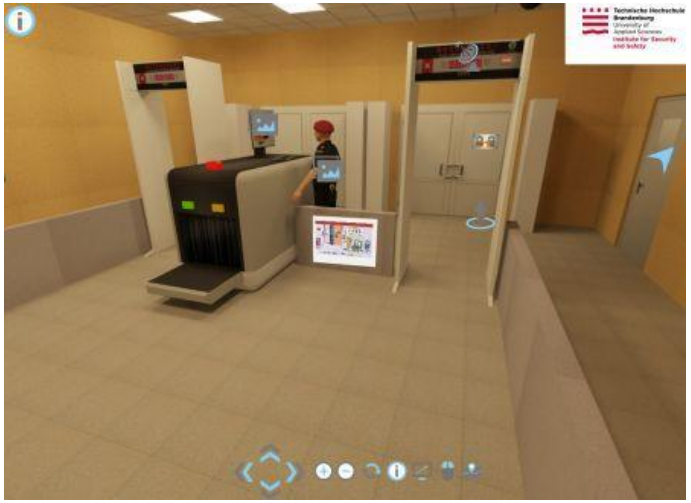
ISS Developed Dynamic 3D Environments (Demo: vips.uniss.org)

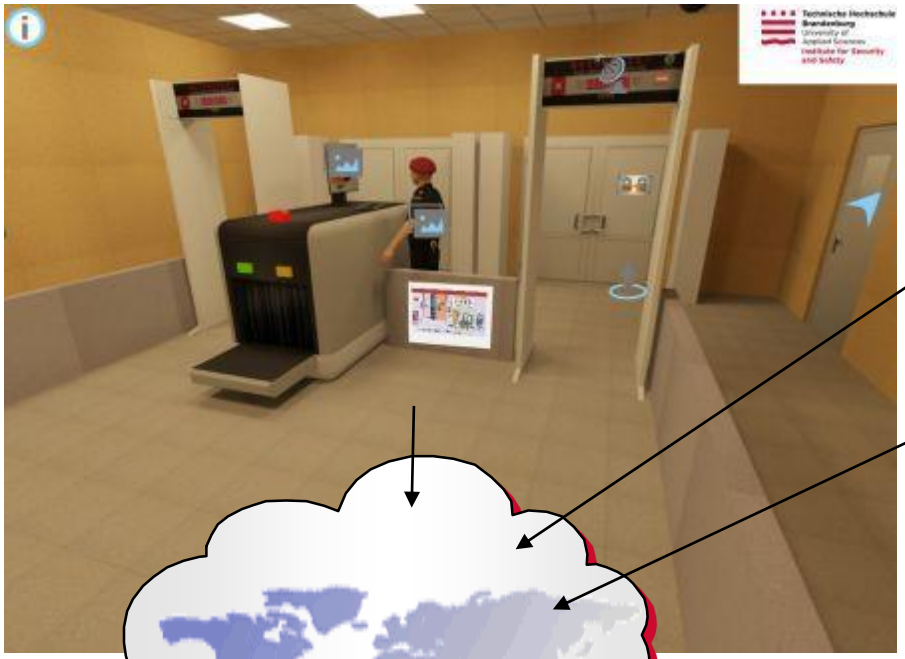
ISS developed various distance learning approaches, e.g.

- elearning modules
- 3D environments
- VR and AR environments

In 2019 ISS will look at micro-learning approaches



Vision: Interactive 3D Environment Connected With Players From Universities Worldwide



The Insider

The Bad Guy

Individual players from international universities and organizations

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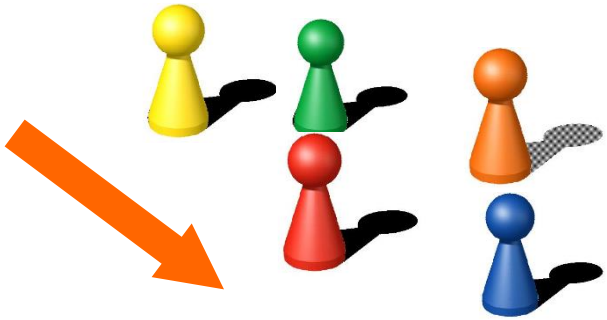
Fundamental Aspects Of A Modern Educational Approach

- ISS has rich experience in international education
- ISS has good knowledge in deveoping and tailoring individual international capacity building activties and is innovative
- ISS has international reach out through INSEN
- For the ITU CoE program ISS starts in the 2019 cycle with offering distance learning modules on its eLearning platfom
  - This guarantees a high flexibility for participants of the program
  - Learning could be tailored to daily work needs of participants
  - Worldwide access to program is given
  - New topics should be integrated easily into the program
  - It overcomes visa and travel issues

Our Vision On Future International Education

Generic Educational Program

Content and learning methods are generic for interest group (fixed generic curriculum)



Target Group-oriented Educational Program

Content and learning methods are tailored to need of target group (module based curriculum)

Individual Educational Program

Content and learning methods are tailored to individual needs (individual curriculum)

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Thank you for your attention!

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