Steinbeis University Berlin STI Advanced Risk Technologies

iNTeg-Risk Project - Early Recognition, Monitoring and Integrated Management of Emerging, New Technology Related, Risks

University of Stuttgart - ZIRN

Program
(ver. of March 19, 2012)

European Master of Risk Engineering and Management
and the respective
Professional Certification Program

(part of iNTeg-Risk Project Education & Certification WP4.10)

Course II-R4a:

Risk Based Inspection - PETRO

March 27-30, 2012

RBMI Business Centre EMEA, Lloyd's Register EMEA – Energy
K.P. van der Mandelelaan 41a, 3062 MB Rotterdam, The Netherlands

www.sti.risk-technologies.com
www.integrisk.eu-vri.eu

Course Lecturers:

Daniel Baloš, Steinbeis Advanced Risk Technologies, Germany
Michael Renner, Bayer Technology Services, Germany
Rik De Bosscher, Lloyd's Register EMEA – Energy, The Netherlands

European Virtual Institute for Integrated Risk Management

With great pleasure, we invite you herewith to consider attending:

Course II-R4a: RBI - PETRO
Risk Base Inspection - Petro

Dear Colleague,

This course is part of the series of courses which all belong to joint effort of iNTeg-Risk project (represented by EU-VRi and other partners), University of Stuttgart (ZIRN) and Steinbeis University Berlin (STI Advanced Risk Technologies) to set a modern, modular and distributed model of education and certification in the area of Risk Engineering and Management with particular emphasis on the issue of emerging risks, in particular those related to new technologies.

The course is embedded into the certified and accredited system of SHB (Steinbeis University Berlin) and means that each course brings credit points for academic and/or professional education.

We wish you a successful and enjoyable participation and good networking with lecturers and participants of the course.

We are looking forward to welcoming you in Rotterdam.

(A. Jovanovic, iNTeg-Risk Project Coordinator, CEO EU-VRi)

(O. Renn, President EU-VRi)

Short Description

The course elaborates risk issues in petrochemical industries and explains principles of risk based inspection. It deals with existing risk-based approaches and gives links to applied codes and standards. The focus of the course is given to the main reference documents of American Petroleum Institute

Recommended Practice for Risk-Based Inspection (API RP 580)
Base Resource Document on RBI (API Publication 581) API 581.

Furthermore, the course

- presents commonly used method and tools
- is illustrated by number of examples
- provides exercises and preparation for the final exam.

The course is dedicated to

- engineers (university level), managers, inspectors, legislators and other professionals dealing with risk and safety in industry
- students of Steinbeis Master of Risk Engineering and Management program and similar programs.

Basic knowledge of processes in petroleum industry and basic understanding of risk and risk-based approaches are the preconditions for the successful participation.

The course participants will receive the training material consisting of textbook and transparencies (download), as used by the lecturers during the course. The language of handouts and course will be English.

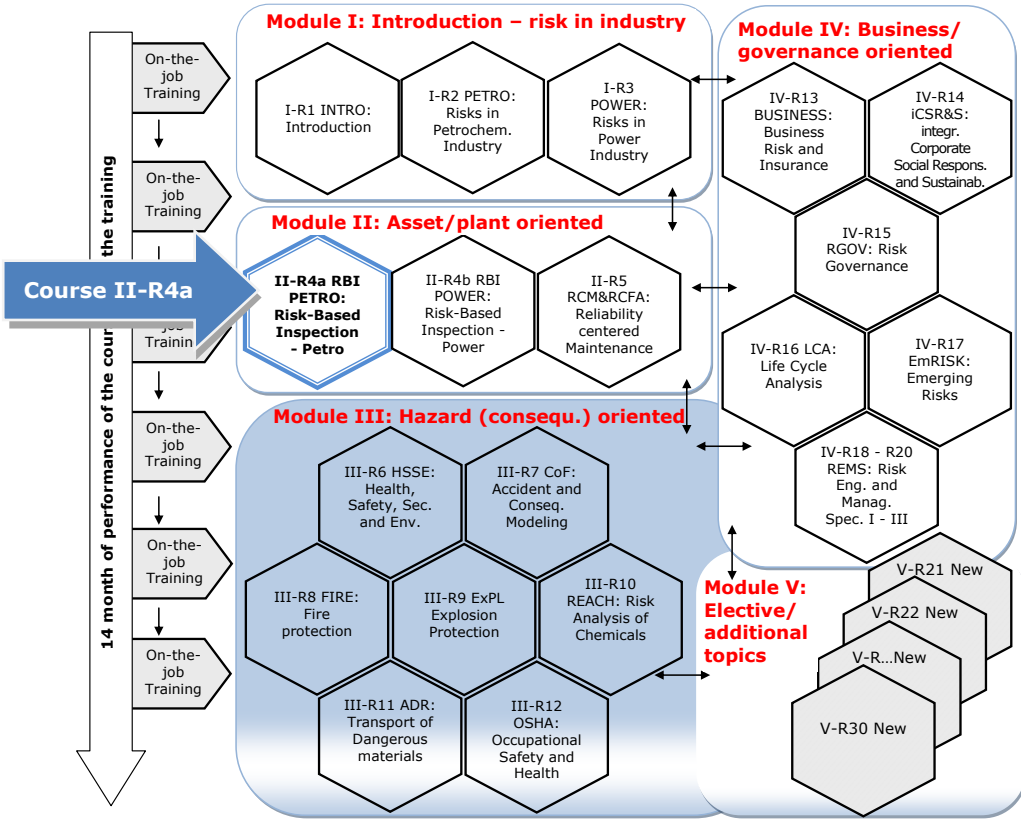
At the end of the course students are expected to know the answers to the following questions:

- Why RBI analysis is used and what are benefits and limitations of various RBI technologies?
- What are differences between qualitative and quantitative approaches to RBI methods?
- What is the scope of equipment covered in RBI techniques?
- How RBI provides input to minimum requirements for programs that meet RP 580?
- What are future industry trends in RBI?

.

Overview of all modules and courses in the curriculum
European Master of Risk Engineering and Management

No.	Module/Course title
Module I: Introduction - risks in industry	
I-R1	INTRO: Introduction to Risk Management (Risk and Safety Management in Industry)
I-R2	PETRO: Risk Analysis in Chemical/Petroleum Industries
I-R3	POWER: Risk Analysis in Power Industries
Module II: Asset/plant oriented risks management	
Course II-R4a	**RBI-PETRO: Risk Based Inspection - Petro**
II-R4b	RBI-POWER: Risk Based Inspection - Power
II-R5	RCM&RCFA: Reliability Centered Maintenance and Root Cause Failure Analysis
Module III: Hazard oriented risks management	
III-R6	HSSE: Health, Safety, Security and Environment
III-R7	CoF: Accident and Consequences Modeling
III-R8	FIRE: Fire Protection
III-R9	ExP: Explosion Protection
III-R10	REACH: Risk Analysis of Chemicals
III-R11	ADR: Transport of Dangerous Materials
III-R12	OSHA: Occupational Safety and Health
Module IV: Business/governance oriented risk management	
IV-R13	BUSINESS: Business Continuity Risks & Insurance
IV-R14	iCSR&S: integrated Corporate Social Responsibility and Sustainability
IV-R15	RGOV: Risk Governance
IV-R16	LCA: Life Cycle Analysis
IV-R17	EmRISK: Emerging Risks
IV-R18 - R20	REMS: Risk Engineering and Management – Special I - III
Module V: Elective/Additional Topics	
V-R21 - R30	



Course II-R4a RBI-PETRO: Risk Based Inspection-Petro - Overview

RBMI Business Centre EMEA, Lloyd's Register EMEA - Energy,
K.P. van der Mandelelaan 41a, 3026 MB Rotterdam, The Netherlands

	Tuesday March 27, 2012	Wednesday March 28, 2012	Thursday March 29, 2012	Friday March 30, 2012
08:00	**Registration** 8:00 – 9:00			
09:00	**Welcome, course opening** 9:00 – 10:00			
10:00	**Unit 1: Risk, sources of risk, risk identification, risk perception** 10:00 – 12:45	**Unit 3: API 581 Qualitative approach** 9:00 – 12:45	**Unit 5: Likelihood assessment – statistical and API 581 approach** **Unit 6: Inspections and inspection effectiveness** 9:00 – 12:45	**Review and preparation for the final exam** 9:00 – 12:45
11:00				
12:00				
13:00	*Lunch Break*	*Lunch Break*	*Lunch Break*	*Lunch Break*
14:00	**Unit 2: Introduction to the qualitative assessment approach** 14:00 – 17:00	**Unit 4: Modeling of consequences and Release modeling** 14:00 – 17:00	**Unit 7: Risk Based Inspection planning and inspection results evaluation** 14:00 – 17:00	**Final exam** 14:00 – 16:00
15:00				
16:00				**Final discussion, closing**
17:00				
18:00				

Agenda

March 27, 2012

Lecturer: Daniel Balos

RBMI Business Centre EMEA, Lloyd's Register EMEA – Energy,
K.P. van der Mandelelaan 41a, 3062 MB Rotterdam, The Netherlands

08:00 – 09:00	Registration
09:00 – 10:30	• Welcome and course opening • iNTeg-Risk project - goals, partners, beneficiaries, project results
10:30 – 10:45	**Coffee break**
Unit 1: Risk, sources of risk, risk identification, risk perception	
10:45 – 12:45	• Overall view on risks, their sources and basic principles of risk management process. • Links to the applied methods, standards and code.
12:45 – 14:00	**Lunch break**
Unit 2: Introduction to the qualitative assessment approach	
14:00 – 15:30	• Basic principles of qualitative risk assessment techniques • Definition and agreement of common scale • Basics of AHP approach and its implementation to the Risk assessment Case Study
15:30 – 15:45	**Coffe break**
15:45 – 17:00	• Necessary expertise and background knowledge • Results evaluation and consensus building • Workshop: Application of expert assessment and AHP on risk assessment of refinery components

March 28, 2012

Lecturer: Michael Renner

RBMI Business Centre EMEA, Lloyd's Register EMEA – Energy,
K.P. van der Mandelelaan 41a, 3062 MB Rotterdam, The Netherlands

Unit 3: API 581 Qualitative approach	
09:00 – 10:30	• Basics of API 581 qualitative approaches • Necessary data and background knowledge • API 581 Unit-based methodology
10:30 – 10:45	**Coffee break**
10:45 – 12:45	• API 581 Component Based method • API 581 Qualitative approach: Case study
12:45 – 14:00	**Lunch break**
Unit 4: Modeling of consequences and Release modeling	
14:00 – 15:30	• Introduction to the modeling of consequences as described in API 581 including the release modeling • API 581: Modeling of consequences Level I and Level II

15:30 – 15:45	**Coffee break**
15:45 – 17:00	• API 581: Modeling of consequences Level I and Level II • Review and conclusions of the Unit 4: Questions and answers

March 29, 2012

Lecturer: Rik De Bosscher

RBMI Business Centre EMEA, Lloyd's Register EMEA – Energy,
K.P. van der Mandelelaan 41a, 3062 MB Rotterdam, The Netherlands

Unit 5: Likelihood assessment – statistical and API 581 approach	
09:00 – 10:30	• Basics of statistical and data based approach towards likelihood assessment • Basics of API 581 approach to likelihood assessment
10:30 – 10:45	**Coffee break**
Unit 6: Inspections and inspection effectiveness	
10:45 – 12:45	• Different inspection and monitoring strategies and their effectiveness • Effects on the risk reduction shown
12:45 – 14:00	**Lunch break**
Unit 7: Risk Based Inspection planning and inspection results evaluation	
14:00 – 15:30	• Overall picture of the risk based approach • Guidelines for use of risk assessment technique to optimize inspection planning
15:30 – 15:45	**Coffee break**
15:45 – 17:00	• Inclusion of the inspection results in the risk management process of a power plant • Case Study: application of the results of RBI analysis on decision-making

March 30, 2012

Lecturer: Michael Renner

RBMI Business Centre EMEA, Lloyd's Register EMEA – Energy,
K.P. van der Mandelelaan 41a, 3062 MB Rotterdam, The Netherlands

Unit 8: Review and final exam	
09:00 – 10:30	Review of main course issues
10:30 – 10:45	**Coffee break**
10:45 – 12:45	Preparation for the final exam
12:45 – 14:00	**Lunch break**
14:00 – 16:00	Final exam
16:00 – 16:30	Final discussion and closing the course

Venue

- **Lloyd's Register EMEA, K.P. van der Mandelelaan 41a, 3062 MB Rotterdam, The Netherlands**
- **Telephone: +31 (0)10 4145088**

Hotel-Accommodation

We recommend to all our participants of the course to make your own reservations to the following hotel, which is just 6 minutes (walking distance) from the venue of the course (Lloyd's Register).

Hotel Name.	Web	walking distance (min) to Lloyd's Register
Hotel Novotel Rotterdam Brainpark K.P.van der Mandelelaan 150 3062 MB Rotterdam. The Netherlands	http://www.novotel.com/gb/hotel-1134-novotel-rotterdam-brainpark/location.shtml	6

Registration/Fees

Registration for the course is open at:

http://www.eu-vri.eu/fwlink/?LinkID=352

NOTE: If you are partner in iNTeg-Risk project please, use your iNTeg-Risk credentials for registration.

Registration Fees (+ VAT if applicable):

- 500 €, for normal registration
- 400 €, for ETPIS members
- 200 €, for iNTeg-Risk partners, members of the International Advisory Board and EU-VRi members (cost of catering and handouts)
- 0 €, for students enrolled in the course "European Master of Risk Engineering & Management" as well as for the students of University of Stuttgart covered by the agreement on education in the area of risk governance and management between University of Stuttgart and Steinbeis University Berlin.
- 200 €, for students enrolled in universities not mentioned above

The registration fee covers handouts, coffee/tea, and lunches. (WIFI available)

The course is intended up to 16 participants. The registration will be processed on the first-applied-first-served basis.

Information about Credit Points*

SHB Academic Courses:	**2 CPs (attendance** and exam passed)**
SHB Continuous Professional Education STI 889:	**2 CPs (attendance** and exam passed)**
SHB Continuous Professional Education STI 889:	**1 CP (no exam, attendance* only)**

*) More details in the SHB Rules and Regulations (http://www.sti.risk-technologies.com)
**) Attendance: min 3 out of 4 lecturing days

Practical contact for the course:

Ms. Radmila Guntrum
Tel: +49 711 1839 808
guntrum@risk-technologies.com

Ms. Roswitha Kokejl
Tel: +49 711 1839 616
rk@eu-vri.eu

General contact:

EU-VRi
European Virtual Institute for Integrated Risk Management
P.O. Box 10 13 21
70012 Stuttgart, Germany

Visiting address:
Haus der Wirtschaft, Willi-Bleicher-Straße 19
70174 Stuttgart, Germany

Tel: +49 711 1839 781
Fax: +49 711 1839 685
www.eu-vri.eu
info@eu-vri.eu