Steinbeis-Hochschule Berlin SHB

Study and Examination Regulation (SER)

ZLG ARTEM

§ 1
Scope

The SER at hand regulates the certification training program (ZLG) in the area of

"Advanced Risk Technologies, Engineering and Management" (ARTEM)

within the framework of the general certification regulation of SHB.

§ 2
Duration and Structure of the Program

(1) The certification training program is laid out as residential course, supplemented by self-studies and transfer periods.

(2) Events, deadlines and locations as well as additional offers are specified in the respective student study contract (inclusive study plan).

(3) Duration and structure: see SER's annex I.

§ 3
Admissions Requirements, Modules, Load

(1) The basic admission requirements are given in the general certification regulations. Specific admission requirements are given in Annex I.

(2) Modules (based on the major subject) are specified in the SER's annex II.

(3) Load (examinations and credit points, based on the major subject) is specified in the SER's annex II.

§ 4
Commencement

Date: 01.10.2011

Annex I: **SER ZLG ARTEM**
Field: **Advanced Risk Technologies, Engineering and Management (ARTEM)**
Major Subject: **Risk Examination (RE) - Hazard Oriented Risk Engineering and Management in Industry (HSSE)**
Titel obtained: **Risk Examiner - HSSE**
Valid: **2 years**

Determined by the President, the following specifications apply:

1. Duration

The certification training program includes modules/courses which are to be completed in 8 months.

2. Structure

	Min.-	days	hours/h	CP
a	Modules (courses and transfer)	20	180	16
b	Self-studies (recommended)	20	180	s.a
	Total study time	**40**	**360**	**16**

3. Specific admissions requirements

3.1 Course:
31a As a minimum high school diploma or equivalent vocational qualification.
31b Professional experience in the field would be an advantage
3.2 Modules: see profiles of modules.

4. Modules: Definitions and annotations

4.1 Transfer
-
4.2 Basics
A candidate has to select 2 courses (compulsory: 1.1)
4.3 Focus
43a A candidate has to select 2 courses.
4.4 Optional Compulsory
-
4.5 Supplementation compulsory:
45a In case the admission tests document a lack of prior education that potentially could lead to study failure or a lack of Credit Points, SHB reserves the right to prescribe individual study plans that would include supplementary courses
45b In order to maintain the title, the successful candidate has to participate in at least 1 application study (PSA) in 2 years after the certification exam.
4.6 Supplementation facultative
46a Add-on courses, specified in the educational contract.
4.7 General annotations

A I (A II)	Annex I (Annex II)
C	Case
CP	Credit Point (ECTS, European Credit Transfer System, basis: 30h/CP))
EF	Supplementation facultative
EPF	Supplementation compulsory
Gew.	Weighting
h	Hour (basis 9 h/day)
K	Written examination
LNW	Examination
Note	Grade
PA	Project Work
PK	Project
PSA	Project Study Paper
S	Seminar (also as lecture/blended learning-unit/tutorial/workshops/colloquiums/etc. [cf. study plan])
SER	Study and Examination Regulations (Educational and Examination Regulations)
SL	Self-study
TA	Transfer Paper
Tage	Days
TR	Transfer
VT	major subject
ZLG	certification training program

5. Modules and Load

See annex II.

Annex I: **SER ZLG ARTEM**
Field: **Advanced Risk Technologies, Engineering and Management (ARTEM)**
Major Subject: **Risk Examination (RE) - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT)**
Titel obtained: **Risk Examiner - EQUIPMENT**
Valid: **2 years**

Determined by the President, the following specifications apply:

1. Duration

The certification training program includes modules/courses which are to be completed in 8 months.

2. Structure

	Min.-	days	hours (h)	CP
a	Modules (courses and transfer)	20	180	16
b	Self-studies	20	180	s.a
	Total study time	**40**	**360**	**16**

3. Specific admissions requirements

3.1 Course:
31a As a minimum high school diploma or equivalent vocational qualification.
31b Professional experience in the field would be an advantage
3.2 Modules: see profiles of modules.

4. Modules: Definitions and annotations

4.1 Transfer
-
4.2 Basics
A candidate has to select 2 courses (compulsory: 1.1)
4.3 Focus
43a A candidate has to select 2 courses.
4.4 Optional Compulsory
-
4.5 Supplementation compulsory
45a In case the admission tests document a lack of prior education that potentially could lead to study failure or a lack of Credit Points, SHB reserves the right to prescribe individual study plans that would include supplementary courses
45b In order to maintain the title, the successful candidate has to participate in at least 1 application study (PSA) in 2 years after the certification exam.
4.6 Supplementation facultative
46a Add-on courses, specified in the educational contract.
4.7 General annotations

A I (A II)	Annex I (Annex II)
C	Case
CP	Credit Point (ECTS, European Credit Transfer System, basis: 30h/CP))
EF	Supplementation facultative
EPF	Supplementation compulsory
Gew.	Weighting
h	Hour (basis 9 h/day)
K	Written examination
LNW	Examination
Note	Grade
PA	Project Work
PK	Project
PSA	Project Study Paper
S	Seminar (also as lecture/blended learning-unit/tutorial/workshops/colloquiums/etc. [cf. study plan])
SER	Study and Examination Regulations (Educational and Examination Regulations)
SL	Self-study
TA	Transfer Paper
Tage	Days
TR	Transfer
VT	major subject
ZLG	certification training program

5. Modules and Load

See annex II.

Annex I: **SER ZLG ARTEM**
Field: **Advanced Risk Technologies, Engineering and Management (ARTEM)**
Major Subject: **Risk Governance (RG)**
Titel obtained: **Risk Governance Specialist**
Valid: **2 years**

Determined by the President, the following specifications apply:

1. Duration

The certification training program includes modules/courses which are to be completed in 8 months.

2. Structure of the study plan

		Min.-	days	hours (h)	CP
a	Modules (courses and transfer)		30	270	24
b	Self-studies		19	171	s.a.
	Total study time		**49**	**441**	**24**

3. Specific admissions requirements

3.1 Course:
31a As a min. bachelor's degree (Bachelor of Arts, Bachelor of Science).
31b Professional experience in the field would be an advantage.
3.2 Modules: see profiles of modules.

4. Modules: Definitions and annotations

4.1 Transfer
-
4.2 Basics
-
4.3 Focus
-
4.4 Optional Compulsory
-
4.5 Supplementation compulsory
45a In case the admission tests document a lack of prior education that potentially could lead to study failure or a lack of Credit Points, SHB reserves the right to prescribe individual study plans that would include supplementary courses
45b In order to maintain the title, the successful candidate has to participate in at least 1 application study (PSA) in 2 years after the certification exam.
4.6 Supplementation facultative
46a Add-on courses, specified in the educational contract.
4.7 General annotations

A I (A II)	Annex I (Annex II)
C	Case
CP	Credit Point (ECTS, European Credit Transfer System, basis: 30h/CP))
EF	Supplementation facultative
EPF	Supplementation compulsory
Gew.	Weighting
h	Hour (basis 9 h/day)
K	Written examination
LNW	Examination
Note	Grade
PA	Project Work
PK	Project
PSA	Project Study Paper
S	Seminar (also as lecture/blended learning-unit/tutorial/workshops/colloquiums/etc. [cf. study plan])
SER	Study and Examination Regulations (Educational and Examination Regulations)
SL	Self-study
TA	Transfer Paper
Tage	Days
TR	Transfer
VT	major subject
ZLG	certification training program

5. Modules and Load

See annex II.

Annex I: **SER ZLG ARTEM**
Field: **Advanced Risk Technologies, Engineering and Management (ARTEM)**
Major Subject: **Risk Assessment (RA) - Hazard Oriented Risk Engineering and Management in Industry (HSSE)**
Titel obtained: **Senior Risk Assessor - HSSE**
Valid: **3 years**

Determined by the President, the following specifications apply:

1. Duration

The certification training program includes modules/courses which are to be completed in 8 months.

2. Structure

	Min.-	days	hours (h)	CP
a	Modules (courses and transfer)	31	279	25
b	Self-studies	27	243	s.a
	Total study time	**58**	**522**	**25**

3. Specific admissions requirements

3.1 Course:
31a As a min. bachelor's degree (Bachelor of Arts, Bachelor of Science).
31b At least 1 assisted case in HSSE.
3.2 Modules: see profiles of modules.

4. Modules: Definitions and annotations

4.1 Transfer
-
4.2 Basics
A candidate has to select 3 courses (compulsory: 1.1)
4.3 Focus
43a A candidate has to select 3 courses.
43b A candidate has to have 5 days on-the-job training.
4.4 Optional Compulsory
-
4.5 Supplementation compulsory
45a In case the admission tests document a lack of prior education that potentially could lead to study failure or a lack of Credit Points, SHB reserves the right to prescribe individual study plans that would include supplementary courses
45b In order to maintain the title, the successful candidate has to participate in at least 1 application study (PSA) in 3 years after the certification exam.
4.6 Supplementation facultative
46a Add-on courses, specified in the educational contract.
4.7 General annotations

A I (A II)	Annex I (Annex II)
C	Case
CP	Credit Point (ECTS, European Credit Transfer System, basis: 30h/CP))
EF	Supplementation facultative
EPF	Supplementation compulsory
Gew.	Weighting
h	Hour (basis 9 h/day)
K	Written examination
LNW	Examination
Note	Grade
PA	Project Work
PK	Project
PSA	Project Study Paper
S	Seminar (also as lecture/blended learning-unit/tutorial/workshops/colloquiums/etc. [cf. study plan])
SER	Study and Examination Regulations (Educational and Examination Regulations)
SL	Self-study
TA	Transfer Paper
Tage	Days
TR	Transfer
VT	major subject
ZLG	certification training program

5. Modules and Load

See annex II.

Annex I: **SER ZLG ARTEM**
Field: **Advanced Risk Technologies, Engineering and Management (ARTEM)**
Major Subject: **Risk Assessment (RA) - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT)**
Titel obtained: **Senior Risk Assessor - EQUIPMENT**
Valid: **3 years**

Determined by the President, the following specifications apply:

1. Duration

The certification training program includes modules/courses which are to be completed in 8 months.

2. Structure

	Min.-	days	hours (h)	CP
a	Modules (courses and transfer)	31	279	25
b	Self-studies	27	243	s.a
	Total study time	**58**	**522**	**25**

3. Specific admissions requirements

3.1 Course
31a As a min. bachelor's degree (Bachelor of Arts, Bachelor of Science).
31b At least 1 assisted case in EQUIPMENT.
3.2 Modules: see profiles of modules.

4. Modules: Definitions and annotations

4.1 Transfer
-
4.2 Basics
A candidate has to select 3 courses (compulsory: 1.1)
4.3 Focus
43a A candidate has to select 3 courses.
43b A candidate has to have 5 days on-the-job training.
4.4 Optional Compulsory
44a
4.5 Supplementation compulsory
45a In case the admission tests document a lack of prior education that potentially could lead to study failure or a lack of Credit Points, SHB reserves the right to prescribe individual study plans that would include supplementary courses
45b In order to maintain the title, the successful candidate has to participate in at least 1 application study (PSA) in 3 years after the certification exam.
4.6 Supplementation facultative
46a Add-on courses, specified in the educational contract.
4.7 General annotations

A I (A II)	Annex I (Annex II)
C	Case
CP	Credit Point (ECTS, European Credit Transfer System, basis: 30h/CP))
EF	Supplementation facultative
EPF	Supplementation compulsory
Gew.	Weighting
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Note	Grade
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SER	Study and Examination Regulations (Educational and Examination Regulations)
SL	Self-study
TA	Transfer Paper
Tage	Days
TR	Transfer
VT	major subject
ZLG	certification training program

5. Modules and Load

See annex II.

Anhang II: Module und Leistungen/Annex II: Modules and Load

Modul (Modulteile/Schwerpunktinhalte) / Module (Courses/Topics)		Tage S	Tage SL	Tage TR	LNW Art	LNW h	Gew. Note	CP
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / certificate / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150854-2011-07-16								
VT: **Risk Examination (RE) - Hazard Oriented Risk Engineering and Management in Industry (HSSE)**	*	20	20	14	4K TA PA PSA	*	16	16
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150855-2011-07-16								
RE-HSSE1: **Basics**	*	10	4	2	2K TA [PSA]	*	*	5
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150856-2011-07-16								
RE-HSSE1.1: **INTRO: Introduction to Risk and Safety Management in Industry**	Introduction to the topics of risks related to the general use of the chemicals by a modern society and related industrial sectors (chemical/process # oil & gas # power generation # heating # etc.). Hazards # related risks # and due legislative safety measures considering acute (accidents) and chronic (pollution) risks within life cycle of chemicals (hazardous materials). Introduction to major accidents prevention (EU legislative obligations) and related process safety risk assessment methodology.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150857-2011-07-16								
RE-HSSE1.2: **HSE / HSSE: Health, Safety, Security and Environment**	Overview of EU regulation in the field of HSE and HSSE (health # safety # security and environment) # explanation of the objectives and requirements # state-of-the art in application including constrainst and advantages # and elaboration of used techniques on a number of examples.	5	2	2	K TA [PSA]	1,5	*	3
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150858-2011-07-16								
RE-HSSE2: **Focus**	SPO: AI-43a	10	4	*	2K [PSA]	*	*	4
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150859-2011-07-16								
RE-HSSE2.1: **PETRO: Risk Analysis in Chemical/Petroleum Industries**	The petroleum industry is changing rapidly # challenging many organizations and individuals to keep pace and distinguish opportunity from risk. Current global and regional happenings in the upstream # midstream # downstream and in petrochemical industries. It will increase understanding of the industry's strengths and weaknesses and the risk issues.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150860-2011-07-16								
RE-HSSE2.2: **POWER: Risk Analysis in Power Industries**	Knowledge of risk analysis applied specifically in power industry # starting with advantages and effectiveness of its application. It presents the regulatory basis and requirements # and elaborate commonly used methods through number of examples.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150861-2011-07-16								
RE-HSSE2.3: **CoF: Accident and Consequences Modeling**	General techniques for accident and consequences modeling. Different models of explosion # gas and vapor explosion elaborated # as well as gas dispersion modeling # Number of examples for applied methods.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150862-2011-07-16								
RE-HSSE2.4: **FIRE: Fire protection**	Theory of fire and extinguishment # sources of risk and fire protection installations. Through number of example fire protection measures in industry will be shown as well as legal background and requirements and applied safety concepts.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150863-2011-07-16								
RE-HSSE2.5: **ExP: Explosion protection**	EU directive ATEX is presented in details # along with the principles of explosion prevention and protection adopted in this directive. Its practical application in the industrial plants is explained on a series of real life examples.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150864-2011-07-16								
RE-HSSE2.6: **REACH: Risk analysis of chemicals**	Principles of the EU regulation REACH (EC Nr. 1907/2006) - registration # evaluation # authorization and restriction of chemicals. The course explains principles and obligations for manufacturers # importers and downstream users to ensure that they manufacture # place on the market or use such substances that do not adversely affect human health or the environment.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150865-2011-07-16								
RE-HSSE2.7: **ADR: Transport of dangerous materials**	International and EU policies and legislative requirements related to the transport of dangerous materials and explains the European Agreement concerning the International Carriage of Dangerous Goods. It elaborates the main issues from current ADR as well as safety measures and procedures in case of accidents.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150866-2011-07-16								
RE-HSSE2.8: **OSHA: Occupational Safety and Health**	Regulations in the field of safety and health of workers at work. General principles concerning the prevention of occupational risks # the protection of safety and health # the elimination of risk and accident factors # the informing # consultation # balanced participation in accordance with national laws and/or practices and training of workers and their representatives # as well as general guidelines for the implementation of the said principles.	5	2	*	K [PSA]	1,5	*	2

Anhang II: Module und Leistungen/Annex II: Modules and Load

Modul (Modulteile/Schwerpunktinhalte) / Module (Courses/Topics)		Tage S	Tage SL	Tage TR	LNW Art	LNW h	Gew. Note	CP
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150867-2011-07-16								
RE-HSSE2.9: **BUSINESS: Business continuity risks & insurance**	Complements other courses devoted to technical and engineering issues of risk management in industrial plants (petrochemical plants # process industry # power plants # etc.). Technical risks in the above plants can be a cause or a contributing factor in/for the business continuity and the final outcome of the technical/engineering activities is practically always to be seen on the background of business implications and implications/impacts to the business activities of a company. The insurance aspects will be tackled since they are the most relevant practical aspect linking the engineering and business side of the company operation and asset management.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / supplementation / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150868-2011-07-16								
EPF: **Supplementary compulsory (EPF)**	SPO: AI-45a	*	*	*	*	*	*	*
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / supplementation / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150869-2011-07-16								
EPF1: **Project**	SPO: AI-45b	*	12	12	PA PSA	1	*	7
Risk Examination - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / supplementation / facultative / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-HSSE-150870-2011-07-16								
EF: **Supplementation facultative (EF)**	SPO: AI-46a	*	*	*	*	*	*	*

Anhang II: Module und Leistungen/Annex II: Modules and Load

Modul (Modulteile/Schwerpunktinhalte) / Module (Courses/Topics)		Tage			LNW		Gew.	CP
		S	SL	TR	Art	h	Note	
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / certificate / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150871-2011-07-16								
VT: **Risk Examination (RE) - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT)**	*	20	20	14	4K TA PA PSA	*	16	16
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150872-2011-07-16								
RE-EQU1: **Basics**	*	10	4	2	2K TA [PSA]	*	*	5
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150873-2011-07-16								
RE-EQU1.1: **INTRO: Introduction to Risk and Safety Management in Industry**	Introduction to the topics of risks related to the general use of the chemicals by a modern society and related industrial sectors (chemical/process # oil & gas # power generation # heating # etc.). Hazards # related risks # and due legislative safety measures considering acute (accidents) and chronic (pollution) risks within life cycle of chemicals (hazardous materials). Introduction to major accidents prevention (EU legislative obligations) and related process safety risk assessment methodology.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150874-2011-07-16								
RE-EQU1.2a: **RBI-Petro: Risk Based Inspection - Petro**	Principles of risk based inspection # existing approaches and links to applied codes and standards. The focus is given to API approach. Levels of analysis and usage of analysis results will be elaborated and illustrated with examples.	5	2	2	K TA [PSA]	1,5	*	3
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150875-2011-07-16								
RE-EQU1.2b: **RBI-Power: Risk Based Inspection - Power**	The state-of-the art knowledge of risk based approaches currently applied in power generation industries to the wide range of professionals involved in different activities in conventional power generation.	5	2	2	K TA [PSA]	1,5	*	3
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150876-2011-07-16								
RE-EQU2: **Focus**	SPO: AI-43a	10	4	*	2K [PSA]	*	*	4
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150877-2011-07-16								
RE-EQU2.1: **PETRO: Risk Analysis in Chemical/Petroleum Industries**	Current global and regional happenings in the upstream # midstream # downstream and in petrochemical industries. Risk based approaches currently applied in chemical and petroleum industries # methods that are in an advanced stage of application. Special references shall be given on methods that are standardized and recognized by national authorities and trends in development of national and international standards and regulation.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150878-2011-07-16								
RE-EQU2.2: **POWER: Risk Analysis in Power Industries**	Knowledge of risk analysis applied specifically in power industry # starting with advantages and effectiveness of its application. It presents the regulatory basis and requirements # and elaborate commonly used methods through number of examples.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150879-2011-07-16								
RE-EQU2.3: **RCM / RCFA: Reliability Centered Mainte-nance and Root Cause Failure Analysis**	Reliability Centered Maintenance (RCM) and Root Cause Failure Analysis (RCFA) as methodologies used for logical decision-making process for analysis and definition of the equipment maintenance requirements # as well as for accident prevention. The focus is on the damage mechanisms appearing in different industries. A large number of well elaborated examples.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150880-2011-07-16								
RE-EQU2.4: **CoF: Accident and Consequences Modeling**	General techniques for accident and consequences modeling. Different models of explosion # gas and vapor explosion elaborated # as well as gas dispersion modeling # Number of examples for applied methods.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150881-2011-07-16								
RE-EQU2.5: **FIRE: Fire protection**	Theory of fire and extinguishment and explain sources of risk and fire protection installations. Through number of example fire protection measures in industry will be shown as well as legal background and requirements and applied safety concepts.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150882-2011-07-16								
RE-EQU2.6: **ExP: Explosion protection**	EU directive ATEX is presented in details # along with the principles of explosion prevention and protection adopted in this directive. Its practical application in the industrial plants is explained on a series of real life examples.	5	2	*	K [PSA]	1,5	*	2

Anhang II: Module und Leistungen/Annex II: Modules and Load

Modul (Modulteile/Schwerpunktinhalte) / Module (Courses/Topics)		Tage			LNW		Gew.	CP
		S	SL	TR	Art	h	Note	
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150883-2011-07-16								
RE-EQU2.7: **BUSINESS: Business continuity risks & insurance**	Complements other courses devoted to technical and engineering issues of risk management in industrial plants (petrochemical plants # process industry # power plants # etc.). Technical risks in the above plants can be a cause or a contributing factor in/for the business continuity and the final outcome of the technical/engineering activities is practically always to be seen on the background of business implications and implications/impacts to the business activities of a company. The insurance aspects will be tackled since they are the most relevant practical aspect linking the engineering and business side of the company operation and asset management.	5	2	*	K [PSA]	1,5	*	2
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / supplementation / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150884-2011-07-16								
EPF: **Supplementary compulsory (EPF)**	SPO: AI-45a	*	*	*	*	*	*	*
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / supplementation / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150885-2011-07-16								
EPF1: **Project**	SPO: AI-45b	*	12	12	PA PSA	1	*	7
Risk Examination - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / supplementation / facultative / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RE-EQU-150886-2011-07-16								
EF: **Supplementation facultative (EF)**	SPO: AI-46a, Special courses: technology trends, management trends, industries and niches, current scientific topics.	*	*	*	*	*	*	*

Anhang II: Module und Leistungen/Annex II: Modules and Load

Modul (Modulteile/Schwerpunktinhalte) / Module (Courses/Topics)		Tage S	Tage SL	Tage TR	LNW Art	LNW h	Gew. Note	CP
Risk Governance / certificate / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RG-150887-2011-07-16								
VT: **Risk Governance (RG)**	*	30	19	30	4K TA PA PSA	*	24	24
Risk Governance / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RG-150888-2011-07-16								
RG1: **Risk Governance: Risk Governance**	Principles of modern risk governance including its main elements (ef. IRGC framework): a- pre-assessment, b- risk appraisal, c- risk characterization and evaluation d- risk management and e- risk communication # Apart from the general concept and the items to be considered under each of the elements (e.g. under "Risk Assessment": hazard identification and estimation, exposure and vulnerability assessment, risk estimation, risk perceptions, social concerns, socio-economic impacts) the examples from the industrial practice will be shown and explained # A separate part of the course will be dedicated to the overview of specific methods and techniques (e.g. Delphi), as well as to the tools and instruments facilitating the application by industry, governments and public bodies.	5	2	2	K TA [PSA]	1,5	*	3
Risk Governance / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RG-150889-2011-07-16								
RG2: **iCSR & Sustainability: integrated Corporate Social Responsibility in industry**	Basic elements of the concept of Corporate (Social) Responsibility (CSR) and its practical application in industry. The course focuses onto the following topics:Key elements of the CSR and how these elements function as an integrated system/How CSR should be practically embedded into corporate and/or country business strategy and daily practice (CSR methodologies and tools)/The technology related aspects as a part of the modern practices of industry (HSE, HSSE)/Analysis/comparison of the practices in the EU, US and other countries/Relevant data and information on best practices world-wide, including a number of relevant case studies from the key industries and references to main sources of relevant data and information/ Examples and projects using interactive and on-line course materials, also from external sources (e.g., the World Bank, GRI …). A particular unit of the course is dedicated to new ISO 260000 standard.	5	2	2	K TA [PSA]	1,5	*	3
Risk Governance / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RG-150890-2011-07-16								
RG3: **LCA: Life Cycle Analysis**	Principles and practical application of the life cycle analysis (LCA) as a technique for accessing the environmental aspects and potential impacts associated with a product, by (a) compiling an inventory of relevant inputs and outputs of a product system, (b) evaluating the potential environmental impacts associated with those inputs and outputs, and (c) interpreting the results of the inventory analysis and impact assessment phases in relation with to the objective of the study. The course will provide overview of the techniques and the tools needed for the analysis, with practical examples from primarily from process industry and relevant products, covering the environmental aspects and potential impacts throughout a product's life (i.e. cradle-to-grave) from raw material acquisition through production, use and disposal, with a particular attention focused onto resource use, human health and ecological consequences.	5	2	2	K TA [PSA]	1,5	*	3
Risk Governance / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RG-150891-2011-07-16								
RG4: **REM-Special**	3 of the courses assumed for the calculation of the CPs:"Use of KPIs in engineering risk assessment and management"/"Risks related to cultural differences in operation of multinational companies, with a particular emphasis on operation in European projects"/"Data management and IT support systems in industrial risk engineering and management" or/"Legal aspects of risk in industry"	15	6	6	K TA [PSA]	6	*	8
Risk Governance / supplementation / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RG-150892-2011-07-16								
EPF: **Supplementary compulsory (EPF)**	SPO: AI-45a	*	*	*	*	*	*	*
Risk Governance / supplementation / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RG-150893-2011-07-16								
EPF1: **Project**	SPO: AI-45b	*	7	18	PA PSA	1	*	7
Risk Governance / supplementation / facultative / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RG-150894-2011-07-16								
EF: **Supplementation facultative (EF)**	SPO: AI-46a, Special courses: technology trends, management trends, industries and niches, current scientific topics.	*	*	*	*	*	*	*

Anhang II: Module und Leistungen/Annex II: Modules and Load

Modul (Modulteile/Schwerpunktinhalte) / Module (Courses/Topics)		Tage			LNW		Gew.	CP
		S	SL	TR	Art	h	Note	
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / certificate / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150895-2011-07-16								
VT: **Risk Assessment (RA) - Hazard Oriented Risk Engineering and Management in Industry (HSSE)**	*	31	27	26	6K 3TA PA C PSA	*	25	25
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150896-2011-07-16								
RA-HSSE1: **Basics**	*	15	6	6	3K 3TA [PSA]	*	*	9
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150897-2011-07-16								
RA-HSSE1.1: **INTRO: Introduction to Risk and Safety Management in Industry**	Introduction to the topics of risks related to the general use of the chemicals by a modern society and related industrial sectors (chemical/process # oil & gas # power generation # heating # etc.). Hazards # related risks # and due legislative safety measures considering acute (accidents) and chronic (pollution) risks within life cycle of chemicals (hazardous materials). Introduction to major accidents prevention (EU legislative obligations) and related process safety risk assessment methodology.	5	2	2	K TA [PSA]	1,5	*	3
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150898-2011-07-16								
RA-HSSE1.2: **HSE / HSSE: Health, Safety, Security and Environment**	Overview of EU regulation in the field of HSE and HSSE (health # safety # security and environment) # explanation of the objectives and requirements # state-of-the art in application including constrainst and advantages # and elaboration of used techniques on a number of examples.	5	2	2	K TA [PSA]	1,5	*	3
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150899-2011-07-16								
RA-HSSE1.3: **OSHA: Occupational Safety and Health**	Regulations in the field of safety and health of workers at work. General principles concerning the prevention of occupational risks # the protection of safety and health # the elimination of risk and accident factors # the informing # consultation # balanced participation in accordance with national laws and/or practices and training of workers and their representatives # as well as general guidelines for the implementation of the said principles.	5	2	2	K TA [PSA]	1,5	*	3
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150900-2011-07-16								
RA-HSSE2: **Focus**	SPO: AI-43a	16	11	5	3K PA C [PSA]	*	*	9
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150901-2011-07-16								
RA-HSSE2.1: **PETRO: Risk Analysis in Chemical/Petroleum Industries**	Current global and regional happenings in the upstream # midstream # downstream and in petrochemical industries. Risk based approaches currently applied in chemical and petroleum industries # methods that are in an advanced stage of application. Special references shall be given on methods that are standardized and recognized by national authorities and trends in development of national and international standards and regulation.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150902-2011-07-16								
RA-HSSE2.2: **POWER: Risk Analysis in Power Industries**	Knowledge of risk analysis applied specifically in power industry # starting with advantages and effectiveness of its application. It presents the regulatory basis and requirements # and elaborate commonly used methods through number of examples.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150903-2011-07-16								
RA-HSSE2.3: **CoF: Accident and Consequences Modeling**	General techniques for accident and consequences modeling. Different models of explosion # gas and vapor explosion elaborated # as well as gas dispersion modeling # Number of examples for applied methods.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150904-2011-07-16								
RA-HSSE2.4: **FIRE: Fire protection**	Theory of fire and extinguishment # sources of risk and fire protection installations. Through number of example fire protection measures in industry will be shown as well as legal background and requirements and applied safety concepts.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150905-2011-07-16								
RA-HSSE2.5: **ExP: Explosion protection**	EU directive ATEX is presented in details # along with the principles of explosion prevention and protection adopted in this directive. Its practical application in the industrial plants is explained on a series of real life examples.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150906-2011-07-16								
RA-HSSE2.6: **REACH: Risk analysis of chemicals**	Principles of the EU regulation REACH (EC Nr. 1907/2006) - registration # evaluation # authorization and restriction of chemicals. The course explains principles and obligations for manufacturers # importers and downstream users to ensure that they manufacture # place on the market or use such substances that do not adversely affect human health or the environment.	5	2	*	K [PSA]	1,5	*	2

Anhang II: Module und Leistungen/Annex II: Modules and Load

Modul (Modulteile/Schwerpunktinhalte) / Module (Courses/Topics)		Tage S	Tage SL	Tage TR	LNW Art	LNW h	Gew. Note	CP
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150907-2011-07-16								
RA-HSSE2.7: **ADR: Transport of dangerous materials**	International and EU policies and legislative requirements related to the transport of dangerous materials and explains the European Agreement concerning the International Carriage of Dangerous Goods. It elaborates the main issues from current ADR as well as safety measures and procedures in case of accidents.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150908-2011-07-16								
RA-HSSE2.8: **BUSINESS: Business continuity risks & insurance**	Complements other courses devoted to technical and engineering issues of risk management in industrial plants (petrochemical plants # process industry # power plants # etc.). Technical risks in the above plants can be a cause or a contributing factor in/for the business continuity and the final outcome of the technical/engineering activities is practically always to be seen on the background of business implications and implications/impacts to the business activities of a company. The insurance aspects will be tackled since they are the most relevant practical aspect linking the engineering and business side of the company operation and asset management.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150909-2011-07-16								
RA-HSSE2.9: **On-the-job Training**	SPO: AI-43b	1	5	5	PA C	1,5	*	3
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / supplementation / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150910-2011-07-16								
EPF: **Supplementary compulsory (EPF)**	SPO: AI-45a	*	*	*	*	*	*	*
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / supplementation / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150911-2011-07-16								
EPF1: **Project**	SPO: AI-45b	*	10	15	PA PSA	1	*	7
Risk Assessment - Hazard Oriented Risk Engineering and Management in Industry (HSSE) / supplementation / facultative / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-HSSE-150912-2011-07-16								
EF: **Supplementation facultative (EF)**	SPO: AI-46a, Special courses: technology trends, management trends, industries and niches, current scientific topics.	*	*	*	*	*	*	*

Anhang II: Module und Leistungen/Annex II: Modules and Load

Modul (Modulteile/Schwerpunktinhalte) / Module (Courses/Topics)		Tage			LNW		Gew.	CP
		S	SL	TR	Art	h	Note	
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / certificate / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150913-2011-07-16								
VT: **Risk Assessment (RA) - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT)**	*	31	27	26	6K 3TA PA C PSA	*	25	25
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150914-2011-07-16								
RA-EQU1: **Basics**	*	15	6	6	3K 3TA [PSA]	*	*	9
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150915-2011-07-16								
RA-EQU1.1: **INTRO: Introduction to Risk and Safety Management in Industry**	Introduction to the topics of risks related to the general use of the chemicals by a modern society and related industrial sectors (chemical/process# oil & gas# power generation# heating# etc.). Hazards# related risks# and due legislative safety measures considering acute (accidents) and chronic (pollution) risks within life cycle of chemicals (hazardous materials). Introduction to major accidents prevention (EU legislative obligations) and related process safety risk assessment methodology.	5	2	2	K TA [PSA]	1,5	*	3
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150916-2011-07-16								
RA-EQU1.2a: **RBI-Petro: Risk Based Inspection - Petro**	Principles of risk based inspection# existing approaches and links to applied codes and standards. The focus is given to API approach. Levels of analysis and usage of analysis results will be elaborated and illustrated with examples.	5	2	2	K TA [PSA]	1,5	*	3
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150917-2011-07-16								
RA-EQU1.2b: **RBI-Power: Risk Based Inspection - Power**	The state-of-the art knowledge of risk based approaches currently applied in power generation industries to the wide range of professionals involved in different activities in conventional power generation.	5	2	2	K TA [PSA]	1,5	*	3
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / basic / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150918-2011-07-16								
RA-EQU1.3: **RCM / RCFA: Reliability Centered Maintenance and Root Cause Failure Analysis**	Reliability Centered Maintenance (RCM) and Root Cause Failure Analysis (RCFA) as methodologies used for logical decision-making process for analysis and definition of the equipment maintenance requirements# as well as for accident prevention. The focus is on the damage mechanisms appearing in different industries. A large number of well elaborated examples.	5	2	2	K TA [PSA]	1,5	*	3
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150919-2011-07-16								
RA-EQU2: **Focus**	SPO: AI-43a	16	11	5	3K PA C [PSA]	*	*	9
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150920-2011-07-16								
RA-EQU2.1: **PETRO: Risk Analysis in Chemical/Petroleum Industries**	Current global and regional happenings in the upstream# midstream# downstream and in petrochemical industries. Risk based approaches currently applied in chemical and petroleum industries# methods that are in an advanced stage of application. Special references shall be given on methods that are standardized and recognized by national authorities and trends in development of national and international standards and regulation.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150921-2011-07-16								
RA-EQU2.2: **POWER: Risk Analysis in Power Industries**	Knowledge of risk analysis applied specifically in power industry# starting with advantages and effectiveness of its application. It presents the regulatory basis and requirements# and elaborate commonly used methods through number of examples.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150922-2011-07-16								
RA-EQU2.3: **CoF: Accident and Consequences Modeling**	General techniques for accident and consequences modeling. Different models of explosion# gas and vapor explosion elaborated# as well as gas dispersion modeling# Number of examples for applied methods.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150923-2011-07-16								
RA-EQU2.4: **FIRE: Fire protection**	Theory of fire and extinguishment and explain sources of risk and fire protection installations. Through number of example fire protection measures in industry will be shown as well as legal background and requirements and applied safety concepts.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150924-2011-07-16								
RA-EQU2.5: **ExP: Explosion protection**	EU directive ATEX is presented in details# along with the principles of explosion prevention and protection adopted in this directive. Its practical application in the industrial plants is explained on a series of real life examples.	5	2	*	K [PSA]	1,5	*	2

Anhang II: Module und Leistungen/Annex II: Modules and Load

Modul (Modulteile/Schwerpunktinhalte) / Module (Courses/Topics)		Tage			LNW		Gew.	CP
		S	SL	TR	Art	h	Note	
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150925-2011-07-16								
RA-EQU2.6: **BUSINESS: Business continuity risks & insurance**	Complements other courses devoted to technical and engineering issues of risk management in industrial plants (petrochemical plants# process industry# power plants# etc.). Technical risks in the above plants can be a cause or a contributing factor in/for the business continuity and the final outcome of the technical/engineering activities is practically always to be seen on the background of business implications and implications/impacts to the business activities of a company. The insurance aspects will be tackled since they are the most relevant practical aspect linking the engineering and business side of the company operation and asset management.	5	2	*	K [PSA]	1,5	*	2
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / focus / optional compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150926-2011-07-16								
RA-EQU2.7: **On-the-job Training**	SPO: AI-43b	1	5	5	PA C	1,5	*	3
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / supplementation / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150927-2011-07-16								
EPF: **Supplementary compulsory (EPF)**	SPO: AI-45a	*	*	*	*	*	*	*
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / supplementation / compulsory / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150928-2011-07-16								
EPF1: **Project**	SPO: AI-45b	*	10	15	PA PSA	1	*	7
Risk Assessment - Plant Oriented Risk Engineering and Management in Industry (EQUIPMENT) / supplementation / facultative / SPO ZLG-ARTEM / Advanced Risk Technologies, Engineering and Management | RA-EQU-150929-2011-07-16								
EF: **Supplementation facultative (EF)**	SPO: AI-46a, Special courses: technology trends, management trends, industries and niches, current scientific topics.	*	*	*	*	*	*	*