AREVA NP

# AREVA NP TRAINING OPPORTUNITIES

Franck Lignini
Dpt Manager 'Codes & Standards'
Engineering & Design Authority
Vienna - Dec. 20, 2016

AREVA

# Training Opportunities

- AREVA NP Reactor Training Centre
- ‘On the Job’ Training
- Other Opportunities in collaboration with French and/or Foreign Partners





AREVA

# Training Opportunities

- **AREVA NP Reactor Training Centre**
- ‘On the Job’ Training
- Other Opportunities in collaboration with French and/or Foreign Partners





AREVA

AREVA Learning Solutions
REACTOR TRAINING CENTER

# Reporting 2016

- **10 000 training hours**
- **15 000 trainees**
  - **France**
    - EDF – AREVA – WEIR – SWAGELOK
  - **United Kingdom**
    - Clyde Union – EDF Energy – User Group – NSAN – NAMRC
  - **Switzerland**
    - VAT
  - **Sueden**
    - SSM - Vattenfall
  - **Netherland**
    - DELTA
  - **China**
    - CNNC – CNPE - CGNPC
  - **Republic of South Africa**
    - ESKOM - ONR
  - **Saoudi arabia**
    - SEC

- **250 trainers (France & Germany)**
  - **Generalists**
  - **Specialists**
  - **Experts**
- **400 hours of simulation**

AREVA Learning Solutions
REACTOR TRAINING CENTER

# Training catalogue 2017

- Instrumentation & Control programs
- Codes & Standards programs
- General Knowledge – Technology of Reactors
- Design, Operation, Commissioning of Reactors
  - EPR Reactor
  - ATMEA1 Reactor
- Specific training programs, implemented upon request





AREVA

# Training Opportunities

- AREVA NP Reactor Training Centre
- **'On the Job' Training**
- Other Opportunities in collaboration with French and/or Foreign Partners





AREVA

# ‘On the Job’ Training

- Trainees are Professionals with a minimum experience
- Trainees are included in our teams
  - Work on real projects with a mentor
- Trainees join us for several months
  - Training programmes can be planned for several years with trainees returning in their home organization in between fellowship periods with us, for sharing the acquired knowledge
  - Follow-up by the mentor in between fellowship periods
    - Home work, Preparation of the next period, Workshop at the home organization with active participation of the trainee and of the mentor


- Recently
  - VARANS (Regulatory Body, Vietnam) : Radiation Protection (with EDF) and Thermalhydraulics
  - EVN/NPB (Operator, Vietnam) : Quality Management System
  - COMENA (Algeria) : I&C
  - Under the aegis of French Governmental Framework (I2EN) and IAEA Technical Cooperation





AREVA

# Training Opportunities

- AREVA NP Reactor Training Centre
- ‘On the Job’ Training
- **Other Opportunities in collaboration with French and/or Foreign Partners**





AREVA

# Other Opportunities

- Partnership with other French Stakeholders
- For example EDF Nuclear Accademy






AREVA

# Other Opportunities

## Partnerships with Universities






AREVA

# Other Opportunities

## Specific Events - Upon request

# BACK-UP Slides





AREVA

AREVA Learning Solutions
REACTOR TRAINING CENTER

# Training catalogue 2017

## Instrumentation & Control programs

### I&C DESIGN - 2,5 days

*This training, implemented by AREVA specialists, provides the attendees with an overview of I&C Nuclear Power Plant, from design to implementation on site*

### TELEPERM XS in a Nutshell – 1 day

*This training describes TELEPERM XS specificities and it integration into EPR reactor Instrumentation & Control architecture*

### TELEPERM® XS-Fundamentals Including practicals – 5 days





AREVA

# Training catalogue 2017

## Codes & Standards programs

### Introduction to the ASME Code – 4 days

*This training provides the basic knowledge of the ASME code (ASME Boiler and Pressure Vessel Code). It is dedicated to a large public who needs to use the code.*

### Introduction to the RCC-M code – 4 days

afcen

*This training provides the basic knowledge of the RCC-M code (Design and Conception Rules for Mechanical Components of PWR Nuclear Islands). It is dedicated to a large public who needs to use the code.*

### Introduction to the RCC-MRx code – 3 days

afcen

*This training provides the basic knowledge of the RCC-MRx code (Design and Construction Rules for mechanical components of nuclear installations applicable for high temperature structures and ITER vacuum vessel). It is dedicated to a large public who needs to use the code.*

### RCC-E (Codes and Standards for Electrical Equipments) – 1day

afcen

*This 1-day training describes the different chapter of RCC-E and highlights its specificities*

### Introduction to the RSE-M code – 2,5 days

*This training provides the basic knowledge of the RSE-M code.. It is dedicated to a large public who needs to use the code.*

AREVA Learning Solutions
REACTOR TRAINING CENTER

# Training catalogue 2017

## General Knowledge technology of reactors

### Nuclear Power Plant Basics – 4 days

*This training is the first step to understand Pressurized Water Reactor concept. It is illustrated on EPR Technology*

### PWR fundamentals using simulator – 3 days

CORYS

*Pressurized Water reactor design principle presentation and knowledge acquisition , sustained by lab work by running reactor normal operation on C-PWR training simulator.*

### Simulator training - PWR normal operation

CORYS

*This training has been developed and implemented by AREVA mechanical specialists to allow a good understanding of technical requirements link to the design, the manufacturing and control of Pressurized Water Reactor components.*





AREVA

AREVA Learning Solutions
REACTOR TRAINING CENTER

# Training catalogue 2017

## General Knowledge technology of reactors

### The materials on Pressurized Water Reactor

*This training has been developed and implemented by AREVA mechanical specialists to allow a good understanding of technical requirements link to the design, the manufacturing and control of Pressurized Water Reactor components.*

### Probabilistic Safety Assessment Training – 4 days

*This training has been developed and implemented by AREVA Safety specialists to allow a good understanding of Probabilistic Safety Approach requirements, development and application in Nuclear Facilities.*

### Technical Nuclear Safety – 1 days

### Nuclear Learning Tour reactor – 8 days + pre elearning

*e-learning*

*Interactive classroom modules*

*Balanced and progressive learning program*

*Practical and guided exercises*

*Operation demonstration with simulator*

*Practical site visits: research centre, Nuclear Power Plant, fuel manufacturing plant, training & maintenance centre, EPR new build construction, recycling plant & waste management*

*Conferences by top-level experts*





AREVA

AREVA Learning Solutions
REACTOR TRAINING CENTER

# Training catalogue 2017

## Design, operation, commissioning EPR

### SYSTEMA EPR Technology – 5 days

*This training provides the basic knowledge of principal systems of the EPR It is dedicated to a large public who need a global knowledge of the EPR.*

### ELECTRA EPR Technology – 4 days

*This training provides a good knowledge of EPR operation in case of normal and abnormal condition.*

### PHYSICA EPR Technology – 3 days

*This training provides a good knowledge of the physical phenomena during the accidental transients of the EPR reactor.*

### EPR Technology Advanced course – 5 days

*This training provides EPR reactor features.*
*It is dedicated to a large public who has a basic knowledge on PWR and interested by new build projects .*

### EPR Reactor Design & Operation – 30 days

*This training provides the large knowledge of the EPR. It is dedicated to design, safety and control engineers.*



AREVA

AREVA Learning Solutions
REACTOR TRAINING CENTER

# Training catalogue 2017

## Design, operation, commissioning EPR

### SYSTEMA EPR Technology – 5 days

*This training provides the basic knowledge of principal systems of the EPR It is dedicated to a large public who need a global knowledge of the EPR.*

### ELECTRA EPR Technology – 4 days

*This training provides a good knowledge of EPR operation in case of normal and abnormal condition.*

### PHYSICA EPR Technology – 3 days

*This training provides a good knowledge of the physical phenomena during the accidental transients of the EPR reactor.*

### EPR Technology Advanced course – 5 days

*This training provides EPR reactor features.*
*It is dedicated to a large public who has a basic knowledge on PWR and interested by new build projects .*

### EPR Reactor Design & Operation – 30 days

*This training provides the large knowledge of the EPR. It is dedicated to design, safety and control engineers.*



AREVA

AREVA Learning Solutions
REACTOR TRAINING CENTER

# Training customizations and developments

## To adapt current courses to customer's needs and specificities

- **EDF Energy**
  - **PHYSICA EPR Technology – 2016**

    *To take into account HPC project and EDF Energy special requests – Severe accident analysis*
- **SSM**
  - **EPR Technology - 2015**

    *2,5 days focused on EPR reactor technical specificities + 2,5 days of workshops animated by AREVA experts on specific topics*
- **ENGIE**
  - **Nuclear Training Program - Major 2014 - 2016**

    *2 X 3 weeks implemented by AREVA and ENGIE experts covering all aspects of nuclear industry*





AREVA

AREVA Learning Solutions
REACTOR TRAINING CENTER

# Training customizations and developments

**To propose learning solutions to customer's development objectives**

- **Vattenfall**
  - **EPR Technology Advanced course - 2013**
    *This training has been design according to Vattenfall's requirements .*
- **CNPE**
  - **Project Mangement knowledge program - 2013**
    *2 X 6 weeks sessions including experts presentations, case studies and site visits*
- **SEC**
  - **Nuclear power plant basics - 2015**
    *In partnership with EDF and EDF Energy: 10 trainers for 1000 trainees on 8 industrial sites in Saoudi Arabia*
- **Polish Universities**
  - **Fuel cycle training program - 2015**
    *In partnership with INSTN (refereed by I2EN) involvement of different AREVA experts in a 12week session including magisterial presentations, site visits and special training tools (virtual reality, simulators)*



AREVA