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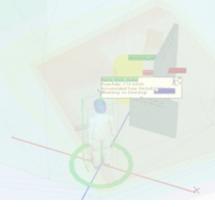## Innovative Online Course on Nuclear Decommissioning
30 November - 11 December 2020

What the participants thought about the course.

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1. **What were you looking to get from this course?** –

    To gain knowledge on the latest trends of software/ computer technologies in decommissioning

2. **Did the course content meet your expectations?** – *Yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** – *Yes*

4. **Was the training relevant to your needs and how?** –

    Yes, absolutely. There was a lot of interesting and modern technologies that helped me to present some procedures better. For example, how to reduce doses during any work.

5. **Was the mix of presentations and exercises suitable?** –

    Presentations were very informative and exercises were very interactive and interesting. This combination allowed me to get a complete information regarding using digital technologies in decommissioning

6. **Do you have any suggestions to improve this course?** –

    The only suggestion is to increase the time for a practical demonstration

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1. **What were you looking to get from this course?**

   – *To learn about innovative technologies and how they can be used in decommissioning*

2. **Did the course content meet your expectations?** *- yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *-yes*

4. **Was the training relevant to your needs and how?** The training was relevant to my needs. I got to know different technologies and their advantages and disadvantages and how they can be used in decommissioning.

5. **Was the mix of presentations and exercises suitable?** Yes, the mix brought variety and made the course very interesting.

6. **Do you have any suggestions to improve this course?** You did a great job in view of the corona circumstances, but I think the course would be even better face to face, e.g. you can try the training exercises by your own.

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1. **What were you looking to get from this course?**

   Inspirations for our own work, whether routine project works or pilot projects focused on utilization of new innovative, mainly digital technologies in nuclear decommissioning and waste management.

2. **Did the course content meet your expectations?** - *yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *yes*

4. **Was the training relevant to your needs and how?**

I know a lot about decommissioning and waste management, but I know very little about digital. But recently, most of my working time is centred around innovative digital technologies. In this course, I could see the wider context of the digital technologies and "siblings and cousins" of those applications tried and tested on our site. Thus the training was definitely relevant.

5. **Was the mix of presentations and exercises suitable?**

In my opinion, the more exercises the deeper is the learning impact. So I would aim for 50/50 split = have a presentation on the topic in the morning and the exercise on the same topic in the afternoon. The exercises should be first tested on the people who have not done it before. It is not easy to set up the exercise so that the learner understands the starting position. Examples: 1. building the excel sheet for the collective dose during drums A + B measurements should be preceded by showing and explaining the example spreadsheet for let's say radiometric check of a drum. 2. the rover dose measurements exercise should be preceded by a video of the rover going through a different room and acquiring the data which are then seen in the exercise.

6. **Do you have any suggestions to improve this course?**

The obvious one is to abandon the on-line MS Teams form which I believe you intend to do anyway. Although such suggestion is against the digital technologies spirit, the most frequent question during the course was "Can you hear me?" and impossibility to talk 1-2-1 with other participants really halves the value of the workshop. It was also precluded to try hands-on some of the presented digital technologies.

Try to avoid the lectures which are 100% decommissioning and 0% digital (this year it was the lecture on the transition period – in good quality, but not really relevant to the Digidecom theme.

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1. **What were you looking to get from this course?**

   To get an overview of issues, state-of-the-art techniques, real (business & operational cases) and strategies in D&D + ideas to develop D&D program of my company

2. **Did the course content meet your expectations?** Mostly yes

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *yes*

4. **Was the training relevant to your needs and how?** Yes thanks to the choice of topics right in the target, and the diversity of its. But in most of the presentations I still miss more figures of real applicability of the technologies (efficiency, costs/benefits analysis, details of implementation).

5. **Was the mix of presentations and exercises suitable?** Yes OK. Exercises in main Teams session were OK. Maybe less active participation, but less technical problems as well. In apart Teams in small groups we experienced more difficulties (difficulties to connect, to balance between sessions. no contact at all, or very low participation from some of the participants)

6. **Do you have any suggestions to improve this course?** See above. In order to get financing or to convince the licensees to use theses techniques, we need to be able to demonstrate that these techniques will lower the TCO or the risks. To do that we need more focus on the applicability.

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1. **What were you looking to get from this course?**

    Gaining new skills and knowledge about the new decommissioning technologies.

2. **Did the course content meet your expectations? - YES!! Thank you!**

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course? YES!! Much more than expected.**

4. **Was the training relevant to your needs and how? YES!! Thank you!**

5. **Was the mix of presentations and exercises suitable? YES!!**

6. **Do you have any suggestions to improve this course? It would have been much better to meet in person.**

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1. What were you looking to get from this course?

- To check research & market trend in application of innovative technologies to nuclear decommissioning

2. Did the course content meet your expectations? – Yes

3. Have the facilitator offered enough support (e-learning materials) to the learners before the course? – Yes

4. Was the training relevant to your needs and how?

- I'm participating research projects on robotics and AI applications in nuclear decommissioning, and this course fits my research interests well. I took a decommissioning course couple of years ago, which mostly covered conventional techniques for nuclear decommissioning. This course is way more focused on innovative technologies.

5. Was the mix of presentations and exercises suitable?

- I think the mix was good. It could have been better if we could try the tools like Vrdose, 3D simulations, etc. with either remote access to host organization's server or temporary local installations of the tools on my computer, though.

6. Do you have any suggestions to improve this course?

- Somehow, the group meeting in Microsoft Teams did not work well for me. I think simpler tools like zoom would be sufficient for the course.

- I had greater expectations on the presentation on AI (on the first day) but it didn't' meet my expectations; the presentation focused more on general information on AI than the application of AI to nuclear decommissioning.

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1. **What were you looking to get from this course?**

   – *I was looking to get a general view about decommissioning, and I meet people and companies that are working in this so interesting and exciting subject*

2. **Did the course content meet your expectations?** *- Yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *- Yes*

4. **Was the training relevant to your needs and how?** The training has been a lor relevant, because It has helped me to understand a lot concepts, as well as, know new subject and give me a new ideas for developing in my company

5. **Was the mix of presentations and exercises suitable?** From my point of view, yes the mix were suitable.

6. **Do you have any suggestions to improve this course?** I do not know, I consider myself very new in this subject and all days by my understand has been very suitable.

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1. **What were you looking to get from this course?**

Learn about European countries experience in digitalizing the process of decommissioning NPP

1. **Did the course content meet your expectations?** *yes*

2. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *yes*

4. **Was the training relevant to your needs and how?**

*I expected to see **more digitalization tool actually applied and used at various NPP***

4. **Was the mix of presentations and exercises suitable?** *yes*

4. **Do you have any suggestions to improve this course?** *no*

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1. **What were you looking to get from this course?**

   To gain knowledge how to use innovative technologies in decommissioning.

2. **Did the course content meet your expectations?** *- yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *yes*

4. **Was the training relevant to your needs and how?**

   Yes, the course was practical and informative. My interests and area of expertise are aligned with most of the presentations and training scenarios.

5. **Was the mix of presentations and exercises suitable?**

   Yes. I believe everyone is going to take away some good ideas and benefit from it in his/her job later on.

6. **Do you have any suggestions to improve this course?**

   F2F meeting would be preferred (time-zone issues). I think we still feel more comfortable in a "traditional classroom" situation.

DigiDecom ELINDER 2020 – Feedback Riccardo Tognin

1. **What were you looking to get from this course?**

    – *To learn about the use of innovative technologies in Nuclear Decommissioning*

2. **Did the course content meet your expectations?** *- YES*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *YES*

4. **Was the training relevant to your needs and how?** *The training was definitely relevant to my needs. My interests and area of expertise are aligned with most of the presentations and training scenarios.*

5. **Was the mix of presentations and exercises suitable?** *For my opinion it was suitable for a very broad range of expertise for different students. The strongest in Nuclear Decommissioning have a greater learning experience from the most digital courses while the Digital experts are definitely learning a lot about ND.*

4. **Do you have any suggestions to improve this course?** My suggestion is to give more space for QnA between sessions. Unfortunately it is very difficult to imagine which presentation will get more questions from the audience and there is also a risk to have long silences. Probably longer pauses and little breaks here and there could be possible by starting earlier in the mornings.

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1. **What were you looking to get from this course?**

   - Learn more about digital tools related to practical decommissioning

2. **Did the course content meet your expectations?**

   - Yes

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?**

   - Yes

4. **Was the training relevant to your needs and how?**

   - Yes, it gave me an insight in the upcoming technologies, and some of it will be considered in connection with the planning of decommissioning activities at the Halden reactor

5. **Was the mix of presentations and exercises suitable?**

   - The presentations worked well, but the exercises and demos could perhaps have been prioritized even more in small groups with more guidance

6. **Do you have any suggestions to improve this course?**

   - I liked the practical examples of using digitization and commercial use of robots, so maybe more of this

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Peggy Vander Henst
Belgium

1. **What were you looking to get from this course?** The latest innovations in nuclear decommissioning

2. **Did the course content meet your expectations?** *– more then yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *yes*

4. **Was the training relevant to your needs and how?** It was an eye-opener for what is already been used in nuclear decommission, outside Belgium

5. **Was the mix of presentations and exercises suitable?** Yes, maybe more exercises would be nice

6. **Do you have any suggestions to improve this course?** Gettng back to physical congresses when it's possible

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1. **What were you looking to get from this course?**

   To learn about several aspects of decommissioning

2. **Did the course content meet your expectations?** *- yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *yes*

4. **Was the training relevant to your needs and how?**

Yes, learing about different software and robotic tools will be usefull when our decomissioning reaches the point where such things will be purchased

5. **Was the mix of presentations and exercises suitable?**

Yes, i wished for a broad range of information which the course contained

6. **Do you have any suggestions to improve this course?**

Starting and finnishing earlier would be a lot more practical

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1. **What were you looking to get from this course?**

   – *Get inspired and learn new skills*

2. **Did the course content meet your expectations?** - Yes

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** - *Yes*

4. **Was the training relevant to your needs and how?** – In my department we maintain equipment and offer technical support to other departments. Therefor I found a lot of the presentations very interesting. Especially learning about technics for radiation planning, robotics and digitals twins.

5. **Was the mix of presentations and exercises suitable?** – I would have liked if there had been more exercises.

6. **Do you have any suggestions to improve this course?** – I would have preferred if the online course days could have been in shorter bulks, maximum 2-3 hours. Its hard to remember a lot of stuff from the presentations. The great philosopher Confucius wrote: "I hear and I forget. I see and I remember. I do and I understand".

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1. **What were you looking to get from this course?**

   Get information from developers and adopters of robotics and VR in decommissioning to current state-of-art of technology and to experience and performance.

2. **Did the course content meet your expectations?** *- yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *yes*

4. **Was the training relevant to your needs and how?**
   The radiation protection trainings were impressive in pointing out how to systematically improve and rethink existing dose plannings. The 3-D scenarios helped to get a better understanding of the scene and playing multiple scenarios enabled the judgement for optimization decisions.

5. **Was the mix of presentations and exercises suitable?**
   In my opinion we have encountered a balanced mix of well-focussed lessons and in-depth trainings that pin-pointed the overall message of the lesson.

6. **Do you have any suggestions to improve this course?**
   Despite the current crisis, this course has been highly interactive and has brought together motivated experts and participants. If the courses would remain online, one might consider dedicated online education platforms like BigBlueButton, Moodle or OLAT to further enhance the user experience over MS Teams.

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1. **What were you looking to get from this course?**

    I wanted to gain a practical perspective of the current practices and the challenges in the nuclear industry so that I could better target my PhD research towards things which would be practically useful.

2. **Did the course content meet your expectations?** - *Yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *Yes*

4. **Was the training relevant to your needs and how?**

    Yes, the discussions between representatives from various organisations was very useful in gaining an appreciation of the attitudes towards new technologies in the industry. The technical introductions of various technologies was useful to see the features that organisations value the most.

5. **Was the mix of presentations and exercises suitable?**

    Yes, I thought they showed good applications of work planning and VR, particularly those that showed scenarios where the optimum decisions couldn't be immediately guessed.

4. **Do you have any suggestions to improve this course?**

    Perhaps the ability to download some demo software for first-hand use but I understand this could be time consuming to answer everyone's questions online. I think given the need for everything to be online this year it has gone smoothly enough whilst still having an interactive element.

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1. **What were you looking to get from this course?**

   To better understand where we are with digital supporting technologies and to get some ideas where we should go further.

2. **Did the course content meet your expectations?** *- Yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *yes*

4. **Was the training relevant to your needs and how?**

Training was focused on the areas which are mostly out of my competence but I found it interesting in general.

4. **Was the mix of presentations and exercises suitable?**

Yes, the combination of theory and practice work looks very good solution

4. **Do you have any suggestions to improve this course?**

Might be good to add some time gaps between lectures for round table discussions. Not everyone could be happy to spent own lunch time for that ☺

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1. **What were you looking to get from this course?**

Getting innovative experience in decommissioning and practical examples for implementation on the LNPP. Also get some practical experience in decommission work planning.

1. **Did the course content meet your expectations?** *- YES*

2. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *YES*

4. **Was the training relevant to your needs and how?** Yes it was. Best practices and new technologies are always highly needed for decommission engineer. Also we're thinking about 3D model with radiological characterization for our decommissioning design.

5. **Was the mix of presentations and exercises suitable?** Yes, it was. They've been logically grouped. Sometimes the results of the exercises were quite unexpected. That's interesting.

6. **Do you have any suggestions to improve this course?** I had some technical issues with my PC and gadgets. Maybe in some cases the «classical» seminar is more easy for someone like me ☺

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1. **What were you looking to get from this course?**

   – one sentence, can be the same that you mentioned on your first one-slider

2. **Did the course content meet your expectations?** *- please answer yes/no*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *please answer yes/no*

4. **Was the training relevant to your needs and how?**

5. **Was the mix of presentations and exercises suitable?**

4. **Do you have any suggestions to improve this course?**

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1. **What were you looking to get from this course?**

   I wanted to get up-to-date information related to the decommissioning technologies

2. **Did the course content meet your expectations?** – *Yes, definitely*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** - *Yes*

4. **Was the training relevant to your needs and how?**

   I've obtained a lot of suitable knowledge. It will take me several weeks to study them.

4. **Was the mix of presentations and exercises suitable?**

   Yes. Especially the use of the VR for radiation environment planning and online demonstration.

   There were a wonderful presentation of the Florida University related to the use of robotics too.

4. **Do you have any suggestions to improve this course?**

   I find it useful to add some information regarding to the dismantling technologies for high-activated equipment. Also the ensuring of the radiological protection and planning of the dismantling and decontamination stations placements is very important.

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1. **What were you looking to get from this course?**

   – A better understanding of the science going on around nuclear decommissioning and especially digitalization.

2. **Did the course content meet your expectations?** *- yes*

3. **Have the facilitator offered enough support (e-learning materials) to the learners before the course?** *- yes*

4. **Was the training relevant to your needs and how?**
   - Relevant in the way that we are planning our decommissioning work and we need good tools for this.

5. **Was the mix of presentations and exercises suitable?**
   - OK

6. **Do you have any suggestions to improve this course?**
   - The lecturers are very good, think the exercises will be better live.