

World Nuclear University Summer Institute

Alumni Survey
Report 2019

The WNU Summer Institute provides future leaders of the nuclear industry with lifelong learning and networking opportunities in a truly international and dynamic environment. The WNU maintains a focus on continuous improvement of the Summer Institute, facilitated by a robust feedback system. The Alumni Survey 2005-2013 was one element of this feedback system, which provided valuable insight into the long-term impact of the Summer Institute with quantifiable measures of success of the programme. The Alumni Survey 2005-2018 is the second instalment of this survey, encompassing the feedback of Alumni from every year of the Summer Institute. It is interesting to draw comparisons between the two surveys, but what is startling is the consistency of the data, demonstrating in quantitative and qualitative ways the benefits of the Summer Institute long after Alumni have completed the programme. We are very grateful to Alina Constantin and Sarah Cullen for the research survey analysis and elaboration of this report and we are excited to share our findings with you.

Patricia Wieland, Head of World Nuclear University

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World Nuclear University Summer Institute

Participating in the WNU-SI was a wonderful opportunity, and I can't overstate how important it was from a career development perspective. Among the several courses, technical meetings and other learning activities that I was able to take part in, WNU-SI was unique in both breadth and depth of content, in technical aspects and in career / leadership development. The social part was invaluable as well, being able to meet people with diverse backgrounds and from several parts of the world. It had a very positive impact on my career, allowing me to define and focus on short and long-term objectives, and giving me many useful tools to reach them."

(WNU SI 2012 Fellow – survey respondent)

WNU Alumni Survey Report 2019

The World Nuclear University periodically conducts surveys with the Summer Institute Alumni, aiming to assess qualitatively the impact the programme had on their career progress and also to find any suggestions to shape the curriculum and training methodologies according to the most recent developments in the nuclear industry. The respondents undertook the survey voluntarily.

From March to October 2019, 156 respondents representing Alumni from 2005 to 2018 undertook the survey. The proportion of respondents who received IAEA funding to attend the Summer Institute was roughly the same as the proportion of Fellows attending the Summer Institute with IAEA funding each year. The answers were collected from participants representing each year of attendance (Figure 1), and with a good geographical and gender representation.

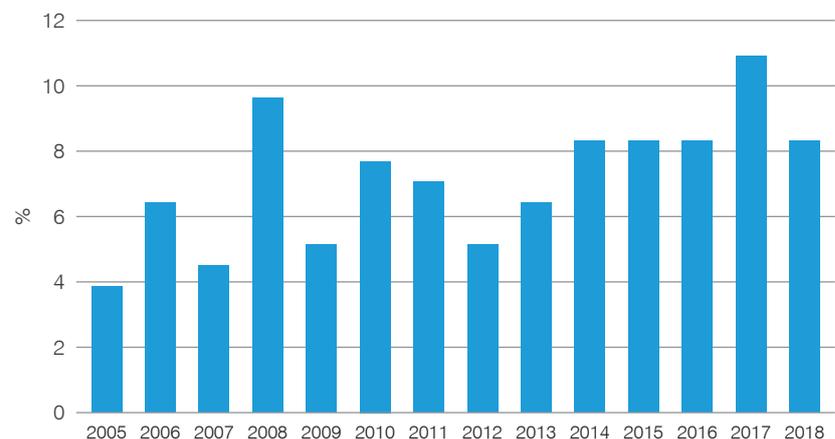


Figure 1. Percentage of Alumni from each year that undertook the survey in 2019

94%
capitalized on
their improved
understanding
of nuclear topics

The survey comprised of 23 questions using a mixture of multiple choice and open text options. For consistency, these were based on the previous core structure used for the survey in 2014.

In general, the survey findings were comparable with the results of the 2014 survey, with the exception of a number of improvements. Every participant benefits in a different way based on their unique profile, life experience, and career stage. This is well illustrated by the variety of answers collected.

Improved of understanding of nuclear topics

94% respondents acknowledged an improvement in their understanding of a wide spectrum of nuclear topics after the Summer Institute and confirmed they were able to capitalize on this gain in knowledge in their organizations.

One of the most acknowledged benefits was of learning from peers with various backgrounds and coming from different cultures, with different experiences in the nuclear industry.

There was a particular highlight given to the information obtained on the economic aspects of electricity production, as well as the leadership advice and a broad understanding of nuclear industry from an international perspective. The accrued knowledge about different reactor types, culture of reactor operation in other countries, transportation of nuclear materials, the use of nuclear technology in other industries outside power generation and the public perception on nuclear technology was also found most useful by the participants. The regular presentation of news stories from the World Nuclear News - which is completed on a daily basis during the Summer Institute - was acknowledged as a complementary source of information.

Another aspect highlighted in the respondents' answers was the wide variety of nuclear topics covered, enhancing their overall perspective on nuclear science and technology, including the social, economic and environmental context and enabling the Fellows to gain significant early career exposure to the international industry framework and global talent. They found the knowledge acquired useful not only for them but also for their colleagues. Shared experiences from other countries allowed the Fellows to understand the global view on certain issues in the nuclear industry and facilitate a better alignment with the current trends of the industry when making decisions. It was also pointed out that the facility visits had reinforced knowledge and understanding of nuclear matters and the teamwork aspects of the programme helped in creating strong connections among the Fellows that are kept alive over years.

“The icing on the cake was the quality of distinguished lecturers and guidance we had from the accomplished persons and mentors. The group exercises and social events had created strong bonds among us. I still communicate with a lot of former fellows and they have been great both socially and professionally. Most importantly, the WNU-SI has kept me working in the nuclear industry. Before my participation in the program, I wanted to change career from the nuclear industry. However, the program made me change my decision.” emphasized in his answer Abubakar Bashir BABA (WNU SI 2008).

The respondents mentioned various ways the lecturers and mentors impacted their development, including delivering personal examples of being motivated, professional and ready to cooperate; being inspirational technically and personally; offering very helpful feedback and valuable insights on how to be an effective leader; deepening the understanding of nuclear topics and guiding on how to lead discussions; providing new perspectives and aiding in critical thinking and analysis; strengthening the questioning attitude and teamwork capabilities; supplementing discussions with real experiences and encouraging the Fellows to continue to strive for excellence. *“The mentors were great influencers and have been available outside of the SI for any questions we had.”* Brady Balicki (WNU SI 2015).

New knowledge, skills and attitudes

“The knowledge acquired has also increased my strategic thinking abilities, emotional intelligence, analytical abilities, communication skills, teamwork, love for nuclear energy, safety culture, security culture and leadership abilities. I am a better nuclear regulator now and I have been helping in strengthening the Nigerian nuclear safety, security and safeguards regimes in many ways... The WNU-SI has been the best programme I have ever attended.”

Abubakar Bashir BABA (WNU SI 2008)

The objective of fostering new skills and attitudes is at the core of the Summer Institute, and is what sets it apart from the great number of professional development programmes which solely focus on knowledge transfer. 59% of respondents reported that they transformed or developed new skills and attitudes as a result of their attendance, which demonstrates that this objective is being met. This is in addition to meeting the knowledge transfer objective of the programme, as shown in Figure 2.

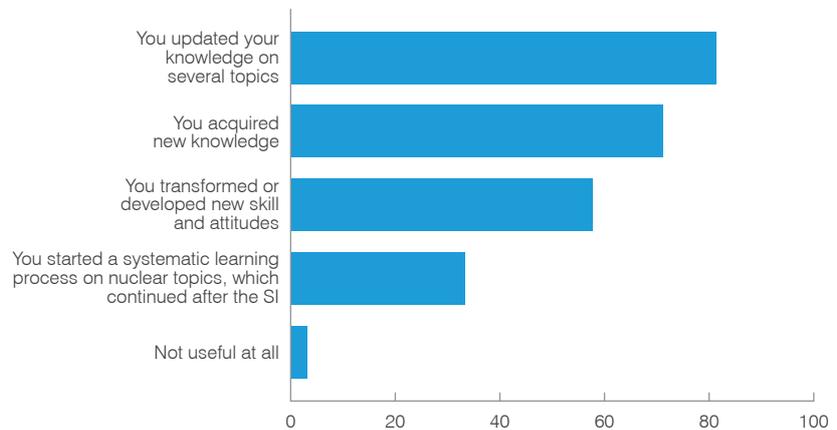


Figure 2. Assessment of the technical content

The non-technical knowledge acquired was emphasized as well by several Alumni: *“Definitely you acquire new knowledge though not necessarily technical. Issues such as climate change open new areas for discussion and self-analysis”* Emilio Bobo (WNU SI 2006).

A questioning attitude is reinforced and encouraged in many discussions and lectures during the Summer Institute and one of the respondents specifically mentioned the added value of such approach: *“The new knowledge that I acquired was questioning attitude. It made me possible to think more deeply and widely and communicate with co-workers carefully.”* Toshihiro Yoshii (WNU SI 2013). The Summer Institute also nurtured a continuous systematic learning process, as highlighted in one of the answers: *“The global vision of the industry that I acquired is really up to date. The new skills and attitude that I developed have to do with leadership and safety culture. I already had a systematic learning process, but WNU fostered it.”* Hector Lestani (WNU SI 2018).

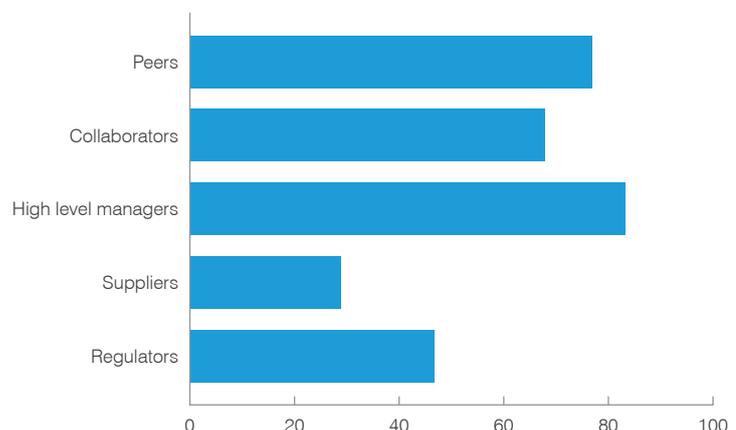


Figure 3. Improvement in communication with peers, collaborators, high level managers, suppliers and regulators after attending the Summer Institute

The responses shown in Figure 3 demonstrate the Alumni's improved confidence and effectiveness in communication, both internal and external to their companies. Over the last few years, WNU has expanded course content related to regulation and supply in the Summer Institute, and has increased the participation of experts in these fields as faculty. Interesting to note is that in 2014 39% of 2005-2013 Alumni stated that they saw an increase in capacity to communicate with regulators. However, in the 2019 survey, 51% of 2005-2013 Alumni attributed the Summer Institute with their increased capacity to communicate with regulators, which is fundamental for the licensing process. This further shows how benefits of the Summer Institute are seen in different career stages for different individuals.

Generally, every participant acknowledged the positive impact of being part of a powerful and extremely valuable network of nuclear professionals from diverse backgrounds not only professionally, but on the personal level as well. After another 10-15 years, it will be even more valuable as more and more leadership positions in the nuclear sector worldwide will be filled by WNU Alumni. For many Alumni, the Summer Institute bore weight when attaining a promotion in work to become a manager, and their potential and confidence as a leader grew following their attendance of the Summer Institute. They boosted their confidence in taking on more and bigger responsibilities. For some of them, it strengthened the motivation to work in the nuclear sector and help the nuclear power to become our main source of clean electricity. For others, their participation and involvement helped them in securing their position or motivated them to pursue a more formal leadership position in their organization. They learned how to profile better as an asset for the organization.

Participation in the Summer Institute was acknowledged to be a good opportunity to improve communication skills, be involved with international nuclear energy issues, and work with representatives from all over the world. Besides helping the Fellows to learn and enhance skills such as networking and leadership, the Summer Institute brings more understanding about various cultures and perspectives on nuclear. Team work capabilities in an international environment are considerably enhanced. The real practice the programme gives in negotiating and collaborating with individuals of other cultures is unmatched by other training.

78%
obtained a
promotion

Professional advancement

78% obtained a promotion in their career after the Summer Institute, 98% of whom directly attributed their promotion to their attendance of the Summer Institute. Impressively, 66% of respondents with IAEA funding - who attended the Summer Institute without the financial backing of their company - obtained a promotion when they returned to work – which is testament to the practical professional applications of the skills, attitudes, and knowledge gained through participation in the programme.

From the participants that answered they did not receive a promotion, many of them acknowledged the increase in their responsibilities after attending the Summer Institute: *“Even though I have not been promoted, I have been asked to take part in many national level activities related to nuclear technology. I have become a member of the National Nuclear Power Committee and will work towards the introduction and implementation of nuclear technology in Sri Lanka”*, mentioned Nirodha Ranasinghe (WNU SI 2018).

Fellows benefitted in various other indirect ways after attending the programme: the participation in the Summer Institute weighted when taking a new position in another company - *“I did not get a promotion necessarily, however my participation in SI-2017 made a difference to get a position in SCK-CEN in Belgium as a researcher.”*, was emphasized by Giovanni Conturbia (WNU SI 2017). Some were transferred overseas for representing the company, like happened for Naoto Yagi (WNU SI 2016) - *“While it does not directly mean a promotion, I am transferred to the company’s London office which requires a broad understanding of nuclear industry in Europe. There was no agreed career plan before the SI”*. Some received an increase in compensation due to improved performance, as stated by Catherine Kathambi Kianji (WNU SI 2016): *“No promotion but I got an annual pay increment due to improved performance and was also given additional responsibility”*.

Not only did the responsibilities of the participants increase, but some of them specifically acknowledged their willingness for undertaking more challenging tasks and getting involved in more complex projects after attending the Summer Institute: *“...with having a variety of experiences in SI, I knew the importance and power of the great leadership which made peers and staff happy and productive. And I got a promotion.”* Sang-il Ahn (WNU SI 2014).

Some of those promoted had not discussed a career plan with their management prior to the participation in the programme: *“Now I am the CEO and there was no clear plan discussed prior to the SI”*, said Justice Chipuru (WNU SI 2013). Several participants specifically mentioned

97%
had professional
advancement

their involvement in major projects in their organizations: *“Two years after SI I became the SMR team leader, I was involved in communication with vendors, I was also a project manager to develop a feasibility study to build SMR in Jordan.”* Mohammad Rababah (WNU SI 2015).

97% answered yes when asked whether the Summer Institute contributed to their professional advancement. The benefits they specifically identified included promotion to a managerial or supervision role; gaining a deeper knowledge on the global nuclear industry; becoming more self-confident and improving leadership and communication skills; understanding different perspective on nuclear matters; gaining access to a valuable network of highly skilled professionals; new career opportunities; and improved teamwork skills.

When asked about positive consequences of attending the Summer Institute, 88% found various benefits in their work when they returned to their organizations. The following benefits were mentioned: becoming more knowledgeable on nuclear topics and leadership behaviours, increasing contact with top professionals, improving self-confidence, opening up international channels of collaboration, having increased international exposure to the nuclear industry, improving coordination skills and communication with peers and high-level managers. *“As a leader I am better able to lead and inspire my team. The extra knowledge and awareness I have from attending the SI gives me resources to draw on when I encounter a difficult situation or scenario.”* (Dermot O’Loughlin, WNU SI 2016)

Increased motivation and effectiveness

“I was so enthusiastic to return to work after the Summer Institute. I wanted to share all my new knowledge with everyone!” said Nicole Jackson, WNU SI 2007.

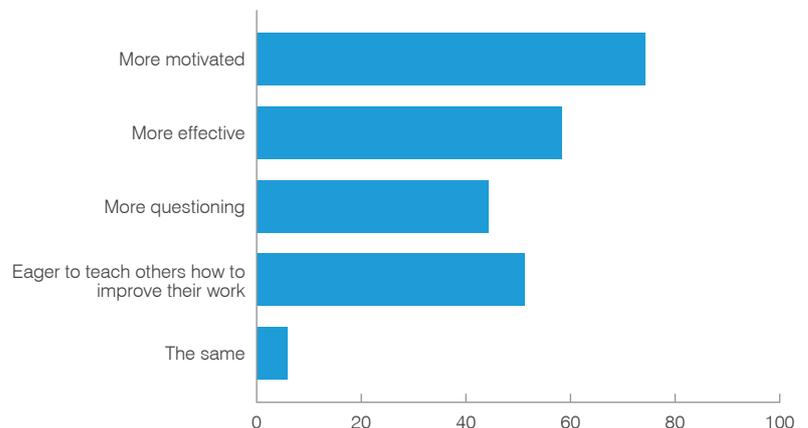


Figure 4. Self-evaluation after attending the Summer Institute.

75%
Fellows
supported by
IAEA said SI
networking
added value to
their careers

"All of the above checked apply in my case as we truly cultivated the attitude and focused on becoming better leaders during the SI. Mentors had a very important role in creating the proper environment during SI for becoming more motivated, more effective and questioning and also seeing yourself in comparison with the other peers - very bright professionals made myself wanting to target higher and higher. As I gained very important advice, memorable to the present, and learning experience from all my Fellows and mentors, I am eager to pass further the value and teach others, or at least, stimulate reflection on how to improve their work.", mentioned Alina Constantin (WNU SI 2014).

Moreover, the majority of respondents found themselves:

- more open to new professional relationships: 91%;
- more confident in the work done: 83%;
- maintaining the enthusiasm for continuous learning over a wide range of topic areas: 94%;
- having an increased capacity to analyze, synthesize and understand what is observed in the global nuclear area: 85%;
- more able to anticipate how changes in the external environment would affect their work: 79%.

Networking and collaboration opportunities

65% of respondents agreed that networking with former Summer Institute Fellows and Faculty added value to their career. This is an improvement on the 55% of Alumni who saw added value to their career from their Summer Institute Alumni network in the 2014 survey. The wide network created during the Summer Institute proved to be valuable through keeping the motivation of the Alumni and facilitating cooperation and exchange of information, as well as sharing ideas and knowledge. Alumni who were funded by the IAEA have particularly and consistently benefitted from their network; with 75% saying they saw added value in 2019 and 73% agreeing in 2014 report.

"I met many interesting people during SI, who will be my friends for life. And also I have met people, working on similar positions in other NPPs, and we exchange information about how are the things organized in different NPPs, which is really useful in daily work." said Stilyana Mladenova, WNU SI 2018

The discussions on the integration of nuclear and renewables in the energy mix, which was expanded upon during a dedicated Network for Nuclear Innovation project, drove one of the Alumni continue to work on this particular topic beyond the Summer Institute, and is now one of the core member of the Japanese committee that studies climate change: *"When I participated in the SI, I did not have enough knowledge*

concerning a harmonization of nuclear and renewable energies. The NNI led me to tackle this issue, and now I'm a core member of the committee in Japan which treats to solve global warming issue." Akihiro Ide (WNU SI 2017).

The connections made during the programme provided the participants with the opportunity to collaborate in international research projects and gain more visibility in the field. The interactions and inspiration gained from the invited leaders, lecturers, mentors and the other Fellows were found to be truly career changing and a motivation for excellency.

The Summer Institute provided experience and connections that helped Fellows to reach their professional goals, at times when the local environment was not motivating enough for them.

What's next for the WNU SI?

The nuclear energy sector is quickly developing across the globe, and new countries are taking part in this development. New technologies are coming on-line at an impressive rate, and WNU is committed to tracking these changes and trends with a global coverage.

The Summer Institute Alumni survey provides an opportunity for those within the industry to identify the forms of technology competence and key skills valued by employers. This enables the Summer Institute to have the most up-to-date material, training Fellows in critical skills which adapt to fit the needs of the industry. Through the survey, we see a large growing demand for strong emotional intelligence, leadership and social influence skills, as well as service orientation. We also see extensive evidence of an accelerated demand for a variety of new functions related to understanding and leveraging emerging technologies. We are entering the 4th industrial revolution, defined by new technologies such as Artificial Intelligence, blockchain, machine learning, and internet of things, which increase the ties between the physical and digital worlds. The Summer Institute is responding to these changing needs of the industry and is updating the content to reflect relevant emerging technologies.

WNU is using the results of the 2019 survey to identify areas to improve upon, as was done in 2014. WNU anticipates that the progress made will similarly be reflected in the next Alumni Survey. Adaptability and self-education are increasingly important qualities of those in the nuclear industry. 33% of respondents said that the technical content of the Summer Institute spurred them to begin a systematic learning process beyond the programme. WNU is revising course content to improve this response.

The WNU has acted on the 2014 Alumni survey, in particular in the area of improving Alumni's capacity to communicate with regulators and suppliers. An emphasis on learning about regulators was added to the programme, and faculty, including mentors, with extensive regulatory experience were hand-picked to enhance this aspect of the Summer Institute.

Following the first Alumni Survey, a Programme Committee was developed. So far, it has been instrumental to implementing positive changes to the Summer Institute programme, especially on updating the reference material to the different SI modules. There are plans to expand the Programme Committee to further capitalize the valuable advice it generates.

As noted by many of the Alumni, an important aspect of the Summer Institute is the great opportunity for networking it affords participants. We plan to further expand this opportunity by providing Alumni with a new platform for collaboration on Network for Nuclear Innovation projects during the Summer Institute. This inclusive platform will remain open to all Alumni from all years of attendance, and will encourage diversity, professional collaboration and discussion on topics of importance to the industry.

We also are excited to announce the new WNU website, which focuses on user-experience to encourage prospective Fellows and Alumni alike to engage with the content available through it. We expect that the newly introduced Buzz – a hub where WNU can post relevant updates, and where Alumni and experts can share industry insights and developments– will be of great use.

Overall, the competencies obtained during Summer Institute better equip the Fellows to be successful in their current and future roles and to raise awareness of industry issues at their organizations. The thoughts collected from Alumni reflect all of the above mentioned, giving the Summer Institute the well-deserved reputation as a programme tailored to train the nuclear industry's best.

WNU Summer Institute Alumni quotes



"A positive consequence in my work due to the participation in the SI was understanding of global interactions and capability to structure organizations on a much broader cross national basis. My career progression and promotions as follows - principal Engineer 2007 - Manager 2009 - acting director 2012 - Director 2013 - Vice President 2015 (various positions from 2015 to 2018) - Global Chief Engineering services Officer 2019 (SVP)."

Luca ORIANI (WNU SI 2005). Global Chief Engineering Services Officer and Senior Vice President at Westinghouse Electric Company



"After WNU SI 2006, in 2007 I was admitted to the doctoral program at the KTH Royal Institute of Technology, Stockholm. I have worked there since."

Viet-Anh PHUNG (WNU SI 2006)
PhD | Reactor Safety Analysis | Machine Learning | Data Analysis | Project Management



"Within a year of my attendance, I was promoted to supervisor of my group. In my opinion, my selection to attend SI highlighted my work background and helped me gain the position."

Nicole JACKSON (WNU SI 2007)
Assistant to the Regulatory Affairs Vice President at Southern Nuclear



"Shortly after attending the Summer Institute, I became the Head of Fuel Technology at OKG NPP and then Technical Advisor on Nuclear Technology at Vattenfall."

I had significant use of the contacts I made during the WNI-SI (and still keep in touch with quite a few of them regularly) in my normal work as I was responsible for the front-end business for OKG. Knowing persons that work at our suppliers were really helpful and I met several follow Alumni during business meetings the following years. I still contact Alumni every now and then when I have some questions."

Alexander LINDQVIST (WNU SI 2008)
Manager Encapsulation Technology, SKB



"From WNU Summer Institute I got experience and friends that helped me reach my goal of getting the PhD in physics, at times when the local environment could not motivate me. Thus I consider WNU a very important part of my life."

Kadri ISAKAR (WNU SI 2009)
Technical Writer at Glia



"Since attending WNU-SI in 2010 I have gone from a Design Engineer, to the Executive Assistant to the EVP & CNO (Chief Nuclear Officer), to the Dept. Manager of Business Planning, to my current role."

Attending the SI definitely helped me to learn more about the broader nuclear industry; and helped me to learn and enhance skills such as networking, leadership, and understanding more about various cultures and perspectives on nuclear. My experience there gave me the knowledge, and the confidence, to move up the management ranks."

Lee-Anne EDMUNDS (WNU SI 2010)
Department Manager, Special Projects at Bruce Power



"After WNU Summer Institute, I got involved in many more interesting projects with IAEA and Euroatom. Our university's top management respects WNU SI experience and appoints me to important projects."

The second impact is improving English language (especially understanding and speaking). This is important as our university introduces lectures in English and I can participate in IAEA activities abroad."

Evgeny KULIKOV (WNU SI 2011)
Senior Lecturer at National Research Nuclear University MEPHI



"Before WNU SI I was just a scientist in Ukraine but after I became a scientist with international reputation and expert in my field."

Svitlana ALYOKHINA (WNU SI 2012)
Senior Scientific Researcher at Ukrainian A.N. Podgorny Institute



"The Summer Institute becomes more relevant because it is designed for the industry compared to generic programs."

Justice CHIPURU (WNU SI 2013)
CEO Radiation Protection Authority of Zimbabwe



"I have received a promotion since attending WNU. Primarily it was a title change while maintaining the same managerial responsibilities, but it is considered to be a faculty-equivalent position that allows me to be the Principal Investigator on grant projects."

Separate from any sort of career progress, I can definitely report that I'm more capable in my position than I would have been had I not attended WNU. I have a much stronger understanding of Nuclear Safety Culture, have been able to collaborate in an international research project through a WNU contact, and am exploring others."

Jerry NEWHOUSE (WNU SI 2014)
Associate Director at Texas A&M University



"Two years after SI I became the SMR team leader, I was involved in communication with vendors, I was also a project manager to develop a feasibility study to build SMR in Jordan."

Mohammad RABABAH (WNU SI 2015)
Project Manager - CORDEL - WNA



"Above all, the key contribution that WNU SI had on me is the respect one earns by being there for other fellows, hence being there for the industry in general.

Some of my beliefs in leadership got reinforced during group discussions and listening to the experiences of industry leaders, hence WNU SI becomes a driver for quality.

Networking with fellow industry professionals is a lifetime of opportunities, friendship and fun, hence WNU SI forms a pathway for the future."

Nirmal GNANAPRAGASAM (WNU SI 2016)
Senior Process and Modelling Scientist at CNL



"When I participated in the SI, I did not have enough knowledge concerning harmonization of nuclear and renewable energies. The Network for Nuclear Innovation led me to tackle this issue, and now I'm a core member of the committee in Japan which treats to solve global warming issue."

Akihiro IDE (WNU SI 2017)
System Engineer at Mitsubishi Heavy Industries



"I am more open-minded now and I try to transfer the motivation to my coworkers. We were very self-concentrated, in our company, in our country, even in our department. The nuclear field is not so small, we could exchange information and ideas with other people around the globe. And also we are the people, that could lead the public opinion and we should work on it, otherwise it could go on a wrong direction.

I am really thankful to my mentors, because they believed in me and gave me self-confidence, which is very important."

Stilyana MLADENOVA (WNU SI 2018)
Head of Nuclear Safety Department at Kozloduy NPP

WNU Summer Institute locations

2005: Idaho Falls, US

2006: Stockholm, Sweden

2007: Daejeon, Korea

2008: Ottawa, Canada

2009 - 2014: Oxford, UK

2015: Uppsala, Sweden

2016: Ottawa, Canada

2017: Uppsala, Sweden

2018: Busan and Gyeongju, Korea

2019: Romania and Switzerland

2020: Kobe and Fukushima, Japan

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