



Deliverable 13.3: Alignment of the available courses with the Roadmap.

Work Package 13

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Executive Summary

In March 2020, WP13 launched a ‘Survey on training initiatives’ in order to get a overview of the training needs as well as the existing training courses in the field of Radioactive Waste Management (RWM) within the EURAD community. The results of this survey were summarised in D13.1 - List of training needs from Research, Development and Demonstration and Strategic Studies Work Packages [1].

Additionally, WP13 performed a mapping of currently existing available course courses in the field of RWM. To do so, various sources were sought, including previous EURATOM Framework Programmes (FP) and other initiatives developed by the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency (OECD-NEA). Courses found were identified, analysed and summarized in deliverable D13.2 - Mapping of available course materials [2]. The complete set of courses is collected in a database and is included in the portfolio of European RWM courses.

In this report, a new analysis of the courses’ portfolio has been done with inclusion of new descriptors linked to the EURAD Roadmap D1.7 Roadmap extended with Competence Matrix [3]. The new portfolio of (historical and ongoing) courses substitutes the previous portfolio [Appendix]. The identified courses and the EURAD Roadmap have been aligned with the seven EURAD themes and is presented in the appendixes B-H in this report.

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Glossary and abbreviations

Term	Description
Community of Practice (CoP)	A voluntary group of peer practitioners who share lessons learnt methods, and best practices in a given discipline or for specialized work. The term also refers to a network of people who work on similar processes or in similar disciplines, and who come together to develop and share their knowledge in that field for the benefit of both themselves and their and other organization(s).
Concept Maps	Tools for organizing and representing knowledge.
Content	The interactive and non-interactive object containing information represented by text, image, video, sound or other media.
Content Management	The processes and workflows involved in organizing, categorizing and structuring information resources so that they can be stored, published and reused in multiple ways.
Critical Knowledge	Critical knowledge refers to the specific information, skills, and expertise that are essential to the success of an organization or individual in a particular field or industry. It is the knowledge that is crucial for achieving key objectives, solving complex problems, and making critical decisions. When this essential knowledge is at risk of being lost, it becomes critical.
CZ	Czech Republic
Document Management	Systems and processes for managing documents including the creation, editing, production, storage, indexing and disposal of documents. This often refers to electronic documents and uses specific document management software.
Domain	An area of activity, interest, or knowledge, especially one that a particular person, organization etc. deals with. It represents the lowest level of the EURAD Roadmap Goals Breakdown Structure.
Domain Insight Documents	Context documents that provide direct links for each knowledge domain to safety and implementation goals related to RWM requirements.
EN	English
EURAD	European Joint Programme on Radioactive Waste Management
EURAD	The European Joint Programme on Radioactive Waste Management (EURAD). Also referred to as the 'Joint Programme'.
Expert	Someone widely recognized as a reliable source of knowledge, technique or skill whose faculty for judging or deciding rightly, justly, or wisely is accorded authority and status by their peers or the public in a specific well-distinguished domain.
FN	Finnish
FP	Framework Programme
FR	French
FTF	Face-to-Face (physical presence)
Glossary	A glossary is a list of specialized terms and their definitions used in a particular field or text.

Goal Breakdown Structure (GBS)	The EURAD goals breakdown structure is a thematic breakdown of knowledge and generic activities essential for radioactive waste management. It comprises Themes (Level 1), Sub- themes (Level 2) and Domains (Level 3), each formulated as goals. Although hierarchical and numbered, the knowledge and activities presented across the GBS should be considered collectively with no weighting to order of importance. Rather it is emphasised that there are many inter-dependencies and linked data across the GBS, where knowledge and activities can be centred in different ways, depending on the end user role and precise boundary conditions of the RWM programme to which the roadmap is applied.
GR	German
IAEA	International Atomic Energy Agency
Information Management	The management of an organization’s information resources with the aim of improving the performance of the organization. Information management underpins knowledge management, as knowledge is derived from information.
Information Transfer Policy	The information transfer policy means that information and information assets will be transmitted between departments, service providers, private entities, and individuals. Information is transported through several media and methods in both electronic and paper formats.
IRSN	Institute for Radiation Protection and Nuclear Safety
JP	Japanese
Knowledge	Knowledge is the acquisition, understanding and interpretation of information. It is often used to refer to bodies of facts and principles accumulated by humankind over the course of time. Knowledge and information each consists of true statements, but knowledge serves a purpose: knowledge confers a capacity for effective action.
Knowledge Ambassador	Knowledge Ambassador is a person which plays an active role in supporting knowledge sharing and effective integration of knowledge management strategies in WPs.
Knowledge Base	A knowledge base is a collection of knowledge in the form of subject-problem-solution information that pertains to a specific topic or subject of interest. A knowledge base is a special kind of database for knowledge management.
Knowledge Management (KM)	An integrated, systematic approach of identifying, managing and sharing an organization’s knowledge and enabling groups of people to create new knowledge collectively to help in achieving the organization’s objectives.
Knowledge Management System (KMS)	Knowledge Management System (KMS) is a system for applying and using knowledge management principles to typically enable to create, share and find relevant information & knowledge quickly.
Knowledge Preservation	A process of maintaining an organizational system of knowledge and capabilities that preserves and stores perceptions, actions and experiences over time and secures the possibility of recall for the future.

Metadata	Descriptors which define and describe the data and the circumstances of their creation (date, persons, locations, institutions, treaties, liabilities, storages, access modes etc.)
Ontology	A formal specification of a shared conceptualization of a domain of knowledge. An ontology defines a set of concepts and categories, as well as the relationships between them, and can be used to facilitate communication and knowledge sharing within a particular domain. .
Portal	A portal is a tool to integrate many existing systems within an organization as well as to provide a solid platform to develop other knowledge management initiatives, enhancing the efficiency of communication and of organizational processes. A portal greatly facilitates the production, accessibility, sharing and effective use of valuable information. It also guarantees generation and usage of information at different times or across different locations and teams.
Portal-Knowledge Management System (p-KMS)	Portal-KMS is a comprehensive access structure to resources that are suitable to support the fundamental activities of knowledge management to communicate, study and do research.
Radioactive Waste Management (RWM)	All activities, administrative and operational, that are involved in the handling, pre-treatment, treatment, conditioning, transport, storage and disposal of radioactive waste.
RE	Research Entities
Roadmap	A generic RWM framework to organise different typical scientific and technical domains and sub-domains in a logical manner against different phases of a RWM programme.
RS	Russian
RWM	Radioactive Waste Management
Self-activity tracking	Self-activity tracking is a process of tracking, collecting, and analyzing by users' they behavior on websites, apps, or devices. It track self-activity on the website, including the use of applications, actions performed on the website like a scroll, click, form filling, etc.
Semantic search engine	Semantic search describes a search engine's attempt to generate the most accurate search engine results page (SERP) results possible by understanding based on searcher intent, query context, and the relationship between words.
SP	Spanish
State-of-Knowledge (SoK)	Experts' view of the most relevant knowledge and associated uncertainties in a specific domain/sub-domain applied in the context of a radioactive waste management programme.
State-of-the-Art (SotA)	"State-of-the-art" refers to the current level of advancement in a particular field, technique, or technology. It is used to describe the highest level of performance achieved by the most advanced research or development in a given area.

Strategic Research Agenda (SRA)	Describes the scientific and technical domains (and sub-domains) and knowledge management needs of common interest between EURAD participant organisations.
Taxonomy	A hierarchical structure in which a body of information or knowledge is categorized, allowing an understanding of how that body of knowledge can be broken down into parts, and how its various parts relate to each other. Taxonomies are used to organize information in systems, thereby helping users to find it.
Text Mining	Text mining, also known as text data mining, is the process of extracting valuable insights and knowledge from large amounts of unstructured textual data. It involves using computational techniques to analyze and understand patterns, trends, and relationships within textual data, with the goal of uncovering hidden information and improving decision-making
Theme Overview (TO)	Broad description of programme goals and typical activities for each theme and how they evolve over the phases of implementation.
Themes	Themes are large groupings of related Knowledge Domains typical in Radioactive Waste Management. They are the highest level of the EURAD Roadmap Goals Breakdown Structure.
TSO	Technical Support Organization
Vocabulary	Vocabulary is designed to support consistent indexing and end user navigation, browsing and searching. It gathers synonyms, acronyms, variant spellings, relation etc.
WAC	Waste Acceptance Criteria
WMO	Waste Management Organization
Work Package (WP)	A work package is a group of related tasks established within EURAD. Because they look like projects themselves, they are often thought of as sub-projects within the Joint Programme.
WP	Work Package

1. Introduction

The main goal of European Joint Programme on Radioactive Waste Management (EURAD) Work Package (WP) 13 is to establish the School of Radioactive Waste Management (RWM) [6]. The EURAD School of RWM acts as the executive body for all training and mobility actions that are organised within EURAD.

The EURAD School of RWM contributes to the strategic knowledge management objectives of EURAD, namely by: (i) preservation of generated knowledge (in- and outside of EURAD), (ii) transfer of knowledge towards Member States and between generations and (iii) dissemination of knowledge (by organising training courses based on end-users priority list for training and mobility within the RWM community [4].

For training courses, a portfolio of tailored basic and specialised courses has been established and is presented in a database [2; Appendix]. This portfolio contains a list of existing initiatives (historical) (e.g. International Atomic Energy Agency, IAEA, courses), but also includes new training courses organised by the EURAD School of RWM, which fill identified training gaps.

The intention of this report is to actualise the portfolio of RWM courses collected in the deliverable D13.2 Mapping of available course materials [2; Appendix] and link them with the new descriptors as given in the extended EURAD Roadmap [3] to align the portfolio with the EURAD Roadmap.

2. Summary of first portfolio of available RWM courses.

Over 160 RWM courses were identified, collected, analysed and summarized in the first portfolio of available course materials [2]. Most of them are taught by organisations with research and technological activities, and mainly done as part of an international project. The previous information gathered, when available, was included in a database stored on EURAD's platform [<https://service.projectplace.com/>] and the EURAD School of RWM [6]

- Course title
- Project name
- Organisation
- Other participants
- Year
- Type of training: lectures, technical visits, hands-on-training, e-learning, self-study
- Mode of training: Online/face-to-face
- Location/Platform
- Language
- Duration
- Cost
- Frequency
- Background/Required knowledge
- Target audience
- Certificate information¹
- Course objectives²
- Topics
- Learning outcomes
- Programme
- Web link
- Comments

¹ Information related with the certification:

- If it is or not a certified training activity
- Number and type of credits (if it is the case),
- If a licence or accreditation can be obtained
- Entity that grants the certification

² Course objectives are referred to the overall goals of the training activity. They are different from the learning outcomes, which describe competencies or performance capacities to be acquired by the learner at the end of the training activity [7].

The inventory of training courses was tagged to the seven EURAD themes:

1. Managing implementation and oversight of a RWM program
2. Radioactive waste (RW) characterisation, processing and storage, and source term understanding for disposal
3. Engineered barrier system properties, function and long-term performance
4. Geoscience to understand rock properties, radionuclide transport, long-term geological evolution
5. Facility design and the practicalities of construction, operation and closure
6. Siting and licensing
7. Performance assessment, safety analysis and safety case development

The classification in the seven themes was convenient in order to discretise the huge field of RWM activities and to align them with the EURAD Roadmap where anyhow each theme refers to a broad subject in itself. Most of the courses found cover some subjects of these themes, not necessarily being specific of one them, and in most of the cases, they touch upon several themes.

This categorisation provided the criteria for the mapping. In addition, courses were classified as “general” when the training covered 4 to 7 EURAD themes or “specific” when they covered up to 3 themes. Around 1/3 of the courses fit into the general category providing an overview of RWM, having usually a duration of 1 week.

The courses organised by EURAD has been included in the portfolio (up November 2023).

3. New portfolio of available RWM courses.

In order to align the first portfolio of RWM courses with the EURAD Roadmap, a detailed analysis of the D1.7 EURAD Roadmap, extended with Competence Matrix [3] was performed.

Due to the difficulty to obtain precise information about each of the identified courses and due to the fact that the URL for some of them did not work anymore, it was decided to align the courses with Level 2 (EURAD Sub-themes) and not going down to Level 3 (EURAD Domains).

This new scope of the courses categorisation, gave rise to new columns, which were added to the database (one column by each EURAD Sub-theme):

Table 1. EURAD themes and Sub-themes included in the RWM courses database.

EURAD Theme (Level 1)	Sub-themes (Level 2)
1. Managing implementation and oversight of a RWM programme	1.1. Programme planning
	1.2. Programme organisation
	1.3. Programme resources
	1.4. National inventory
	1.5. Management solutions
2. RW characterisation, processing and storage, and source term understanding for disposal	2.1. Planning
	2.2. Implementation
	2.3. Optimisation
3. Engineered barrier system properties, function and long-term performance	3.1. Wasteforms
	3.2. Waste packages, for disposal
	3.3. Buffers, backfills, plugs and seals
	3.4. EBS system integration
4. Geoscience to understand rock properties, radionuclide transport, and long-term geological evolution	4.1. Site description
	4.2. Perturbations
	4.3. Long-term stability
	4.4. Layout and construction
5. Facility design and the practicalities of construction, operation and closure	5.1. Design
	5.2. Constructability, demonstration and verification testing
	5.3. Security and safeguards
	5.4. Operational safety
	5.5. Monitoring and Retrievalability
6. Siting and licensing	6.1. Establish site selection process and site screening
	6.2. Site investigation and confirmation
	6.3. Permits and licensing
7. Performance assessment, safety analysis and safety case development	7.1. Safety strategy
	7.2. Integration of safety related information
	7.3. Safety assessment and tools

The new analysis includes an “X” in the new columns, if the *Programme*, *Course objectives*, *Topics* or the *Learning outcomes* of the course indicates that the Level 1 and/or Level 2 is covered by the course, as is shown in *Figure 1*.

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Figure 1. Fields and descriptors used in the RWM courses database.

Additionally, seven filters, corresponding to the 7 EURAD themes were added, in order to have a functional database. The system of filters lets the user to cross their needs/preferences to look for the adequate course, using the levels of the Roadmap.

In appendix A the actualised database is referenced.

The alignment of courses and the Roadmap is presented in appendixes B-H.

4. Final remarks

This report presents an updated analysis and mapping of the available courses related to RWM. In addition, courses organised by EURAD School, have been included, configuring the actualised portfolio of European RWM courses up November 2023. Several sources were analysed as international entities or the open web; including a forensic search through all EURATOM Framework programmes.

Over 160 courses all over Europe have been identified to be related to RWM. More than 61% are framed in European project with a duration of around 1 week, around 80% are Face-To-Face courses and the remaining ones are online. Many of these courses, after the COVID-19 pandemic, nowadays includes some degree of remote delivery or e-learning.

The new analysis of the RWM courses portfolio aligns all courses with the EURAD Roadmap, including its descriptors up to Level 2. The resulting courses' portfolio is presented as a functional database, which is available on EURAD's School of RWM web portal.

5. References

1. Belmans N.& Coeck M., (2020): Title. List of training needs from Research, Development and Demonstration and Strategic Studies Work Packages Final version as of 12.04.2021 of deliverable D13.1 of the HORIZON 2020 project EURAD. EC Grant agreement no: 847593.
2. López del Pra C., Llorente C., Marco M., Christiansen B. (2021): Mapping of available course materials of 12/07/2021 of deliverable D13.2 of the HORIZON 2020 project EURAD. EC Grant agreement no: 847593.
3. EURAD Roadmap, extended with Competence Matrix (2021). Final version as of 27.09.2021 deliverable D1.7 of the HORIZON 2020 project EURAD. EC Grant agreement no: 847593.
4. Belmans N., Coeck M., López del Pra C., Llorente Herranz C. (2022): Priority list and schedule for training/mobility Final version as of 05/07/2021 Deliverable D13.4 of the HORIZON 2020 project EURAD. EC Grant agreement no: 847593
5. EUROPEAN COMMISSION. Directorate-General for Research and Innovation. Energy. Fission Energy. Grant Agreement number: 847593 — EURAD — NFRP-2018.
6. EURAD SCHOOL-School of Radioactive Waste Management (RWM). <https://euradschool.eu/>

Appendix A. Portfolio (historical and ongoing) courses in radioactive waste management in Europe aligned with the EURAD roadmap

<https://euradschool.eu/available-historical-courses/>



WP 13. Training and Mobility

Appendix B. Alignment of the available courses with the roadmap: Theme 1. Managing implementation and oversight of a RWM programme

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WP 13 Training and mobility – Alignment of the available courses with the roadmap: Theme 1. Managing implementation and oversight of a RWM programme

Table 2. List of courses aligned with Theme 1 of EURAD roadmap: Managing implementation and oversight of a RWM programme.

#	Course	Link
1	Final Stage of the Nuclear Lifecycle; Project: ANNETTE; Org: KIT and JRC; 5D; EN	https://joint-research-centre.ec.europa.eu/events/annette-teaching-module-final-stage-nuclear-lifecycle-2019-12-02_en
2	Geological Disposal at the Josef Experimental Repository (CVUT); Project: ANNETTE; Org: Czech Technical University in Prague (CVUT); 3 d; EN	https://ceg.fsv.cvut.cz/en/copy_of_annette-courses-are-being-offered/view
3	Geological disposal of Radioactive Waste; Project: ANNETTE; Org: Université de Lorraine & Universidad Politécnica de Madrid; 93h; FR,SP	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20Further.html
4	Nuclear Fuel: from Cradle to Grave; Project: ANNETTE; Org: KIT and JRC; 1w; EN	https://www.ine.kit.edu/downloads/ANNETTE_NucFuel-Cradle2Grave_2018.pdf
5	Nuclear Technology, Nuclear Waste Management and Radiation Protection; Project: ANNETTE; Org: ENENA alto University, University of Turku, Åbo Akademi University; 1 w; EN	http://annettesummerschool.aalto.fi/
6	Decommissioning of nuclear installations; Project: ENEN/ ELINDER; Org: SCK•CEN; 5 d; EN	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=5
7	Advanced Nuclear Waste Management; Project: EURAD-QUESTIONNAIRE; Org: IMT Atlantique; ; EN	https://www.imt-atlantique.fr/sites/default/files/document/MSc-IMTAtlantique-AdvancedNuclear.pdf
8	Fundamentals of Geological Disposal; Project: EURAD-QUESTIONNAIRE; Org: Grimset Training Centre - Nuclear Training Solutions; 5 d; EN	http://www.nucleartrainingsolutions.com/nts-courses/gtc-nts-fundamentals-of-geological-disposal-2018
9	Nuclear Decommissioning, Waste Management and environmental Site Remediation; Project: EURAD-QUESTIONNAIRE; Org: NINE (MMARS); ; EN	http://www.nineeng.com/courses/nuclear-decommissioning-waste-management-and-environmental-site-remediation
10	Radioactive Waste Management; Project: EURAD-QUESTIONNAIRE; Org: CIEMATUPM, ENRESA; 60 h; SP	http://www.dimnp.unipi.it/walter-ambrosini/UPM-1.html
11	School of Geological Disposal - Basis for developing safe geological disposal; Project: EURAD-QUESTIONNAIRE; Org: SKB; 5 d; EN	https://www.skb.se/sgd2019/
12	Storage of radioactive waste (PETRUS); Project: EURAD-QUESTIONNAIRE; Org: Mines Nancy Artem; ; EN	https://mines-nancy.univ-lorraine.fr/cours/petrus-storage-of-radioactive-waste-ces8aj/
13	International School of Nuclear Law (ISNL); Project: ; Org: NEAUniversity of Montpellier; 2 w; EN	https://www.oecd-nea.org/icms/pl_23822/international-school-of-nuclear-law-isnl
14	Regulatory Review and Assessment of the Safety Case for Disposal Facilities; Project: ; Org: ENSTTI, IRSN; 15 d; EN	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
15	Decommissioning of radioactive and nuclear facilities; Project: ; Org: CIEMAT; 30 h; SP	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=146
16	Disposal of Radioactive Waste; Project: ; Org: IAEA; 5h; EN, RS	https://elearning.iaea.org/m2/enrol/index.php?id=357
17	Fundamentals of RW disposal; Project: ; Org: IAEA; ; EN RS	https://elearning.iaea.org/m2/enrol/index.php?id=357
18	Geological Disposal; Project: ; Org: IAEA; 5h; EN	https://elearning.iaea.org/m2/enrol/index.php?id=356
19	Borehole Disposal; Project: ; Org: IAEA; 3h; EN	https://elearning.iaea.org/m2/enrol/index.php?id=358
20	Radioactive Waste disposal; Project: ; Org: SCK•CEN; 1w; EN	https://www.sckcen.be/en/academy/training-courses/personalized-training-courses/customized-training-courses-radioactive-waste-disposal
21	Central European School - 9th International School on Nuclear Power in Poland ; Project: VINCO; Org: National Centre for Nuclear Research (NCBJ)(China General Nuclear Power Corporation, EDF, General Electric Hitachi, Korea Hydro & Nuclear Power, SNC-Lavalin, Westinghouse; 4 d; EN	https://www.ncbj.gov.pl/en/aktualnosci/9th-international-school-nuclear-power https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5bc9e695a&appId=PPGMS
22	Decommissioning, Radioactive Waste and Environmental Management (SC4110); Project: ANNETTE; Org: University of Central Lancashire Courses; 1 w; EN	http://www.dimnp.unipi.it/walter-ambrosini/SC4110%20%20ANNETTE%20UCLan%20V15.05.html

WP 13 Training and mobility – Alignment of the available courses with the roadmap: Theme 1. Managing implementation and oversight of a RWM programme

#	Course	Link
23	Fundamentals of International Nuclear Law (FINL); Project: ; Org: NEA; 9h; EN	https://www.oecd-nea.org/icms/pl_50604/fundamentals-of-international-nuclear-law-finl?id=pl_50604&preview=true
24	Regulatory review of the safety case for geological disposal; Project: SITEX-II; Org: ENSTIIIRSN, NEA; 5 d; EN	http://sitexproject.eu/index_2.html#workshops
25	Management of the Decommissioning Process (N31); Project: ANNETTE; Org: University of Manchester – NTEC Courses; ; EN	http://www.ntec.ac.uk/syllabi/N31_syllabus.html
26	International Nuclear Law Essentials (INLE); Project: ; Org: NEA University of Montpellier; 5 d; EN	https://www.oecd-nea.org/icms/pl_15203/international-nuclear-law-essentials-inle
27	Predisposal & Characterisation of Radioactive Waste; Project: ; Org: ibc nuclear; 3 d; EN	https://www.rsc.org/events/detail/8436/predisposal-and-characterisation-of-radioactive-waste-course
28	Management of Radioactive Waste; Project: EURAD-QUESTIONNAIRE; Org: Public Health England; ; EN	https://www.phe-protectionservices.org.uk/cms/article.php?article=340&course=32&details=true&site=RPTS
29	Decontamination & dismantling techniques.; Project: INSIDER (ELINDER); Org: KIT; 5 d; EN	http://insider-h2020.eu/trainingcourses/
30	Decommissioning, Radioactive Waste and Environmental Management(N04); Project: ANNETTE; Org: University of Manchester – NTEC Courses; ; EN	http://www.ntec.ac.uk/syllabi/N04_syllabus.html
31	Policy, Regulation and Licensing (N09); Project: ANNETTE; Org: University of Manchester – NTEC Courses; ; EN	http://www.ntec.ac.uk/syllabi/N09_syllabus.html
32	Technical Concepts, Techniques, Methods and Tools for the Assessment of Nuclear Safety and Radiation Protection; Project: ; Org: ENSTTI, IRSN; 3 w; EN	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
33	Regulatory Control of the Safety of Spent Fuel & Radioactive Waste Management; Project: ; Org: ENSTTI, IRSN; 5 d; EN	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
34	Regulatory Control of Radiation Sources; Project: ; Org: ENSTTI, IRSN; 5 d; EN	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
35	The Legal and Regulatory Basis for Nuclear and Radiation Safety; Project: ; Org: ENSTTI, IRSN; 5 d; EN	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
36	EERRI Research Reactor Group Fellowship Programme; Project: VINCO; Org: Centre for Energy Research, Hungarian Academy of Sciences with Institute of Nuclear Techniques of Budapest University of Technology and Economics; 1.5 m; EN	https://nucleus.iaea.org/sites/connect/RRIHpublic/Pages/EERRI-Group-Fellowship.aspx
37	Application of Nuclear Safety Concepts in the Development of Regulations and Guidance; Project: ; Org: ENSTTI, IRSN; 6 d; EN	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
38	State-of-the-art computer codes; Project: ; Org: NEA; Duration variable; EN	https://www.oecd-nea.org/icms/pl_52270/training-courses-on-state-of-the-art-computer-codes
39	Radiation Protection and Confinement Systems; Project: ; Org: ENSTTI, IRSN; 5 d; SP	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
40	Regulatory Control of Nuclear Sites: Inspection of Safety Systems, Structures and Components; Project: ; Org: ENSTTI, IRSN; 5 d; EN	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
41	Nuclear Waste Management; Project: ; Org: CEA, ENEN; 1 w; EN	https://instn.cea.fr/formation/nuclear-waste-management-international-school-in-nuclear-engineering/
42	Nuclear Safety with respect to radioactive waste management facilities; Project: ; Org: TUV; 2 d; EN	https://www.tuvsud.com/it-it/store/italia/english-training/nuclear-english-courses/nuclear-safety-with-respect-to-radioactive-waste-management-facilities
43	Planning for Environmental Remediation; Project: ; Org: IAEA; 4h ; EN	https://elearning.iaea.org/m2/enrol/index.php?id=500
44	Nuclear Materials Protection, Nuclear Safeguards and Interface with Nuclear Safety; Project: ; Org: ENSTTI, IRSN; 5 d; EN	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
45	Computer Control of Experiments; Project: VINCO; Org: CTU Prague, FNSPE; ; EN	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&applied=PPGMS

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#	Course	Link
46	Metrology for Waste Characterization and Clearance; Project: ; Org: JRC; 5 d; EN	https://ec.europa.eu/irc/en/training-programme/metrology-waste-characterization-and-clearance-elinder-course-s7
47	How does corrosion influence the health of concrete?; Project: ; Org: IETCC; 2 h; SP	https://www.ietcc.csic.es/noticias/como-influye-la-corrosion-en-la-salud-del-hormigon-how-does-corrosion-influence-the-health-of-concrete/
48	Regulatory Control of Radiation Protection in Mining and Minerals Processing Facilities and Activities; Project: ; Org: ENSTTI, IRSN; 5 d; EN	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
49	Nuclear Waste Management; Project: ENEN; Org: CEA; 5 d; EN	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=42
50	Material and waste management in decommissioning; Project: INSIDER (ELINDER); Org: CEA-INSTN; ; EN	http://insider-h2020.eu/trainingcourses/
51	Application of International Regulations in Qualification and Approval of Packages for the Transport of Radioactive Materials; Project: ; Org: ENSTTI, IRSN; 5 d; EN	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
52	Digital Safety Systems of Nuclear Reactors; Project: VINCO; Org: CTU Prague, FNSPE; ; EN	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
53	Nuclear Safety Case Development (N07); Project: ANNETTE; Org: University of Manchester – NTEC Courses; ; EN	http://www.ntec.ac.uk/syllabi/N07_syllabus.html
54	Regulatory Issues and Standards(PETRUS); Project: ENEN/PETRUS; Org: ITC; ; EN	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=82
55	Implementing Nuclear Safeguards in practice; Project: ; Org: ENSTTI, IRSN; 5 d; EN	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
56	Environmental Remediation; Project: ; Org: IAEA; 4h; EN	https://elearning.iaea.org/m2/enrol/index.php?id=500
57	Control systems of Nuclear Reactors; Project: VINCO; Org: CTU Prague, FNSPE; 9 m; EN	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
58	Radioactive Waste Management; Project: ; Org: SCK•CEN; 1.5 w; EN	https://www.sckcen.be/en/node/843
59	Predisposal RW Management; Project: ; Org: IAEA; ; EN	https://elearning.iaea.org/m2/course/index.php?categoryId=60
60	Processing, Storage and Disposal of Nuclear Wastes (N10); Project: ANNETTE; Org: University of Manchester – NTEC Courses; ; EN	http://www.ntec.ac.uk/syllabi/N10_syllabus.html
61	Decommissioning Implementation; Project: ; Org: IAEA; 5h; EN, JP	https://elearning.iaea.org/m2/enrol/index.php?id=518
62	Online Summer School on Nuclear decommissioning and Waste Management; Project: ELINDER; Org: Joint Research Centre (JRC); 5d; EN	https://ec.europa.eu/irc/en/event/training-course/ndwm-summer-school
63	Spent Fuel Storage; Project: ; Org: IAEA; 5h; EN, JP	https://elearning.iaea.org/m2/enrol/index.php?id=561
64	Technical and managing staff; Project: VINCO; Org: VUJE a.s.; 480 h; EN	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
65	JOPRAD – Towards a Joint Programming on Radioactive Waste; Project: SITEX-II; Org: JOPRAD; 2 d; EN	http://sitexproject.eu/index_2.html#workshops_201609
66	The chemistry of f-elements; Project: ; Org: TU Dresden and other institutions from: USA, Russia, France, Germany; 1 w; EN	https://tu-dresden.de/mn/chemie/ac/ac3/die-professur/news/international-autumn-school-the-chemistry-of-f-elements-1
67	The ThUL School in Actinide Chemistry; Project: ; Org: HZDR (organized by different institutes every year) and several researcher centers & universities; 1 w; EN	https://www.hzdr.de/db/Cms?pOid=44510&pNid=3488
68	Conditioning, disposal & final disposal of radioactive waste; Project: ; Org: AINT; 4 d; GR	https://www.nuclear-training.de/seminar-details/modul-6-1210.html
69	Radioactive material transport; Project: ; Org: CIEMAT; 30h; SP	https://ceiden.com/formacion-descripcion/cursos-disponibles?view=154
70	ENEN+ Summer School; Project: ENEN+; Org: ENEN+ and Budapest University of Technology and Economics; 1 w; EN	https://summerschool2020.enen.bme.hu/

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#	Course	Link
71	Geological disposal of radioactive waste; Project: EURAD-QUESTIONNAIRE; Org: Université de Lorraine; 30 h; EN	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20UL-UPM.html
72	Virtual First Tritium School; Project: TRANSAT; Org: Jožef Stefan Institute; 2 d; EN	http://transat-h2020.eu/wp-content/uploads/2018/08/TRANSAT-1st-SUMMER-SCHOOL.pdf
73	Nuclear fuel cycle; Project: ANNETTE; Org: The Belgian Nuclear Education Network; 81h; EN	https://bnen.sckcen.be/courses/advanced-courses-nuclear-fuel-cycle
74	Nuclear Engineering ; Project: ENEN; Org: INSTN/CEA; 5 d; EN	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=4
75	FIRST-Nuclides project; Project: FIRST-Nuclides; Org: KIT-INEJRC; 2 d; EN	http://www.firstnuclides.eu/ZonaPublica/FIRST-Nuclides-training-course-announcement_v3.pdf
76	MSR Summer school; Project: SAMOFAR; Org: ; 3 d; EN	http://samofar.eu/summerschool/
77	Introduction to Nuclear Reactor Physics; Project: VINCO; Org: CTU Prague, FNSPE; ; EN	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
78	Nuclear Fuel Cycle (N02); Project: ANNETTE; Org: University of Manchester – NTEC Courses; ; EN	http://www.ntec.ac.uk/syllabi/N02_syllabus.html
79	Nuclear Fuel Cycle; Project: ENEN; Org: INSTN/CEA; 66 h (10 d); EN	https://instn.cea.fr/en/formation/nuclear-fuel-cycle/
80	Nuclear Waste Management; Project: ENEN; Org: CEA; 5 d; EN	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=20
81	Nuclear Fuel from ore to Waste; Project: ENEN/GENTLE; Org: DUT; 80h; EN	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=19
82	Technology and Management of the Decommissioning of Nuclear Facilities; Project: ANNETTE; Org: KIT ; ; EN	http://www.fps.kit.edu/465.php
83	Management of Radioactive Waste in Accordance with IAEA Safety Standards and International Best Practice(PETRUS); Project: ENEN/PETRUS; Org: Technische Universität Clausthal Institut für Endlagerforschung; ; EN	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=109
84	Nuclear Knowledge Management orientation course; Project: ; Org: IAEA; 1h; EN	https://elearning.iaea.org/m2/enrol/index.php?id=437
85	Policies, Strategies and Prerequisites for Radioactive Waste Management; Project: ; Org: IAEA; 6h; EN, RS	https://elearning.iaea.org/m2/enrol/index.php?id=355



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Appendix C. Alignment of the available courses with the roadmap: Theme 2. RW characterisation, processing and storage, and source term understanding for disposal

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Table 3. List of courses aligned with Theme 2 of EURAD roadmap: RW characterisation, processing and storage, and source term understanding for disposal.

#	Course	Link
1	Final Stage of the Nuclear Lifecycle Project: ANNETTE; Org: KIT and JRC; EN; 5D	https://joint-research-centre.ec.europa.eu/events/annette-teaching-module-final-stage-nuclear-lifecycle-2019-12-02_en
2	Geological Disposal at the Josef Experimental Repository (CVUT) Project: ANNETTE; Org: Czech Technical University in Prague (CVUT); EN; 3 d	https://ceg.fsv.cvut.cz/en/copy_of_annette-courses-are-being-offered/view
3	Geological disposal of Radioactive Waste Project: ANNETTE; Org: Université de Lorraine & Universidad Politecnica de Madrid; FR,SP; 93h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20Further.html
4	Nuclear Fuel: from Cradle to Grave Project: ANNETTE; Org: KIT and JRC; EN; 1w	https://www.ine.kit.edu/downloads/ANNETTE_NucFuel-Cradle2Grave_2018.pdf
5	Nuclear Technology, Nuclear Waste Management and Radiation Protection Project: ANNETTE; Org: ENEN Aalto University, University of Turku, Åbo Akademi University; EN; 1 w	http://annettesummerschool.aalto.fi/
6	Decommissioning of nuclear installations Project: ENEN/ ELINDER; Org: SCK•CEN ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=5
7	Advanced Nuclear Waste Management Project: EURAD-QUESTIONNAIRE; Org: IMT Atlantique ; EN;	https://www.imt-atlantique.fr/sites/default/files/document/MSC-IMTAtlantique-AdvancedNuclear.pdf
8	Fundamentals of Geological Disposal Project: EURAD-QUESTIONNAIRE; Org: Grimsel Training Centre - Nuclear Training Solutions ; EN; 5 d	http://www.nucleartrainingsolutions.com/nts-courses/gtc-nts-fundamentals-of-geological-disposal-2018
9	Nuclear Decommissioning, Waste Management and Environmental Site Remediation Project: EURAD-QUESTIONNAIRE; Org: NINE (MMARS) ; EN;	http://www.nineeng.com/courses/nuclear-decommissioning-waste-management-and-environmental-site-remediation
10	Radioactive Waste Management Project: EURAD-QUESTIONNAIRE; Org: CIEMAT UPM, ENRESA; SP; 60 h	http://www.dimnp.unipi.it/walter-ambrosini/UPM-1.html
11	School of Geological Disposal - Basis for developing safe geological disposal Project: EURAD-QUESTIONNAIRE; Org: SKB ; EN; 5 d	https://www.skb.se/sgd2019/
12	Storage of radioactive waste (PETRUS) Project: EURAD-QUESTIONNAIRE; Org: Mines Nancy Artem ; EN;	https://mines-nancy.univ-lorraine.fr/cours/petrus-storage-of-radioactive-waste-ces8aj/
13	International School of Nuclear Law (ISNL) Project: ; Org: NEA University of Montpellier; EN; 2 w	https://www.oecd-nea.org/jcms/pl_23822/international-school-of-nuclear-law-isnl
14	Regulatory Review and Assessment of the Safety Case for Disposal Facilities Project: ; Org: ENSTTI, IRSN ; EN; 15 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
15	Decommissioning of radioactive and nuclear facilities Project: ; Org: CIEMAT ; SP; 30 h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=146
16	Disposal of Radioactive Waste Project: ; Org: IAEA ; EN, RS; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=357
17	Fundamentals of RW disposal Project: ; Org: IAEA ; EN RS;	https://elearning.iaea.org/m2/enrol/index.php?id=357
18	Central European School - 9th International School on Nuclear Power in Poland Project: VINCO; Org: National Centre for Nuclear Research (NCBJ) (China General Nuclear Power Corporation, EDF, General Electric Hitachi, Korea Hydro & Nuclear Power, SNC-Lavalin, Westinghouse; EN; 4 d	https://www.ncbj.gov.pl/en/aktualnosci/9th-international-school-nuclear-power https://ec.europa.eu/research/participants/documents/downloadPublic?documentId=080166e5bc9e695a&appId=PPGMS
19	Decommissioning, Radioactive Waste and Environmental Management (SC4110) Project: ANNETTE; Org: University of Central Lancashire Courses; EN; 1 w	http://www.dimnp.unipi.it/walter-ambrosini/SC4110%20%20ANNETTE%20UCLan%20V15.05.html
20	Fundamentals of International Nuclear Law (FINL) Project: ; Org: NEA ; EN; 9h	https://www.oecd-nea.org/jcms/pl_50604/fundamentals-of-international-nuclear-law-finl?id=pl_50604&preview=true
21	Management of the Decommissioning Process (N31) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N31_syllabus.html

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#	Course	Link
22	International Nuclear Law Essentials (INLE) Project ; Org: NEA University of Montpellier ; EN; 5 d	https://www.oecd-nea.org/icms/pl_15203/international-nuclear-law-essentials-inle
23	Predisposal & Characterisation of Radioactive Waste Project ; Org: ibc nuclear ; EN; 3 d	https://www.rsc.org/events/detail/8436/predisposal-and-characterisation-of-radioactive-waste-course
24	Decommissioning, Radioactive Waste and Environmental Management(N04) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N04_syllabus.html
25	Technical Concepts, Techniques, Methods and Tools for the Assessment of Nuclear Safety and Radiation Protection Project ; Org: ENSTTI, IRSN ; EN; 3 w	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
26	Regulatory Control of the Safety of Spent Fuel & Radioactive Waste Management Project ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
27	EERRI Research Reactor Group Fellowship Programme Project: VINCO; Org: Centre for Energy Research, Hungarian Academy of Sciences with Institute of Nuclear Techniques of Budapest University of Technology and Economics ; EN; 1.5 m	https://nucleus.iaea.org/sites/connect/RRIHpublic/Pages/EERRI-Group-Fellowship.aspx
28	Nuclear Waste Management Project ; Org: CEA, ENEN ; EN; 1 w	https://instn.cea.fr/formation/nuclear-waste-management-international-school-in-nuclear-engineering/
29	Nuclear Safety with respect to radioactive waste management facilities Project ; Org: TUV ; EN; 2 d	https://www.tuvsud.com/it-it/store/italia/english-training/nuclear-english-courses/nuclear-safety-with-respect-to-radioactive-waste-management-facilities
30	Planning for Environmental Remediation Project ; Org: IAEA ; EN; 4h	https://elearning.iaea.org/m2/enrol/index.php?id=500
31	Metrology for Waste Characterization and Clearance Project ; Org: JRC ; EN; 5 d	https://ec.europa.eu/jrc/en/training-programme/metrology-waste-characterization-and-clearance-elinder-course-s7
32	Nuclear Waste Management Project: ENEN; Org: CEA ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=42
33	Material and waste management in decommissioning Project: INSIDER (ELINDER); Org: CEA-INSTN ; EN;	http://insider-h2020.eu/trainingcourses/
34	Application of International Regulations in Qualification and Approval of Packages for the Transport of Radioactive Materials Project ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
35	Environmental Remediation Project ; Org: IAEA ; EN; 4h	https://elearning.iaea.org/m2/enrol/index.php?id=500
36	Radioactive Waste Management Project ; Org: SCK•CEN ; EN; 1.5 w	https://www.sckcen.be/en/node/843
37	Processing, Storage and Disposal of Nuclear Wastes (N10) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N10_syllabus.html
38	Decommissioning Implementation Project ; Org: IAEA ; EN, JP; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=518
39	Online Summer School on Nuclear decommissioning and Waste Management Project: ELINDER; Org: Joint Research Centre (JRC) ; EN; 5d	https://ec.europa.eu/jrc/en/event/training-course/ndwm-summer-school
40	Spent Fuel Storage Project ; Org: IAEA ; EN, Japanese; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=561
41	JOPRAD – Towards a Joint Programming on Radioactive Waste Project: SITEX-II; Org: JOPRAD ; EN; 2 d	http://sitexproject.eu/index_2.html#workshops_201609
42	The chemistry of f-elements Project ; Org: TU Dresden Other institutions from: USA, Russia, France, Germany; EN; 1 w	https://tu-dresden.de/mn/chemie/ac/ac3/die-professur/news/international-autumn-school-the-chemistry-of-f-elements-1
43	The ThUL School in Actinide Chemistry Project ; Org: HZDR (organized by different institutes every year) Several researcher centers & universities; EN; 1 w	https://www.hzdr.de/db/Cms?pOid=44510&pNid=3488
44	Conditioning, disposal & final disposal of radioactive waste Project ; Org: AiNT ; GR; 4 d	https://www.nuclear-training.de/seminar-details/modul-6-1210.html
45	Radioactive material transport Project ; Org: CIEMAT ; SP; 30h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=154

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#	Course	Link
46	ENEN+ Summer School Project: ENEN+; Org: ENEN+ Budapest University of Technology and Economics; EN; 1 w	https://summerschool2020.enen.bme.hu/
47	Geological disposal of radioactive waste Project: EURAD-QUESTIONNAIRE; Org: Université de Lorraine ; EN; 30 h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20UL-UPM.html
48	Virtual First Tritium School Project: TRANSAT; Org: Jožef Stefan Institute ; EN; 2 d	http://transat-h2020.eu/wp-content/uploads/2018/08/TRANSAT-1st-SUMMER-SCHOOL.pdf
49	Nuclear fuel cycle Project: ANNETTE; Org: The Belgian Nuclear Education Network; EN; 81h	https://bnen.sckcen.be/courses/advanced-courses-nuclear-fuel-cycle
50	Nuclear Engineering Project: ENEN; Org: INSTN/CEA ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=4
51	FIRST-Nuclides project Project: FIRST-Nuclides; Org: KIT-INE JRC; EN; 2 d	http://www.firstnuclides.eu/ZonaPublica/FIRST-Nuclides-training-course-announcement_v3.pdf
52	MSR Summer school Project: SAMOFAR; Org: ; EN; 3 d	http://samofar.eu/summerschool/
53	Introduction to Nuclear Reactor Physics Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
54	Nuclear Fuel Cycle (N02) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N02_syllabus.html
55	Nuclear Fuel Cycle Project: ENEN; Org: INSTN/CEA ; EN; 66 h (10 d)	https://instn.cea.fr/en/formation/nuclear-fuel-cycle/
56	Nuclear Waste Management Project: ENEN; Org: CEA ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=20
57	Nuclear Fuel from ore to Waste Project: ENEN/GENTLE; Org: DUT ; EN; 80h	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=19
58	Fundamentals of geological disposal (PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN; 10 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=89
59	Decommissioning of Nuclear Facilities Project: none; Org: Czech Technical University in Prague ; CZ; 3 y	https://www.fjfi.cvut.cz/en/education/bachelor-s-study/fields-of-bachelor-programme-new/decommissioning-of-nuclear-facilities-bc
60	Near Surface Disposal Project: ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=354
61	DOT/NRC Radioactive Waste Packaging, Transportation and Disposal Project: ; Org: EnergySolutions ; EN; 32 h	https://www.energysolutionstraining.com/core/files/energysoluti onstraining/uploads/files/Course%20Catalog(3).pdf
62	Monitoring in Geological Disposal of Radioactive Waste Project: Modern2020; Org: Äspö Hard Rock Laboratory, Sweden. ; EN; 5 d	http://www.modern2020.eu/training/learning-outcomes.html
63	Emergency Response to Transport Accidents involving Radioactive Materials at Sea and in Port Zones Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
64	Nuclear Energy and The Nuclear Fuel Cycle Project: ANNETTE; Org: University of Central Lancashire Courses; EN; 2 w	http://www.dimnp.unipi.it/walter-ambrosini/SC4101%20%20ANNETTE%20UCLan%20V15.05.html
65	CRISTAL - Tools for Criticality Safety Calculation Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
66	Thermochemical Database (TDB) Project course: Thermodynamic data collection and assessment Project: ; Org: NEA KIT-INE, LANL; A21, EMPA; EN; 2 d	https://www.oecd-nea.org/upload/docs/application/pdf/2020-09/outline_course_paris_2020.pdf
67	Theramin technical training school Project: THERAMIN; Org: CEA EDF; EN; 3 d	http://www.theramin-h2020.eu/downloads/THERAMIN%20Training%20school%20flyer.pdf
68	C-14 behaviour under repository conditions Project: CAST; Org: KIT-INE WAK-HDB; EN; 2 d	https://www.projectcast.eu/cms-file/get/IFiled/2522
69	Plug and Seal Training Workshop Project: DOPAS; Org: CTU POSIVA; EN; 5 d	https://posiva.fi/dopas/files/4375/DOPAS_Deliverable_D7_2_Plug_and_Seal_Training_Workshop_planning_and_implementation_report.pdf

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#	Course	Link
70	Introduction to safety assessment in geological disposal of spent fuel - advanced sessions (PETRUS II) Project: ENEN/PETRUS II; Org: POSIVA ; FN; 4 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=100
71	Mechanical measurements of irradiated materials Project: VINCO; Org: National Centre for Nuclear Research (NCBJ) JAEA; EN; 2 d	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5bd507a32&appld=PPGMS
72	Numerical simulation in long-term safety analysis - probabilistic methods(PETRUS) Project: ENEN/PETRUS; Org: Technische Universität Clausthal; Institut für Endlagerforschung ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=117
73	Desused Sealed Radioactive sources Project; ; Org: IAEA ; EN, SP,FR; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=376
74	New Nuclear Sources Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appld=PPGMS
75	Nuclear Waste Management – International school in nuclear engineering Project: EURAD-QUESTIONNAIRE; Org: CEA ; EN; 5 d (30 h)	http://www-instn.cea.fr/en/education-and-training/continuing-education/short-courses/international-school-in-nuclear-engineering-nuclear-waste-management,1936959.html
76	Nuclear fuel cycle Project: ANNETTE; Org: The Belgian Nuclear Education Network; EN; 90 h	https://bnen.sckcen.be/courses/nuclear-fuel-cycle
77	Actinide Science & Applications Project; ; Org: JRC and other international organisations; EN; 1 w	https://www.eumonitor.eu/9353000/1/i9vvik7m1c3gyxp/vjrb78660typ?ctx=vh77iv5icpmz&v=1&tab=1&start_tab1=50
78	Radioactive Waste Cementation Project; ; Org: ICTP-IAEA AEA, PNNL, CEA, Savannah River National, NEFW, Imperial College London, IGEM RAS, USDF, Kazan State University, VNIINM; EN; 14 d	http://indico.ictp.it/event/9129/overview
79	Safety advisor in the transport of radioactive material Project; ; Org: Ecoquímica Logística Integral ; EN;	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=210
80	Geological disposal of Radioactive Waste Project: ANNETTE; Org: Université de Lorraine & Universidad Politecnica de Madrid; EN; 30h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20UL-UPM.html
81	Hands on training in nuclear chemistry Project: CINCH; Org: CVUT ; EN;	https://www.cinch-project.eu/cinch2/data/CINCH_1/docs_1/CINCH_Hands_on_121116.pdf
82	Modern Spent Fuel Dissolution and Chemistry in Failed Container Conditions Project: EURAD-QUESTIONNAIRE; Org: DISCO ; EN;	https://www.disco-h2020.eu/Home/GeneralInformation
83	Characterization of Radioactive Waste Project; ; Org: CIEMAT ; SP; 30h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=147
84	Virtual Second Tritium School Project: TRANSAT; Org: Aix-Marseille University, France Jožef Stefan Institute, Slovenia; CEA, France; EN; 5 d	http://transat-h2020.eu/transat-second-tritium-school/
85	From nuclear data to a reliable estimate of spent fuel decay heat Project: ENEN; Org: SCK•CEN ; EN; 1 d	https://www.sckcen.be/en/events-courses/topical-day-nuclear-data-reliable-estimate-spent-fuel-decay-heat-b0781b76-342f-e711-80c1-ecf4bbc6e827
86	Bentonite training course Project: PEBS; Org: BGR ; EN; 4 d	https://www.pebs.eu.de/PEBS/EN/Events/events_inhalt_en.html?nn=1797144#link2
87	REDUPP Lecture Series (x9) Project: REDUPP; Org: Several ; EN; 4 d	https://www.skb.se/redupp/training/
88	Characterisation of conditioned radioactive waste: status, challenges and new developments Project: CHANCE; Org: SCK•CEN Academy; EN; 1 d	https://www.chance-h2020.eu/deliverable/1452/attachment/0
89	Nuclear Fuel Cycle and Reprocessing Project: ENEN; Org: CEA ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=22
90	Environmental Remediation and Site Release Project: INSIDER (ELINDER); Org: University of Birmingham in, collaboration with the IAEA; EN;	http://insider-h2020.eu/trainingcourses/
91	Metrology for Radioactive Waste Characterisation and Clearance Project: INSIDER (ELINDER); Org: Joint Research Centre (JRC) ; EN; 5 d	http://insider-h2020.eu/trainingcourses/
92	Nuclear Fuel Characterization Project: MEET CINCH; Org: CHALMERS ASGARD project; EN;	https://eshop.cinch-project.eu/Chemistry-of-the-nuclear-fuel-cycle-and-waste-management/products/Nuclear-Fuel-Characterization/13

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#	Course	Link
93	Introductory course on EURAD and Radioactive Waste Management Project: EURAD; Org: EURAD WP 13 ; EN; 1D	https://euradschool.eu/event/eurad_and_radioactive_waste_management/



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Appendix D. Alignment of the available courses with the roadmap: Theme 3. Engineered barrier system properties, function and long-term performance

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Table 4. List of courses aligned with Theme 3 of EURAD roadmap: Engineered barrier system properties, function and long-term performance.

#	Course	Link
1	Final Stage of the Nuclear Lifecycle Project: ANNETTE; Org: KIT and JRC; EN; 5D	https://joint-research-centre.ec.europa.eu/events/annette-teaching-module-final-stage-nuclear-lifecycle-2019-12-02_en
2	Geological Disposal at the Josef Experimental Repository (CVUT) Project: ANNETTE; Org: Czech Technical University in Prague (CVUT); EN; 3 d	https://ceg.fsv.cvut.cz/en/copy_of_annette-courses-are-being-offered/view
3	Geological disposal of Radioactive Waste Project: ANNETTE; Org: Université de Lorraine & Universidad Politecnica de Madrid; FR,SP; 93h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20Further.html
4	Nuclear Fuel: from Cradle to Grave Project: ANNETTE; Org: KIT and JRC; EN; 1w	https://www.ine.kit.edu/downloads/ANNETTE_NucFuel-Cradle2Grave_2018.pdf
5	Nuclear Technology, Nuclear Waste Management and Radiation Protection Project: ANNETTE; Org: ENEN Aalto University, University of Turku, Åbo Akademi University; EN; 1 w	http://annettesummerschool.aalto.fi/
6	Decommissioning of nuclear installations Project: ENEN/ ELINDER; Org: SCK•CEN ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=5
7	Advanced Nuclear Waste Management Project: EURAD-QUESTIONNAIRE; Org: IMT Atlantique ; EN;	https://www.imt-atlantique.fr/sites/default/files/document/MSc-IMTAtlantique-AdvancedNuclear.pdf
8	Fundamentals of Geological Disposal Project: EURAD-QUESTIONNAIRE; Org: Grimsel Training Centre - Nuclear Training Solutions ; EN; 5 d	http://www.nucleartrainingsolutions.com/nts-courses/gtc-nts-fundamentals-of-geological-disposal-2018
9	Nuclear Decommissioning, Waste Management and environmental Site Remediation Project: EURAD-QUESTIONNAIRE; Org: NINE (MMARS) ; EN;	http://www.nineeng.com/courses/nuclear-decomissioning-waste-management-and-environmental-site-remediation
10	Radioactive Waste Management Project: EURAD-QUESTIONNAIRE; Org: CIEMAT UPM, ENRESA; SP; 60 h	http://www.dimnp.unipi.it/walter-ambrosini/UPM-1.html
11	School of Geological Disposal - Basis for developing safe geological disposal Project: EURAD-QUESTIONNAIRE; Org: SKB ; EN; 5 d	https://www.skb.se/sgd2019/
12	Storage of radioactive waste (PETRUS) Project: EURAD-QUESTIONNAIRE; Org: Mines Nancy Artem ; EN;	https://mines-nancy.univ-lorraine.fr/cours/petrus-storage-of-radioactive-waste-ces8aj/
13	International School of Nuclear Law (ISNL) Project: ; Org: NEA University of Montpellier; EN; 2 w	https://www.oecd-nea.org/jcms/pl_23822/international-school-of-nuclear-law-isnl
14	Regulatory Review and Assessment of the Safety Case for Disposal Facilities Project: ; Org: ENSTTI, IRSN; EN; 15 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
15	Decommissioning of radioactive and nuclear facilities Project: ; Org: CIEMAT ; SP; 30 h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=146
16	Disposal of Radioactive Waste Project: ; Org: IAEA ; EN, RS; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=357
17	Fundamentals of RW disposal Project: ; Org: IAEA ; EN RS;	https://elearning.iaea.org/m2/enrol/index.php?id=357
18	Geological Disposal Project: ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=356
19	Borehole Disposal Project: ; Org: IAEA ; EN; 3h	https://elearning.iaea.org/m2/enrol/index.php?id=358
20	Central European School - 9th International School on Nuclear Power in Poland Project: VINCO; Org: National Centre for Nuclear Research (NCBJ) (China General Nuclear Power Corporation, EDF, General Electric Hitachi, Korea Hydro & Nuclear Power, SNC-Lavalin, Westinghouse; EN; 4 d	https://www.ncbj.gov.pl/en/aktualnosci/9th-international-school-nuclear-power ; https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5bc9e695a&appId=PPGMS
21	Decommissioning, Radioactive Waste and Environmental Management (SC4110) Project: ANNETTE; Org: University of Central Lancashire Courses; EN; 1 w	http://www.dimnp.unipi.it/walter-ambrosini/SC4110%20ANNETTE%20UClan%20V15.05.html
22	Fundamentals of International Nuclear Law (FINL) Project: ; Org: NEA ; EN; 9h	https://www.oecd-nea.org/jcms/pl_50604/fundamentals-of-international-nuclear-law-finl?id=pl_50604&preview=true
23	Regulatory review of the safety case for geological disposal Project: SITEX-II; Org: ENSTII IRSN, NEA; EN; 5 d	http://sitexproject.eu/index_2.html#workshops

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#	Course	Link
24	Regulatory Control of the Safety of Spent Fuel & Radioactive Waste Management Project ; Org: ENSTTI, IRSN ; EN ; 5 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
25	EERRI Research Reactor Group Fellowship Programme Project: VINCO; Org: Centre for Energy Research, Hungarian Academy of Sciences with Institute of Nuclear Techniques of Budapest University of Technology and Economics ; EN; 1.5 m	https://nucleus.iaea.org/sites/connect/RRIHPublic/Pages/EERRI-Group-Fellowship.aspx
26	Application of Nuclear Safety Concepts in the Development of Regulations and Guidance Project ; Org: ENSTTI, IRSN ; EN ; 6 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
27	Nuclear Waste Management Project ; Org: CEA, ENEN ; EN ; 1 w	https://instn.cea.fr/formation/nuclear-waste-management-international-school-in-nuclear-engineering/
28	Computer Control of Experiments Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appld=PPGMS
29	Metrology for Waste Characterization and Clearance Project ; Org: JRC ; EN ; 5 d	https://ec.europa.eu/jrc/en/training-programme/metrology-waste-characterization-and-clearance-elinder-course-s7
30	How does corrosion influence the health of concrete? Project ; Org: IETCC ; SP ; 2 h	https://www.ietcc.csic.es/noticias/como-influye-la-corrosion-en-la-salud-del-hormigon-how-does-corrosion-influence-the-health-of-concrete/
31	Nuclear Waste Management Project: ENEN; Org: CEA ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=42
32	Material and waste management in decommissioning Project: INSIDER (ELINDER); Org: CEA-INSTN ; EN;	http://insider-h2020.eu/trainingcourses/
33	Application of International Regulations in Qualification and Approval of Packages for the Transport of Radioactive Materials Project ; Org: ENSTTI, IRSN ; EN ; 5 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
34	Digital Safety Systems of Nuclear Reactors Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appld=PPGMS
35	Control systems of Nuclear Reactors Project: VINCO; Org: CTU Prague, FNSPE ; EN; 9 m	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appld=PPGMS
36	Radioactive Waste Management Project ; Org: SCK•CEN ; EN ; 1.5 w	https://www.sckcen.be/en/node/843
37	Processing, Storage and Disposal of Nuclear Wastes (N10) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N10_syllabus.html
38	Decommissioning Implementation Project ; Org: IAEA ; EN, JP ; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=518
39	JOPRAD – Towards a Joint Programming on Radioactive Waste Project: SITEX-II; Org: JOPRAD ; EN ; 2 d	http://sitexproject.eu/index_2.html#workshops_201609
40	The chemistry of f-elements Project ; Org: TU Dresden Other institutions from: USA, Russia, France, Germany; EN ; 1 w	https://tu-dresden.de/mn/chemie/ac/ac3/die-professur/news/international-autumn-school-the-chemistry-of-f-elements-1
41	The ThUL School in Actinide Chemistry Project ; Org: HZDR (organized by different institutes every year) Several researcher centers & universities; EN ; 1 w	https://www.hzdr.de/db/Cms?pOid=44510&pNid=3488
42	Conditioning, disposal & final disposal of radioactive waste Project ; Org: AiNT ; GR ; 4 d	https://www.nuclear-training.de/seminar-details/modul-6-1210.html
43	ENEN+ Summer School Project: ENEN+; Org: ENEN+ Budapest University of Technology and Economics; EN; 1 w	https://summerschool2020.enen.bme.hu/
44	Geological disposal of radioactive waste Project: EURAD-QUESTIONNAIRE; Org: Université de Lorraine ; EN ; 30 h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20LUPM.html
45	Virtual First Tritium School Project: TRANSAT; Org: Jožef Stefan Institute ; EN; 2 d	http://transat-h2020.eu/wp-content/uploads/2018/08/TRANSAT-1st-SUMMER-SCHOOL.pdf
46	FIRST-Nuclides project Project: FIRST-Nuclides; Org: KIT-INE JRC; EN; 2 d	http://www.firstnuclides.eu/ZonaPublica/FIRST-Nuclides-training-course-announcement_v3.pdf
47	MSR Summer school Project: SAMOFAR; Org: ; EN; 3 d	http://samofar.eu/summerschool/
48	Introduction to Nuclear Reactor Physics Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appld=PPGMS
49	Fundamentals of geological disposal (PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN ; 10 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=89

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#	Course	Link
50	Decommissioning of Nuclear Facilities Project: none; Org: Czech Technical University in Prague ; CZ; 3 y	https://www.fjfi.cvut.cz/en/education/bachelor-s-study/fields-of-bachelor-programme-new/decommissioning-of-nuclear-facilities-bc
51	Near Surface Disposal Project ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=354
52	DOT/NRC Radioactive Waste Packaging, Transportation and Disposal Project ; Org: EnergySolutions ; EN; 32 h	https://www.energysolutionstraining.com/core/files/energysolutionstraining/uploads/files/Course%20Catalog(3).pdf
53	Monitoring in Geological Disposal of Radioactive Waste Project: Modern2020; Org: Äspö Hard Rock Laboratory, Sweden. ; EN; 5 d	http://www.modern2020.eu/training/learning-outcomes.html
54	Microbiology and disposal of radioactive waste (PETRUS) Project: ENEN/PETRUS; Org: MICANS ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=95
55	Understanding Thermo-Hydro-Mechanical processes for safety assessment: theory and numerical simulation (PETRUS) Project: ENEN/PETRUS; Org: CARDIFF ; EN; 6 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=69
56	CRISTAL - Tools for Criticality Safety Calculation Project ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
57	Thermochemical Database (TDB) Project course: Thermodynamic data collection and assessment Project ; Org: NEA KIT-INE, LANL; A21, EMPA; EN; 2 d	https://www.oecd-nea.org/upload/docs/application/pdf/2020-09/outline_course_paris_2020.pdf
58	Theramin technical training school Project: THERAMIN; Org: CEA EDF; EN; 3 d	http://www.theramin-h2020.eu/downloads/THERAMIN%20Training%20school%20flyer.pdf
59	From geophysical field data to geological models - theory and hands-on workshop Project: EURAD-QUESTIONNAIRE; Org: Grimsel ; EN; 3 d	http://www.grimsel.com/images/GTC_Files/GTC_Announcemet_From_Geo_physical_Field_Data_to_Geological_models_Hands_on_workshop.pdf
60	C-14 behaviour under repository conditions Project: CAST; Org: KIT-INE WAK-HDB; EN; 2 d	https://www.projectcast.eu/cms-file/get/i/ileid/2522
61	Plug and Seal Training Workshop Project: DOPAS; Org: CTU POSIVA; EN; 5 d	https://posiva.fi/dopas/files/4375/DOPAS_Deliverable_D7_2_Plug_and_Seal_Training_Workshop_planning_and_implementation_report_.pdf
62	Introduction to safety assessment in geological disposal of spent fuel - advanced sessions (PETRUS II) Project: ENEN/PETRUS II; Org: POSIVA ; FN; 4 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=100
63	Mechanical measurements of irradiated materials Project: VINCO; Org: National Centre for Nuclear Research (NCBJ) JAEA; EN; 2 d	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b507a32&appld=PPGMS
64	Engineered Barrier Systems - Bentonite properties and applications Project: EURAD-QUESTIONNAIRE; Org: Grimsel ; EN; 5 d	https://www.grimsel.com/gts-information/grimsel-training-centre-gtc
65	Disused Sealed Radioactive sources Project ; Org: IAEA ; EN, SP,FR; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=376
66	New Nuclear Sources Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appld=PPGMS
67	Nuclear Waste Management – International school in nuclear engineering Project: EURAD-QUESTIONNAIRE; Org: CEA ; EN; 5 d (30 h)	http://www-instn.cea.fr/en/education-and-training/continuing-education/short-courses/international-school-in-nuclear-engineering-nuclear-waste-management_1936959.html
68	Nuclear fuel cycle Project: ANNETTE; Org: The Belgian Nuclear Education Network; EN; 90 h	https://bnen.sckcen.be/courses/nuclear-fuel-cycle
69	Migration of radioactive waste from deep geological waste repositories - Case Study (PETRUS) Project: ENEN/PETRUS; Org: BME ; EN; 6 h	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=78
70	Geological storage in Precambrian bedrock (PETRUS) Project: ENEN/PETRUS; Org: Äspö Hard Rock Laboratory, Sweden ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=112
71	Transport and Retention of Radionuclides in Argillaceous and Fractured Media (PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=104
72	Actinide Science & Applications Project ; Org: JRC other international organizations; EN; 1 w	https://www.eumonitor.eu/9353000/1/j9vvik7m1c3gvxp/vjrb78660typ?ctx=vh77iv5icpmz&v=1&tab=1&start_tab1=50
73	Radioactive Waste Cementation Project ; Org: ICTP-IAEA AEA, PNNL, CEA, Savannah River National, NEFW, Imperial College London, IGEM RAS, USDF, Kazan State University, VNIINM; EN; 14 d	http://indico.ictp.it/event/9129/overview
74	Geological disposal of Radioactive Waste Project: ANNETTE; Org: Université de Lorraine & Universidad Politecnica de Madrid; EN; 30h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20UL-UPM.html

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#	Course	Link
75	Hands on training in nuclear chemistry Project: CINCH; Org: CVUT ; EN;	https://www.cinch-project.eu/cinch2/data/CINCH_1/docs_1/CINCH_Hands_on_121116.pdf
76	Modern Spent Fuel Dissolution and Chemistry in Failed Container Conditions Project: EURAD-QUESTIONNAIRE; Org: DISCO ; EN;	https://www.disco-h2020.eu/Home/GeneralInformation
77	Characterization of Radioactive Waste Project: ; Org: CIEMAT ; SP; 30h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=147
78	Clay minerals in soils and weathered rock Project: ENEN; Org: European group University of Helsinki; EN; 10 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=85
79	Petrology and Geochemistry of rocks relevant for final disposal (PETRUS) Project: ENEN/PETRUS; Org: Technische Universität Clausthal Institut für Endlagerforschung ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=115
80	Geomicrobiology in radioactive waste disposal Project: MIND; Org: SCK•CEN ; EN; 4 d	https://www.mind15.eu/public-meetings/
81	Isotope Hydrology Project: ; Org: IAEA ; EN; 60h	https://elearning.iaea.org/m2/enrol/index.php?id=759
82	Curso de Cementos Alcalinos Project: ; Org: IETCC ; SP; 3 d	https://www.ietcc.csic.es/cursos-y-masters/curso-de-cementos-alcalinos-2020/
83	Virtual Second Tritium School Project: TRANSAT; Org: Aix-Marseille University, France Jožef Stefan Institute, Slovenia CEA, France; EN; 5 d	http://transat-h2020.eu/transat-second-tritium-school/
84	From nuclear data to a reliable estimate of spent fuel decay heat Project: ENEN; Org: SCK•CEN ; EN; 1 d	https://www.sckcen.be/en/events-courses/topical-day-nuclear-data-reliable-estimate-spent-fuel-decay-heat-b0781b76-342f-e711-80c1-ecf4bbc6e827
85	Bentonite training course Project: PEBS; Org: BGR ; EN; 4 d	https://www.pebs-eu.de/PEBS/EN/Events/events_inhalt_en.html?nn=1797144#link2
86	REDUPP Lecture Series (x9) Project: REDUPP; Org: Several ; EN; 4 d	https://www.skb.se/redupp/training/
87	Química del Cemento Project: ; Org: IETCC ; SP; 8 d	https://www.ietcc.csic.es/cursos-y-masters/curso-de-la-quimica-del-cemento-tomas-vazquez-2020/
88	Multi-physical couplings in geomechanics Project: EURAD; Org: EURAD WP GAS + HITEC ; EN; 3 d	https://euradschool.eu/event/test-1-eurad-training-course/
89	Multi-physics and multiscale coupled processes in geomaterials – Focus on thermal effects and gas transfer impact on the behaviour of geomaterials Project: EURAD; Org: EURAD WP GAS + HITEC ; EN; 1 w	https://euradschool.eu/event/gas-hitec-training-course/
90	Uncertainty Management Project: EURAD; Org: EURAD WP13 ; EN; 3 d	https://euradschool.eu/event/eurad-training-course-on-uncertainty-management/
91	Geochemical and Reactive Transport Modelling for Geological Disposal Project: EURAD; Org: EURAD WP13 ; EN; 1 w	https://euradschool.eu/event/geochemical-and-reactive-transport-modelling-for-geological-disposal/
92	Spent Fuel State-of-Knowledge document Project: EURAD; Org: EURAD WP13 ; EN; 1 d	https://euradschool.eu/event/information-session-and-discussion-on-the-spent-fuel-state-of-knowledge-document/
93	Introductory course on EURAD and Radioactive Waste Management Project: EURAD; Org: EURAD WP 13 ; EN; 1 d	https://euradschool.eu/event/eurad_and_radioactive_waste_management/



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Appendix E. Alignment of the available courses with the roadmap: Theme 4. Geoscience to understand rock properties, radionuclide transport, and long-term geological evolution

This project has received funding from the European Union's Horizon 2020 research and innovation programme 2014-2018 under grant agreement N°847593



WP 13 Training and mobility – Alignment of the available courses with the roadmap: Theme 4. Geoscience to understand rock properties, radionuclide transport, and long-term geological evolution

Table 5. List of courses aligned with Theme 4 of EURAD roadmap: Geoscience to understand rock properties, radionuclide transport, and long-term geological evolution.

#	Course	Link
1	Final Stage of the Nuclear Lifecycle Project: ANNETTE; Org: KIT and JRC; EN; 5D	https://joint-research-centre.ec.europa.eu/events/annette-teaching-module-final-stage-nuclear-lifecycle-2019-12-02_en
2	Geological Disposal at the Josef Experimental Repository (CVUT) Project: ANNETTE; Org: Czech Technical University in Prague (CVUT); EN; 3 d	https://ceg.fsv.cvut.cz/en/copy_of_annette-courses-are-being-offered/view
3	Geological disposal of Radioactive Waste Project: ANNETTE; Org: Université de Lorraine & Universidad Politecnica de Madrid; FR,SP; 93h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20Further.html
4	Nuclear Fuel: from Cradle to Grave Project: ANNETTE; Org: KIT and JRC; EN; 1w	https://www.ine.kit.edu/downloads/ANNETTE_NucFuel-Cradle2Grave_2018.pdf
5	Nuclear Technology, Nuclear Waste Management and Radiation Protection Project: ANNETTE; Org: ENEN Aalto University, University of Turku, Åbo Akademi University; EN; 1 w	http://annettesummerschool.aalto.fi/
6	Decommissioning of nuclear installations Project: ENEN/ ELINDER; Org: SCK•CEN ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=5
7	Advanced Nuclear Waste Management Project: EURAD-QUESTIONNAIRE; Org: IMT Atlantique ; EN;	https://www.imt-atlantique.fr/sites/default/files/document/MSc-IMTAtlantique-AdvancedNuclear.pdf
8	Fundamentals of Geological Disposal Project: EURAD-QUESTIONNAIRE; Org: Grimsel Training Centre - Nuclear Training Solutions ; EN; 5 d	http://www.nucleartrainingsolutions.com/nts-courses/gtc-nts-fundamentals-of-geological-disposal-2018
9	Nuclear Decommissioning, Waste Management and environmental Site Remediation Project: EURAD-QUESTIONNAIRE; Org: NINE (MMARS) ; EN;	http://www.nineeng.com/courses/nuclear-decomissioning-waste-management-and-environmental-site-remediation
10	Radioactive Waste Management Project: EURAD-QUESTIONNAIRE; Org: CIEMAT UPM, ENRESA; SP; 60 h	http://www.dimnp.unipi.it/walter-ambrosini/UPM-1.html
11	School of Geological Disposal - Basis for developing safe geological disposal Project: EURAD-QUESTIONNAIRE; Org: SKB ; EN; 5 d	https://www.skb.se/sgd2019/
12	Storage of radioactive waste (PETRUS) Project: EURAD-QUESTIONNAIRE; Org: Mines Nancy Artem ; EN;	https://mines-nancy.univ-lorraine.fr/cours/petrus-storage-of-radioactive-waste-ces8aj/
13	International School of Nuclear Law (ISNL) Project: ; Org: NEA University of Montpellier; EN; 2 w	https://www.oecd-nea.org/icms/pl_23822/international-school-of-nuclear-law-isnl
14	Regulatory Review and Assessment of the Safety Case for Disposal Facilities Project: ; Org: ENSTTI, IRSN; EN; 15 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
15	Decommissioning of radioactive and nuclear facilities Project: ; Org: CIEMAT ; SP; 30 h	https://ceiden.com/formacion-descripcion/cursos-disponibles?view=146
16	Disposal of Radioactive Waste Project: ; Org: IAEA ; EN, RS; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=357
17	Fundamentals of RW disposal Project: ; Org: IAEA ; EN RS;	https://elearning.iaea.org/m2/enrol/index.php?id=357
18	Geological Disposal Project: ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=356
19	Borehole Disposal Project: ; Org: IAEA ; EN; 3h	https://elearning.iaea.org/m2/enrol/index.php?id=358
20	Radioactive Waste disposal Project: ; Org: SCK•CEN ; EN; w	https://www.sckcen.be/en/academy/training-courses/personalized-training-courses/customized-training-courses-radioactive-waste-disposal
21	Central European School - 9th International School on Nuclear Power in Poland Project: VINCO; Org: National Centre for Nuclear Research (NCBJ) (China General Nuclear Power Corporation, EDF, General Electric Hitachi, Korea Hydro & Nuclear Power, SNC-Lavalin, Westinghouse; EN; 4 d	https://www.ncbj.gov.pl/en/aktualnosci/9th-international-school-nuclear-power https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5bc9e695a&appId=PPGMS
22	Regulatory Control of the Safety of Spent Fuel & Radioactive Waste Management Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf

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#	Course	Link
23	EERRI Research Reactor Group Fellowship Programme Project: VINCO; Org: Centre for Energy Research, Hungarian Academy of Sciences with Institute of Nuclear Techniques of Budapest University of Technology and Economics ; EN; 1.5 m	https://nucleus.iaea.org/sites/connect/RRIHpublic/Pages/EERRI-Group-Fellowship.aspx
24	Application of Nuclear Safety Concepts in the Development of Regulations and Guidance Project ; Org: ENSTTI, IRSN ; EN; 6 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
25	State-of-the-art computer codes Project ; Org: NEA ; EN; variable	https://www.oecd-nea.org/jcms/pl_52270/training-courses-on-state-of-the-art-computer-codes
26	Radiation Protection and Confinement Systems Project ; Org: ENSTTI, IRSN ; SP; 5 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
27	Metrology for Waste Characterization and Clearance Project ; Org: JRC ; EN; 5 d	https://ec.europa.eu/jrc/en/training-programme/metrology-waste-characterization-and-clearance-elinder-course-s7
28	How does corrosion influence the health of concrete? Project ; Org: IETCC ; SP; 2 h	https://www.ietcc.csic.es/noticias/como-influye-la-corrosion-en-la-salud-del-hormigon-how-does-corrosion-influence-the-health-of-concrete/
29	Environmental Remediation Project ; Org: IAEA ; EN; 4h	https://elearning.iaea.org/m2/enrol/index.php?id=500
30	Processing, Storage and Disposal of Nuclear Wastes (N10) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N10_syllabus.html
31	Decommissioning Implementation Project ; Org: IAEA ; EN, JP; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=518
32	The chemistry of f-elements Project ; Org: TU Dresden and other institutions from: USA, Russia, France, Germany; EN; 1 w	https://tu-dresden.de/mn/chemie/ac/ac3/die-professur/news/international-autumn-school-the-chemistry-of-f-elements-1
33	The ThUL School in Actinide Chemistry Project ; Org: HZDR (organized by different institutes every year) Several researcher centers & universities; EN; 1 w	https://www.hzdr.de/db/Cms?pOid=44510&pNid=3488
34	Conditioning, disposal & final disposal of radioactive waste Project ; Org: AINT ; GR; 4 d	https://www.nuclear-training.de/seminar-details/modul-6-1210.html
35	ENEN+ Summer School Project: ENEN+; Org: ENEN+ Budapest University of Technology and Economics; EN; 1 w	https://summerschool2020.enen.bme.hu/
36	Geological disposal of radioactive waste Project: EURAD-QUESTIONNAIRE; Org: Université de Lorraine ; EN; 30 h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20UUL-UPM.html
37	Virtual First Tritium School Project: TRANSAT; Org: Jožef Stefan Institute ; EN; 2 d	http://transat-h2020.eu/wp-content/uploads/2018/08/TRANSAT-1st-SUMMER-SCHOOL.pdf
38	Nuclear fuel cycle Project: ANNETTE; Org: The Belgian Nuclear Education Network; EN; 81h	https://bnen.sckcen.be/courses/advanced-courses-nuclear-fuel-cycle
39	Nuclear Engineering Project: ENEN; Org: INSTN/CEA ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=4
40	Fundamentals of geological disposal (PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN; 10 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=89
41	Decommissioning of Nuclear Facilities Project: none; Org: Czech Technical University in Prague ; CZ; 3 y	https://www.fifi.cvut.cz/en/education/bachelor-s-study/fields-of-bachelor-programme-new/decommissioning-of-nuclear-facilities-bc
42	Near Surface Disposal Project ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=354
43	DOT/NRC Radioactive Waste Packaging, Transportation and Disposal Project ; Org: EnergySolutions ; EN; 32 h	https://www.energysolutionstraining.com/core/files/energysolutionstraining/uploads/files/Course%20Catalog(3).pdf
44	Introduction to the MARSSIM tool Project ; Org: TECNATOM S.A ; SP; 6h	https://ceiden.com/formacion-descripcion/cursos-disponibles?view=57
45	Monitoring in Geological Disposal of Radioactive Waste Project: Modern2020; Org: Åspö Hard Rock Laboratory, Sweden. ; EN; 5 d	http://www.modern2020.eu/training/learning-outcomes.html
46	Microbiology and disposal of radioactive waste (PETRUS) Project: ENEN/PETRUS; Org: MICANS ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=95
47	Understanding Thermo-Hydro-Mechanical processes for safety assessment: theory and numerical simulation (PETRUS) Project: ENEN/PETRUS; Org: CARDIFF ; EN; 6 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=69
48	Fundamentals of long-term safety analysis (PETRUS) Project: ENEN/PETRUS; Org: Technische Universität Clausthal Institut für Endlagerforschung ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=116

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#	Course	Link
49	Physics and Chemistry of the Actinides Project ; Org: Institut des Sciences Chimiques de Rennes Other (not specified yet); EN; 4 d	https://ida2020.sciencesconf.org/
50	Emergency Response to Transport Accidents involving Radioactive Materials at Sea and in Port Zones Project ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
51	Thermochemical Database (TDB) Project course: Thermodynamic data collection and assessment Project ; Org: NEA KIT-INE, LANL, A21, EMPA; EN; 2 d	https://www.oecd-nea.org/upload/docs/application/pdf/2020-09/outline_course_paris_2020.pdf
52	Theramin technical training school Project: THERAMIN; Org: CEA EDF; EN; 3 d	http://www.theramin-h2020.eu/downloads/THERAMIN%20Training%20school%20flyer.pdf
53	From geophysical field data to geological models - theory and hands-on workshop Project: EURAD-QUESTIONNAIRE; Org: Grimsel ; EN; 3 d	http://www.grimsel.com/images/GTC_Files/GTC_Announcemet_From_Geo_physical_Field_Data_to_Geological_models_Hands_on_workshop.pdf
54	Engineered Barrier Systems - Bentonite properties and applications Project: EURAD-QUESTIONNAIRE; Org: Grimsel ; EN; 5 d	https://www.grimsel.com/gts-information/grimsel-training-centre-gtc
55	Nuclear Waste Management – International school in nuclear engineering Project: EURAD-QUESTIONNAIRE; Org: CEA ; EN; 5 d (30 h)	http://www-instn.cea.fr/en/education-and-training/continuing-education/short-courses/international-school-in-nuclear-engineering-nuclear-waste-management_1936959.html
56	Nuclear fuel cycle Project: ANNETTE; Org: The Belgian Nuclear Education Network; EN; 90 h	https://bnen.sckcen.be/courses/nuclear-fuel-cycle
57	Migration of radioactive waste from deep geological waste repositories - Case Study (PETRUS) Project: ENEN/PETRUS; Org: BME ; EN; 6 h	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=78
58	Geological storage in Precambrian bedrock (PETRUS) Project: ENEN/PETRUS; Org: Äspö Hard Rock Laboratory, Sweden ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=112
59	Transport and Retention of Radionuclides in Argillaceous and Fractured Media (PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=104
60	Release of radioactive materials and nuclear system component Project ; Org: AINT ; GR; 2 d	https://www.nuclear-training.de/seminar-details/modul-2-1205.html
61	Actinide Science & Applications Project ; Org: JRC other international organizations; EN; 1 w	https://www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vjrb78660typ?ctx=vh77iv5icpmz&v=1&tab=1&start_tab1=50
62	Geological disposal of Radioactive Waste Project: ANNETTE; Org: Université de Lorraine & Universidad Politecnica de Madrid; EN; 30h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20UL-UPM.html
63	Hands on training in nuclear chemistry Project: CINCH; Org: CVUT ; EN;	https://www.cinch-project.eu/cinch2/data/CINCH_1/docs_1/CINCH_Hands_on_121116.pdf
64	Modern Spent Fuel Dissolution and Chemistry in Failed Container Conditions Project: EURAD-QUESTIONNAIRE; Org: DISCO ; EN;	https://www.disco-h2020.eu/Home/GeneralInformation
65	Characterization of Radioactive Waste Project ; Org: CIEMAT ; SP; 30h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=147
66	Clay minerals in soils and weathered rock Project: ENEN; Org: European group University of Helsinki; EN; 10 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=85
67	Petrology and Geochemistry of rocks relevant for final disposal (PETRUS) Project: ENEN/PETRUS; Org: Technische Universität Clausthal Institut für Endlagerforschung ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=115
68	Geomicrobiology in radioactive waste disposal Project: MIND; Org: SCK•CEN ; EN; 4 d	https://www.mind15.eu/public-meetings/
69	Isotope Hydrology Project ; Org: IAEA ; EN; 60h	https://elearning.iaea.org/m2/enrol/index.php?id=759
70	Curso de Cementos Alcalinos Project ; Org: IETCC ; SP; 3 d	https://www.ietcc.csic.es/cursos-y-masters/curso-de-cementos-alcalin-2020/
71	Hydromechanical behaviour of bentonite: constitutive and numerical modelling Project: Beacon; Org: BEACON Universitat Politècnica de Catalunya (UPC) ; EN; 15.5 h	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b85393c5&applid=PPGMS
72	Carbon Capture and Storage: can anything be learned from 35 years experience in geological disposal of radioactive wastes? (PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN; 4 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=106
73	Virtual Second Tritium School Project: TRANSAT; Org: Aix-Marseille University, France Jožef Stefan Institute, Slovenia CEA, France; EN; 5 d	http://transat-h2020.eu/transat-second-tritium-school/

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#	Course	Link
73	Virtual Second Tritium School Project: TRANSAT; Org: Aix-Marseille University, France Jožef Stefan Institute, Slovenia; CEA, France; EN; 5 d	http://transat-h2020.eu/transat-second-tritium-school/
74	Multi-physical couplings in geomechanics Project: EURAD; Org: EURAD WP GAS + HITEC ; EN; 3 d	https://euradschool.eu/event/test-1-eurad-training-course/
75	Multi-physics and multiscale coupled processes in geomaterials – Focus on thermal effects and gas transfer impact on the behaviour of geomaterials Project: EURAD; Org: EURAD WP GAS + HITEC ; EN; 1 w	https://euradschool.eu/event/gas-hitec-training-course/



WP 13. Training and Mobility

Appendix F. Alignment of the available courses with the roadmap: Theme 5. Facility design and the practicalities of construction, operation and closure.

This project has received funding from the European Union's Horizon 2020 research and innovation programme 2014-2018 under grant agreement N°847593



WP 13 Training and mobility – Alignment of the available courses with the roadmap: Theme 5. Facility design and the practicalities of construction, operation and closure

Table 6. List of courses aligned with the theme5 of EURAD roadmap: Facility design and the practicalities of construction, operation and closure.

#	Course	Link
1	Final Stage of the Nuclear Lifecycle Project: ANNETTE; Org: KIT and JRC; EN; 5D	https://joint-research-centre.ec.europa.eu/events/annette-teaching-module-final-stage-nuclear-lifecycle-2019-12-02_en
2	Geological Disposal at the Josef Experimental Repository (CVUT) Project: ANNETTE; Org: Czech Technical University in Prague (CVUT); EN; 3 d	https://ceg.fsv.cvut.cz/en/copy_of_annette-courses-are-being-offered/view
3	Geological disposal of Radioactive Waste Project: ANNETTE; Org: Université de Lorraine & Universidad Politecnica de Madrid; FR,SP; 93h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20Further.html
4	Nuclear Fuel: from Cradle to Grave Project: ANNETTE; Org: KIT and JRC; EN; 1w	https://www.ine.kit.edu/downloads/ANNETTE_NucFuel-Cradle2Grave_2018.pdf
5	Nuclear Technology, Nuclear Waste Management and Radiation Protection Project: ANNETTE; Org: ENEN Aalto University, University of Turku, Åbo Akademi University; EN; 1 w	http://annettesummerschool.aalto.fi/
6	Decommissioning of nuclear installations Project: ENEN/ ELINDER; Org: SCK•CEN ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=5
7	Advanced Nuclear Waste Management Project: EURAD-QUESTIONNAIRE; Org: IMT Atlantique ; EN;	https://www.imt-atlantique.fr/sites/default/files/document/MSc-IMTAtlantique-AdvancedNuclear.pdf
8	Fundamentals of Geological Disposal Project: EURAD-QUESTIONNAIRE; Org: Grimsel Training Centre - Nuclear Training Solutions ; EN; 5 d	http://www.nucleartrainingsolutions.com/nts-courses/gtc-nts-fundamentals-of-geological-disposal-2018
9	Nuclear Decommissioning, Waste Management and Environmental Site Remediation Project: EURAD-QUESTIONNAIRE; Org: NINE (MMARS) ; EN;	http://www.nineeng.com/courses/nuclear-decommissioning-waste-management-and-environmental-site-remediation
10	Radioactive Waste Management Project: EURAD-QUESTIONNAIRE; Org: CIEMAT UPM, ENRESA; SP; 60 h	http://www.dimnp.unipi.it/walter-ambrosini/UPM-1.html
11	School of Geological Disposal - Basis for developing safe geological disposal Project: EURAD-QUESTIONNAIRE; Org: SKB ; EN; 5 d	https://www.skb.se/sgd2019/
12	Storage of radioactive waste (PETRUS) Project: EURAD-QUESTIONNAIRE; Org: Mines Nancy Artem ; EN;	https://mines-nancy.univ-lorraine.fr/cours/petrus-storage-of-radioactive-waste-ces8aj/
13	International School of Nuclear Law (ISNL) Project: ; Org: NEA University of Montpellier; EN; 2 w	https://www.oecd-nea.org/jcms/pl_23822/international-school-of-nuclear-law-isnl
14	Regulatory Review and Assessment of the Safety Case for Disposal Facilities Project: ; Org: ENSTTI, IRSN ; EN; 15 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
15	Decommissioning of radioactive and nuclear facilities Project: ; Org: CIEMAT ; SP; 30 h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=146
16	Disposal of Radioactive Waste Project: ; Org: IAEA ; EN, RS; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=357
17	Fundamentals of RW disposal Project: ; Org: IAEA ; EN RS;	https://elearning.iaea.org/m2/enrol/index.php?id=357
18	Geological Disposal Project: ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=356
19	Borehole Disposal Project: ; Org: IAEA ; EN; 3h	https://elearning.iaea.org/m2/enrol/index.php?id=358
20	Radioactive Waste disposal Project: ; Org: SCK•CEN ; EN; w	https://www.skccen.be/en/academy/training-courses/personalized-training-courses/customized-training-courses-radioactive-waste-disposal
21	Central European School - 9th International School on Nuclear Power in Poland Project: VINCO; Org: National Centre for Nuclear Research (NCBJ) (China General Nuclear Power Corporation, EDF, General Electric Hitachi, Korea Hydro & Nuclear Power, SNC-Lavalin, Westinghouse; EN; 4 d	https://www.ncbj.gov.pl/en/aktualnosci/9th-international-school-nuclear-power https://ec.europa.eu/research/participants/documents/downloadPublic?documentId=080166e5bc9e695a&appId=PPGMS
22	Decommissioning, Radioactive Waste and Environmental Management (SC4110) Project: ANNETTE; Org: University of Central Lancashire Courses; EN; 1 w	http://www.dimnp.unipi.it/walter-ambrosini/SC4110%20ANNETTE%20UCLan%20V15.05.html
23	Fundamentals of International Nuclear Law (FINL) Project: ; Org: NEA ; EN; 9h	https://www.oecd-nea.org/jcms/pl_50604/fundamentals-of-international-nuclear-law-finl?id=pl_50604&preview=true
24	Regulatory review of the safety case for geological disposal Project: SITEX-II; Org: ENSTII IRSN, NEA; EN; 5 d	http://sitexproject.eu/index_2.html#workshops
25	Management of the Decommissioning Process (N31) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N31_syllabus.html
26	International Nuclear Law Essentials (INLE) Project: ; Org: NEA University of Montpellier ; EN; 5 d	https://www.oecd-nea.org/jcms/pl_15203/international-nuclear-law-essentials-inle
27	Predisposal & Characterisation of Radioactive Waste Project: ; Org: ibc nuclear ; EN; 3 d	https://www.rsc.org/events/detail/8436/predisposal-and-characterisation-of-radioactive-waste-course
28	Management of Radioactive Waste Project: EURAD-QUESTIONNAIRE; Org: Public Health England ; EN;	https://www.phe-protectionservices.org.uk/cms/article.php?article=340&course=32&details=true&site=RPTS
29	Decontamination & dismantling techniques. Project: INSIDER (ELINDER); Org: KIT ; EN; 5 d	http://insider-h2020.eu/trainingcourses/
30	Technical Concepts, Techniques, Methods and Tools for the Assessment of Nuclear Safety and Radiation Protection Project: ; Org: ENSTTI, IRSN ; EN; 3 w	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
31	EERRI Research Reactor Group Fellowship Programme Project: VINCO; Org: Centre for Energy Research, Hungarian Academy of Sciences with Institute of Nuclear Techniques of Budapest University of Technology and Economics ; EN; 1.5 m	https://nucleus.iaea.org/sites/connect/RRHpublic/Pages/EERRI-Group-Fellowship.aspx
32	Application of Nuclear Safety Concepts in the Development of Regulations and Guidance Project: ; Org: ENSTTI, IRSN ; EN; 6 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
33	State-of-the-art computer codes Project: ; Org: NEA ; EN; variable	https://www.oecd-nea.org/jcms/pl_52270/training-courses-on-state-of-the-art-computer-codes

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#	Course	Link
34	Radiation Protection and Confinement Systems Project ; Org: ENSTTI, IRSN ; SP; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
35	Regulatory Control of Nuclear Sites: Inspection of Safety Systems, Structures and Components Project ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
36	Nuclear Waste Management Project ; Org: CEA, ENEN ; EN; 1 w	https://instn.cea.fr/formation/nuclear-waste-management-international-school-in-nuclear-engineering/
37	Nuclear Safety with respect to radioactive waste management facilities Project ; Org: TUV ; EN; 2 d	https://www.tuvsud.com/it-it/store/italia/english-training/nuclear-english-courses/nuclear-safety-with-respect-to-radioactive-waste-management-facilities
38	Planning for Environmental Remediation Project ; Org: IAEA ; EN; 4h	https://elearning.iaea.org/m2/enrol/index.php?id=500
39	Nuclear Materials Protection, Nuclear Safeguards and Interface with Nuclear Safety Project ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
40	Computer Control of Experiments Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
41	Control systems of Nuclear Reactors Project: VINCO; Org: CTU Prague, FNSPE ; EN; 9 m	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
42	Processing, Storage and Disposal of Nuclear Wastes (N10) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N10_syllabus.html
43	Decommissioning Implementation Project ; Org: IAEA ; EN, JP; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=518
44	Online Summer School on Nuclear decommissioning and Waste Management Project: ELINDER; Org: Joint Research Centre (JRC) ; EN; 5d	https://ec.europa.eu/jrc/en/event/training-course/ndwm-summer-school
45	Spent Fuel Storage Project ; Org: IAEA ; EN, Japanese; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=561_0
46	Technical and managing staff Project: VINCO; Org: VUJE as. ; EN; 480 h	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
47	The chemistry of f-elements Project ; Org: TU Dresden Other institutions from: USA, Russia, France, Germany; EN; 1 w	https://tu-dresden.de/mn/chemie/ac/ac3/die-professur/news/international-autumn-school-the-chemistry-of-f-elements-1
48	The ThUL School in Actinide Chemistry Project ; Org: HZDR (organized by different institutes every year) Several researcher centers & universities; EN; 1 w	https://www.hzdr.de/db/Cms?pOid=44510&pNid=3488
49	Conditioning, disposal & final disposal of radioactive waste Project ; Org: AiNT ; GR; 4 d	https://www.nuclear-training.de/seminar-details/modul-6-1210.html
50	Radioactive material transport Project ; Org: CIEMAT ; SP; 30h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=154
51	Fundamentals of geological disposal (PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN; 10 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=89
52	Decommissioning of Nuclear Facilities Project: none; Org: Czech Technical University in Prague ; CZ; 3 y	https://www.fifi.cvut.cz/en/education/bachelor-s-study/fields-of-bachelor-programme-new/decommissioning-of-nuclear-facilities-bc
53	Near Surface Disposal Project ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=354
54	DOT/NRC Radioactive Waste Packaging, Transportation and Disposal Project ; Org: EnergySolutions ; EN; 32 h	https://www.energysolutionstraining.com/core/files/energysolutionstraining/uploads/files/Course%20Catalog(3).pdf
55	Introduction to the MARSSIM tool Project ; Org: TECNATOM S.A ; SP; 6h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=57
56	Regulatory Review of Safety Cases for Geological Disposal of Radioactive Waste Project: SITEX-II; Org: NEA, Integration Group for the Safety Case (IGSC) ; EN; 2 d	http://sitexproject.eu/index_2.html#workshops_201702
57	Monitoring in Geological Disposal of Radioactive Waste Project: Modern2020; Org: Äspö Hard Rock Laboratory, Sweden. ; EN; 5 d	http://www.modern2020.eu/training/learning-outcomes.html
58	Microbiology and disposal of radioactive waste (PETRUS) Project: ENEN/PETRUS; Org: MICANS ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=95
59	Understanding Thermo-Hydro-Mechanical processes for safety assessment: theory and numerical simulation (PETRUS) Project: ENEN/PETRUS; Org: CARDIFF ; EN; 6 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=69
60	Fundamentals of long-term safety analysis (PETRUS) Project: ENEN/PETRUS; Org: Technische Universität Clausthal Institut für Endlagerforschung ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=116
61	Physics and Chemistry of the Actinides Project ; Org: Institut des Sciences Chimiques de Rennes Other (not specified yet); EN; 4 d	https://ida2020.sciencesconf.org/
62	Emergency Response to Transport Accidents involving Radioactive Materials at Sea and in Port Zones Project ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
63	Nuclear Energy and The Nuclear Fuel Cycle Project: ANNETTE; Org: University of Central Lancashire Courses; EN; 2 w	http://www.dimnp.unipi.it/walter-ambrosini/SC4101%20%20ANNETTE%20UCLan%20V15.05.html
64	Nuclear Criticality Safety Project ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
65	Reactor physics and operation Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
66	CRISTAL - Tools for Criticality Safety Calculation Project ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
67	Operational control room staff, verification physicist, simulator training instructors Project: VINCO; Org: VUJE a.s. ; EN; 900 h	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
68	Engineered Barrier Systems - Bentonite properties and applications Project: EURAD-QUESTIONNAIRE; Org: Grimsel ; EN; 5 d	https://www.grimsel.com/gts-information/grimsel-training-centre-gtc
69	Disused Sealed Radioactive sources Project ; Org: IAEA ; EN, SP,FR; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=376
70	Nuclear Waste Management – International school in nuclear engineering Project: EURAD-QUESTIONNAIRE; Org: CEA ; EN; 5 d (30 h)	http://www-instn.cea.fr/en/education-and-training/continuing-education/short-courses/international-school-in-nuclear-engineering-nuclear-waste-management_1936959.html
71	Service and operational staff Courses Project: VINCO; Org: VUJE a.s. ; EN; 200 h	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
72	Geological storage in Precambrian bedrock (PETRUS) Project: ENEN/PETRUS; Org: Äspö Hard Rock Laboratory, Sweden ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=112

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#	Course	Link
73	Transport and Retention of Radionuclides in Argillaceous and Fractured Media (PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=104
74	Release of radioactive materials and nuclear system component Project: ; Org: AINT ; GR; 2 d	https://www.nuclear-training.de/seminar-details/modul-2-1205.html
75	Actinide Science & Applications Project: ; Org: JRC and other international organisations; EN; 1 w	https://www.eumonitor.eu/9353000/1/9vvik7m1c3gyxp/vjrb78660typ?ctx=vh77iv5icpmz&v=1&tab=1&start_tab1=50
76	Radioactive Waste Cementation Project: ; Org: ICTP-IAEA AEA, PNNL, CEA, Savannah River National, NEFW, Imperial College London, IGEM RAS, USDF, Kazan State University, VNIINM; EN; 14 d	http://indico.ictp.it/event/9129/overview
77	Safety advisor in the transport of radioactive material Project: ; Org: Ecoquímica Logística Integral ; EN;	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=210
78	Introductory course on EURAD and Radioactive Waste Management Project: EURAD; Org: EURAD WP 13 ; EN; 1 d	https://euradschool.eu/event/eurad_and_radioactive_waste_management/



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Appendix G. Alignment of the available courses with the roadmap: Theme 6. Siting and licensing

This project has received funding from the European Union's Horizon 2020 research and innovation programme 2014-2018 under grant agreement N°847593



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Table 7. List of courses aligned with the theme 6 of EURAD roadmap: Siting and licensing.

#	Course	Link
1	Final Stage of the Nuclear Lifecycle Project: ANNETTE; Org: KIT and JRC; EN; 5D	https://joint-research-centre.ec.europa.eu/events/annette-teaching-module-final-stage-nuclear-lifecycle-2019-12-02_en
2	Geological Disposal at the Josef Experimental Repository (CVUT) Project: ANNETTE; Org: Czech Technical University in Prague (CVUT); EN; 3 d	https://ceg.fsv.cvut.cz/en/copy_of_annette-courses-are-being-offered/view
3	Geological disposal of Radioactive Waste Project: ANNETTE; Org: Université de Lorraine & Universidad Politecnica de Madrid; FR,SP; 93h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20Further.html
4	Nuclear Fuel: from Cradle to Grave Project: ANNETTE; Org: KIT and JRC; EN; 1w	https://www.ine.kit.edu/downloads/ANNETTE_NucFuel-Cradle2Grave_2018.pdf
5	Nuclear Technology, Nuclear Waste Management and Radiation Protection Project: ANNETTE; Org: ENEN Aalto University, University of Turku, Åbo Akademi University; EN; 1 w	http://annettesummerschool.aalto.fi/
6	Decommissioning of nuclear installations Project: ENEN/ ELINDER; Org: SCK•CEN ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=5
7	Advanced Nuclear Waste Management Project: EURAD-QUESTIONNAIRE; Org: IMT Atlantique ; EN;	https://www.imt-atlantique.fr/sites/default/files/document/MSc-IMTAtlantique-AdvancedNuclear.pdf
8	Fundamentals of Geological Disposal Project: EURAD-QUESTIONNAIRE; Org: Grimsel Training Centre - Nuclear Training Solutions ; EN; 5 d	http://www.nucleartrainingsolutions.com/nts-courses/gtc-nts-fundamentals-of-geological-disposal-2018
9	Nuclear Decommissioning, Waste Management and environmental Site Remediation Project: EURAD-QUESTIONNAIRE; Org: NINE (MMARS) ; EN;	http://www.nineeng.com/courses/nuclear-decomissioning-waste-management-and-environmental-site-remediation
10	Radioactive Waste Management Project: EURAD-QUESTIONNAIRE; Org: CIEMAT UPM, ENRESA; SP; 60 h	http://www.dimnp.unipi.it/walter-ambrosini/UPM-1.html
11	School of Geological Disposal - Basis for developing safe geological disposal Project: EURAD-QUESTIONNAIRE; Org: SKB ; EN; 5 d	https://www.skb.se/sgd2019/
12	Storage of radioactive waste (PETRUS) Project: EURAD-QUESTIONNAIRE; Org: Mines Nancy Artem ; EN;	https://mines-nancy.univ-lorraine.fr/cours/petrus-storage-of-radioactive-waste-ces8aj/
13	International School of Nuclear Law (ISNL) Project: ; Org: NEA University of Montpellier; EN; 2 w	https://www.oecd-nea.org/jcms/pl_23822/international-school-of-nuclear-law-isnl
14	Regulatory Review and Assessment of the Safety Case for Disposal Facilities Project: ; Org: ENSTTI, IRSN ; EN; 15 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
15	Decommissioning of radioactive and nuclear facilities Project: ; Org: CIEMAT ; SP; 30 h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=146
16	Disposal of Radioactive Waste Project: ; Org: IAEA ; EN, RS; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=357
17	Fundamentals of RW disposal Project: ; Org: IAEA ; EN RS;	https://elearning.iaea.org/m2/enrol/index.php?id=357
18	Geological Disposal Project: ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=356
19	Borehole Disposal Project: ; Org: IAEA ; EN; 3h	https://elearning.iaea.org/m2/enrol/index.php?id=358
20	Radioactive Waste disposal Project: ; Org: SCK•CEN ; EN; w	https://www.sckcen.be/en/academy/training-courses/personalized-training-courses/customized-training-courses-radioactive-waste-disposal
21	Central European School - 9th International School on Nuclear Power in Poland Project: VINCO; Org: National Centre for Nuclear Research (NCBJ) (China General Nuclear Power Corporation, EDF, General Electric Hitachi, Korea Hydro & Nuclear Power, SNC-Lavalin, Westinghouse; EN; 4 d	https://www.ncbj.gov.pl/en/aktualnosci/9th-international-school-nuclear-power https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5bc9e695a&appId=PPGMS
22	Decommissioning, Radioactive Waste and Environmental Management (SC4110) Project: ANNETTE; Org: University of Central Lancashire Courses; EN; 1 w	http://www.dimnp.unipi.it/walter-ambrosini/SC4110%20%20ANNETTE%20UCLan%20V15.05.html
23	Fundamentals of International Nuclear Law (FINL) Project: ; Org: NEA ; EN; 9h	https://www.oecd-nea.org/jcms/pl_50604/fundamentals-of-international-nuclear-law-finl?id=pl_50604&preview=true

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#	Course	Link
24	Regulatory review of the safety case for geological disposal Project: SITEX-II; Org: ENSTII IRSN, NEA; EN; 5 d	http://sitexproject.eu/index_2.html#workshops
25	Management of the Decommissioning Process (N31) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N31_syllabus.html
26	International Nuclear Law Essentials (INLE) Project: ; Org: NEA University of Montpellier ; EN; 5 d	https://www.oecd-nea.org/jcms/pl_15203/international-nuclear-law-essentials-inle
27	Predisposal & Characterisation of Radioactive Waste Project: ; Org: ibc nuclear ; EN; 3 d	https://www.rsc.org/events/detail/8436/predisposal-and-characterisation-of-radioactive-waste-course
28	Management of Radioactive Waste Project: EURAD-QUESTIONNAIRE; Org: Public Health England ; EN;	https://www.phe-protectionservices.org.uk/cms/article.php?article=340&course=32&details=true&site=RPTS
29	Decontamination & dismantling techniques. Project: INSIDER (ELINDER); Org: KIT ; EN; 5 d	http://insider-h2020.eu/trainingcourses/
30	Decommissioning, Radioactive Waste and Environmental Management(N04) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N04_syllabus.html
31	Policy, Regulation and Licensing (N09) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N09_syllabus.html
32	Application of Nuclear Safety Concepts in the Development of Regulations and Guidance Project: ; Org: ENSTII, IRSN ; EN; 6 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
33	Environmental Remediation Project: ; Org: IAEA ; EN; 4h	https://elearning.iaea.org/m2/enrol/index.php?id=500
34	Processing, Storage and Disposal of Nuclear Wastes (N10) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N10_syllabus.html
35	Decommissioning Implementation Project: ; Org: IAEA ; EN, JP; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=518
36	Online Summer School on Nuclear decommissioning and Waste Management Project: ELINDER; Org: Joint Research Centre (JRC) ; EN; 5d	https://ec.europa.eu/jrc/en/event/training-course/ndwm-summer-school
37	Spent Fuel Storage Project: ; Org: IAEA ; EN, Japanese; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=561
38	Technical and managing staff Project: VINCO; Org: VUJE a.s. ; EN; 480 h	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
39	JOPRAD – Towards a Joint Programming on Radioactive Waste Project: SITEX-II; Org: JOPRAD ; EN; 2 d	http://sitexproject.eu/index_2.html#workshops_201609
40	Conditioning, disposal & final disposal of radioactive waste Project: ; Org: AINT ; GR; 4 d	https://www.nuclear-training.de/seminar-details/modul-6-1210.html
41	Fundamentals of geological disposal (PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN; 10 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=89
42	Decommissioning of Nuclear Facilities Project: none; Org: Czech Technical University in Prague ; CZ; 3 y	https://www.fjfi.cvut.cz/en/education/bachelor-s-study/fields-of-bachelor-programme-new/decommissioning-of-nuclear-facilities-bc
43	Near Surface Disposal Project: ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=354
44	DOT/NRC Radioactive Waste Packaging, Transportation and Disposal Project: ; Org: EnergySolutions ; EN; 32 h	https://www.energysolutionstraining.com/core/files/energysolutionstraining/uploads/files/Course%20Catalog(3).pdf
45	Introduction to the MARSSIM tool Project: ; Org: TECNATOM S.A ; SP; 6h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=57
46	Regulatory Review of Safety Cases for Geological Disposal of Radioactive Waste Project: SITEX-II; Org: NEA, Integration Group for the Safety Case (IGSC) ; EN; 2 d	http://sitexproject.eu/index_2.html#workshops_201702
47	Thermal-hydraulics and chemistry in HLM reactors; Project: MYRTE - MYRRHA Research and Transmutation Endeavour; Org: MYRTE - MYRRHA Research and Transmutation Endeavour ; EN; 5 d	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b3985c3f&appId=PPGMS
48	Engineered Barrier Systems - Bentonite properties and applications Project: EURAD-QUESTIONNAIRE; Org: Grimsel ; EN; 5 d	https://www.grimsel.com/gts-information/grimsel-training-centre-gtc
49	Nuclear Waste Management – International school in nuclear engineering Project: EURAD-QUESTIONNAIRE; Org: CEA ; EN; 5 d (30 h)	http://www-instn.cea.fr/en/education-and-training/continuing-education/short-courses/international-school-in-nuclear-engineering-nuclear-waste-management_1936959.html

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#	Course	Link
50	Service and operational staff Courses Project: VINCO; Org: VUJE a.s. ; EN; 200 h	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
51	Nuclear fuel cycle Project: ANNETTE; Org: The Belgian Nuclear Education Network; EN; 90 h	https://bnen.sckcen.be/courses/nuclear-fuel-cycle
52	Migration of radioactive waste from deep geological waste repositories - Case Study (PETRUS) Project: ENEN/PETRUS; Org: BME ; EN; 6 h	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=78



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Appendix H. Alignment of the available courses with the roadmap: Theme 7. Performance assessment, safety analysis and safety case development

This project has received funding from the European Union's Horizon 2020 research and innovation programme 2014-2018 under grant agreement N°847593



WP 13 Training and mobility – Alignment of the available courses with the roadmap: Theme 7. Performance assessment, safety analysis and safety case development.

Table 8. List of courses aligned with the theme 7 of EURAD roadmap: Performance assessment, safety analysis and safety case development.

#	Course	Link
1	Final Stage of the Nuclear Lifecycle Project: ANNETTE; Org: KIT and JRC; EN; 5D	https://joint-research-centre.ec.europa.eu/events/annette-teaching-module-final-stage-nuclear-lifecycle-2019-12-02_en
2	Geological Disposal at the Josef Experimental Repository (CVUT) Project: ANNETTE; Org: Czech Technical University in Prague (CVUT); EN; 3 d	https://ceg.fsv.cvut.cz/en/copy_of_annette-courses-are-being-offered/view
3	Geological disposal of Radioactive Waste Project: ANNETTE; Org: Université de Lorraine & Universidad Politecnica de Madrid; FR,SP; 93h	http://www.dimnp.unipi.it/walter-ambrosini/Geological%20Disposal%20Further.html
4	Nuclear Fuel: from Cradle to Grave Project: ANNETTE; Org: KIT and JRC; EN; 1w	https://www.ine.kit.edu/downloads/ANNETTE_NucFuel-Cradle2Grave_2018.pdf
5	Nuclear Technology, Nuclear Waste Management and Radiation Protection Project: ANNETTE; Org: ENEN Aalto University, University of Turku, Åbo Akademi University; EN; 1 w	http://annettesummerschool.aalto.fi/
6	Decommissioning of nuclear installations Project: ENEN/ ELINDER; Org: SCK•CEN ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=5
7	Advanced Nuclear Waste Management Project: EURAD-QUESTIONNAIRE; Org: IMT Atlantique ; EN;	https://www.imt-atlantique.fr/sites/default/files/document/MSc-IMTAtlantique-AdvancedNuclear.pdf
8	Fundamentals of Geological Disposal Project: EURAD-QUESTIONNAIRE; Org: Grimsel Training Centre - Nuclear Training Solutions ; EN; 5 d	http://www.nucleartrainingsolutions.com/nts-courses/gtc-nts-fundamentals-of-geological-disposal-2018
9	Nuclear Decommissioning, Waste Management and environmental Site Remediation Project: EURAD-QUESTIONNAIRE; Org: NINE (MMARS) ; EN;	http://www.nineeng.com/courses/nuclear-decomissioning-waste-management-and-environmental-site-remediation
10	Radioactive Waste Management Project: EURAD-QUESTIONNAIRE; Org: CIEMAT UPM, ENRESA; SP; 60 h	http://www.dimnp.unipi.it/walter-ambrosini/UPM-1.html
11	School of Geological Disposal - Basis for developing safe geological disposal Project: EURAD-QUESTIONNAIRE; Org: SKB ; EN; 5 d	https://www.skb.se/sgd2019/
12	Storage of radioactive waste (PETRUS) Project: EURAD-QUESTIONNAIRE; Org: Mines Nancy Artem ; EN;	https://mines-nancy.univ-lorraine.fr/cours/petrus-storage-of-radioactive-waste-ces8aj/
13	International School of Nuclear Law (ISNL) Project: ; Org: NEA University of Montpellier; EN; 2 w	https://www.oecd-nea.org/cms/pl_23822/international-school-of-nuclear-law-isnl
14	Regulatory Review and Assessment of the Safety Case for Disposal Facilities Project: ; Org: ENSTTI, IRSN ; EN; 15 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
15	Decommissioning of radioactive and nuclear facilities Project: ; Org: CIEMAT ; SP; 30 h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=146
16	Disposal of Radioactive Waste Project: ; Org: IAEA ; EN, RS; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=357
17	Fundamentals of RW disposal Project: ; Org: IAEA ; EN RS;	https://elearning.iaea.org/m2/enrol/index.php?id=357
18	Geological Disposal Project: ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=356
19	Borehole Disposal Project: ; Org: IAEA ; EN; 3h	https://elearning.iaea.org/m2/enrol/index.php?id=358
20	Radioactive Waste disposal Project: ; Org: SCK•CEN ; EN; w	https://www.sckcen.be/en/academy/training-courses/personalized-training-courses/customized-training-courses-radioactive-waste-disposal
21	Central European School - 9th International School on Nuclear Power in Poland Project: VINCO; Org: National Centre for Nuclear Research (NCBJ) (China General Nuclear Power Corporation, EDF, General Electric Hitachi, Korea Hydro & Nuclear Power, SNC-Lavalin, Westinghouse; EN; 4 d	https://www.ncbj.gov.pl/en/aktualnosci/9th-international-school-nuclear-power https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5bc9e695a&appId=PPGMS
22	Decommissioning, Radioactive Waste and Environmental Management (SC4110) Project: ANNETTE; Org: University of Central Lancashire Courses; EN; 1 w	http://www.dimnp.unipi.it/walter-ambrosini/SC4110%20%20ANNETTE%20UCLan%20V15.05.html
23	Fundamentals of International Nuclear Law (FINL) Project: ; Org: NEA ; EN; 9h	https://www.oecd-nea.org/cms/pl_50604/fundamentals-of-international-nuclear-law-finl?id=pl_50604&preview=true

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24	Regulatory review of the safety case for geological disposal Project: SITEX-II; Org: ENSTII IRSN, NEA; EN; 5 d	http://sitexproject.eu/index_2.html#workshops
25	Management of the Decommissioning Process (N31) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N31_syllabus.html
26	International Nuclear Law Essentials (INLE) Project: ; Org: NEA University of Montpellier ; EN; 5 d	https://www.oecd-nea.org/icms/pl_15203/international-nuclear-law-essentials-inle
27	Predisposal & Characterisation of Radioactive Waste Project: ; Org: ibc nuclear ; EN; 3 d	https://www.rsc.org/events/detail/8436/predisposal-and-characterisation-of-radioactive-waste-course
28	Management of Radioactive Waste Project: EURAD-QUESTIONNAIRE; Org: Public Health England ; EN;	https://www.phe-protectionservices.org.uk/cms/article.php?article=340&course=32&details=true&site=RPTS
29	Decontamination & dismantling techniques. Project: INSIDER (ELINDER); Org: KIT ; EN; 5 d	http://insider-h2020.eu/trainingcourses/
30	Decommissioning, Radioactive Waste and Environmental Management(N04) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N04_syllabus.html
31	Policy, Regulation and Licensing (N09) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N09_syllabus.html
32	Technical Concepts, Techniques, Methods and Tools for the Assessment of Nuclear Safety and Radiation Protection Project: ; Org: ENSTTI, IRSN ; EN; 3 w	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
33	Regulatory Control of the Safety of Spent Fuel & Radioactive Waste Management Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
34	Regulatory Control of Radiation Sources Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
35	The Legal and Regulatory Basis for Nuclear and Radiation Safety Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
36	EERRI Research Reactor Group Fellowship Programme Project: VINCO; Org: Centre for Energy Research, Hungarian Academy of Sciences with Institute of Nuclear Techniques of Budapest University of Technology and Economics ; EN; 1.5 m	https://nucleus.iaea.org/sites/connect/RRIHpublic/Pages/EERRI-Group-Fellowship.aspx
37	Application of Nuclear Safety Concepts in the Development of Regulations and Guidance Project: ; Org: ENSTTI, IRSN ; EN; 6 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
38	State-of-the-art computer codes Project: ; Org: NEA ; EN; variable	https://www.oecd-nea.org/icms/pl_52270/training-courses-on-state-of-the-art-computer-codes
39	Radiation Protection and Confinement Systems Project: ; Org: ENSTTI, IRSN ; SP; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
40	Regulatory Control of Nuclear Sites: Inspection of Safety Systems, Structures and Components Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
41	Nuclear Waste Management Project: ; Org: CEA, ENEN ; EN; 1 w	https://instn.cea.fr/formation/nuclear-waste-management-international-school-in-nuclear-engineering/
42	Nuclear Safety with respect to radioactive waste management facilities Project: ; Org: TUV ; EN; 2 d	https://www.tuvsud.com/it-it/store/italia/english-training/nuclear-english-courses/nuclear-safety-with-respect-to-radioactive-waste-management-facilities
43	Planning for Environmental Remediation Project: ; Org: IAEA ; EN; 4h	https://elearning.iaea.org/m2/enrol/index.php?id=500
44	Nuclear Materials Protection, Nuclear Safeguards and Interface with Nuclear Safety Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
45	Computer Control of Experiments Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
46	Metrology for Waste Characterization and Clearance Project: ; Org: JRC ; EN; 5 d	https://ec.europa.eu/jrc/en/training-programme/metrology-waste-characterization-and-clearance-elinder-course-s7
47	How does corrosion influence the health of concrete? Project: ; Org: IETCC ; SP; 2 h	https://www.ietcc.csic.es/noticias/como-influye-la-corrosion-en-la-salud-del-hormigon-how-does-corrosion-influence-the-health-of-concrete/
48	Regulatory Control of Radiation Protection in Mining and Minerals Processing Facilities and Activities Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf

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49	Nuclear Waste Management Project: ENEN; Org: CEA ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=42
50	Material and waste management in decommissioning Project: INSIDER (ELINDER); Org: CEA-INSTN ; EN;	http://insider-h2020.eu/trainingcourses/
51	Application of International Regulations in Qualification and Approval of Packages for the Transport of Radioactive Materials Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
52	Digital Safety Systems of Nuclear Reactors Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
53	Nuclear Safety Case Development (N07) Project: ANNETTE; Org: University of Manchester – NTEC Courses; EN;	http://www.ntec.ac.uk/syllabi/N07_syllabus.html
54	Regulatory Issues and Standards(PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=82
55	Implementing Nuclear Safeguards in practice Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
56	Environmental Remediation Project: ; Org: IAEA ; EN; 4h	https://elearning.iaea.org/m2/enrol/index.php?id=500
57	Control systems of Nuclear Reactors Project: VINCO; Org: CTU Prague, FNSPE ; EN; 9 m	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
58	Fundamentals of geological disposal (PETRUS) Project: ENEN/PETRUS; Org: ITC ; EN; 10 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=89
59	Decommissioning of Nuclear Facilities Project: none; Org: Czech Technical University in Prague ; CZ; 3 y	https://www.fjfi.cvut.cz/en/education/bachelor-s-study/fields-of-bachelor-programme-new/decommissioning-of-nuclear-facilities-bc
60	Near Surface Disposal Project: ; Org: IAEA ; EN; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=354
61	DOT/NRC Radioactive Waste Packaging, Transportation and Disposal Project: ; Org: EnergySolutions ; EN; 32 h	https://www.energysolutionstraining.com/core/files/energysolutionstraining/uploads/files/Course%20Catalog(3).pdf
62	Introduction to the MARSSIM tool Project: ; Org: TECNATOM S.A ; SP; 6h	https://ceiden.com/formacion-descripcion/cursos-disponibles/?view=57
63	Regulatory Review of Safety Cases for Geological Disposal of Radioactive Waste Project: SITEX-II; Org: NEA, Integration Group for the Safety Case (IGSC) ; EN; 2 d	http://sitexproject.eu/index_2.html#workshops_201702
64	Thermal-hydraulics and chemistry in HLM reactors Project: MYRTE - MYRRHA Research and Transmutation Endeavour; Org: MYRTE - MYRRHA Research and Transmutation Endeavour ; EN; 5 d	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b3985c3f&appId=PPGMS
65	Monitoring in Geological Disposal of Radioactive Waste Project: Modern2020; Org: Äspö Hard Rock Laboratory, Sweden. ; EN; 5 d	http://www.modern2020.eu/training/learning-outcomes.html
66	Microbiology and disposal of radioactive waste (PETRUS) Project: ENEN/PETRUS; Org: MICANS ; EN; 5 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=95
67	Understanding Thermo-Hydro-Mechanical processes for safety assessment: theory and numerical simulation (PETRUS) Project: ENEN/PETRUS; Org: CARDIFF ; EN; 6 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=69
68	Fundamentals of long-term safety analysis (PETRUS) Project: ENEN/PETRUS; Org: Technische Universität Clausthal Institut für Endlagerforschung ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=116
69	Physics and Chemistry of the Actinides Project: ; Org: Institut des Sciences Chimiques de Rennes Other (not specified yet); EN; 4 d	https://ida2020.sciencesconf.org/
70	Emergency Response to Transport Accidents involving Radioactive Materials at Sea and in Port Zones Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
71	Nuclear Energy and The Nuclear Fuel Cycle Project: ANNETTE; Org: University of Central Lancashire Courses; EN; 2 w	http://www.dimnp.unipi.it/walter-ambrosini/SC4101%20%20ANNETTE%20UCLan%20V15.05.html
72	Nuclear Criticality Safety Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf
73	Reactor physics and operation Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
74	CRISTAL - Tools for Criticality Safety Calculation Project: ; Org: ENSTTI, IRSN ; EN; 5 d	https://enstti.eu/wp/wp-content/uploads/2020/03/enstti_catalogue_2020.pdf

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75	Operational control room staff, verification physicist, simulator training instructors Project: VINCO; Org: VUJE a.s. ; EN; 900 h	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
76	Thermochemical Database (TDB) Project course: Thermodynamic data collection and assessment Project: ; Org: NEA KIT-INE, LANL; A21, EMPA; EN; 2 d	https://www.oecd-nea.org/upload/docs/application/pdf/2020-09/outline_course_paris_2020.pdf
77	Theramin technical training school Project: THERAMIN; Org: CEA EDF; EN; 3 d	http://www.theramin-h2020.eu/downloads/THERAMIN%20Training%20school%20flyer.pdf
78	From geophysical field data to geological models - theory and hands-on workshop Project: EURAD-QUESTIONNAIRE; Org: Grimsel ; EN; 3 d	http://www.grimsel.com/images/GTC_Files/GTC_Announcemet_From_Geophysical_Field_Data_to_Geological_models_Hands_on_workshop.pdf
79	C-14 behaviour under repository conditions Project: CAST; Org: KIT-INE WAK-HDB; EN; 2 d	https://www.projectcast.eu/cms-file/get/iFileId/2522
80	Plug and Seal Training Workshop Project: DOPAS; Org: CTU POSIVA; EN; 5 d	https://posiva.fi/dopas/files/4375/DOPAS_Deliverable_D7_2_Plug_and_Seal_Training_Workshop_planning_and_implementation_report_.pdf
81	Introduction to safety assessment in geological disposal of spent fuel - advanced sessions (PETRUS II) Project: ENEN/PETRUS II; Org: POSIVA ; FN; 4 d	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=100
82	Mechanical measurements of irradiated materials Project: VINCO; Org: National Centre for Nuclear Research (NCBJ) JAEA; EN; 2 d	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5bd507a32&appId=PPGMS
83	Numerical simulation in long-term safety analysis - probabilistic methods(PETRUS) Project: ENEN/PETRUS; Org: Technische Universität Clausthal Institut für Endlagerforschung ; EN;	https://euradschool.eu/wp-content/uploads/2021/09/oldENEN-database-ET-info.pdf#page=117
84	Human-Technology-Organisation/Human Factors for Nuclear Safety including Virtual Reality Resources as part of Safety Culture Project: ANNETTE; Org: UPPSALA UNIVERSITY; EN;	https://nanss.uu.se/education-training/mto-hf-safety-culture/
85	Introducing safety culture and its application to the nuclear field Project: ANNETTE; Org: ENEN UNED, TECNATOM; EN; 25h	http://blogs.uned.es/inooc/en/mooc_introducing_safety_culture/
86	Safety Case Development Project: ; Org: IAEA ; EN; ; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=561
87	Szkoła energetyki jądrowej / School of Nuclear Energy Project: VINCO; Org: NCBJ ; PL, EN ; 5 d	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
88	Engineered Barrier Systems - Bentonite properties and applications Project: EURAD-QUESTIONNAIRE; Org: Grimsel ; EN; 5 d	https://www.grimsel.com/gts-information/grimsel-training-centre-gtc
89	Disused Sealed Radioactive sources Project: ; Org: IAEA ; EN, SP,FR; 5h	https://elearning.iaea.org/m2/enrol/index.php?id=376
90	New Nuclear Sources Project: VINCO; Org: CTU Prague, FNSPE ; EN;	https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b06d0d5f&appId=PPGMS
91	Uncertainty Management Project: EURAD; Org: EURAD WP13 ; EN; 3 d	https://euradschool.eu/event/eurad-training-course-on-uncertainty-management/
92	Safety Case Development and Review Project: EURAD; Org: EURAD WP13 ; EN; 1 w	https://euradschool.eu/event/training-course-on-safety-case-development-and-review/
93	Scientific basis and safety relevant aspects of radionuclide transport and retention Project: EURAD; Org: EURAD WP FUTURE ; EN; 1 d	https://euradschool.eu/event/wp-future-education-training-event-on-the-scientific-basis-and-safety-relevant-aspects-of-radionuclide-transport-and-retention/
94	Introductory course on EURAD and Radioactive Waste Management Project: EURAD; Org: EURAD WP 13 ; EN; 1 d	https://euradschool.eu/event/eurad_and_radioactive_waste_management/