



RADIATION PROTECTION EXPERT TECHNICIAN COURSE- 10 YEARS OF ONLINE EXPERIENCE, INNOVATION AND IMPROVEMENT

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INTRODUCTION.

- The figure of Radiation Protection Expert Technician (RPET) in Spain has been defined in The National Regulatory Body guidance IS-03[1]. The RPET works in a Radiation Protection (RP) service under the responsibility of the RP Expert. A RP service advises in RP matter and has the technical responsibility, as is established in the Council Directive 2013/59/EURATOM, for the tasks of RP of workers and members of the public.
- The qualification to be recognized as a RPTE [1], is based on a 40-hour face-to-faces (FTF) training course and an experience of three months in the specific tasks at the work place.

BACKGROUND

- The CIEMAT's Virtual Classroom (AVCIEMAT) developed a "blended learning" course to get this recognition.
- Was delivered for the first time in Spain during 31st March to 13th June of 2008 in the "Radioactive facilities" area.
- One year later, the course was extended to cover the "nuclear facilities" modality, delivered from 13th October 2009 to 29th February 2010

OBJETIVES

- To offer a specialized RP training course, accessible to the Spanish-speaker workers needing.
- To overcome barriers - place, pace, time.
- To promote tailor learning to individual needs: Instant feedback, track student performance.
- To tender expert knowledge with good knowledge management systems.
- To issue recognized proof of completion and certification.

MATERIALS AND METHODS

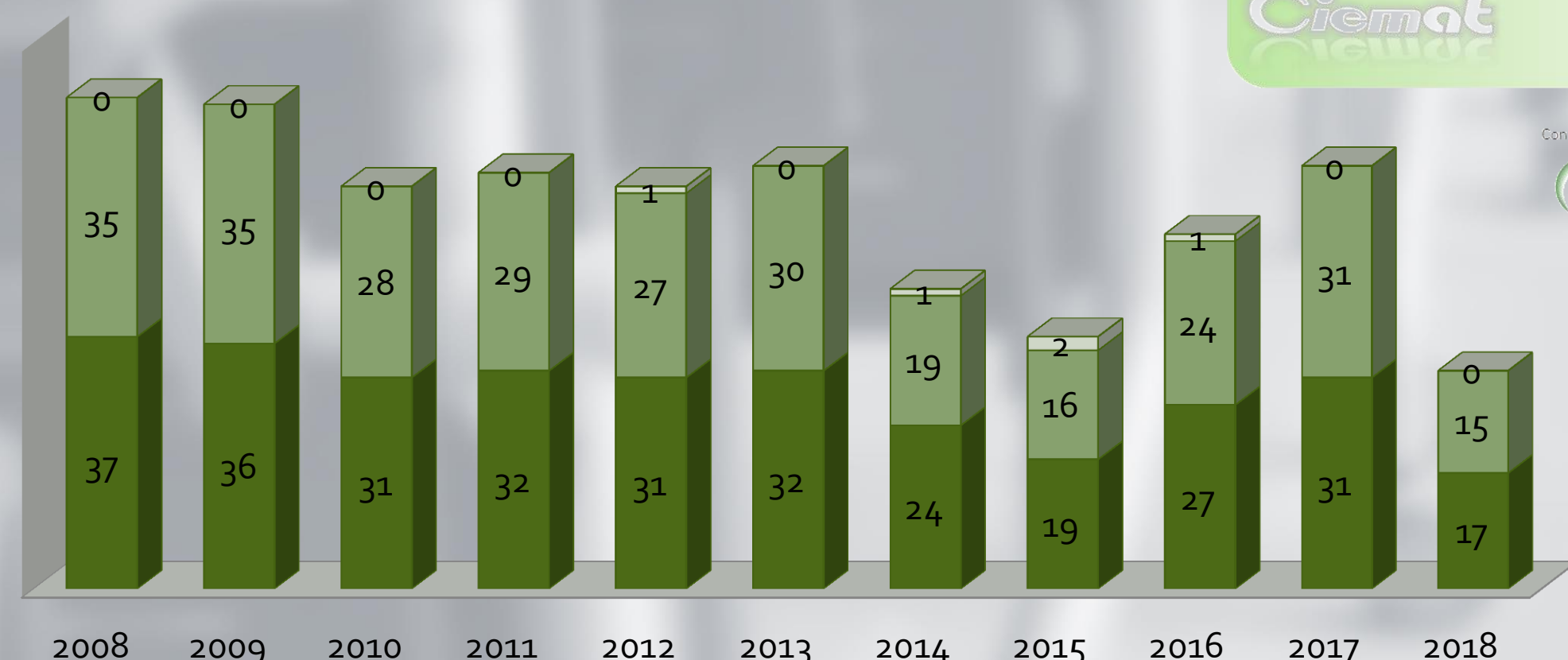
- Reference syllabus for training of RPETs.
- Virtual Learning Environment, available through Internet supporting the course [2].
- Multimedia material in standardized format for theoretical conferences and some practical session, designed, developed and implemented by multidisciplinary team.
- Experts in matter are in charged of the student track, and a technical and pedagogical coordinator supervises the correct learning process.
- Hands on in the lab: three-days practical-sessions in different facilities, for the radioactive area, industrial and research facilities at CIEMAT and hospital facilities (H. Ramón y Cajal); for the nuclear area, nuclear power plants (Garoña & Zorita). A final exam is also carried out the third FTF day.

MAIN ACHIEVEMENTS

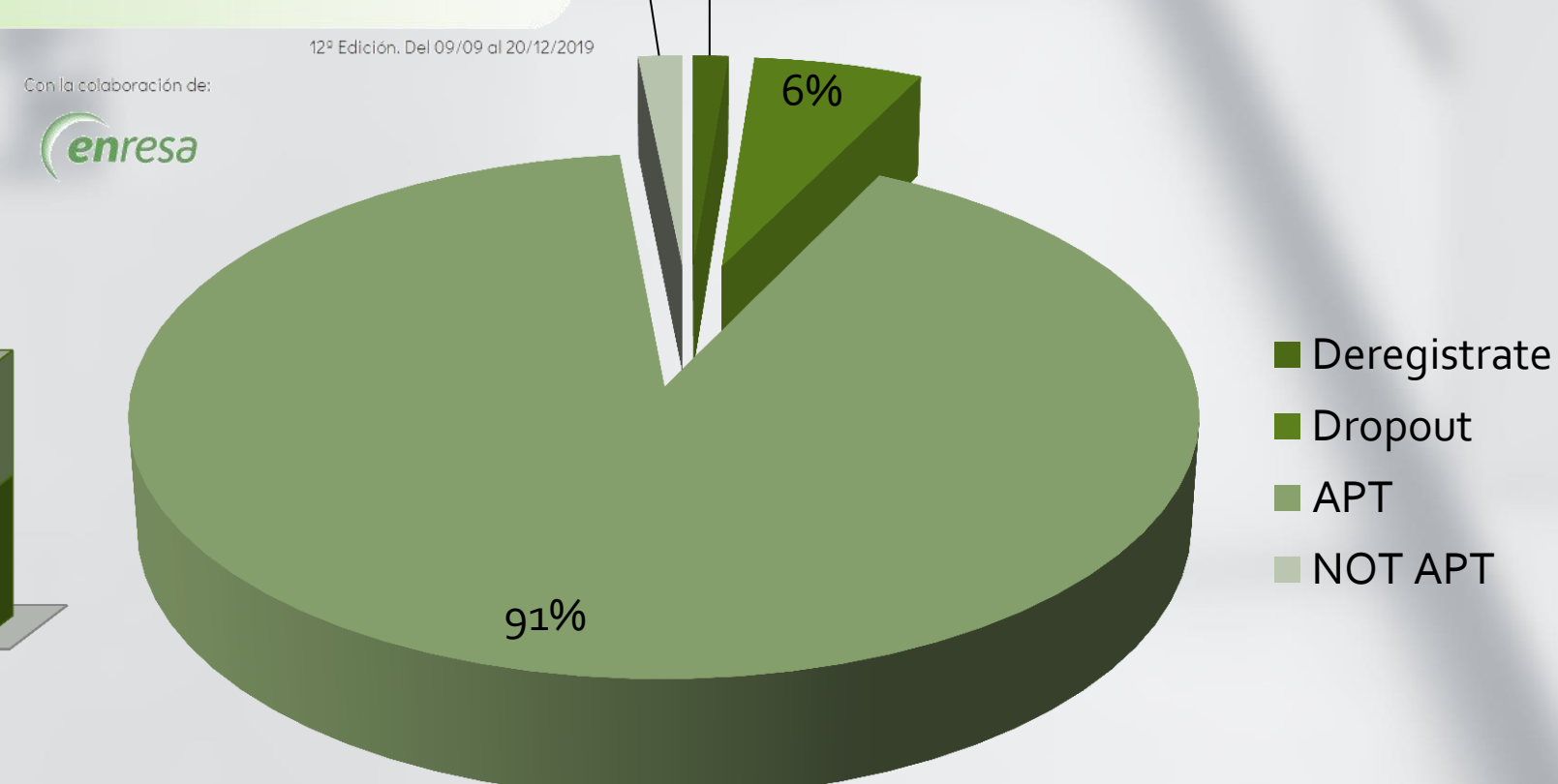
- In Spain there are at this moment 86 RP Services and 41 Technical RP Units [3]. In ten years CIEMAT has trained **317 students** for the radioactive facilities area and **96** for the nuclear area (+30 that are studying now.)
- The average success (apt VS enrolled) for the radioactive facilities course is **90.4%** and **94.8%** for the nuclear area course, with very little not-apt-students (1.5% in radioactive and 2% in nuclear) and little level of dropout rate (6% radioactive and 2% nuclear) compared with >>15% in High education e-learning scene[4].
- The average of the course overall rating is **4.4/ 5** for radioactive facilities course and **4.6/5** for nuclear facilities course.

STUDENTS PER EDITION- RADIOACTIVE COURSE

■ ENROLLED ■ APT ■ NOT APT

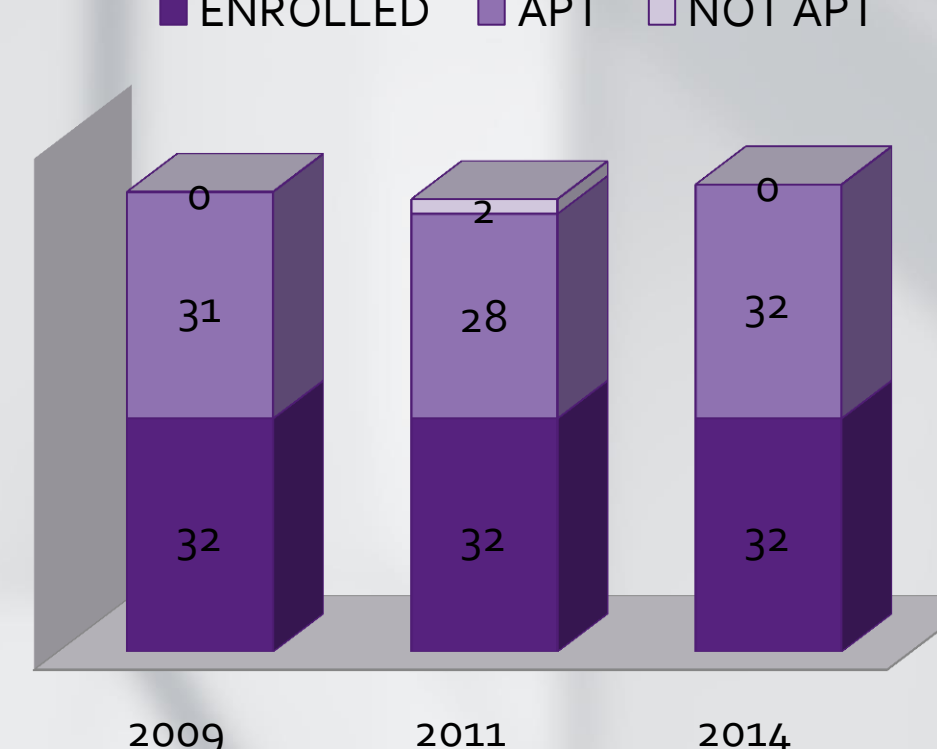


Técnico experto en protección radiológica. Average summary of the 11 editions Radioactive facilities course

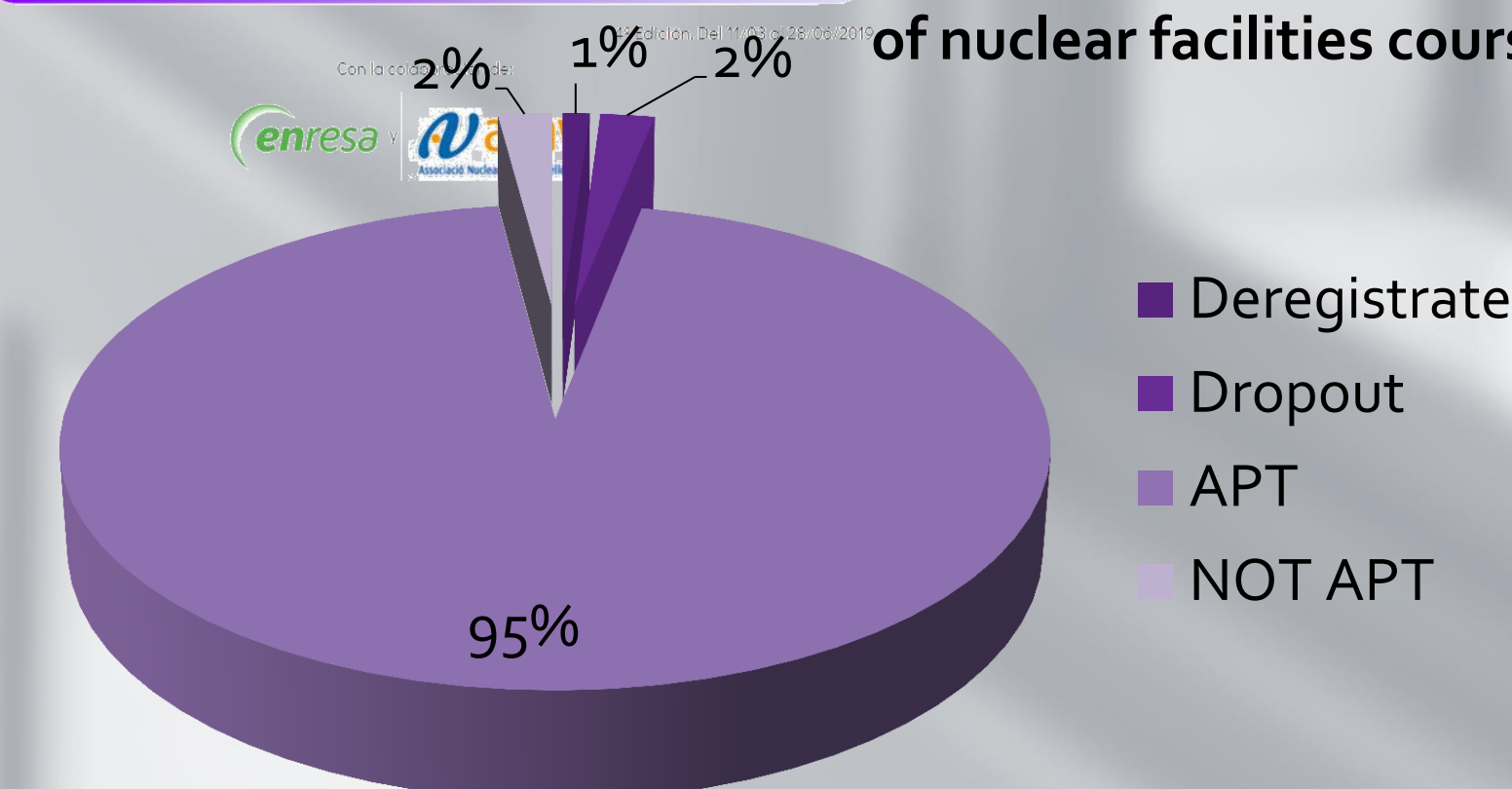


STUDENTS PER EDITION- NUCLEAR COURSE

■ ENROLLED ■ APT ■ NOT APT



Técnico experto en protección radiológica. Average summary of the 3 editions of nuclear facilities course



CONCLUSION

- The promotion and use of e-learning in the EU, specially in RP E&T **increases the participation of professionals and the harmonization of the contents** in the specialized courses in RP.
- After our experience, the best option to offer a **successful and complete "tailor-made" RP training**, is the combination of both presence and distance learning.
- E-learning provides a **high quality Education and Training**, which allows simulations and practical exercises without ionizing radiation exposures, contributing to the **ALARA** criteria.
- The experience through this ten years has demonstrated a **great interest** in the course, with a **high level of success** and very little dropout rate. This is consequence of the **continuous improvement and actualization** in both, contents and multimedia materials, as well as a high coordination activity supporting the course.

REFERENCES

- [1] <https://goo.gl/yP26wc>
- [2] <http://avformacion.ciemat.es/>
- [3] <https://www.sepr.es/profesionales/descargables/category/104-proteccion-radiologica-2017>
- [4] <https://online-journals.org/index.php/i-jet/article/view/4189>