Radiation Protection Educator in a Multilingual and Multidisciplinary Environment – Veni Vidi Vici – A Personal Experience

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Veni – I Came : The Scenario

- The Medical Biotechnology department of University of Verona (Italy) introduced the complete study program in English under the EU Mobility program (International Cooperation)
- As one of the course unit, the University decided to implement, since 2017, “Innovative educational and research activities based on the production of biomolecules labelled with radioisotopes for diagnostic imaging and therapeutic purposes”.
- The teaching course “Radiation, Radioactivity and Radiation Protection” should include Physical aspects in its “Application and Technological development in Medicine” (apropos “Medical Radiation Physics”) and facets of Radiation Protection.

Veni – I Came : The Scenario

- Although the Lectures, Q/A and Exams are mainly in English language, the Q/A, discussions and Exams are permitted also in Italian (or German as second language), depending on the confidence level of the Students.
- 40 hours of Lectures, 4 hours of Tutorials and 4 hours of Lab session are foreseen for the course (within 4 months period).
- The Lab session are performed at a PET facility with dedicated Medical Cyclotron at a local Hospital, enabling the students to gain experience in the Production of Radiopharmaceuticals, with the related QA/QC & Radiation Safety aspects.

Veni – I Came : The Scenario

- The outcome of the course is to prepare the students for Higher Studies (e.g. Ph.D.) and in career prospects, not only in Italy but also abroad (e.g. in European Union).
- Both ”Face-to-Face” and “On-line” delivery options are foreseen. The lectures and study materials are to be provided to the students in the moodle site.
- The students belonging to multidisciplinary groups (Biotechnology, Pharmacy, Medicine, Biology, etc.) and Language groups (Italian, German, Spanish, French) were the participants in the course.
- The Biotechnology department of University of Verona is a leading department in this field among EU countries.

Veni – I Came : Why and how I was selected ?

- I was previously involved in teaching at the Faculty of Science and Engineering at the University of Verona between 1994-1996 during my stay in Padova (Italy) as Post-doctoral Research Associate in Nuclear Physics (1986-1996).
- My involvements in Teaching Nuclear Physics, during my Ph.D. years (1978-1985) in Germany and Post-doctoral years in Italy at the Universities.
- My Proficiencies in German and Italian Languages, the two main supplementary languages of the course.
- My involvements and experiences in working as Medical Physicist in the Hospital, and teaching in “Medical Radiation Science” and ”Medical Physics” at the University of Sydney in Australia.

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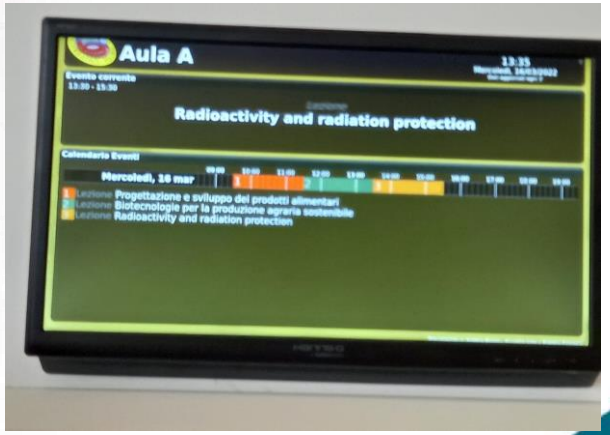
Veni – I Came : Why and how I was selected ?

- I was officially invited to run the course with the local co-ordination of a Professor of the University, in July 2016, from 2016-2017 Academic Year (March-June Semester)
- I was offered official academic status of “Visiting Professor” as part of the departmental academic staff
- I was given the complete flexibility in compiling the Syllabus and running the course within the framework of the Key performance Indicators.
- For in-presence and “face to face” lectures at the Faculty, the department agreed to go beyond its capability to fund my accommodation and travel costs incurred.

Vidi – I saw : Managing the course

- I ran the course as following (March-June session):
  - 2016-2017 : “Face to Face” in presence
  - 2017-2018 : “On-line” (due to my impending surgery)
  - 2018-2019 : “On-line” (due to my impending surgery)
  - 2019-2020 : “On-line” (Covid-19 out-break)
  - 2020-2021 : Course Cancelled (due to persistent Covid-19 Pandemic)
  - 2021-2022 : “Face to Face” in presence
  - 2022-2023 : “Face to Face” in presence
  - 2023-2024 : “On-line” (approved)
- The students were provided with Lecture slides, Study guides, Complete Lecture notes and further study materials in the moodle site, a week before the lecture. The Lecture and study materials were complete and comprehensive.



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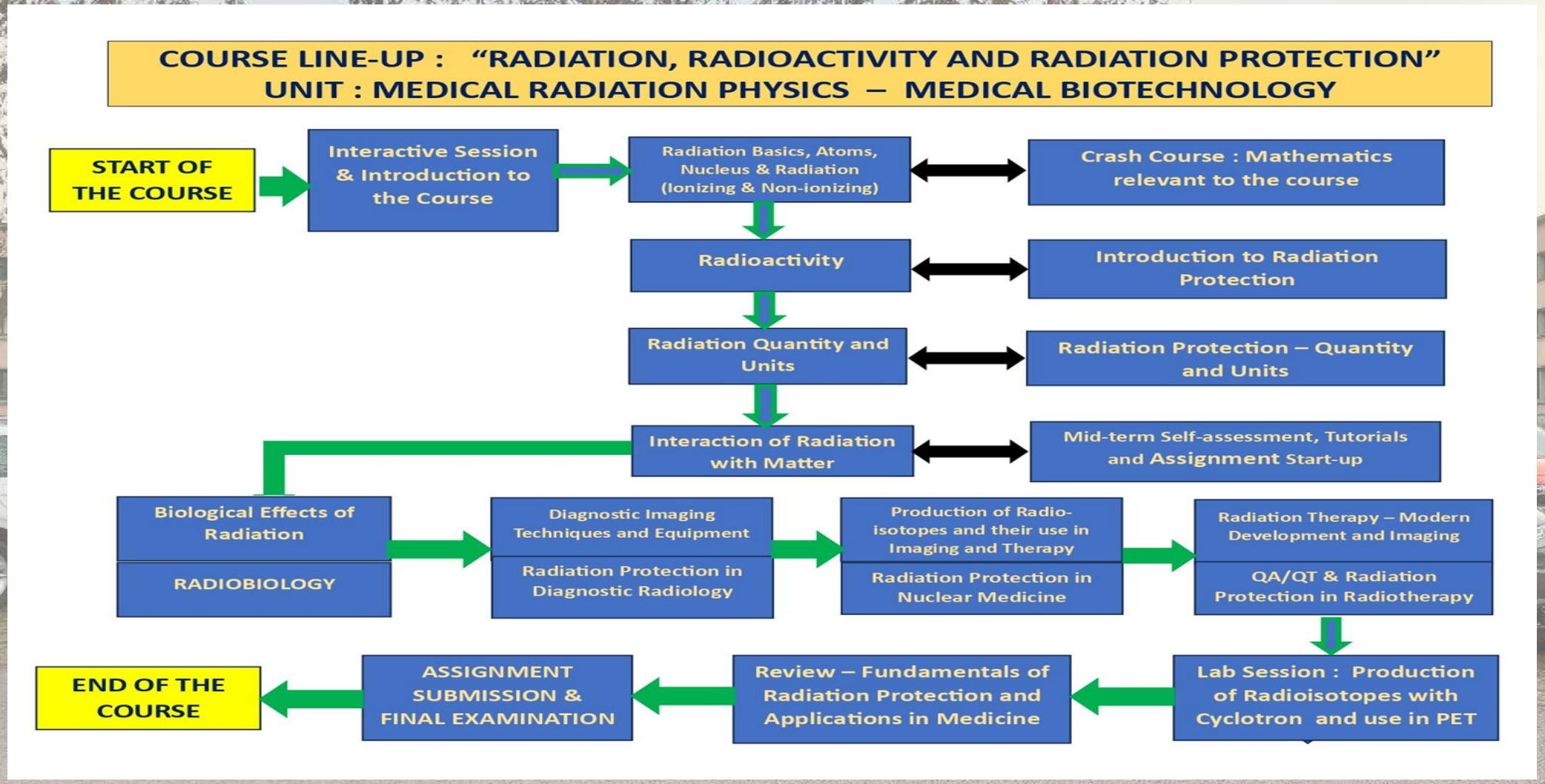
Vidi – I saw : Managing the course

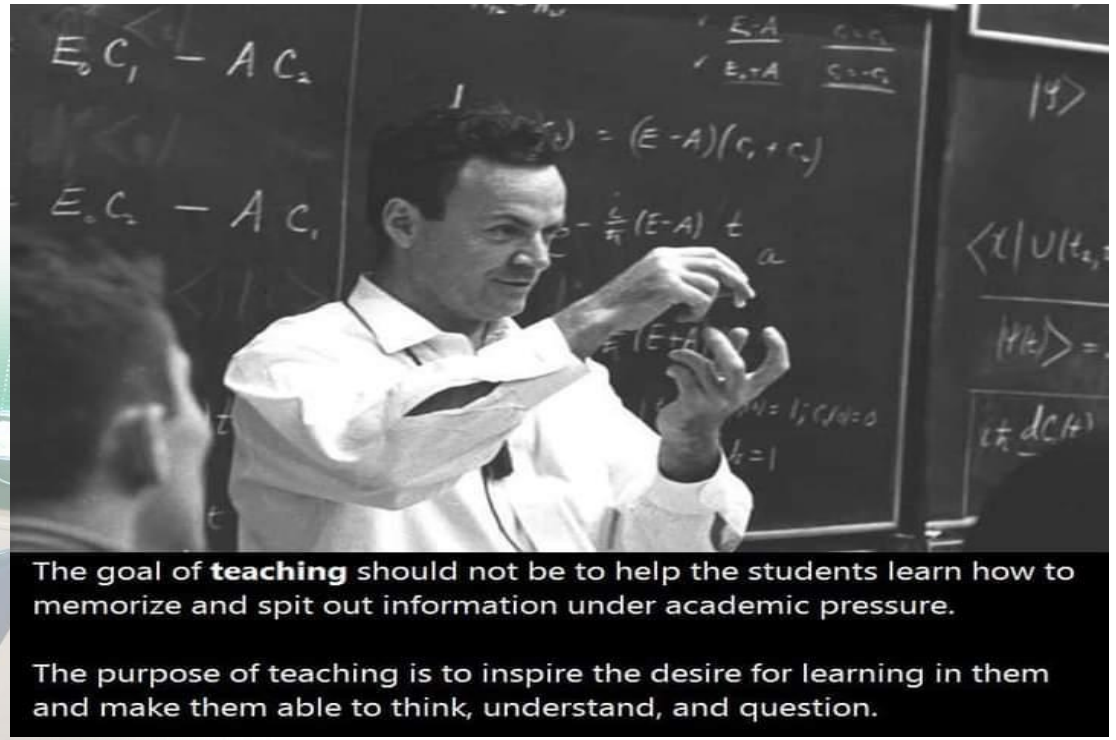


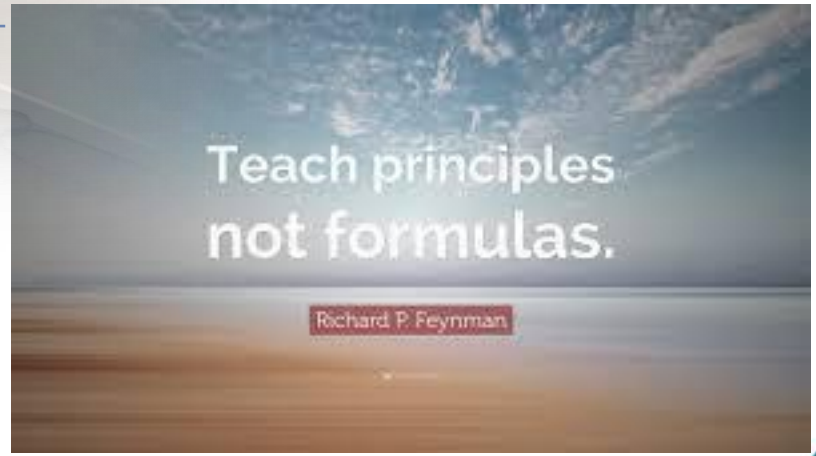
Vidi – I saw : Managing of the course

The students were encouraged to “Understand the underlying concepts” rather than “memorizing the contents” of the topics.

Made the students clear at the beginning about my role as “mentor” rather than “Teacher only”, to follow them through their study and career path.

Facilitated discussion forum in “WhatsApp” group, to discuss the study materials among themselves, so I could follow and input myself, with one student acting as administrator of the group.





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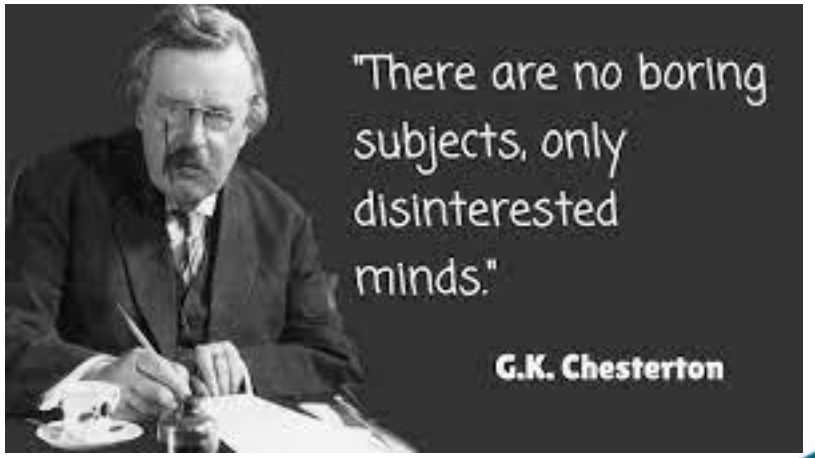
Vidi – I saw : Educating Students in Radiation Protection

- **Radiation Protection shouldn't be a dull topic to educate but can be made more interesting and appealing to the students.**
- **Start the lecture with a "why", be interested in your topic, let your personality shine through.**
- **There is no such thing as a boring topic, only boring angle !!**
- **Create the illusion of a conversation to hook the students.**
- **Educate more on Aims, Principles, Strategies and Applications rather than complicated Regulatory guidelines.**
- **Make a point, ask a question about the point and Answer it.**



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Vidi – I saw : Educating in Radiation Protection

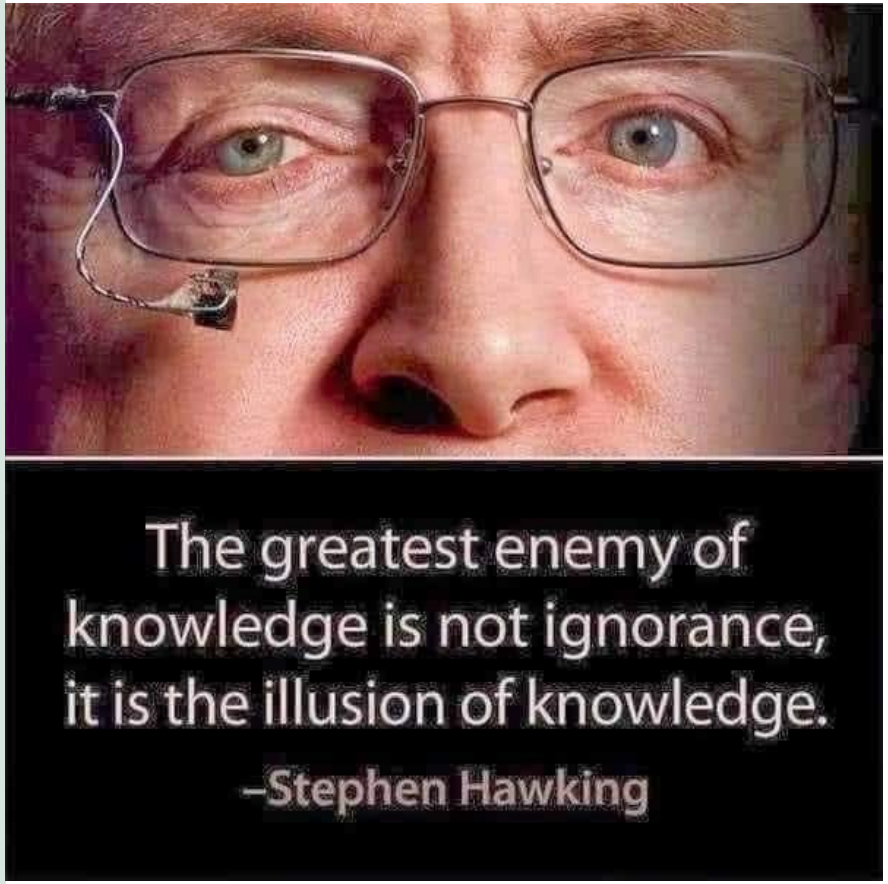
Consider the questions while preparing the lecture;

- What am I sharing?
- Why is it important?
- What can my Students do with the information once they have it?

Try to accomplish one or two of these purposes:

- To inform
- To persuade
- To inspire
- To entertain

- Be authentic and engaging !
- Take Your Presentation to the Next Level with Music, Images and Video ! Use appropriate slogans to complement sub-topics of the Lecture.



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Vidi – I saw : Explaining ALARA Principle

You have to keep your Dose

A L A R A !!

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Vidi – I saw : Explaining ALARA Principle

Don’t Stand
Don’t Stand
Don’t Stand so close to me !!

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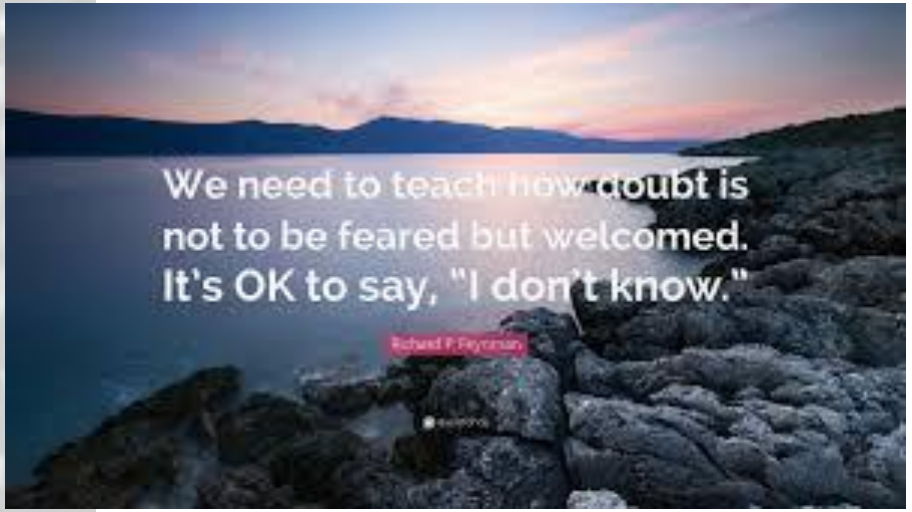
Vidi – I saw : Educating in General – from experience in Italy

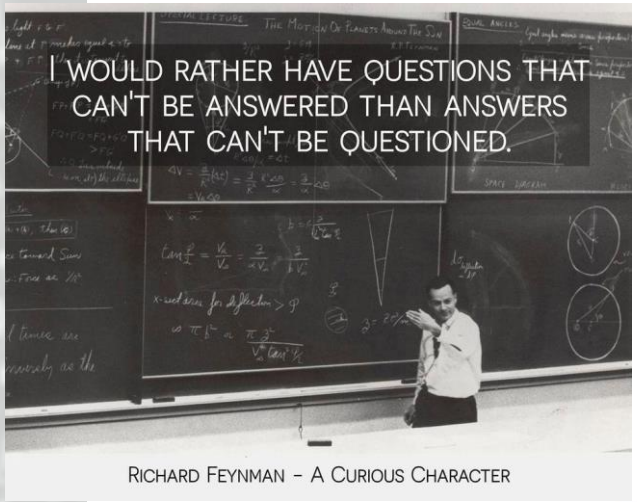
In Italy, the students have to like the Teacher (not how they look like, but how they approach to Students). It is important;

- To start with an ”icrebreaker”, e.g. asking the students say two words (also in their mother tongue), that comes into their mind when they hear the words “Radiation” and “Radioactivity”. This grew more confidence among the students.
- to understand their concerns and be compassionate. Facilitate personal one-to-one private consultation to grow their confidence.
- they can speak good English, but often they feel shy and not confident enough to express themselves. Involve them in conversation in Italian, and encourage them to express in English too, without hesitation.
- to promote their strength rather than discouraging with the shortcomings.
- to involve in interactive sessions and study groups.
- to speak in plain English, if possible, with local accents (in my case it was easier !!!) and actual pronunciation of original scientific terms (e.g., Bremsstrahlung). This grows more confidence in themselves and help them understand the underlying meaning and concept.

Vidi – I saw : Strategies adopted in educating students

- To make the students feel that they are the most important persons in the room rather than the educator.
- Have the courage to say “I don’t know” rather than giving a doubtful answer. Take the responsibility to come back with a correct answer.
- Encourage them to interact and to communicate
- End a lecture session with Q&A and summarize the entire presentation at the beginning of the next session.
- Avoid reading slides verbatim but rather presentation in the form of open lecture, creating the illusion of a conversation to hook the students.





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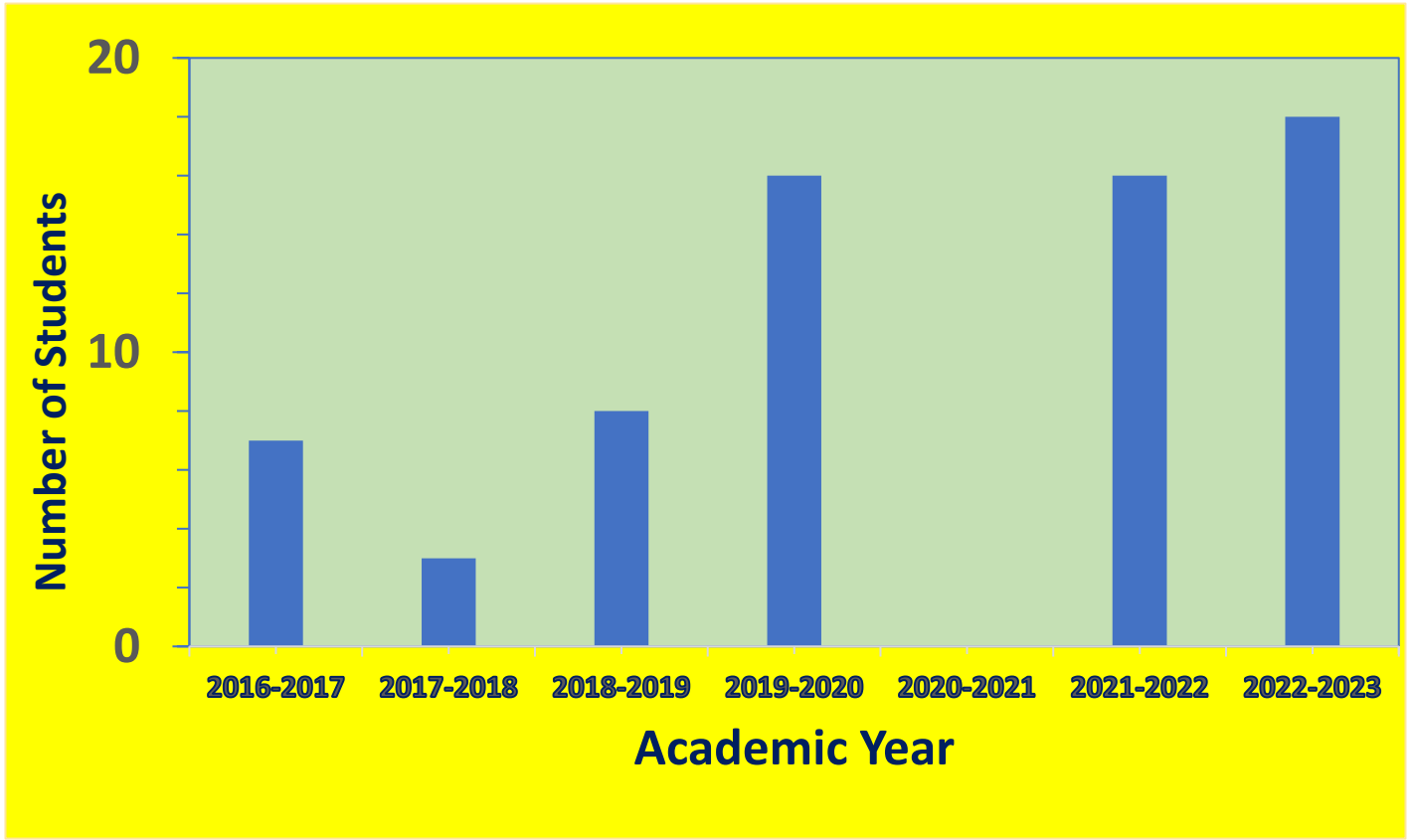
Vici – I won : Achievements and Outcomes

- I managed to conquer “the heart and minds” of my students, the main aim of the course.
- The number of students enrolled into the course are growing over the years.



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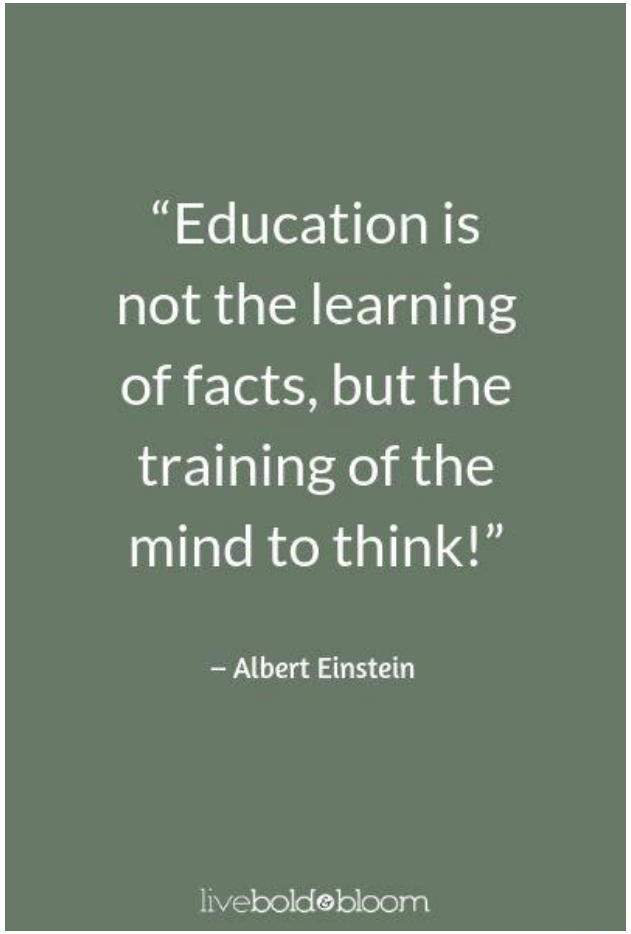
Vici – I won : Achievements and Outcomes

- I have managed to win “Hearts and Minds” of my Students.
- Most of my students have assumed me as “Mentor” and “Referee” for their higher studies (leading to Ph.D.) and career Pathways. Many of the student are pursuing their Ph.D. in related fields in other EU countries.
- Few of the students have secured jobs in Radiopharmaceutical companies and Institution, as Clinical-trial Manager in Health Care, and few are pursuing certification as “Qualified experts in Radiation Protection”.
- The department has recognized now the course as one of the cardinal “Course Unit” and decided to continue with the course in coming years.
- 80-90% students successfully concluded the course with final exams, many with high distinction.



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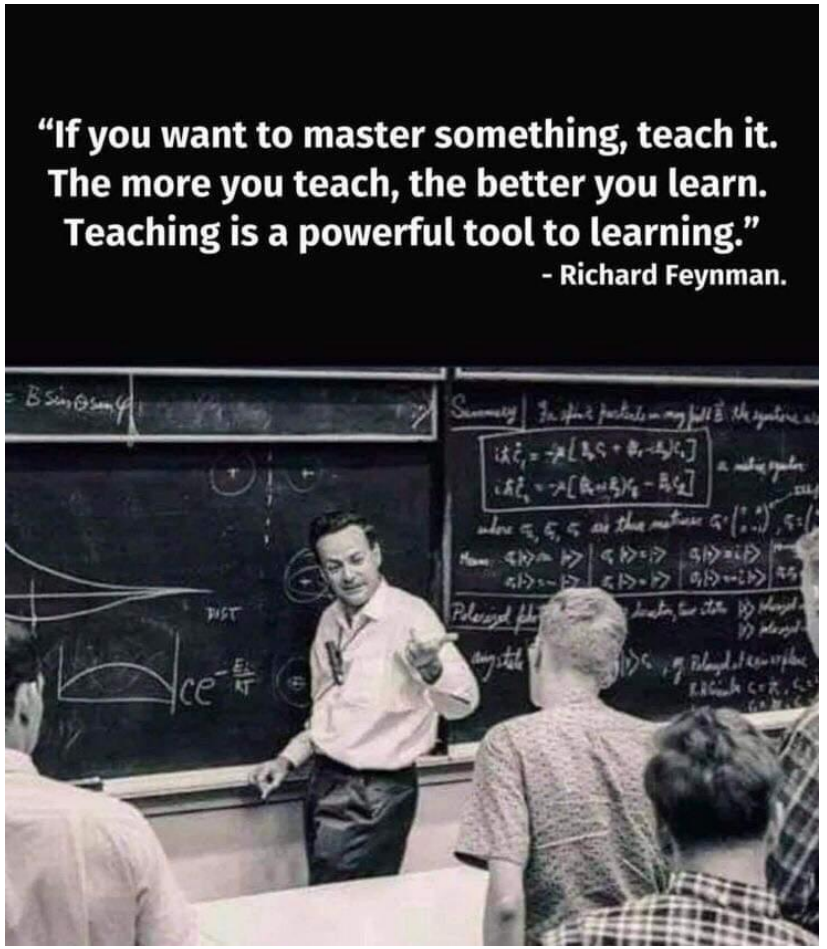
Vici – I won : Achievements and Outcomes

- I was recognized by the student the “Best Covid Professor” (not Professor with Covid !!!) in 2020 for starting the course on-line and for successful completion with exams on-time, under Covid-19 related emergency situation in Italy, with proper improvisation (I was almost ready to fly to deliver “face-to-face” lectures, but sudden Covid-19 pandemic forced me to cancel the trip and run the course on-line instead).
- I was chosen by many students as their “Supervisor” or “Co-supervisor” for Master’s thesis work, mostly in the field of Nuclear Medicine and Radiopharmaceuticals.
- I have also learned a lot in the field of Nuclear Medicine and Diagnostic Radiology Physics over the years, through teaching.
- The ex-students are staying connected via emails and social media (LinkedIn), informing about their career pathways.



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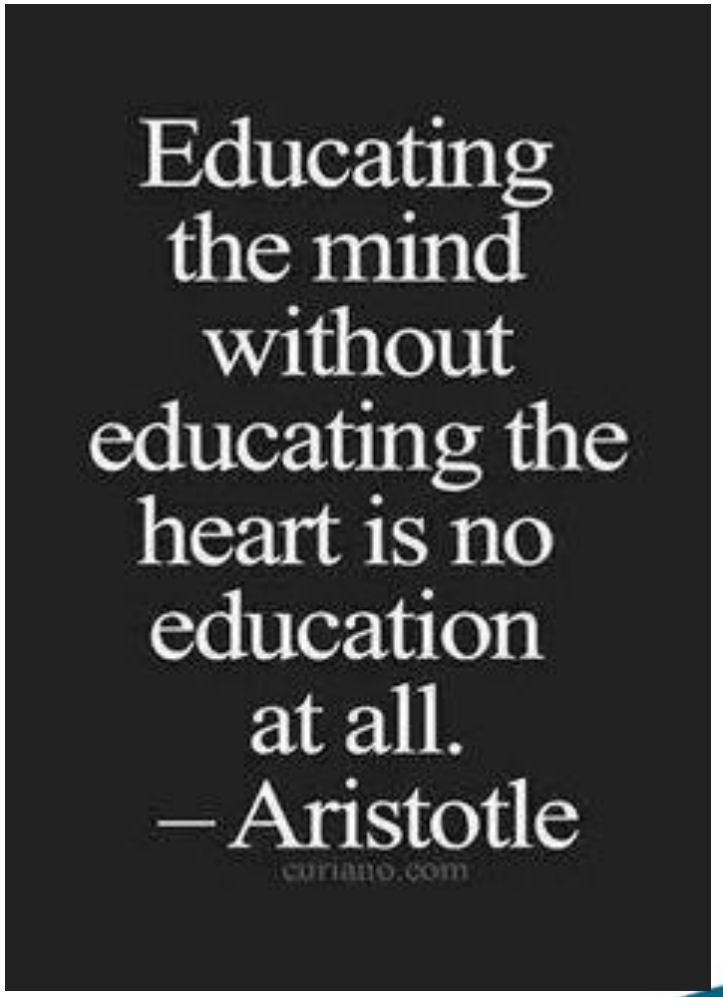
Exitus – Conclusion

- To deliver lectures in a Multidisciplinary and Multilingual environment is always a big challenge, but “worth a try”.
- To deliver topic relating “Radiation Protection”, which is termed as “Dry” or “Boring” Topic, could be made more interesting and appealing to the audience with proper ways to make the presentation more interactive.
- To be a successful educator, one needs to combine storytelling, authenticity and visual supports to make a presentation interesting.
- One must be open to learn while teaching. “Teaching is inevitably the most powerful tool to learning”.
- It is always great to appreciate and to be appreciated.



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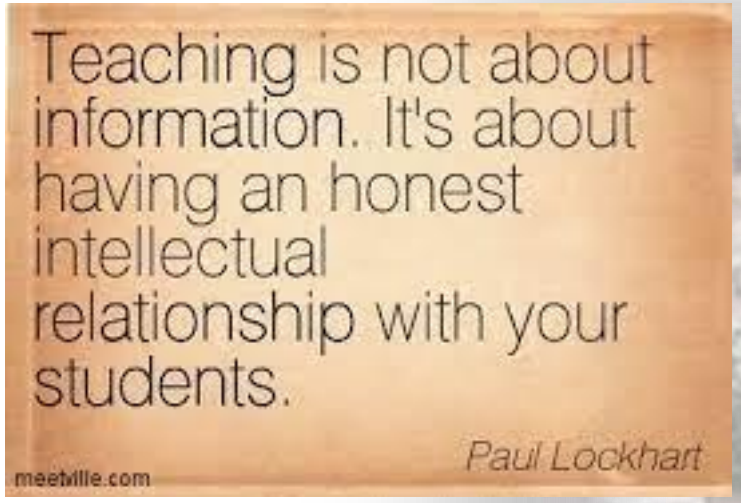
Teaching is not about information. It's about having an honest intellectual relationship with your students.
Paul Lockhart
meetville.com


Effects of Radioactivity Over Time
Hour:
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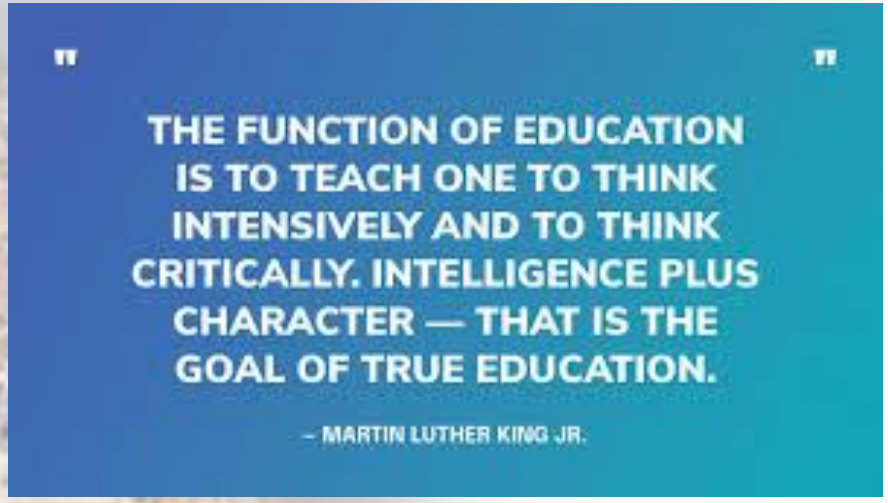
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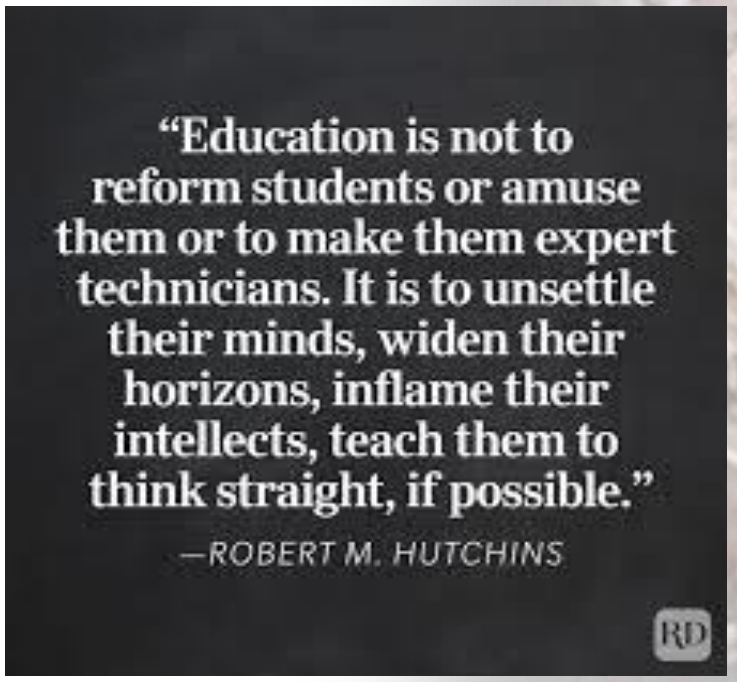
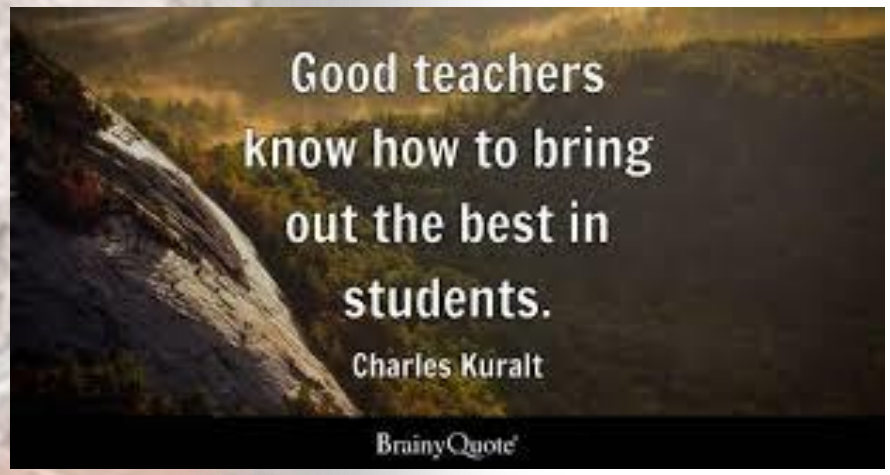
THE FUNCTION OF EDUCATION IS TO TEACH ONE TO THINK INTENSIVELY AND TO THINK CRITICALLY. INTELLIGENCE PLUS CHARACTER — THAT IS THE GOAL OF TRUE EDUCATION.
– MARTIN LUTHER KING JR.


"Education is not to reform students or amuse them or to make them expert technicians. It is to unsettle their minds, widen their horizons, inflame their intellects, teach them to think straight, if possible."
—ROBERT M. HUTCHINS
RD


Good teachers know how to bring out the best in students.
Charles Kuralt
BrainyQuote

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