

## INTRODUCTION



The EUTEMPE-RX (European Union Training and Education for Medical Physics Experts in Diagnostic and Interventional Radiology) project [1] is an EC funded project for the education and training of young medical physicists aspiring to Medical Physics Expert (MPE) status as defined by EU directive 2013/59/EURATOM [2] and elaborated in the ‘European Guidance on the Medical Physics Expert’ document [3] and EFOMP Policy Statement 12.1 [4]. The project consists of a set of 12 modules at level 8 (highest level) of the European Qualifications Framework [5]. **This article describes module MPE01, the first module, which aims to help the participants become STRATEGIC LEADERS for the Medical Physics community.**

The content of module MPE01 was developed by the author following an extensive literature search on curriculum development for leadership, management and strategic planning and an in-depth study of the relevant learning outcomes for MPEs in Diagnostic and Interventional Radiology from the ‘European Guidelines on the MPE’ document [3]. The module consists of a **preparatory ASYNCHRONOUS (which means one can participate from anywhere and anytime) ONLINE** phase followed by an intensive 3 – 5 day **ONSITE** phase (held in **PRAGUE**, one of the most beautiful cities in Europe). This blended learning mode of curricular delivery ensures that the participants can take part without undue disruption to their clinical duties. The module ends with an optional assessment for those who would like to boost their CPD points.

## DESCRIPTION OF THE MODULE

The resulting module is best described by its abstract and learning outcomes.

### *Abstract*

This module aims to help the future MPE in Diagnostic and Interventional Radiology (including imaging outside the D&IR department proper) acquire the knowledge, skills, competences and attitudes necessary to exercise a strategic leadership role within the profession in own country and in Europe both in terms of professional issues faced by the profession and own personal development as a leader. The content of the module will provide a framework for discussions for all the other modules. In the onsite phase participants will have the opportunity to interact with and discuss issues facing the profession and personal development directly with European leaders. The participants would also be updated with the latest EU directives, guidelines and policy statements impacting the role to ensure they are at the forefront of these developments. The module will achieve its learning objectives using a combination

of online and onsite readings, fora, presentations and case studies. The online component will consist of sets of compulsory readings. Each set of readings will be accompanied by an online forum for difficulties and real world case studies to promote reflection on their own attitudes towards leadership and discussion in preparation for the assessment. The online phase will be asynchronous so that participants would not need to take time off their clinical duties and there will not be a problem with time zones. Module participants can put forward the issues they are facing in their own country and receive feedback and advice. As preparation for the assessment, further case studies will be discussed with the panel. Onsite presentations will be sent to the participants 2 weeks before the start of the onsite phase.

### *Learning Outcomes*

- MPE01.01 Take responsibility for researching, evaluating, leading, and offering vision for the development of the role of the MPE (D&IR,) in the ambit of European and national legislation and a holistic vision of healthcare.
- MPE01.02 Implement and evaluate strategic solutions to the challenges facing the MPE (D&IR) in own country and Europe.
- MPE01.03 Evaluate the various models of management in terms of suitability for a Medical Physics Service and the use of project management tools.
- MPE01.04 Learn the meaning of strategic leadership/negotiation and the importance of emotional intelligence for driving leadership performance.
- MPE01.05 Take responsibility for the development of the role of the MPE (D&IR) in health care governance and management in D&IR.
- MPE01.06 Discuss the role of the MPE (D&IR) in service development, health technology assessment (HTA), innovation and expert consultancy.
- MPE01.07 Research, develop and lead the development of the role of the MPE (D&IR) in the education and training of medical physics trainees and other healthcare professionals.
- MPE01.08 Manage the relationship of the MP/MPE with other healthcare professions in D&IR, with patients and with the general public and acquire better communication skills.
- MPE01.09 Manage priorities regarding radiation protection research and medical physics input to clinical research projects needing the support of MPEs.
- MPE01.10 Take responsibility for ethical issues in medical physics particularly in the areas of research and radiation protection in D&IR and apply them in practice.
- MPE01.11 Learn how to participate in networks for research and development at the European and internation-

al level.

MPE01.12 Take responsibility for management of a Medical Physics Service in D&IR (including providing leadership, quality accreditation, staffing levels, clinical audit)

MPE01.13 Interpret the significance of liaising with the Radiation Protection Expert

## ASSESSMENT

The examination is open book and consists of real world case studies involving challenges facing the profession. Sample questions are shown below.

• **Case Study 1:** Up to now there have only been Medical Physics Experts in Radiation Oncology and Nuclear Medicine in your country. However, EU Directive 2013/59/EURATOM has recognized the importance of an expanded role of the Medical Physics Expert also in Diagnostic and Interventional Radiology. You are having discussions about this issue with your healthcare

authorities. One representative from the Ministry of Health tells you: "I cannot understand why Medical Physicists are required in Diagnostic and Interventional Radiology as you don't have the high doses you have in Radiation Oncology"

How would you tackle it?

• **Case study 2:** There are 5 chest radiography rooms in your hospital each run by a different team of radiographers. You have noticed that one of the rooms is repeatedly exceeding the local DRLs which you have established. How would you tackle it? You know that the team of radiographers don't like people investigating their techniques.

• **Case study 3:** You are the head of the Medical Physics department at a large hospital which is expanding its Diagnostic and Interventional facilities owing to a large population increase in the region. You want to employ additional medical physics staff but the human resources manager tells you that you have enough staff. How would you tackle it?

## PARTICIPANT FEEDBACK

The quality survey completed anonymously by the participants produced high satisfaction scores and comments were very positive: "Online content was excellent, great overview. The use of case studies throughout the online phase was very useful to focus on specific learning outcomes. The onsite phase reinforced knowledge from the online phase, complemented it with additional information and gave a great insight into what is required of one in order to be a successful Medical Physics Expert"

## THIRD EDITION OF THE MODULE

The module has already been held successfully twice and each time it is developed even further following feedback from participants or new developments. Figures 1 and 2 show the first two groups. Figure 3 shows one of the groups

relaxing in beautiful Prague center after a hard day's work. We work hard but we want to enjoy the beauty of this beautiful city too! 3<sup>rd</sup> edition of this popular module for MPE starts online Nov 1<sup>st</sup> 2018, Onsite Prague 4 – 6<sup>th</sup> Feb 2019 (optional exam for extra EBAMP credits 8<sup>th</sup> Feb)

The faculty for the third edition will consist of:

- Prof. Carmel J. Caruana (Malta), Module Leader, Past-Chair E&T Committee EFOMP
- Dr V. Tsapaki Ph.D. (Greece), Module Leader, Past-Chair Projects and Publication Committees EFOMP, Secretary General IOMP
- Prof Hilde Bosmans Ph.D. (Belgium) Coordinator EUTEMPE (D&IR) project, Formerly Chair Projects Committee EFOMP
- Dr Marco Brambilla Ph.D. (Italy) President EFOMP, Past-Secretary General EFOMP
- Johan Sjöberg (Sweden) M.Sc. Past-Participant in the module who will provide input and perspective from the next generation of leaders

Here are some NEW presentations from the onsite phase of the third edition in Prague:

- Strategic leadership and planning: what is it and how to do it? (CJ Caruana)
- Total Medical Physics: going beyond a limited meaning of dose optimisation – an overview (H Bosmans)
- Total Medical Physics: going beyond a limited meaning of dose optimisation – application to CT (M Brambilla)
- Project Management Tools (J Sjöberg)
- Emotional intelligence for driving leadership performance (CJ Caruana)
- Standards for Medical Physics Services and ISO accreditation: EFOMP Policy Statement 13 and British Standard BS 70000:2017 (J Sjöberg)
- Strategic negotiation (CJ Caruana)
- Expanding your personal horizons: Involving yourself in your national NMO and EFOMP committees (V Tsapaki)
- Communication skills for effective education of physicians and healthcare professions (CJ Caruana)

## CONCLUSION

In today's rapidly changing and highly competitive world, being a good scientist is simply not sufficient for a professional to develop; good leadership, managerial and strategic planning skills have become essential [6]. It is therefore suggested that such a module be considered for adoption by medical physics educators worldwide.

**Come and join us in this interesting module. Write to Carmel at [carmel.j.caruana@um.edu.mt](mailto:carmel.j.caruana@um.edu.mt) For complete module**

details go to <http://eutempe-net.eu/mpe01/> To apply go to <http://eutempe-net.eu> and click on **APPLY NOW**. Application deadline: 20 October 2018.

**Prof. Carmel J. Caruana, Head Medical Physics Department, University of Malta.**

Carmel has been active in International MP for fifteen years: former Chair EFOMP E&T- Committee, author role and E&T chapters 'European Guidelines on the MPE', EFOMP policy statements, Associate-Editor EJMP, Accreditation Committee IMPCB. He has promoted leadership in Medical Physics worldwide. In Malta helped develop the profession from its inception.

## **ACKNOWLEDGMENT**

The EUTEMP-RX project was funded by the European Commission under the 2012 FP7 EC call for European Fission Training Schemes (EFTS) in 'Nuclear fission, safety and radiation protection'. Grant Agreement 605298

## **REFERENCES**

1. Bosmans H, Bliznakova K, Padovani R, Christofides S, Van Peteghem N, Tsapaki V, Caruana CJ, J. Vassileva J (2015) EUTEMPE-RX, an EC supported FP7 project for the training and education of Medical Physics Experts in Radiology Radiat Prot Dosimetry 165(1-4):518-22. More information can be found at [www.eutempe-rx.eu](http://www.eutempe-rx.eu)
2. Council Directive 2013/59/EURATOM Official Journal of the European Union (2013) L 013 <https://ec.europa.eu/energy/sites/ener/files/documents/CELEX-32013L0059-EN-TXT.pdf>
3. European Commission (2014) European Guidelines on Medical Physics Expert. Radiation Protection Series 174, <http://ec.europa.eu/energy/sites/ener/files/documents/174.pdf>
4. Caruana CJ, Christofides S, Hartmann GH EFOMP Policy Statement 12.1: Recommendations on Medical Physics Education and Training in Europe 2014. Phys Med. 2014 Sep;30(6):598-603
5. European Qualifications Framework (EQF) for Lifelong Learning. European Parliament and Council 2008/C 111/01 [https://ec.europa.eu/ploteus/sites/eac-eqf/files/broch\\_en.pdf](https://ec.europa.eu/ploteus/sites/eac-eqf/files/broch_en.pdf)
6. Caruana, C. J., Cunha, J. A. M., & Orton, C. (2017 (accepted for publication, 10 March 2017)). Point-Counterpoint debate. "Subjects such as strategic planning, extra-disciplinary communication, and management have become crucial to medical physics clinical practice and should become an integral part of the medical physics curriculum". Medical Physics,





*Picture 1. The first leadership group*



*Picture 2. The first leadership group*



*Picture 3. Relaxing in Prague center after a hard day's work*