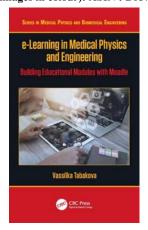# E-LEARNING IN MEDICAL PHYSICS AND ENGINEERING. BUILDING EDUCATIONAL MODULES WITH MOODLE by V Tabakova

Padovani, Renato[1]

[1] Director MMP, ICTP Trieste, Italy

Abstract: **This article is a brief review of the textbook "e-Learning in Medical Physics and Engineering. Building Educational Modules with Moodle" by Vassilika Tabakova, 2020, CRC Press, 152 p., ISBN9781138347328 (hard cover)**

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I. DESCRIPTION

'e-Learning in Medical Physics and Engineering' covers in 5 Chapters the history of e-learning in medical physics and engineering, introduces the e-learning methodologies, describes the Virtual Learning Environment (VLE) Moodle open-source and provides step-by-step instructions of how to design and build a course/module for higher education in medical physics and engineering.

II. PURPOSE

The need for qualified specialists to work with and apply sophisticated technology in contemporary medicine is rapidly growing. Professional bodies predict that meeting the needs of healthcare globally will require almost tripling the present number of medical physicists by 2035, with a higher factor for the low and medium income (LMI) countries. This challenging target, the author says, can be reached if efficient and effective e-learning tools and free and open-source software packages are used. The book aims to provide the essential knowledge to develop e-learning course/modules to higher education medical physics' teachers.

III. CONTENTS/FEATURES

Chapter 1 gives an overview of pioneering e-learning projects in medical physics and engineering started in the late 90', the well-known EMERALD image database and training courses in Medical Radiation Physics, the Sprawls Resources database and the EMITEL e-Encyclopaedia. The Chapter 2 introduces the terminology used by the VLE Moodle and in other popular VLE environments. The author discusses the prerequisites for introducing a VLE, focusing on the steps the educator needs to undertake. In Chapter 3, the major Moodle Teacher's functions and a step-by-step procedures to edit and create contents in the form of lectures, coursework and quizzes, and, forums and chats to communicate with students are detailed. Text is supported by example, graphs and screenshots. The role of the VLE Manager in designing and organising the whole programme is described in Chapter 4. The Student and the Teacher functions on the assessment of student's performances (grades and activity) and how this information is maintained and shared are discussed. The Chapter 5 displays the results of surveys on e-learning in medical physics to be developed in LMI countries conducted by the author in international course/workshops organised by IOMP, AOCMP and ICTP. From the surveys, the major limiting factors preventing the implementation of e-learning are the lack of experience, suitable teaching material, finance and IT staff. After a short introduction on methodologies and instruments, the author conducted a second survey and reported a 75% increase of the participants willing and confident of engaging with e-learning platforms. To support the development of e-learning in LMI countries, the author finally illustrates how to build an educational programme with limited resources, comparing and discussing various VLE options and costs.

IV. ASSESSMENT

This textbook is a useful source of information and a useful guide how to design and develop a whole e-learning educational programme. Introducing and detailing the most important functions of the VLE Moodle open-source package, the book serves as a guide for the Manager and the Teacher to develop modules and courses, assess student's performances and activity and interact with students via forums and chats. The author highlight that

both the Manager, the designer of the programme, and the Teachers, the builders of the modules/course, do not need to be IT experts as all Moodle functions and screenshots are intuitive and supported by online helps. Only the server maintenance requires IT competences that, if not present in the institution/university, should be delegated to Moodle or to external providers. In conclusion, this is a very well-written, comprehensive book on e-learning in higher education in medical physics and engineering, an indispensable resource for medical physics teachers aiming to develop e-learning in their institutions/associations/hospitals.