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EMITEL e-Encyclopaedia of Medical Physics and Dictionary of Terms

Enciclopédia eletrônica de Física Médica e Dicionário de Termos - EMITEL

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Abstract

EMITEL, the e-Encyclopaedia of Medical Physics and its Multilingual Translator (dictionary) have been launched at WC2009 (www.emitel2.eu). This international project attracted more than 300 specialists from 36 countries and grew to be the largest international project in the profession. This paper describes the development of EMITEL, its effective use, and its planned future development.

Keywords: education, training, encyclopedia.

Resumo

A EMITEL, a enciclopédia eletrônica de Física Médica e seu tradutor multilíngue (dicionário) foram lançados no WC2009 (www.emitel2.eu). Esse projeto internacional atraiu mais de 300 especialistas de 36 países e é o mais amplo projeto internacional desta profissão. O presente trabalho descreve o desenvolvimento da EMITEL, seu uso eficaz e o desenvolvimento planejado para o futuro.

Palavras-chave: educação, treinamento, enciclopédia.

Introduction

The EMITEL project was a consequence of the first International Conference on Medical Physics Education and Training (in 1998 and 2003), which was organized by King's College London in connection with the e-learning projects EMERALD and EMIT[1]. After this, the European Medical Imaging Technology e-Encyclopaedia for Lifelong Learning (EMITEL) was funded with the help of the EU Leonardo da Vinci programme. The result was an original e-learning tool used by a wide spectrum of specialists in Medical Physics and Engineering. The tool was merged with a dedicated translator of terms (dictionary).

The dedicated EMITEL web site (www.emitel2.eu), which was built by AM Studio, has more than 6,000 users per month. This paper describes the main features of EMITEL (Encyclopaedia and Dictionary) and the plans for its future development.

EMITEL project initial partners and phases

The idea for EMITEL appeared around 2001 and was initiated as a dictionary (translator) of terms. Initially, it had five languages, now this number was increased to 29. Later, in 2005, the EU project was developed[2], it started in 2006 and its main phase was completed by the end of 2009.

The project partnership included the core of the Institutional partners from previous projects (EMERALD and EMIT) – King's College London (Contractor) and King's College Hospital, University of Lund and Lund University Hospital, University of Florence, AM Studio Plovdiv and the International Organization for Medical Physics (IOMP). Then, additional specialists volunteered as contributors. Thus, an EMITEL Network was formed (300+ specialists).

Although the project's name was specified, Medical Imaging Technology was specially underlined in the name

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of the project. Radiotherapy and Radiation Protection were also added. Therefore, the main areas of the Encyclopaedia are: X-ray Diagnostic Radiology, Nuclear Medicine; Magnetic Resonance Imaging, Ultrasound Imaging, Radiotherapy, Radiation Protection, General terms linked to Medical Physics. Special care was taken for covering the aspects of Medical Engineering related to Imaging.

EMITEL Encyclopaedia and Dictionary

EMITEL developed an expandable database of specific terms (4,000+). The terms have one to three or more words. These terms were translated into many languages by working groups of national specialists. Thus, the dictionary includes: English, Swedish, Italian, French, German, Portuguese, Spanish, Bulgarian, Czech, Croatian, Japanese, Estonian, Finnish, Greek, Hungarian, Latvian, Lithuanian, Polish, Romanian, Russian, Slovenian, Bengal, Chinese, Iranian, Arabic, Malaysian, Thai, and Turkish.

The dictionary uses tables of terms, and thus cross-translates terms between any two languages. The dictionary database is expandable to allow the addition of new languages (with different alphabets). It was coordinated by S Tabakov and its software was made by AM Studio. The same software company developed the whole web database and search engines for the e-Encyclopaedia.

To build the Encyclopaedia, each term from the dictionary was covered by an explanatory article (entry) in English. The entries were aimed at MSc-level and above. Their volume varies from approximately 50 to 500 words. The model of the Encyclopaedia was built around a larger number of specific entries, rather than small number of multi-page articles. This model allows an easy and effective search for information. About 3,400 articles were developed with an overall volume of 2,100 A4 pages. To avoid problems related to complexity of the web site, the articles are not internally hyperlinked, instead most of them include list of related articles.

More than 2,000 images, graphs etc. were included in the articles to enhance the educational value of the reference material. The articles were grouped in seven categories – Physics of: X-ray Diagnostic Radiology, Nuclear Medicine; Radiotherapy; Magnetic Resonance Imaging; Ultrasound Imaging; Radiation Protection; General terms. Each article includes contribution from three specialists – author, referee, and group coordinator.

The EMITEL web site combines the Dictionary and the Encyclopaedia and it uses the ability of the current Internet browsers to operate with all languages. So, each translated term comes with an area-specific hyperlink displaying the corresponding article for this term.

How to use EMITEL web site

To use the Encyclopaedia (in English only): select Encyclopaedia; write the term you want to see at the window; and click Enter. A list with terms is displayed – against each one is a blue hyperlink related to the area of the term, so click the hyperlink to read the article.

EMITEL can also search inside the text of the articles. To do so, select Search in Full Text; specify the area and proceed as above. In case of UK or American English differences (i.e. colour>color; optimise>optimize), try both spellings or search only part of the term (e.g. colo, optim).

To use the Dictionary: select Dictionary; choose the Input and Output languages; write the term you want to see at the window; and click Enter. A list with terms is displayed, where the terms are found either single, or in combination with other words (the e-Dictionary assumes that the user's Internet browser already supports languages).

To use both the Encyclopaedia and Dictionary: select Combined and proceed as above (this search is limited only to the title of the article, not inside its text).

The web site was built with two Search Engines – one searching into the Lists of terms (in all languages) and another one searching inside the text of the articles. The latter allows significant increase of the potential of the e-Encyclopaedia, including search for related terms, acronyms, and synonyms. To use this facility, the user has to select Search in Full Text and specify the category/area of the search (as described above).

EMITEL future development

EMITEL Network continues its activities related to the support and update of the Dictionary and Encyclopaedia. To allow this, an additional web site was developed to handle the updates. This web Content Management System (CMS, also developed by AM Studio) allows not only online editing of the materials, but also adding new terms/entries and including new languages. EMITEL Consortium and Network have editorial control over the online material.

The e-Encyclopaedia attracted more than 300 specialists from 36 countries (United Kingdom, Sweden, Italy, Bulgaria, Austria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Japan Latvia, Lithuania, Poland, Portugal, Romania, Slovenia, Spain; Australia, Bangladesh, Canada, China, Croatia, Iran, Libya, Malaysia, Morocco, Russia, Thailand, Turkey, USA) – the number of contributors expands rapidly. The network has a dedicated Administrator at King's College London –who is also link of contact for new contributors.

Alongside the development of the digital content of EMITEL, an Agreement is made with a Publishing company to allow the paper print of the Encyclopaedia (expected by the WC2012).

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