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Biophotonics Master studies: teaching and training experience at University of Latvia

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Biophotonics is a subject related to photonic phenomena in biological media, e.g. living tissues; it can be regarded as a parallel term to “Biomedical Optics” or “Bio-optics”, also frequently used in scientific community.

A Master level sub-program “Biomedical Optics” was originally developed at University of Latvia and started in Faculty of Physics and Mathematics in year 1995. The Curriculum (total 80 credits) includes special subjects “Biomedical Optics – 1” (tissue optics and optical bio-sensing), “Biomedical Optics – 2”(lasers in medicine), “Medical Lightguides”, “Anatomy”, “Physiology”, “English Terminology of Biomedical Optics” etc., as well as laboratory training (6 student labs) and Master project. The studies take four semesters – three for lectures and practical training, and one for the Master project. Details of the study programs and the practical experience gained over 12 years will be discussed in this presentation.

The main conclusions are:

- Biophotonics is a rapidly developing area, therefore every-year updates of the program content are necessary;
- The students are enthusiastic about their studies, but the lack of any textbook in this field makes studies difficult; considerable self-efforts of the students are requested;
- Internet resources may be useful in many cases; however, some of the Biophotonics items are presented there incompletely or even totally wrong; how to get rid of them?
- WebCT has proved to be a useful tool for Biophotonics studies;
- Specialized student laboratories are very helpful, but expensive; the experience gained so far indicates to need of a professional inter-university methodology;
- More efficient international collaboration in the field of education and training on Biophotonics is needed in future.