Abstract

This diploma thesis is focused on design and preparation of a new educational material focused on the theme of chemical bond. The material has been prepared with regard to content and with approaches based on results of analysis of secondary school textbooks and internet sources which deal with chemical bond and current curricular documents valid in the Czech Republic. First part of the thesis deals with specification and determination of necessary terms and arbitrary content of theme of chemical bond based on the content current curricular documents, especially FEP G (Framework educational program for secondary general education), Katalog požadavků ke zkouškám společné části maturitní zkoušky pro rok 2011 a 2012 (Catalog of requirements for the common part of mature examination for years 2011 and 2012), four selected School educational programs (ŠVP - školní vzdělávací program) and on evaluation and term analysis and didactic content analysis at most common secondary school textbooks and selected internet sources focused on theme of chemical bond. The results of the evaluation and analysis also showed the incompleteness of the analyzed materials with regard to didactic content and/or specialized content. On the basis of results of the analysis and the evaluation, a new educational material in the form of web page with pictures and flash animations has been created. The educational material called Big interactive textbook on chemical bond contains following chapters: „Introduction, Properties of the chemical bond, Covalent bond, Polarity, VSEPR, MO theory, Hybridization, Properties of substances, Weak bonding interaction and History” and approaches used for preparation of the educational material are described in the second part of the thesis. The form of interactive webpage containing hypertext, images and flash animations was selected, with respect to easy material distribution in future and presence of extended didactic content, has been selected. The material contains 13 pages of text, 80 of images created by author and 52 flash animations.