



## **INTEGRATING SUSTAINABLE DEVELOPMENT INTO FACULTY OF CHEMISTRY CURRICULUM**

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The introduction of the sustainability concept into the society and industry is one of the big challenges for the future. Within this process there is an important role for education and training of future and current high educating specialists.

Almost ten years ago Altai State University started a program on “Integrating sustainable development into university curricula”. It was respect; there was a definite need for well balanced educational programs for higher education.

We started to develop the System of Permanent Ecological Education at the Faculty of Chemistry, because of there is a pressing need to motivate every chemist towards the conservation of the environment and to put the environment on the agenda for all chemical sciences, but not only for green chemistry. Also graduated students of the Faculty very often act as environmental and emergency managers or environmental protection experts in their professional work. It is necessary for them to get knowledge about new scientific theories, methods and technologies for preventing or eliminating pollution, decreasing level of contaminations, main principles of CP, preventative environmental management strategies.

The system consists of courses “Environmental Chemistry”, “Ecological Chemistry”, “Introduction to toxicology”, “Protection of the environment”, “Introduction to Cleaner Production”, “Introduction to Environmental Management”. The system intends to provide students with professional skills on the job. The special chemical courses provide students deep and wide ecological knowledge about our surroundings and results of human activities, chemicals ecological evaluation and chemical influence on organisms. The course “Protection of the environment” gives knowledge about standards and laws that set guidelines and limits on levels of contaminants. The course “Introduction to Cleaner Production” gives students understanding the main principles of CP and benefits this strategy could bring in comparison with conventional “end-of-pipe” technologies.



The course “Introduction to Environmental Management” which aimed to help students gain an understanding of preventative environmental management strategies (PEMS), to be well prepared, confident and convincingly when arguing that PEMS are always preferable and economically viable.

Working firstly with theoretical knowledge and methodology in class, teaching and discussion and later on using this knowledge in projects approaching realistic environmental problems in organizations seems to be a viable route to create graduate program that elevate the competence of professionals in order to facilitate the sustainable development.