

DELIVERING THE MODULE «NATURAL RESOURCES FOR CHEMICAL INDUSTRY» THROUGH THE MEDIUM OF ENGLISH

О.С. Кукурина, Е.О. Французская

Национальный исследовательский Томский политехнический университет

E-mail: kukurina@tpu.ru

This paper describes the experience of module «Natural Resources for Chemical Industry» delivering for third level bachelors of Chemical engineering majorities as English proficiency training. This module is designed to guide the students in order to increase their understanding of natural resources by-products used for industry and to extent their professional vocabulary range in English for further use in their professional activity.

Key words: *professional training, building chemical vocabulary, raw materials, chemical industry.*

Current world changes in economics and social life predetermine some transformation processes that are being made in the field of education. The new status of a modern engineer leads a student both to enlarge their knowledge base change their mind-set and develop their personalities. This also involves deepening their understanding of society and foreign cultures in general as well as developing concepts of their prospective and potential roles and responsibilities [1].

Language proficiency turns one of the essential features that provides a future engineer with an opportunity of conducting their professional duties at a highly competitive level to become an internationally recognized specialist.

National Research Tomsk Polytechnic University (TPU) sees its strategic goal «to become one of the world-leading research universities in the area of resource-efficient technologies solving global societal, economic and environmental problems for the benefit of the mankind sustainable development» [2].

Within TPU Strategic Programme which coordinates promoting competitiveness there are listed some strategic initiatives with the achieved and expected effects described. These are associated with teaching and research challenges, attraction of bright Russian and international students and academics, establishment of the institute of postdoctoral fellows and an institute for e-learning and creation of bilingual environment for educational and social interaction [2].

TPU teachers perform great work to design appropriate teaching materials in English to cover all the courses of the curricula in terms of both bachelor and master studies. In general more than 200 courses are delivered in the English language in TPU.

A distinctive amount of courses taught in English is devoted to «Professional Training in English». Such courses which were originally provided by departments of foreign languages but now content teachers deliver them to students of their content areas.

The Department of Technology of Organic Substances and Polymer Materials of the Institute of Natural Resources delivers «Scientific Information Basis of Master Dissertation», «Technology of Organic Chemicals, Physics of Polymers» – 3 master courses and «Introduction to Chemical Engineering, Natural Resources for Chemical Industry» – 2 bachelor courses in English. One of them is the module «Natural Resources for Chemical Industry» which is designed for the third year students doing their bachelor degree in Chemical technology of organic substances and polymer materials.

Developing the professional competences in raw materials processing in accordance with the Federal State Educational Standards is the common course mastering goal. *This module is intended to develop the professionally oriented English communicative skills, which allow to integrate into the international environment and use the language as a tool of business, professional and intercultural communication.*

The module «Natural Resources for Chemical Industry» particularity is a great cross-discipline interaction and networking within core courses such as «Organic Chemistry», «The English Language» and professional courses: «Chemical Engineering», «Industrial Chemistry» and «Technology of Raw Hydrocarbons Processing».

The module aims to develop an understanding of how raw hydrocarbons may be treated and used for chemical industry. The module introduces the characteristics of all types of natural hydrocarbon resources. What is more, it provides an overview of the non-renewable sources of energy and focuses on how these sources can be replaced by nonconventional fossil fuel including cutting edge technologies.

The units covered in the module include: energy sources (renewable and non-renewable); lignocellulose-based chemical products; starch applications; coal and peat; methane gas hydrate; oil-refining; water systems in industrial plants. Each unit is supported with an authentic text and educational video. To accomplish the module goals various tasks, which tend to develop verbal activity, are designed. Learning the course contents involves the manipulation of four main skills including speaking, writing, listening and reading, which leads to effective communication.

Furthermore, mastering professional terminology is a necessary skill of chemical engineers, as they are to be able to share technical information, convey relevant reasoning and influence important decisions.

Methods used for vocabulary building reading and assimilating vocabulary from authentic professional texts on the topics listed and shaping students' individual glossaries. The vocabulary assimilated is regularly reviewed through various word games, essay writing, project preparations and oral presentation tasks. Group work is also involved into the teaching process in order to contribute to students' practice of their communicative skills in project work.

Finally, it is important to note that the knowledge assessment is the essential part of each syllabus which provides a good guideline for teaching staff and students, validity and reliability, meaningful feedback and appropriate workload for students. Good assessment practice is designed to ensure that students have to demonstrate that they have eventually achieved the intended learning outcomes.

Assessment principles set out the key aspects of assessment practice that should be reflected in all evaluation procedures. The design of assessment represents different types of tasks which encourage a deep, rather than a surface, approach to learning and assist the student to identify appropriate priorities. In other words, the assessment tools should not only check the knowledge but also help students to develop their own learning skills. Such tasks can be considered as essays, oral presentations, dissertations and projects, laboratory work and different types of examination. Most of them are included into formative assessment and only some of them may be considered as summative ones.

Practically, the students achieve the assigned outcomes which they are able to represent in their activity results, to analyze various chemical techniques, but generally most of them find writing practice rather challenging.

Designing assessment tools and set of criteria to evaluate students' performance and their personal achievements during the semester is regarded vital for successful course delivery.

In conclusion it is necessary to mention the importance of professional training of students in their content areas in English as it guarantees the confidence of students in their skills of professional communication orally and in writing. Such courses also serve to increase students' general language proficiency through the tasks and assignments designed.

References

1. Class C., Dietrichs I., Hunziker B., Joss M., Rieder U. From Competent Student to Confident Engineer: Redesigning Engineering Education in Response to Economic and Social Change. – Access mode: <http://www.cclass.ch/Dokumente/34thEES-Class.pdf>
2. Chubik P. Strategic Programme of National Research Tomsk Polytechnic University Competitiveness Enhancement in the Group of Top Level World Research and Academic Institutions. – Tomsk : Tomsk Polytechnic University Publishing House, 2013. – 51 p.