







The key findings of the OSKA study of **chemicals, rubber, plastics and construction materials production sector**

The study of the chemicals, rubber, plastics and construction materials production sector, carried out in the framework of the OSKA programme, concentrated on answering the question: **how to change the supply of education and training to meet the need for labour force and professional skills of the sector) in the forthcoming 5-10 years.**

The short overview presents key findings of the study.

Fast development of the chemical and materials technology creates smart and exciting jobs in the sector in the future.

The demand for labour force and the supply of education and training

-  **For sustainable development, the sector needs product development engineers, chemical engineers and industrial engineers.**
 -  **For sustainability of the plastics industry in Estonia, the vocational training of the plastics processing equipment setters is needed.**
 -  **Development and automation of technology increases the need for control engineers, mechatronics specialists and industrial equipment setters (mechatronics specialists, control engineers).**
 -  **For sustainable operation, the chemical industry needs qualified operators of chemical processes and laboratory technicians.**
- In the next 5-10 years, the need for labour force of the sector will remain stable, but the proportion of professionals and associate professionals (technicians) increases and the proportion of skilled workers decreases.
 - According to the prognosis, the sector needs 115 new employees annually – approximately 1/3 for managers, professionals and associate professionals and 2/3 for skilled workers.
 - Approximately 10% of the current labour force in the sector will leave the labour market in 5 years and need replacement.
 - Mainly due to extensive technological changes, there is a growing need in the rubber and plastic industry for industrial engineers and technicians of industrial equipment.
 - Although enough chemical industry specialists have been trained, companies outside cities perceive a shortage of qualified employees.
 - The expected demand for labour force of skilled workers exceeds the supply of education and training, and it is very difficult to find labour force with suitable skills from the labour market.



- Laboratory technicians and operators of chemical processes are trained only in Ida-Virumaa and there is no training available for plastics industry equipment setters in Estonia.

Popularisation of the sector and cooperation between companies and training providers

- ✚ **To meet the need for labour force in the future, it is necessary to improve the image of the sector – popularise the sector’s occupations among young people and offer flexible learning opportunities on all levels of education.**
 - ✚ **For graduates to gain better practical skills, it is necessary to:**
 - maintain the proportion of science, technology, engineering and mathematics (STEM) subjects in general education;
 - increase the diversity and attractiveness of elective courses in STEM subjects at schools by offering more problem-based and discovery learning.
 - ✚ **For breakthrough and increasing added value, it is necessary to enhance cooperation between companies and schools, vocational and higher education institutions.**
- The employers expect entrées to the labour market to be interested in the sector, desire to work and have practical skills. Practical skills training becomes more and more important also higher education.
 - The employees of the sector and their success stories should be introduced more widely as they are doing useful, interesting and well-paid work.
 - The students need better understanding about the importance of STEM and how knowledge and links between STEM subjects help to be more successful in the future labour market.
 - It is necessary to continue the integration of professional and general skills.
 - More flexible distance and e-learning opportunities are needed in master’s studies. Active learning methods, e.g. project- or problem-based learning and team work should be used.
 - Great potential is seen in cooperation between companies and higher education institutions, including joint research and development activities. In addition to direct benefits, the companies see it as an opportunity to find new, young and motivated employees.
 - Companies and higher education institutions need to understand the importance of cooperation and find common ground to ensure personal approach to students, trainers with practical work experience, work-based problem solving, high-quality laboratories, equipment and materials.



Future skills

- ✚ **Product development engineers, chemical engineers and industrial engineers need to understand modern solutions of chemistry and materials technology, sector-specific solutions of information and communication technology (ICT), and be able to implement them in business processes.**
 - ✚ **The sector needs employees who have good general skills and can adapt to project-based work and working in shifts.**
- In the next 5-10 years, the employees of the sector need skills related to sustainable use of resources, climate and environmental policy, technological development (incl. materials technology), diversifying work forms, globalisation and demographic changes.
 - In order to increase the competitiveness of companies, it is necessary to promote the use of innovative ICT solutions and ensure the competence of “smart customer”.
 - Future employees need good general skills combined with professional skills. The most important general skills, attitudes and abilities necessary in the future are:
 - the ability to see and understand “the bigger picture”, incl. the ability to understand the complete production process, his/her role in it and the influence thereof on the environment and the final product;
 - ability to apply sector-specific ICT solutions (incl. automated production lines and robots);
 - navigating in sector-specific legislation, incl. legislation of export markets;
 - project management skills;
 - ability to apply total quality management thinking;
 - ability to learn and adapt;
 - ability to analyse;
 - creativity;
 - following the occupational health and safety and environmental protection requirements;
 - communication and team work;
 - language skills, including Estonian and Russian.