

# National profile map for the Finnish engineering education

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Finland endeavours to create the world's best innovation environment. A prerequisite for this is that our engineers are the most competent. In order to reach the objective, the key issues are to develop the financing systems of tertiary education, improve teaching, increase internationalization, take into consideration challenges of the sustainable development and structural development of the higher education system.

The national profile map for the Finnish engineering education is part of the strategy work of the National Coordination Group of the Finnish Engineering Education. The report focuses on actions to promote specialization of the universities and polytechnics offering engineering education. Proposals are also made to develop the financing system and to increase internationalization, when relevant to the scope of the report. The profile map includes descriptions of and statistics on the 21 polytechnics and 7 universities providing engineering education in Finland, a proposal on the criteria for the Good engineering education Campus, the key viewpoints on national emergency supply relating to engineering education and proposals for action. The report was edited by Sanna Allt, Kati Korhonen-Yrjänheikki ja Jarna Savolainen from the Finnish Association of Graduate Engineers TEK.

The objectives of the profile map are to improve the quality of the Finnish engineering education through enhancing structural reform and the specialization of universities and polytechnics providing engineering education and challenging the existing national, regional and higher education institutions' strategies. And moreover, the report is aiming to promote stakeholder dialogue and increase knowledge on the strategies of higher education institutions offering engineering education in Finland.

The five most important proposals for action are:

- The number of higher education institutions and establishments of institutions providing engineering education must be reduced. When making decisions on the structural development, the Profile Map must be utilized. All campuses offering youth-level engineering education must meet the described criteria of the Good Campus by the year 2015. The performance steering of universities and polytechnics must comply with the implementation of the criteria for the Good Campus and offer rewards when progress is made.
- The qualitative criteria of the budgetary funding systems of universities and polytechnics must be widely applied in addition to the criteria based on the volume of education and research. 40 % of the funding needs to be based on the quality of education and research. Funding per engineering student must be doubled through a variety of measures. The proportional ratio between the number of teachers and students must be 1:10. The funding system must encourage universities and polytechnics towards specialization and collaboration between and within institutions.
- Universities and polytechnics must collaborate in developing professional societal communication to various target groups as the youth and the political decisionmakers. The key role and significance of the engineering skills and competencies must be emphasised when creating well-being for the people and the environment. And moreover, each institution needs to communicate widely their chosen profile as a higher education institute in the field of technology.
- Finnish engineering education needs to be made a world famous brand: a trailblazer for the requirements of sustainable development and working life collaboration. The learning objectives must be defined and the the pedagogic skills of the teaching staff improved. There is a need for more knowledge, and more systematic way of obtaining knowledge, on the anticipated development of the learning needs. The obtained knowledge on the learning needs must be linked better with the strategies and teaching of universities and polytechnics. The international mobility of professionals must be increased while securing that more professionals come to Finland than leave abroad.
- Cooperation both between stakeholders of engineering education and with other actors in the innovation system must be further intensified. The cooperation must support the specialization of higher education institutions. And moreover, the cooperation needs to be documented at the level of the institution as well as the degree programmes.

The whole publication is available in Finnish with English abstract at

[http://www.tek.fi/ci/tekstra/Profiiilikartta\\_final02.pdf](http://www.tek.fi/ci/tekstra/Profiiilikartta_final02.pdf) More information [kati.korhonen-yrjanheikki@tek.fi](mailto:kati.korhonen-yrjanheikki@tek.fi)