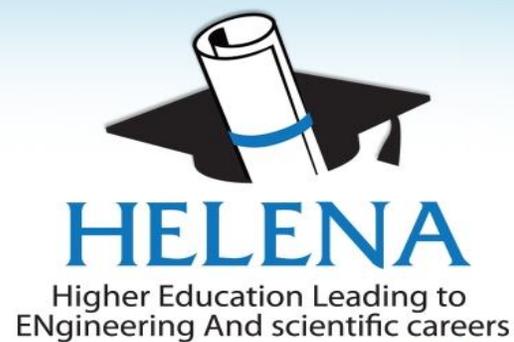




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Evaluation of traditional and pilot E&T degree courses





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Executive summary

In this deliverable we evaluate ‘traditional’ and ‘interdisciplinary’ Engineering degree courses in seven European countries. The work was carried out in the project “HELENA - Higher Education Leading to ENgineering And scientific careers” within the European Union’s 7 framework programme “Science in Society” (<http://www.fp7-helena.org/>) under the coordination of Šiauliai University (Lithuania). Partners from Austria (Alpen-Adria-Universität Klagenfurt), France (Ecole Normale Supérieure de Cachan and ECEPIE - Égalité des Chances dans les Études et la Profession d’Ingénieur en Europe), Serbia (Mihailo Pupin Institute), Spain (Fundacion TECNALIA LABEIN), and the United Kingdom (Loughborough University) were involved.

For several years now, various stakeholders have argued for more interdisciplinarity in engineering education. However, what exactly is meant by that is still debatable. Beginning in the 1970s, a number of schemes have been set up in engineering faculties to practice multi-disciplinary or cross-disciplinary approaches and yet engineering programmes today retain the aura of a purely technical domain. The social content and context of engineering is still not integrated enough and hardly promoted. The majority of study programmes analyzed in the course of the HELENA project have less than 25% non-engineering subjects and the scope of these is mainly limited to management skills.

The curriculum analyses of the case studies shows that the list of non-engineering subjects comes predominantly from fields like management, business, economics, and languages. Some cases in Lithuania, Spain, and Serbia also cover philosophy, sociology, humanities, environmental aspects. Case studies in Austria and the UK show the biggest number of non-engineering subjects in the fields of history, philosophy, design, sustainability, sociology. Gender Studies courses are only offered in the two Austrian interdisciplinary case studies: at Klagenfurt University as “compulsory optional subject” and at Linz University as “compulsory subject”.

This report explores some aspects of how mono-disciplinary engineering has been in the past, what has since changed, some likely reasons for the slow rate of change, and what more can be done to make engineering education more inclusive, diverse and sustainable. Interdisciplinarity not only means bringing non-engineering subjects into engineering education but it also calls for an inclusion of some science and engineering competencies in humanities, social sciences, etc. to enable citizens in general to critically reflect developments in our technological society, to empower them to assess technologies, get engaged, involved and participate in discussions and debates about socio-technological issues. The plea for more informed citizens leads to the necessity of including techno-literacy into non-engineering education as well.



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