



NOISE POLICY WORKSHOP, ICA 2007 Madrid
Education in Noise Control Engineering

Noise Control Engineering education in Finland

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Full time professions in acoustics and noise control

- < 300 in acoustics
 - main employers: Nokia Telecommunications, research institutes, consultants, universities, industry
 - new posts: 10 – 30 /year
- < 50 in noise control engineering (and related)
 - main employers: research institutes, consultants, administration, industry
 - new posts: 3 – 5 /year

Educational infrastructure

- 19 Universities
 - graduating students: 140 000
 - in technical universities and faculties: 30 000
 - post graduating students: 20 000
- 29 Polytechnics
 - graduating students: 130 000
 - in technical sciences: 40 000
 - post graduating students: <1000

Noise Control Engineering education in Finland



Technical universities and faculties:

- 3 technical universities (Helsinki, Tampere, Lappeenranta)
- Technical faculties in two universities (Oulu, Åbo Academy)

Noise and noise control related separate course supply:

0 – 3 per university/faculty.
(1 – 7 credits/course)

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Educational infrastructure, in **universities**

- Faculties graduating engineers in acoustics on university level
 - Only Helsinki University of Technology, Department of Electrical Engineering, Laboratory of Acoustics and Audio Signal Processing.
(4 professors, 24 courses in year 2007 study program, 1 in noise control, 3 credits)
- Faculties graduating engineers in noise control engineering on university level
 - none.

Educational infrastructure, in **polytechnics**

- Faculties/colleges graduating engineers in acoustics on polytechnics level
 - none
- Faculties/colleges graduating engineers in noise control engineering on polytechnics level
 - none.

Noise Control Engineering education in Finland

Education in noise control engineering on university and polytechnics level

- All education given as a part of studies in another engineering branches.
- All education given as separate short courses, usually included in those ones not mandatory, but electable.
- Special noise and noise control related courses are included in continuing education (in accordance of demand or request), as well as a part of noise related research projects/programs.

Noise Control Engineering education in Finland

- Continuing education in noise control engineering
- since 1970's a significant part of noise and noise control related education has been given in continuing education.
 - in 1970's education was concentrated to work environment noise control, since 1980...90 to environmental noise control.
 - in 1990's low demand and supply.
 - some increase in supply and demand in last years.
 - significant increase in attendants in "Noise days"-type meetings. Educational contents of lectures and presentations rather brief, but informative contents better.

Noise Control Engineering education in Finland

Answers to framing questions

National capacity

- because annual demand of new noise control engineers has been small, trained noise control engineers has not been produced.
- those few annually employed to noise control related jobs, as well as those needing noise control capacities in his/her main job, should have much better training than 1 - 3 short courses and a MSc or BSc thesis (usually paid by the employer hiring the young engineer, or from the support funds addressed to the research consortium, the forthcoming employer being as a member).

Noise Control Engineering education in Finland

Support

- Within the last 10 years 50 - 100 milj. Euro (1 – 2 % of all to technical branch) is invested to noise and vibration control related technology (and product/production) development programs and projects.
- Main part of funding addressed to industries, research institutes, and universities.
- Quality of outcome often low, because too many of researchers are not trained enough in noise control engineering. Especially shortages in theoretical capacities. Some shortages can be compensated (and are compensated) by advanced commercially available computer programs.

Support

Main sponsors:

- Tekes (The Finnish Funding Agency for Technology and Innovation),
- Industries,
- Työsuojelurahasto (The Finnish Work Environment Fund),
- European Union,
- Ministry of Environment, governmental and regional agencies (support to environmental noise control related research).

Near future

- Universities and polytechnics still have financial problems due to governmental and regional saving policies in the direct budget based funding.
- Most probably decrease in the supply of electable courses will be continued. This may mean decrease in the supply of courses in noise control engineering.
- Governmental support to technology development programs and projects will be increased.

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Summary

- low demand and supply of trained noise control engineers. Slight signs of increasing demand.
- in practise no (life long) "career pipes" for trained noise control engineers.
- shortage of adequate ("efficient", "optimized") course material tailored for 1 – 3 credit short courses in training to different main professions (e.g., those in process industries, ship building, machine design, plant design (in process industries), environmental protection, road/railway engineering, building branch, administration...).
- how to fit the production with the low demand and divide it between universities/polytechnics and faculties (and laboratories)?

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Thank you for your attention

