

**Comments of the Faculty of Civil and Environmental Engineering at the Technion
on the Concluding Recommendations of the
Evaluation Committee of the Council of Higher Education
in its report of September 2011**

Concluding Recommendations

- Address the need to find urgent solutions for the acute shortage of highly qualified Civil Engineering faculty in all academic specialties. This would solve the problem of the high student-to-faculty ratio.

Comment: Efforts have been made in recent years, including international call for candidates

- Initiate and sustain aggressive efforts for recruitment of new faculty from among the Israeli and Jewish diasporas overseas and/or non-Hebrew speaking faculty from abroad.

Comment: see above; also, in the international call for candidates we emphasize that non-Hebrew speaking candidates could apply, but they are expected to be able to teach in Hebrew within a period of several years.

- Address the issue of insufficient numbers of Ph.D. students in Israel. This will help the supply of potential future faculty for Israel's academic programs in Civil Engineering.

Comment: the insufficient number of PhD candidates is mainly in the areas of structures and construction management, but it is not as acute in other disciplines such as transportation, water, and environment. The shortage in candidates in structures and construction management is partly the result of the fact that the practice does not provide sufficient value to post graduate studies. This is a "structural" problem which has been brought up with the registrar of engineers to find ways to provide value in the registration of engineers to higher degrees. We have been talking with major Israeli infrastructure companies to encourage some of their brighter young engineers to take a PhD as part of their promotion process within the company. The task however is quite difficult and a drastic solution is not at hand.

- After the solution has been found to the shortage of qualified faculty, consider increasing the current number (4) of Civil Engineering undergraduate programs at Israeli institutions of higher education. This should help address the sustained, growing demand for civil engineering professionals in the country.

Comment: at this stage, when we confront the difficulty of recruiting faculty members, this recommendation seems to be beyond reach. There is a need to update a survey of the need for engineers in order to plan for the future. Such a survey was carried out at the initiative of the Technion CEE in 2006, and should be updated to provide a basis for future planning.

- Design and introduce quality general education coursework into the Civil Engineering curricula in all of the four institutions

Comment: this issue has been discussed intensively several times in recent years and we are aware of this need. Yet, for that to happen there is a requirement for coordination with the registrar of engineers with regards to the expectations of speciality courses upon registration. We have brought up the idea that the registration should be at a general level, reflecting broad CEE education, while the requirement for license to be given after

registration, should include demonstration of experience and on top of it have additional higher level studies, i.e. MSc or ME, as a condition for licensing in specific areas, such as structures, construction management, water, transportation, etc. This type of approach has been recommended in recent years by the American Society of Civil Engineers (ASCE), in a series of documents in which the Body of Knowledge (BOK) of civil engineers has been outlined. This issue has been brought up in the report we submitted to the evaluation committee in the chapters outlining future vision and development.

- Offer more available coursework at the Ph.D. level
Comment: We have already asked for clarification on this comment, as we believe that our programs offer a large range of courses.
- Encourage the existing international graduate program in Civil Engineering to expand in size, scope and diversity of students
Comment: We welcome this comment and efforts are on their way.
- Think strategically for the future as to how each program could differentiate itself in other areas of civil engineering, such as geo-environmental, sustainable transportation infrastructure, innovative materials, etc.
Comment: The differentiation should be at the level of research and graduate studies, and thus it refers more to the universities. To a large extent this is taking place.
- Explore opportunities for new synergistic/cross-disciplinary courses and research in all institutions
Comment: we welcome this comment. We have set up an interdisciplinary research center at our faculty, have recruited faculty members from disciplines other than “traditional” civil engineering. Special funding is needed for such efforts and fund raising projects to set the infrastructure needed have been approved by Technion management.
- Encourage each Ph.D. graduate of an Israeli institution to complete a post-doctoral appointment abroad before assuming a faculty position in Israel. This would also help the acute problem of academic inbreeding.
Comment: this is the “standard” Technion policy to recruit new faculty members only after having a major study period abroad, either at the PhD level, or Post-doc, or both.