

## **Danish report to EuCheMS DivCEd council meeting 2016 for the period July 2015-July 2016.**

The Danish Chemical Society serves around a thousand members, mainly chemists from industry, chemical research institutions and universities. Chemistry graduates from a technical university are further organised in the chemistry section of The Society of Danish Engineers. The chemistry teachers of the upper secondary school are by tradition organised in the Chemistry Teachers Association with roughly 800 members.

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1. The enrolment into tertiary chemistry education follows the cohort. Accreditation of Universities with extensive internal quality assurance mechanisms is gradually replacing accreditation of programmes. Chemistry departments at universities are routinely involved in open house arrangements and other recruitment events preferentially for upper secondary school. There is an increasing tendency to governmental regulation of university's internal systems and procedures. Focus on higher graduation rates has resulted in regulations which are now fine-tuned at the single tertiary education institution. The Division of Chemical Education of the Danish Chemical Society has been closed.
2. **National educational policy**
  - The rather detailed rules and narrow margins in last years' governmental "speed-up"-reform of tertiary education was much criticised to be too "one-size-fits-all"-rigid although its extension was generally supported. More responsibility for getting graduation rates up was accordingly returned to universities. The goal is still to increase average rates down and only allow students to spend an extra year for a 3 year bachelor's degree.
  - Accreditations of all tertiary programmes have run for a decade. This system is now gradually replaced by accreditation of the universities quality assurance programmes. The first universities and other tertiary education institutions have been through such a process. The others will follow during the next few years.
  - A new (primary and lower secondary) school act with longer school days has been passed lately and has been active for the first the school year 2014/15. Science and mathematics was not the focus, but physical education and creative activities like drama, music and painting have been put into the increased number of hours. Experience is collected, but the implementation is not finished and its effects not evaluated yet.
3. **Events in chemical education.**
  - As usual universities arrange "open house" or visiting days with lectures and demonstrations preferentially for upper secondary school classes. The format and volume varies from university to university. Chemistry has of course been involved in such activities at the universities. "Order a researcher" is a PR-reformulation of the opportunity to get a lecturing researcher to an upper secondary school. Some universities hire some of their own students to perform "chemistry road shows" at local music festivals and other events to get in touch with young people. It seems as if increasing efforts (and money) are put into such enterprise in order to get students into science.
  - The Danish participation in IChO's for more than 25 years is a well established annual event which is sponsored by industry and universities. The 2015 IChO in Baku (Azerbaijan) again resulted in one silver medal and two bronze medals to the Danish participants.

4. The **Division of Chemical Education** of the Danish Chemical Society has now been closed down since it is not backed up by university and industrial chemists in The Society. Other priorities apparently exist among university chemists. As stated above in the head of this report, the upper secondary school teachers in chemistry have their own association, which is still operating with meetings and a little joint journal in Danish together with mathematics and physics in school.
5. **Publications.**
  - The national journal on science and mathematics education in Danish with peer review, “MONA” (an acronym for mathematics and science) covering science and mathematics education issues from early school to university level is still published. If a direct proportionality between the difficulty of a subject and the number of contributions to the journal existed, chemistry is not a very difficult subject, while mathematics is very much so.
  - The monthly Journal “Dansk Kemi” (Danish Chemistry) has main focus on applied and industrial chemistry, although it brings articles of interest to chemistry teachers and from time to time material directly related to chemistry teaching.