

## Pedagogical Network for Engineering Education in Denmark (IPN)

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### **ABSTRACT**

*Danish engineering educational institutions have created a unique partnership within staff development. They have established a network called IPN.*

*IPN is a network for the pedagogical and didactic quality development of all Danish engineering education institutions - universities and colleges.*

*Training of new staff in educational skills is becoming more and more of a routine - while the more experienced staff is more reluctant to spend too much time on pedagogical matters.*

*IPN is constantly working with the development of quality through training of the staff, and recently we have developed an offer to the experienced staff.*

*This article describes the network, some of its results after four years and finally discuss it as a tool for quality development.*

### **Introduction**

IPN, in Danish Ingeniøruddannelsernes Pædagogiske Netværk, is a network for the pedagogical and didactic quality development of all Danish engineering education institutions: three universities and five colleges.

### **Background and Objective of the Pedagogical Network**

IPN was established on the 1st September 1996. The network, originally a three year project but now prolonged for an additional three year period, is financed by the ministry of education's so called "quality improvement" pool.

The objective of the network is to strengthen the development of the pedagogical and didactic quality within engineering education by:

- acting as initiator and coordinator for pedagogical and didactic developmental activities.
- providing education within the field for junior lecturers, lecturers and other teachers.
- collecting and disseminating information concerning pedagogy.
- creating a forum for the exchange of ideas and experience from both home and abroad between universities and institutions.

The network is composed of one member from each of the engineering education institutions: Aalborg University (AAU), Technical University of Denmark (DTU), University of Southern Denmark, Odense (OU) and five engineering colleges.

Each institution has a member employed part time, 20% of full time, for this purpose. One person is employed full time as day to day manager - and is now supported by an other full time

academic staff member.

A governing body has the overall responsibility.

### **IPN OFFERS:**

#### **Course Activities**

Foundation courses for junior lecturers and other teachers is a principal activity of the network. Based upon experience from the existing selection of courses at the various institutions, the network will develop courses further, especially for newly employed teachers but also for lecturers and temporary teachers.

The experienced teachers are often the real decision makers. This is partly due to their experience and partly due to their positions on boards and committees. In the case of this group, there is a need to develop attractive courses or workshops which take their experience into account but also offer new pedagogical and especially didactic knowledge. Technological supported teaching, for example, requires new pedagogical considerations which can be worked out both as course and development activities.

#### **Research and Development Work**

The network will draw upon the existing research. Because the network is a temporary project, it is not considered realistic to establish a research environment - with regard to both economy and time. However, this does not prevent the network acting as promoter and consultant in connection with pedagogical research activities at institutions which desire this.

It is possible to apply to IPN for pedagogical and financial support for smaller development projects. IPN has had two rounds of offers. Many of the projects have originated more or less from the evaluation processes.

#### **Information Activities**

A news magazine, IPN-nyt, which informs and discusses what is happening in the field is published two times a year. A homepage on the internet provides the most up to date information concerning courses, seminars etc. (in Danish but with a short introduction in English).

It is not always scientifically supported facts that teachers ask for with regard to new methods for teaching. Many are just looking for ideas for alternative forms of teaching. Whether or not the effect of this new form is scientifically proven is, for them, of less importance than how the new form works for them. For the same reason, the experience of others with new forms of testing, organization and studying is a valuable source for a teacher's renewal.

In addition, the network is obliged to collect knowledge within the entire didactic and pedagogical field, i.e. about teaching experience, development work and research activities. Specific examples could be concerning collegial guidance, tutor and mentor arrangements. Such experience is maturing in other places but is still in its infancy within engineering education. Assessment is another topic of current interest.

#### **Seminars**

IPN organizes seminars which appeal to the experienced teaching staff and address relevant topics such as e.g. assessment, project organization and problems with overcrowded curricula. Wherever possible, the seminars are held in conjunction with other Danish networks and organizations, e.g. The Society of Danish Engineers.

SEFI (European Society for Engineering Education) also organizes seminars and conferences

both in Denmark and internationally. Many staff members now participate in these arrangements which can be strengthened by additional cooperation in the network.

### **Current Activities**

IPN is in full progress with the activities. One of them is the first foundation courses for new teachers. A foundation course consists of a four day residential course with a subsequent three to four month period with smaller projects at the place of employment. This is then followed by a three day residential course.

Workshops have also been arranged: one concerning Problem Based Learning, another was concerned with developing assessment to support learning. A seminar being repeated this fall has the title: Leadership and pedagogy - the pedagogy of the organization?

Finally, seminars on design in engineering education and information technology have been held in cooperation with The Society of Danish Engineers.

IPN is also involved in a development project, in cooperation with Aalborg University, which is partially funded by CTU, the Centre for Technology Supported Teaching. Courses about project work and project supervising are under development.

### **What happened to the students!**

All these words and the students have hardly been mentioned. How can this be in harmony? The main issue is the improvement in the quality of education for the students so therefore they have a very central role. Even so, IPN activities are considered to be a direct shot in the arm for teachers and planners. This does not mean that the students shouldn't be involved in IPN. All lectures are open to the public and thus students can participate freely. In addition to this, an attempt will especially be made through the students' organizations to create a debate and also common activities. IPN sponsored this year for the first time a seminar about Course Evaluation - organized by the students.

### **Financing**

IPN cannot offer participation in all arrangements for free. However, less extensive seminars and workshops can be offered for free and courses are usually reasonably priced.

IPN's share in development and research activities are negotiated on a case by case basis with the partners concerned.

We believe that we can contribute our share to an improvement in quality in the pedagogical and didactic field. At the same time, we hope for a fruitful and constructive cooperation with all partners.

### **IPN as a tool for quality development**

IPN will, of course, meet all the historical difficulties with pedagogical staff development. We will find a number of staff members having a different priority in their interests, e.g. the professional interest in their research. However, we believe that if we work with the most interested staff and students - we have something to offer in proactive quality development.

OLE VINTHER holds a degree in electronic engineering. He has for the last 10 years been heavily involved with staff-development for Danish Engineering Educations, mainly related to pedagogical and didactic issues - and is in charge of IPN. He holds a fellowship from SEFI (European Society for Engineering Education), where he has been an active member for many years.