



Kriens, Switzerland, June 2018

Dear readers

Due to a serious health issue affecting a lecturer at the University of Applied Sciences and Arts Northwestern Switzerland (FHNW) in Brugg, I was contacted to replace him in the subject DIMENSIONING. After a gap of several years, I again had the opportunity to teach a mechanical subject at a University of Applied Sciences. The FHNW has been operating the well-known Bologna system for some time, in which the individual subjects are combined in a module. The DIMENSIONING module gives successful students 3 ECTS (credit points; the

Bachelor degree requires 180 ECTS), requires approx. 40 hours of teaching and 50 hours of private study and is taught in two parallel courses in the fourth semester. From what I saw, the module participants are more diverse when compared to the classes of the previous system. This could be due to the range of courses, with choices in the module combinations, and to the various study modes (full time and day release in the same course). I found this an enjoyable and valuable experience and would like to describe the main aspects here.

The FHNW Brugg has excellent facilities: besides traditional blackboard and chalk, there is a projector and a visualiser for projecting documents. These three media permit a varied lecture delivery. An air conditioning system keeps a pleasant temperature both summer and winter. Table football is offered in the spacious central courtyard which gives the FHNW a trendy start-up atmosphere. The school is organised flexibly without a lot of red tape. For example, I was able to organise a guest lecture by Iris Mandanis, lawyer at SECO, with no difficulty.

Student attendance fluctuated widely, from 65 to 80%. Besides the appeal of the lecturers, there are two further reasons for this low attendance. First, the stress which other subjects cause during the semester (so that DIMENSIONING becomes a minor consideration before other important exams) and, second, the school's educational philosophy which says that a student who never goes to lectures but passes all the exams has become emancipated from the lecturer, and that this is the best possible thing that can happen.

I was able to see that today's young people are able to solve complex problems without excelling at algebra. Any equation can be solved using the wide range of tools which are available everywhere. Nevertheless, I detected that not all students had a firm grasp of structural calculations or static forces. A gulf opens up between applying important formulae like following a recipe, and understanding a theory, a gulf which the lecturer tries to close with varying degrees of success. In my view, a sound understanding of the material helps in becoming an efficient and accurate engineer, but also in developing a fascination for the subject. Even after decades of working in the field, I am still inspired by the laws of mechanics, which is why I always really enjoy teaching them and conveying this knowledge to others.

MAM proudly presents: the FlexOmega App



The FlexOmega (measuring rowing power) project described in the last two former newsletters (www.mandanis.ch/newsletter/) has cleared another hurdle. The planned iPhone App, which shows the energy per stroke in joules for each oar on the screen and records the measurements for further analyses was successfully developed by the company InnoTix AG (ZH). Now all the rower needs for monitoring their efforts is a couple of oars fitted with FlexOmega sensors and an iPhone with the FlexOmega App

fixed to the foot stretcher with a clamp. The system has been adopted by top rowers who have measured their performance on the rowing race course on the Lucerne Rotsee (2000 m).

The measurements and recordings have always worked perfectly and bring interesting information to the attention of the rowers. Tests are continuing and filming is planned for a video to present and explain the FlexOmega.



Have a good summer

Georges Mandanis