



# Academics without Borders USF-AWB Universitaires sans Frontières

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## Educating students in engineering for globalization

The Chilean government asked us to give a set of talks about the education of engineering students for globalization. Indeed, in this context, it is important that their education must be appropriate. As traditional education of graduated engineers is based on technology, from the middle of the XX<sup>th</sup> century another pillar was added, namely business and organizational matters. More recently a third pillar was on international competencies. We know that a very huge number of engineers are involved in international matters with clients, providers and different partners especially in huge projects based on various know-how and technologies.

To educate those students in engineering to become globally competent, the question is not so of creating new academic courses, but especially of creating some framework allowing the students to bloom in this direction.

The first component is linguistic. What language to teach, and which register of language? As presently, British English is the dominant idiom, it would be perhaps urgent to replace it by American English, even by Indian English because India should exceed the billion of inhabitants. Furthermore, business English and technological English should be taught. We have seen too many engineers who did not know how to read with a high and understandable voice mathematical formulae and the chemical formulae in English. Regrettably, even most of the qualified teachers of English ignore those registers of language, even those who operate in engineering faculties.

The second component rests on practical industrial training during several months made abroad. It is excellent at the same time for the technical aspects in the enterprise, and also for the human aspects allowing the trainees to meet other persons, and so to enlarge their cultural arena.

The third component is to make one or two semesters as exchange students, for example thanks to the Erasmus mechanism in Europe. Choosing carefully the place of destination is a difficult exercise, often facilitated by the fact that student exchange agreements were signed with well-selected partners: some partners must have similar educational objectives, but the others have to present complementary objectives. As an example, a student in mechanic engineering should be able to attend courses of aeronautics or plastics processing industry, courses which were not offered in his/her origin university.

The fourth constituent is the management of international projects. We have already presented the NEREID initiative which means at grouping together students in information technology coming from different universities

in order to design and implement together some software product. It would be good that similar initiatives must be developed in the other domains of engineering.



The fifth component concerns the possibility of double degrees in engineering. But this would go outside the goal of this paper.

But if it were necessary to deliver a course about globalization targeted to engineers, it will essentially be necessary to explain that designing methods are totally different according to countries. Let's look at garden design and we shall understand that behind the designing methods, cultural approaches are very diverse. For example, French people are sensitive to brilliant mathematical explanations, English people prefer empiricism and efficiency, Italians favor aesthetics, etc. And in a multicultural team, how find a harmony with so various underlying cultures?

That was the heart of the presentations made end of April-beginning of May in the following Chilean universities, Universidad Técnica Federico Santa María from Valparaíso, Universidad de Tarapacá and Universidad de Concepción. See <http://www.dgc.usm.cl/2011/04/29/academico-frances-dicta-en-usm-charla-sobre-formacion-internacional-en-ingenierias/> for more ample details in Spanish.

We have to thank Professor José Lino Contreras who was the initiator and the main organizer and this journey. ■

R. Laurini

## EGIDE gives its support to USF-AWB

EGIDE, common agency of several French ministries has the objective to promote international exchanges. The number 65 of its magazine gives its support to our association. See [http://www.egide.asso.fr/jahia/webdav/site/egide/shared/docs/Presse/Passerelles/PASSERELLES\\_N65.pdf](http://www.egide.asso.fr/jahia/webdav/site/egide/shared/docs/Presse/Passerelles/PASSERELLES_N65.pdf) page 7 for details in French. ■