

Favouring an Educational Space for Integrated Work in the Food Area

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Summary

The aim of this paper is to propose the creation of an association which assembles Public University Institutions belonging to the food industry area within the context of Argentine Universities in order to: a) achieve curriculum unification training in this area; b) favor both academic and student exchange; and c) achieve a joint work in order to get common aims. The organization and realization of the II Meeting of National Universities Careers concerning to Food and Agriculture Area in 1993, which was essential for the creation of the Association, was the result of various rapprochement actions undertaken by some academic units in 1992-93. Since the each unit take on an obligation for producing internal integrating proposals. Later, the Food Area University Association (FAUA) was established and led to the accomplishment of several goals such as degrees and periods of study, graduate profile and concern unification as well as curricula adaptations and lecturing sessions of joint courses.

Introduction

Food Engineering arose as an academic discipline in the second half of the century. At the beginning it was influenced by Agronomy Engineering and mainly associated with food manufacturing operations and with the food processing equipment. Then, it went on influenced by Chemistry Engineering. In the seventies, key aspects for food industry which gave it more independence and permitted to distinguish from its forerunner were developed (sterilization, Biologic reactions kinetic and disinfecting) (1).

In the Argentine Republic education offering of career related to food area begun in the 80s. Nowadays, there are eight academic units offering this Career and three that offer it as a special field within Chemistry Engineering.

Until 1993 these units carried out their activities in isolation and with efforts dispersed and repeated. The joint analysis of this situation let to detect many aspects which led to focus the problem so far, namely:

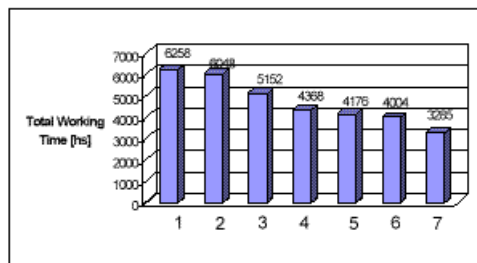
- a variety of criteria in the syllabus design and starting of the courses;
- a strong difference between theoretical and actual span of the courses, overcome in 30% the theoretical duration according to the plans

- total working time ranging between 3285 and 6258 hours (Fig. 1)
- a varying percentage incidence of Basic Sciences, Basic, Applied and Complementary Technologies in the curriculum contents.
- differences among scope, concerning and graduate profile even when there was an intention of forming a professional having similar skills.
- inadequate and inefficient communication networks among units.
- isolated and scarcely efficient actions with regard to national and international organisms.
- scarce relationship with industry, public and primary producers organisms.

A similar situation was partially outlined for all the public Argentine Universities which include Engineering Courses by the Federal Council of Engineering Deans (FCED)(2).

Becoming aware of the situation developed many actions tending to find out a solution were draw up by the Dean, Department Directors and Courses Managers of each unit. Within this context, a project creating a national organizational structure which states and strengthens interinstitutional relations, creates a favorable atmosphere for solutions to common problems emerging from their own experiences can be discussed and proposed was defended.

Figure 1



Syllabus working time (December 1995)

- 1: Nordeste – 2: Entre Ríos – 3: Lujan – 4: Quilmes – 5: Mar del Plata
6: Santiago del Estero – 7: Cuyo
San Juan National University is not included since there was not data Source:
Unificación Curricular de la Enseñanza de las Ingenierías en la República Argentina, 1997

Table 1: Total working time of the career by areas

Areas	1		2		3		4		5		6		7	
	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%
Basic Sciences	1848	29,53	1876	31,02	1552	30,12	1392	31,87	1248	29,89	1232	30,77	1080	32,88
Basic Technologies	1512	24,16	1372	22,69	1152	22,36	896	20,51	736	17,62	756	18,88	675	20,55
Applied Technologies	1176	18,79	1764	29,17	1408	27,33	1424	32,60	1344	32,18	1092	27,27	945	28,77
Compl Tech.	1722	27,52	1036	17,13	1040	20,19	656	15,02	848	20,31	924	23,08	585	17,81
Total Hours	6258		6048		5152		4368		4176		4004		3285	

1: Nordeste – 2: Entre Ríos – 3: Lujan – 4: Quilmes – 5: Mar del Plata – 6: Santiago del Estero – 7: Cuyo
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In this sense, there exist some successful experiences carried out by University Associations from the different areas such as the High Agricultural Latin American Association (HAELA) the Agronomy Teaching Universities Association (ATUA), the Argentine Physics teachers Association (APTA) which get to bring into a same line and to power their individual efforts tending to a joint development (3).

The aim of this paper is to introduce the mechanisms by which the a profitable Association which grouped the Food Area Public University Institutions was constitute with the objectives of achieving the syllabus teaching unification; favoring teachers and students academic exchange; tending toward a joint work searching common objectives; giving reports about the improvements made in this sense once the Association was constitute.

Method

As work method different stages were schedules:

- 1) Survey of background information in the academic units
- 2) Organization of meetings and workshops
- 3) Elaboration, consideration and discussion of the proposals coming from the meetings and workshops in each School, Department and Course
- 4) Analysis and Evaluation of the results obtained.

Mailing was used to make the survey and the information collected was referred to:

- Valid syllabus;
- Constitution and bringing into operation of curricula commissions;
- Post- degree (Mastering and Doctorate), Improvement and Updating Courses offered
- Researching and Extension Projects running;

- Pilot Plant availability and running
- Experiences related to industry and the primary production area

A diagnosis about the actual food area academic situation was elaborated using the information collected through the survey.

The organization of workshops and meetings, which started by personal contacts among the authorities of each Department and School, took place in order to generate a favorable environment for the 1st Meeting in which agreement for the creation of an association grouping the area must be determined.

Authorities, Coordinators, Curricular Commission Members, Teachers, Students attended to these meetings. The proposal elaborated and discussed in plenary sessions were put into consideration in every unit with the aim of being amplified corrected, improved, and agreed. Each academic unit established its own mechanisms to get these purposes.

After the creation of the Food Area University Association (FAUA) and that the projects were put in operation, work was made it is still making on new proposal and in the evaluation of the results obtained.

Results

To date, there have been nine plenary meetings with the attendance of authorities, teachers and students.

In the 1st Meeting, organized by the Engineering Department of the Lujan National University, it was recognized the convenience of having these meeting and the promise of keeping on with them al least three times a year was taken.

During the 2nd Meeting, which took place in the Santiago del Estero National University was introduced the

project of constituting the Association and many proposal of curricular unification (4).

In March 11, 1994 the **Food Area University Association was created** (5). The following general aims were fixed:

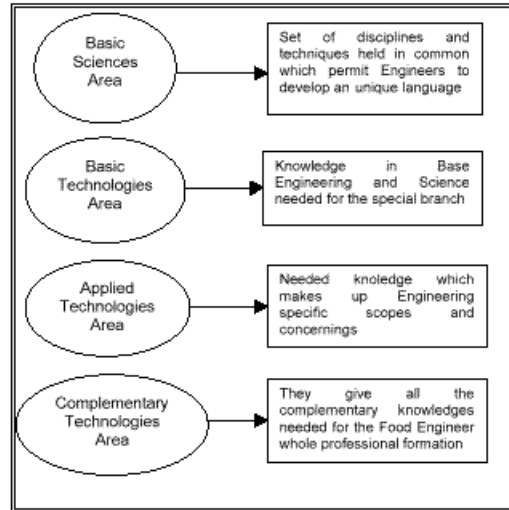
- Power individual efforts of each academic unit by common coordinated actions, which permit an efficient use of the human and physical resources.
- Generate an environment in which discussion and agreement are possible on condition that academic and scientific improvements of the different academic units occur by the development of degree and post-degree activities
- Perform inter university teaching, researching and transfer activities
- Share attempts to design actions tending to get excellence signing up agreements with national and international first level institutions.
- Develop guidelines for ordering degree and post-degree curricula
- Make joint efforts in order to obtain the FAUA recognition as official negotiator in face of area-related government and private sectors.

Concerning to degree syllabus, **all careers degree denomination was unified**, and the name of Food Engineering was proposed with regard to Universities of Lujan and of North-west have the official approval of that denomination and its concerning given by the National Culture and Education Minister what makes easier the adoption of this name by the careers remaining and whose plans fit into these concerning. **Food Engineer degree profiles, concerning and degree scope were agreed.**

Syllabus were all made compatible in the following topics according the general guidelines given by the Federal Council of Engineering Deans:

- 1) General Academic Structure Definition establishing areas and sub-areas (see Fig.2) as well as determining the curricula homogenization's rate.
- 2) Statement of a period of five years as the minimum duration of the course, aspect that was agreed in the FAUA before the homogenization workshops organized by the FACED took place, in addition to a minimum work time of 3750 hours. (6)
- 3) Description of the least subject content general descriptors
- 4) Statement of the final work of application purpose, modes and time consuming, in class hours equivalence. Aspects that were agreed by the FAUA before the homogenization workshops organized by the FACED took place (7)

Figure 2



By Areas Curricula Structure and their definition

Source: Acta acuerdo de AUSAL – 1996

Table 2: Homogenized Plan Structure

Area	Homogenization Rate	
	As a % of the total	Hours
Basic Sciences	28-33	1050-1237
Basic Technologies	20-26	750-975
Applied Technologies	24-32	900-1125
Complimentary	15-24	563-900

Source: Acta acuerdo de AUSAL – 1996

The “Integrated Post Degree in Food Engineering” Project was elaborated and put in consideration of the Culture and Education National Minister searching the official approval and financial support concerning post-degree level. The particular support of each one of the academic units as well as of foreigner professionals are included in this project.

In respect of Academic Exchange it was observed an increase of 20% of the FAUA schools members teachers and students attending to Graduate and Post-Graduate Courses that the different academic units offer.

More fluent communication channels were generated among authorities, teachers and students of the different units.

The Argentine Federation of Food Area Students (AFFAS) was created in order to canalize their interests, make joint activities and represent them in the FAUA meetings. School and Department made the promise of developing as much as possible certain areas, according the regional industrial requirements they face in order to create, in a next future, an integrated teaching system in which students can move for given periods of time for taking

courses related to subjects upon which the units mainly work (5).

FAUA members work jointly study and discussing academic subjects of their interest (Financial and Economical Regulation, Teaching Labor Regulation, Evaluation Systems, High Education Law, International Accreditation Systems, Researching Incentive Regulations) so that they are able to adopt joint decisions concerning these aspects and that permit to make suitable decisions every time is needed. Nowadays, each unit is working on their syllabus modification so that they adequate to national guidelines, having in view that it will be necessary a later discussion about their implementation according what was advised by the FCED. Such implementation must be undertaken following these aspects:

- Teaching-Learning techniques renewal
- Adaptation of the regulations that rule teaching-learning process (Teaching System, Teaching Management Control Systems)
- Strict control of the subjects contents tending to avoid the addition of many and useless topics
- Adequate linking between graduate and post-graduate students

Conclusion

The unification and definition of food area academic policies in the Argentine Republic were a consequence of the FAUA creation, achieving to power positive aspects of each institution involved, detect and solve mistakes, face problems with a different attitude, find spaces for discussion and divulging of enriching experiences, and unify academic criteria for graduate and post-graduate. In addition, it will permit continuous and fruitful cooperation between Engineering and Agriculture disciplines so, that knowledge can be shared in order to improve the changes in the productive structure of food systems (8).

This experience is desirable to be enlarged adding international institutions. Doing so, undoubtedly, a new space for exchanging which responds in an adequately and suitable way to the increasing globalization will be generated.

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