Abstract - Science has developed itself in a kind of knowledge fragmentation, generating the super specialties, divorced from the global context that they are part, atrophying the ability of integrating and evaluating the issue in its context. The New World order demands a new kind of professional, capable to think global without loosing the dimension of local and vice-versa. With the goal to defeat this challenge the Engineering Coordinating Team of Council of Researches in Education and Sciences in Brazil has conceived a different kind of approach to a Fishing Engineering Program. It includes in the program what is called "Tapé-Apó", which are extra classes of peculiar areas of human knowledge, specially selected to make the students to develop their abilities of applying their skills in the global context with success. They are engineers with solid theoretical knowledge of management, economy and law and possessing great engineering bases.

Index Terms - Global, fishing, ecology, skills.

INTRODUCTION

What is necessary to form professionals ready to face the competitiveness in according to the new paradigm of complex, mutable and uncertain work environment? For sure there is not only one answer or way, even in a era, which the importance of information and knowledge are widely preached, and that the seeking for a professional capable to have an excellent performance becomes a crucial factor for success [1]. The educational institutions are redefining its rule in present society and so it became necessary the adoption of new approaches [2]. New programs have been conceived, new laboratories and so on. Education has most of all, to promote the natural ability of the mind to set and to solve problems and by inter-relation to stimulate the full usage of general intelligence. This general intelligence is the human capability to deal with problem viewing the global aspects that surround it. So it is the global and the complexity that are now more than ever evident in our lives.

In a country like Brazil it is very important to form professionals committed with the creation and development of science, principally in engineering field, because Brazil despite the low investment in education system, it is a Country, which in biological and engineering areas are not behind other developed Countries.

THE CHALLENGE OF XXI CENTURY

The new paradigm of education preaches that the capital is the intellect and people are the most important, but by the other hand it is still difficult the total absorption of this new model of development [3]. Changes have been happening and many of them are successful. COPEC proposal program for engineering education is one of the successful new kind of forming good engineers prepared to face next century.

Very close to the environmental and biomedical areas fishing engineering is a young field but that has been contributing to the development of exploration techniques, conservation and correct use of natural aquatic resources. Fishing engineering is rooted in Biological Sciences (Ecology, Biology and Genetics) with Earth Sciences (Physics and Chemistry) and Mathematics. Those disciplines give the necessary basis to understand the aquatic atmosphere and its resources. The practical classes and the laboratories take half of the schedule and they approach techniques and location technologies, creation and reproduction of aquatic species and of industrialization.

It is a program that will fulfill the lack of this kind of engineer in the Atlantic Coast Region of São Paulo State, which has a natural vocation to fish due to its large portion of seashore and large number of fishing communities besides the industries of fish caught [4].

THE FISHING ENGINEERING PROJECT APPROACH

The coordinating team of COPEC – Council of Researches in Education and Sciences has conceived and developed a project of a fishing engineering program, which basic characteristics are:

- under graduation;
- five years;
- the inclusion of new courses;
- the effective work in projects.

So besides the basic science courses, basic engineering sciences courses, industrial engineering courses and specific fishing engineering courses, other one was added and it is Aquiculture that is essentially the development of methods,
devices and equipments for creation and multiplication of species in captivity.

The specific courses of fishing engineering are distributed along the last three years of the program. These courses allied with the basic science courses and the basic engineering courses can provide to the students a new kind of formation, which is much more dynamic and general [5].

The curriculum that was proposed and which attends a minimum of the resolution 48/76 of April 27 of 1976 from CFE – Federal Council of Education about the curricula directress [6]. The courses follow basically the ones of traditional program plus the ones that compound the “Tapé-Apó” proposal [7].

In the last two years of the program the students will have the “Experience Term”, which is a period of four months at the end or in the beginning of the last two years. It is a period when the students work effectively in a fishing community, fish caught industry or research center. A professor altogether the supervisor of the institution supervises the students’ work in part of a project. They have to accomplish their work so that another student that will replace him in the project performs the next step considerably. The effective work in projects exposes the students to the real environment and problems, and this provides the interface of the theory and the practice. It is believed that the seeking for the right solution for such problems enlarges their academic horizons [8].

**CONCLUSIONS**

The challenge of better Education starts in fundamental passing through medium education level but, it is in the Superior or Third Degree that the necessary changes are deeper and urgent what makes it more difficult for the Education Institutions [9]. It is not easy to prepare an engineer for a future, which is in many ways uncertain.

The professional of fishing engineering as well as any other professional of present world has to be very well qualified, s/he has to develop skills to do research in the fields of Ecology, Biology and Genetics. S/he has to be a professional with scientific mind, capable of finding solutions in according to the local necessities having in mind the context of a global world. It is the development of the ability of creating technology to be used to the welfare of contemporary society, viewing the future.

The new approach showed in this work includes the “Experience Term” that has become a very important part of students’ formation once it provides them a good quality of practical experience working. The area of Santos claims for this kind of engineer. Teachers supervise their work in the industries and fishing communities and their evaluation is based on the report of their performance.

**REFERENCES**


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