

AC 2008-301: SOCIAL ENGINEERING PROGRAM – DESIGNED TO CHANGE PARADIGMS

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Social Engineering Program – Designed to Change Paradigms

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OPASS –Organization of Researches in Environment, Health and Safety

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Abstract

Sustainable development with social promotion of individuals and society has been the constant search of scientists, educators and some politicians worldwide after the globalization phenomenon has started. It is the key for the surviving of human kind on earth. It is not only a matter of environmental issues solved but also the social aspects of the mutant world that contemporary society is living at the beginning of 21st. Century. It is the application of Science to help society to reach the goal of achieving the same level of development as the technological. Following this thought and due to the nature of the urgency in promoting the society in a near future COPEC – Council of Researches in Education and Sciences and OPASS –Organization of Researches in Environment, Health and Safety have designed an engineering program with the objective to form engineers to act in more effective and accurate ways in order to solve social problems and avoid future ones. It is a Social Engineering Program, under graduation, five years duration, full time students, it is based on the humanities and social sciences such as philosophy, psychology, and, especially, economics, and thus deals with theories concerning the basic laws of humans and society. The goals of the Social Engineering Program are to educate advanced researchers and administrators who work in areas related to policy, design and planning in national territory socio-economic systems and to develop the integrated theories and methods of these areas. It has been designed in a way to satisfy the education law of the country. The design and implementation of this program comes to add to the efforts of the different sectors of the community to solve the social problems that are perpetuated by decades such as environmental issues, overpopulation, and the urban problem.

1. Introduction

The Social Engineering Program proposed by COPEC-OPASS educational programs design team can be described as: The field of study, which main goal is to solve social issues promoting the civilization evolution. It is not just the application of technology to solve social issues. It is a practical study which tries to reform the society by means of the development of new policies, planning, or by presenting concepts. Certainly it is not an easy task to accomplish such program principally because it is a bold ambitious project and because it is an engineering program less technical and more practical. Anyway the whole concept is very new and feasible once it is becoming more and more necessary the services of this professional. Very soon it will become a promising scientific and technical area, which matches the needs of the present society.

The complexity of societies is a motivation for the social engineering students who can see in it as a challenging career [1]. Another aspect that needs to be mentioned is the necessity to design a program that fits the educational engineering laws requested by Education Ministry of the Country to be a recognized or accredited program. There are some rules that must be followed such as minimum curriculum, labs, library, professors, and technicians and so on, despite the fact that it has to be still a 5 years program for under graduation level plus 2/3 years Master and 3/4 for PhD level.

2. Description of the Program

The first idea was to design a program of under graduation level, full time students, etc but after discussions the team chose to start with a graduation program Master and/or PhD level due to the necessity to provide professionals qualified to solve highly complex social problems at the present.

The curriculum has been designed for the students to understand the basic mechanism of the society in a deeper level in order to avoid stereotyped ideas. It includes economics and sociology besides basics of national law system, public policies, planning and environmental issues, among others.

At graduation level the program is offered to civil, industrial engineers as well any other specialty once it is a new area. The program has been designed to last two years maximum and it includes the courses as follows:

- ✓ Analysis of Social System;
- ✓ Applied Mathematical Methods for Social Issues;
- ✓ Game Theory;
- ✓ Public Economic System;
- ✓ Macro and Micro Economics;
- ✓ Public and Private Policies Aspects;
- ✓ Environmental Economics and Public Policies;
- ✓ Introductory City Planning;
- ✓ National and Regional Planning;
- ✓ Housing and Land Policy;
- ✓ Design Theory of Public System;
- ✓ Basic of Law System.

At this level it is important to propose and develop a serious project of investigation that includes the method of solving the social problem, which is the subject of the study. The number of possibilities is vast once the dynamic society that man lives nowadays is more and more complex and mutant. It is an aspect that leads to the necessity of an investigation about an issue that is real and which solutions are feasible and in a short time. It is may be the most important aspect of such program that is the social analysis of a real problem, which demands a certain amount of efforts in the search of economically sustainable ways of solving it [2].

The program is developed in modules: two modules per semester. The final approval of a student is established by the scores and the final project presentation. Specialists will be teaching and guiding the students in order to develop the projects in a broader perspective.

Some content material is available by web and a large amount of historical and geographical information is required the visits to libraries are necessary too. As communication skill is a strong recommended acquisition the students can count with extra tutorial of specialists in communication and marketing.

3. Methodology and Methods

As it is a field of Engineering that deals with humans and society the theory scope of social engineering is based on economics and psychology, which makes it more mathematical than other social sciences such as sociology and political science. It is a characteristic that demands a rigorous research about the phenomenon of human beings and the society.

Mathematical models are applied for the study of institutions, policies, groups and so on. Theories are verified by experiments or other investigation system, or by creating new methods or even by analytical methods and designing techniques in public and private sectors.

The main idea is to work around a real project, in teams, looking for solutions by the point of view of the different courses involved in the module. The content of the courses is up to the specialists.

4. Objectives

The main objectives of this social engineering graduation program are:

- ✓ to prepare engineering researchers and professionals in administrative positions who work in areas related to policy to design and implement in national territory socio-economic systems and to develop the integrated theories and methods of these areas;
- ✓ to increase logical thinking, sense of social ethics, social assessment capability;
- ✓ to start thinking without any pre conceived notions;
- ✓ to look for innovative problem solving ideas;
- ✓ to improve communication skills.

The expected result of this program is the creation of a number of professionals committed with the search for social progress not in a demagogic political way but in according to the reality and the possibilities of the local society. It is necessary to have in mind the idea of a global world and local identity. How it is possible to foster such and such community using innovative feasible ways taking into account the impact and try to measure the future implications and always have a back up plan.

5. Some Considerations

A good program need to be rooted in strong foundation, which means it has to be really good and count with the best specialists.

Another point is the outcomes are based on self motivation. Professionals can see the opportunity to develop another career that in a near future will become necessary such as researchers at companies, government offices, and international organizations, the number of which is expected to increase and so and the perspectives are great [3].

Engineers are the ones who can certainly understand and develop innovative solutions even for social problems once their formation prepares them to have a wide vision about any problem that needs to be solved no matter if it is the construction of a bridge, a more effective production machine or an economic way to raise income. Engineers are in general good administrators and that is why they end up as Mayors, Governors, CEOs, etc. It is the logic mind and the feeling that it is quite a duty to solve problems [4].

So this program comes to light up as a spark to challenge engineers to seek for the solutions of social problems that any community has to face. Some times common sense is not enough or the mere application of democratic actions are not the best options to face a social crisis. Social assistance for example is not the best way to combat poverty on the contrary it deepens the ignorance and poverty perpetuating the status quo for generations [5].

6. Conclusion

It is just the starting point in the path for real human evolution may be a small step but any journey starts with the first step. To change a society it is important to motivate people to do so and motivated engineers can make a difference.

Social Engineering is in fact nothing more than engineering the society, it a field of study that aims to solve various problems in the society by means of practical approaches, as in engineering. It is a more sophisticated way to solve social problems proposing models and innovative solutions.

The most important aspect that must be pursued is the constant search for transforming the present society in a future better society.

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