Developing a Special Curriculum in Cyber-Defense at Birzeit University

Abstract

Internet technology (IT) is revolutionizing business, industry, government, and the private sector. New areas have become possible, including e-commerce, e-education, e-government, and other virtual communities. These have, however, highlighted the need for IT security to protect the user and public sites, as well as the web itself. However, the middle-Eastern IT markets, particularly in Palestine (the West Bank and Gaza) lack a pool of IT security experts. The Palestinian Territories have excellent human resources, but lack expertise in secure Information Systems and site protection due to a lack of educational opportunities available in the US and Europe. The Palestinian Territories have excellent human resources, but not having the educational opportunities available in the US and Europe, they lack expertise in IT security, do not normally have a set of security regulations, institutional policies, and necessary infrastructural adjustments.

Today, almost all Palestinian Universities are connected to the net and plans are underway to connect all the Institutions of Higher Education through a high bandwidth net. However, despite these developments, Palestine is not yet able to offer security options in its universities, though some are considering expanding in that direction to meet the local needs.

This proposal discusses a way to assist by adding undergraduate secure information systems curricula similar to that provided at George Mason University (GMU) in Fairfax, Virginia, to the curriculum of the Computer Science Department at the

Birzeit University (BZU) in Birzeit, Palestine (West Bank). We intend to do this while GMU is upgrading its undergraduate and graduate offerings and thus gain by symbiosis. Success will be measured by analysis of surveys returned by students, industry, and Government in both Palestine and the US; this will also help in obtaining future ABET accreditation at GMU and similar efforts at BZU.

Depending on the success of the transfer, BZU intends to add a graduate certificate option as a means to lead to a full graduate (MSc degree) option in Computer Science later. Attempts will also be made to obtain funding for joint cooperative research projects to be performed by BZU and GMU faculty in the second and subsequent years. If feasible, similar curricula will be exported to other Palestinian Universities.

A US based NGO, the Global Institute for Technology Advancement (GIFTA), is committed to helping BZU in promoting the program and obtaining local funding for the new teaching laboratory that will be needed and also to help in finding another suitable Palestinian university to be the second recipient of the curriculum.

Funding this proposal will meet a number of important objectives.

? First, BZU can benefit from GMU materials and experience, so that they can incorporate the curriculum more efficiently.

? Second, they will be better able to train information security engineers to assess and protect their organizations' information systems from exploitation.

? Third, this will be a step towards the UN's Millennium Development Goal #8, Develop a Global Partnership for Development (target 18)[1].

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[1] See the web site: http://www.unmillenniumproject.org/goals/index.htm)

The objective of transferring technology from GMU to BZU and proving its effectiveness for the academic and industrial arenas of the middle East will be accomplished by providing relevant teaching material in the undergraduate program and meeting during the first year in Birzeit to augment the current undergraduate Computer Science program to provide a special set of security courses that can form a security option for students who select it. The addition will be announced at the end of the first year and implementation started in the second year, when the curriculum will be introduced and students may decide to take the option. A new lab for teaching and experiencing security problems will be designed for procurement at the end of the second year and built in the first part of the third year to allow first courses to start to use it at the end of the third year. The cost of the lab is not included here but will be financed from donations of Palestinian organizations; an NGO (GIFTA) will give their time and effort to help in obtaining the funding and in moving the syllabus to other middle Eastern Universities after it is proven to be effective (using measures developed in year 2 at GMU). .

Face to face meetings will occur regularly; GMU Faculty will visits BZU twice in the first year and once in the third year while BZU faculty will meet at GMU twice in the second year and once in the third year to coincide, if possible, with the ALO annual meeting in the second and third years. Of course, email and the phone will also be used substantially – as it has during the generation of this proposal.

The cost of the effort, including travel and support for faculty at GMU when visiting BZU and vice versa, is estimated as $199,701, plus cost sharing of 29.5% made up of effort by GMU faculty in improving the curriculum for both the Bachelors and

Masters degree programs and GIFTA's efforts in Palestine in obtaining funding for the new laboratory, generating interest in local industry, and aiding in the transfer.

Methodology for measuring the success of the resultant programs at BZU and GMU will be developed and used in reporting the successes and problems in the development of the new curriculum and also of the methods used in pursuit of the goals of the research.