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The Balancing Act Of Developing An Undergraduate Mis Program

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Abstract

This paper reports on the developmental process of an undergraduate program for Management Information Systems at the School of Business of University of Nicosia which is a private University in Cyprus. The paper examines how, beyond the challenges widely documented in the literature, the team in charge of curriculum development had to balance out requests by a Visiting Team of academics appointed by ECPU -a national quality assurance body supervising private Universities- with the insights and guidelines of an Advisory Body composed of volunteering representatives of major business organizations in Cyprus, whilst keeping under consideration financial restrictions as well as constraints imposed by the regulatory framework of the University. The developed curriculum addresses these issues and provides flexibility for future growth in accordance with ever evolving challenges of this field.

Keywords: MIS, Undergraduate, Curriculum, Program, Cyprus.

1   INTRODUCTION

Design and development of curricula in Information Systems (IS) / Management Information Systems (MIS) is pertinent to multiple challenges. Model curricula in MIS (Davis et al. 1997, Gorgone et al. 2003, Topi et al. 2008) intermittently address those challenges by attempting to align a set of degree outcome expectations to the type of jobs MIS graduates are likely to get when entering the workforce.

As it is outlined in (Topi et al. 2008), MIS as a discipline allows for connections with organizations in the public and private sectors; thus MIS curricula need to reflect upon the needs of associated business communities and such needs may be quite diversified in various geographical settings. Furthermore, these needs could be addressed by multiple educational approaches depending on the orientation and strata of education systems within which this endeavor is undertaken (AACSB 2002, Dhar and Sundararajan 2007, Maier and Gambill 1997, McAfee 2007).

Additional challenges derive from the ever evolving technological developments: as a result, often updates ought to apply to an MIS curriculum in the context of conceptual knowledge and practical skills to be developed (Kung, et al. 2006, Sutcliffe et al. 2005). Therefore, additional updates must apply to infrastructure, conceptual and laboratory based courses and faculty expertise (Ehie 2002, Maier and Gambill 1997, McAfee 2007).

In face of declining student enrollments in information systems and other related academic programs in recent years (George et al. 2005, McGettrick et al. 2006) educational institutions attempt to update curricula so that they become more appealing to perspective students and future employers (Landry et al. 2000, Lee et al. 1995). Many MIS programs remain technically focused (Kung, et al. 2006, Sutcliffe et al. 2005); students avoid such MIS programs as a major because they view them as too technical

(Lomerson and Pollacia 2006). MIS practitioners and perspective employers prefer MIS graduates who understand inter-functional relations, have good communications and people skills, and the ability to see the business functions holistically and in depth (Ehie 2002), while they still possess technical-oriented skills.

Beyond heated debates on the degree of disciplinary autonomy (Alter, 2003, Banville and Landry 1989, Checkland and Holweel 1998, Dearden 1971, Ein-Dor 1986, Farhoomand 1987, Galliers 2003, Gray 2003, Hasan 2006, Hirschheim and Klein 2003, Jones 1997, Keen 1991, Myers 2003, Orlikowski and Iacono 2001, Robey 1996, Stowell and Mingers 1997, Wade et al., 2006, Weber, 1987), at a practical level MIS curricula are served by faculty from two distinct disciplinary bases that influence curricula formation based on dynamics pertinent to specific educational environments and faculty expertise.

This paper describes the developmental process of an undergraduate curriculum for Management Information Systems at the School of Business in a private University in Cyprus. The paper examines how beyond the challenges discussed above, the team in charge of curriculum development had to balance out requests imposed by a Visiting Team of academics appointed by ECPU -a national quality assurance body supervising private Universities in Cyprus- with the insights and guidelines of an Advisory Body composed of volunteering representatives of major business organizations in Cyprus. Furthermore, the team considered financial restrictions as well as constraints imposed by the regulatory framework of a newly recognized Private University. The developed curriculum addresses these issues and provides flexibility for future curriculum updates in accordance with ever evolving challenges of this field. The value of this paper lies on the insights derived for curriculum development in a highly moderated environment. At a practical level, it offers potential replication in other settings. Finally, the proposed curriculum structure allows for gradual modifications, extensions or specializations that could be applicable in other educational settings, as well.

2   MIS PROGRAM DEVELOPMENT PROCESS

In the Republic of Cyprus, there are three state Universities, namely, University of Cyprus, Cyprus University of Technology and the Open University of Cyprus. By law, the state Universities are autonomous, thus the governing bodies of the Universities decide on the development of new programs of study and/or revision of existing ones. As of October 1st 2007, three private Universities have been licensed and have started their operation, namely European University, Frederick University and University of Nicosia. The Evaluation Committee for Private Universities (ECPU) was set up by the Council of Ministers of the Republic of Cyprus to maintain quality assurance of teaching, research, student services, infrastructure and governance in private Universities. Within this regulatory framework, a private University in Cyprus is entitled to offer programs of study, provided that they have been accredited by the ECPU.

The process followed for the accreditation of a program starts when the application of the program to be evaluated is submitted. The application provides details on the proposed pathway, courses, involved faculty and supporting infrastructure. The ECPU assigns a Visiting Team (VT) of distinguished academics with relevant backgrounds. The Visiting Team has a fact finding mission; that is, they visit the premises of the private University, discuss the program specifics with all involved stakeholders (program coordinator, academic and administrative officials, faculty, staff and students) and examine the suitability of the infrastructure (classes, library, labs etc). They report back to the ECPU with their findings, remarks, recommendations etc. Then, the ECPU forwards the Visiting Team's report to the private University officials. They may reply to the comments included in the report within a month. Soon afterwards, all supporting documentation, namely original application, Visiting Team's report and the reply by the private University) is reviewed by the ECPU to reach a decision whether the examined program will be accredited or not.

Within this regulatory framework, the development process for the MIS curriculum originally submitted to ECPU involved various stakeholders including University officials, Business School administrators, faculty and staff, the Advisory Council of the School of Business and students.

The main motivation towards the design and development of the MIS program was students' demand. It is noted that before the initiation of the undergraduate MIS program, students interested in MIS could major in a Business Administration program and follow the MIS concentration. Under this arrangement, they could take nine courses in Computer Science and MIS related issues. However, their MIS concentration did not appear on their degree; rather, it was specified in the student transcript and the Diploma supplement. Students complained because this arrangement did not enable them to apply for positions in governmental and/or semi-governmental organizations that explicitly required MIS graduates, that is, graduates whose degree explicitly stated as their field of study "Management Information Systems". Furthermore, students wanted more specialization courses with distinct MIS flavor rather than courses which typically also appear in a Computer Science curriculum. However, students had mixed views as to the type of those MIS courses; some students favored technically oriented courses while the majority preferred courses that strengthen their skills in management of information systems resources, project management and so on. All students agreed that they would prefer to develop competencies through lab exercises, rather than conceptual advancement.

University officials pride themselves on being attentive to students needs. Lack of an MIS program was viewed as a competitive disadvantage; at that time, another private University was offering such a degree; in fact, that was the only one institution offering such a degree among state and private Universities in the Republic of Cyprus. University officials, considering the financial constraints of the University, agreed to the development of the new MIS program but they clearly preferred to have a high degree of overlap between courses included in the new pathway and those in the pathways of already existing programs, like Computer Science and Business Administration. They were also willing to introduce some new courses, especially those that could be supported by tenured faculty. However, University officials argued that the program should have a high degree of flexibility when it comes to electives arguing that in today's business environment, students may select unorthodox courses, which would still help them in their professional development. This argument may be valid to some extent. It is also noted that this proposal would not increase the operational overheads for the proposed program, since the list of free electives would consist of courses already offered in various other programs.

Faculty favored the introduction of new courses especially those that were aligned with their research interests. Business School faculty and administration did not particularly support the idea of many free electives. They had different priorities than those of University officials. For pedagogical reasons, they would prefer perspective MIS students to attend as many business related courses as they could possibly get. They would see that the policy of allowing students to take free electives from any other accredited program could be easily abused. Also, the Business School administrators, including the Dean, the Department Head and the Program Coordinator favored an MIS program that would clearly follow the recommendations of model curricula proposed by the international scientific community. They favored an alignment with internationally acknowledged curricula; also, they recognized that this approach would facilitate the application for accreditation by ECPU.

The School of Business has institutionalized an Advisory Council, with representatives from prominent businesses in Cyprus. A draft version of the proposed MIS curriculum was presented to the Advisory Council for feedback. Two new courses were suggested, namely one course on IT Audit and Control and one more on Supply Chain Management. Unanimously, the Advisory Council agreed that beyond the proposed courses, it is more important for students to get exposure to the business world before they graduate. This recommendation has been addressed with the introduction of special purpose courses that allow for internships and/or projects directly related to businesses.

Based on a synthesis of views of all stakeholders mentioned above, a proposed MIS curriculum was submitted to ECPU in November 2007. ECPU appointed a Visiting Team (VT) that performed a fact

finding visit at the premises of the University in April 2008. The Visiting Team composed of four academics from Greece and Cyprus. Three of the members were professors in Computer Science and the fourth member was an Associate Professor in Operations Research. For reasons that will become clear in the sequel, it is important to note that none of these academics came from a University that was offering an MIS program of studies.

The VT had a meeting with the School's Dean, the Head of the Department of Management & MIS, the Program Coordinator, the Director of Academic Affairs and members of the faculty. During this meeting, all details related to the program and samples of student's work have been thoroughly examined by the VT. Furthermore, the evaluation visit included extensive meetings with students, individual interviews with members of the faculty and site visits to all spaces that serve both the demands of the academic program and the research efforts of the faculty members.

The Visiting Team commented on thirty three distinct aspects of the proposed program. The main concern of the Visiting Team was that the proposed program, although in line with the model curriculum by ACM/AIS/AITP had objectives that were very ambitious and difficult to implement "due to the interdisciplinary nature of the MIS program". They also argued that other Universities offering such degrees often prioritize the various relevant topics and adopt specific choices as the primary focus of their program based on their faculty expertise, the need of the local business community and targeted career paths. The VT also outlined points that needed to be addressed in the program structure and course content.

In response to the remarks of the Visiting Team, a new updated curriculum was put forward. An extensive reply addressed each of the points raised in the VT report, including a lengthy and thorough discussion on the topic of MIS disciplinary autonomy. The resulting curriculum was heavily influenced by the most recent ACM/AIS model curriculum as outlined in (ACM/AIS, Topi et al. 2008). The program fulfills the recommendations/suggestions of the VT while it balances priorities as expressed by involved stakeholders. ECPU accredited the MIS program in July 2008 and the University of Nicosia offers this program since Fall 2008.

3   THE ACCREDITED UNDERGRADUATE PROGRAM

The MIS program follows the European Credit Transfer System (ECTS) and it is completed with 240 ECTS: 204 ECTS are allocated to required courses and 36 ECTS are allocated to elective courses. Out of the required courses, almost half of ECTSs are devoted to technical subjects, while 60 ECTS are devoted to business/organizational subjects. This addresses the need explicitly expressed by many students so that they have more courses relevant to their field of study. The remaining ECTS are distributed among language, math and integration requirements. Students may use their 36 ECTS of elective courses to become more technically competent or improve aspects of their business education. This provision also addresses the different needs expressed by both groups of students, that is, students may select their electives based on their preferences.

The program introduces 16 new courses; all but two require laboratory work to improve specific skills and competencies, as requested by the students. New courses have been also designed to address the recommendations expressed by the Advisory Council, that is, a course on IT audit and Control and a course on Supply Chain Management. Additionally, a special purpose course entitled "BADM-491 Special Topics in Business" offers to students the opportunity to take it for 2, 4 or 6 ECTS and complete an internship of 40, 80 or 120 hours at an affiliated company. Students may enroll in that course and complete a one-off project e.g. a market research under the supervision of a faculty member. In fact, this arrangement has been institutionalized for all business majors, not only MIS students. Moreover, a student may also complete their final year project on a topic that is of interest to a particular organization. These provisions address all recommendations by the Advisory Council.

Although a relatively large number of new courses have been introduced, operational expenses at the University have been kept under control: two new faculty members are required. A number of new

courses may be supported by qualified part-time faculty, usually practitioners from the industry. Thus, University officials have also been partially satisfied, as well.

Based on the Visiting Team suggestions, students are offered alternatives for targeted career paths, as outlined in Table 1. Students may use their 18 ECTS of elective courses towards the completion of one or two career paths e.g. a student may select the paths of IT Consultant and Enterprise Systems Specialist while another student may be more inclined towards Decision Support and Business Intelligence Specialist.

The curriculum allows for future developments; by introducing up to three courses in the program an additional career path is established. This solution provides the private University with some autonomy, since minor changes in a program do not have to be submitted for approval to ECPU or any other quality assurance body.

BBA, 4 year, MIS PROGRAMME			

REQUIRED COURSES   **(204)**   **ECTS**

Required courses are listed under four categories, namely: Major Requirements, Language Requirements, Math Requirements and Integration Requirements.

MAJOR REQUIREMENTS   **(164)**   **ECTS**

Code	Course		
BADM-230	Business Law		6
BADM-234	Organizational Behavior	6	
BADM-475	Strategy and Business Policy		6
BUS-111	Accounting		6
COMP-151	Fundamental Concepts of Information and Computer Technology		6
COMP-152	Introduction to Programming		6
COMP-153	Visual Basic		6
COMP-255	C++ Language Programming		6
COMP-453	Software Engineering		6
ECON-200	Fundamental Economics		6
FIN-266	Managerial Finance	8	
MGT-281	Introduction to Management		6
MGT-481	Human Resource Management		6
MIS-201	Systems Analysis and Design		6
MIS-215	Project Management		6
MIS-252	Database Management Systems		6
MIS-253	Database Applications Development		6
MIS-256	Web-based Applications Development		6
MIS-270	Statistical Applications in Business		6
MIS-325	Applied Data Communications		6
MIS-351	Information Systems Concepts		6
MIS-390	E-business		6
MIS-415	Principles of Information Security		6
MIS-435	Business Intelligence		6
MIS-456	Management of Information Systems		6
MIS-460	Supply Chain Management		6
MKTG-291	Marketing		6

LANGUAGE REQUIREMENTS   **(18) ECTS**

Code	Course		
ENGL-101	English Composition	6	
BADM-231	Business Communications, OR		6

BADM-332	Technical Writing & Research	6
COMM-200	Business and Professional Communication	6

MATH REQUIREMENTS   **(16) ECTS**

MATH-150	Finite Mathematics	8
MATH-220	Statistics I	8

INTEGRATION REQUIREMENTS   **(6) ECTS**

BADM-439	Senior Simulation in Business OR	6
BADM-493	Final Year Project OR	6
MIS-454	Information System Project	6

ELECTIVES   **(36) ECTS**

Elective courses are listed under three categories, namely: Major Electives, Language Electives and Math Electives

MAJOR ELECTIVES

ACCT-231	Accounting Information Systems	6
BADM-431	Research Methods in Business	6
BADM-491	Special Topics in Business	2-6
BADM-491R	Special Topics in Business, Project on IT Audit and Controls	6
BADM-491S	Special Topics in Business, Project on Information Search and Retrieval	6
COMP-160	Introduction to Multimedia	6
COMP-161	Interactive Multimedia Development	6
COMP-263	Human Computer Interaction	6
COMP-325	Special Topics in Computer Science	3-6
COMP-455	Object-Oriented Programming	6
COMP-612	Distributed Systems	6
IMGT-490	Analytical Decision Making	6
MGT-150	Teamwork and Collaboration	6
MGT-355	Leadership in Organizations	6
MGT-370	Information Systems and IT Management	6
MGT-400	Knowledge Management	6
MGT-450	Quality Assurance Management	6
MGT-470	Change Management	6
PHIL-120	Ethics	6
PHIL-121	Business Ethics	6

LANGUAGE ELECTIVES			
BENG-100	College English		6
ENGL-100	Basic Writing	52	6
MATH ELECTIVES			
MATH-105	Intermediate Algebra		6
MATH-320	Statistics II		6
IMGT-486	Quantitative Methods		6
Total:			**240 ECTS**

Table 1 Advice on Different Career Paths

Career Path: IT Consultant   **(18) ECTS**

BADM-431	Research Methods in Business	6
MGT-450	Quality Assurance Management	6
MGT-470	Change Management	6

Career Path: Application Developer   **(18) ECTS**

BADM-491R	Special Topics in Business, Project on IT Audit and Controls	6
COMP-263	Human-Computer Interaction	6
COMP-455	Object-Oriented Programming	6

Career Path: Business Intelligence Specialist   **(18) ECTS**

BADM-491S	Special Topics in Business, Project on Information Search and Retrieval	6
MATH-320	Advanced Statistics	6
MGT-400	Knowledge Management	6

Career Path: Enterprise Systems Specialist   **(18) ECTS**

ACCT-231	Accounting Information Systems	6
BADM-491R	Special Topics in Business, Project on IT Audit and Controls	6
MGT-370	Information Systems and IT Management	6

Career Path: Decision Support Specialist   **(18) ECTS**

IMGT-486	Quantitative Methods	6
IMGT-490	Analytical Decision Making	6
MATH-320	Advanced Statistics	6

Career Path: Project Management Specialist   **(18) ECTS**

BADM-491R	Special Topics in Business, Project on IT Audit and Controls	6
MGT-450	Quality Assurance Management	6
MGT-470	Change Management	6

4   CONCLUSIONS

This paper demonstrated how an undergraduate curriculum for Management Information Systems has been developed in view of input provided by multiple stakeholders at the School of Business of University of Nicosia in Cyprus as well as recommendations by external academics appointed by ECPU, the quality assurance body for Private Universities in Cyprus. The developed curriculum balances the (often conflicting) requirements and it also provides some flexibility for future updates in accordance with ever evolving challenges of this field.

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