

# A COMPARISON OF IS PROGRAMS WITH MODEL CURRICULA

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## ABSTRACT

*This paper looks at the IS offerings at 66 universities that are accredited by AACSB, have an IS major or concentration or a 4 year IS degree, and who also belong to the SAP University Alliance. The data was gathered by looking at the web pages of each of the IS programs. A comparison of these IS offerings to IS'2002 is made. The major deficiencies of programs that do not meet the IS'2002 Curriculum are indicated. A preliminary indication of how these universities would fare under the ABET IS accreditation criteria is made.*

**Keywords:** IS'2002, model curricula, AACSB, SAPUA, ABET IS Accreditation

## INTRODUCTION

IS (or MIS or CIS) as an academic discipline has matured over the past 30 years. Thirty years ago IS was a fairly new computer discipline that was not computer science but had wide variations in the degree programs offered. The various model curricula proposed seemed to be a reference point for universities to which they could compare their IS program offerings. Many IS programs are offered in Colleges of Business and the AACSB course requirements for business and non business courses limit the number of IS courses that can be offered in an AACSB accredited business degree.

Changes in technology have also influenced the introduction of new IS courses reflecting the needs of the computer industry. This paper lists the IS'97 (3) and IS'2002 (4), the latest IS model curriculum and indicates what AACSB accredited universities are actually offering and indicates some of the deficiencies of the IS programs in the sample from the IS'2002 criteria

## MODEL CURRICULA

### IS'97

The IS'95 and IS'97 model curricula developed by a joint committee of ACM, AIS and AITP (formerly DPMA) has been widely recognized as a model IS curriculum.

A joint committee of ACM, AIS and AITP (formerly DPMA) formulated an IS model curriculum in 1994, 1995 and 1996 and released IS'97. For many years this has been considered the model curriculum to which many universities could compare their IS programs. IS'97 is shown below in Table 1.

**Table 1. The IS'97 Model IS Curriculum**

<u>Course No.</u>	<u>Course Title</u>	<u>Course No.</u>	<u>Course Title</u>
IS'97.1	Fundamentals of Information Systems	IS'97.6	Networks & Telecommunications
IS'97.2	Personal Productivity with IS Technology	IS'97.7	Analysis and Logical Design
IS'97.3	Information Systems Theory and Practice	IS'97.8	Physical Design & Implementation with DBMS
IS'97.4	Information Technology Hardware and Software	IS'97.9	Physical Design & Implementation with a Programming Environment
IS'97.5	Programming, Data, File, and Object Structures	IS'97.10	Project Management and Practice

**IS'2002**

Since the release of IS'97, the joint ACM, AIS and AITP IS curriculum committee continued to meet and revise the model IS curriculum in light of technology changes, especially the development of the Internet. When IS'97 was written in 1995 and 1996 there was no indication of the importance of the web and Internet programming. Since IS'97 there has also been significant changes in the basic computer literacy of incoming university students. IS'2002 was developed to reflect these changes. IS'2002 is shown below in Table 2.

**Table 2. The IS'2002 Model IS Curriculum**

<u>Course No.</u>	<u>Course Title</u>	<u>Course No.</u>	<u>Course Title</u>
IS'2002.1	Fundamentals of Information Systems	IS'2002.6	Networks & Telecommunications
IS'2002.2	Electronic Business Strategy, Architecture and Design	IS'2002.7	Analysis and Logical Design
IS'2002.3	Information Systems Theory and Practice	IS'2002.8	Physical Design & Implementation with DBMS
IS'2002.4	Information Technology Hardware and Software	IS'2002.9	Physical Design & Implementation with a Programming Environment
IS'2002.5	Programming, Data, File, and Object Structures	IS'2002.10	Project Management and Practice

It should be noted that there are two major changes in IS'2002 from IS'97. IS'97.PO and IS'97.2 are combined into one course, IS'2002.PO, which is a pre curriculum course. IS'2002.2 Electronic Business Strategy, Architecture and Design is a new course reflecting the new importance of the Internet. The IS'2002 committee states that their model curriculum should be used as a guide but not as proscribed courses and that faculty can design their own courses.

## METHODOLOGY AND DATA ANALYSIS

As of January 2003 there were 399 universities that had their business programs accredited by the AACSB. It should be noted that the AACSB accredits the College of Business but does not accredit the IS program. The SAP University Alliance (SAPUA) had 100 US universities and colleges listed on August 2001 (the latest published date). Seventy five of these SAPUA universities were accredited by AACSB. Of these universities, 66 offered a concentration or a major or a degree in IS. This paper studies the IS offerings of these 66 universities.

The analysis of the IS programs was done by examining the web listings of the above described universities with a concentration or a major or a degree in IS/MIS/CIS. The data was entered into an Excel spreadsheet. At a later date, all courses will be entered into an Access database.

### University Data

There are very wide differences in the IS programs by the universities in the sample. A summary of some of the differences is included in Tables 3, 4 and 5.

**Table 3. Course Prefixes**

<b>Name</b>	<b>No. of Programs</b>	<b>Name</b>	<b>No. of Programs</b>
MIS	28	ISM	3
IS	16	Other	4
CIS	15		

**Table 4. Department of IS Program**

<b>Dept.</b>	<b>No. of Programs</b>
IS, MIS, CIS, BIS	18
With OM, MS, Quant	13
With Decision Science	11
With College of Business	6
With MGMT	4
With ACCT	4
With Computer Science	4
Other	6

**Table 5. Description of Universities & IS Courses**

<b>Characteristic</b>	<b>Range</b>
Faculty with dept. which teaches IS	1-70
Total faculty with dept which teaches IS	740
Total IS faculty only	594
Total number of IS/MIS/CIS courses	1017
Number of IS courses offered per dept.	6-51
Average number of IS courses per dept.	16
Core number of IS courses in IS'2002	10
No of universities with < 10 IS courses	9
No of state universities	51
No of private universities	5

### **E-Business**

The major changes in IS'2002 over IS'97 is the inclusion of an e-business course. E-commerce courses have been offered for some time but have not always been taught in the IS department. Since an e-business course is a new recommended course, it was interesting to see how many universities in the sample offer an e-business course. This data listed in Table 7 is for universities offering an e-business course.

**Table 6. E-Business Offerings**

<b>Characteristics</b>	<b>Number</b>
Universities with E-Business in IS courses	30
Percent of universities with E-Business	45%
No of IS courses offered by these universities	454
Average number of IS courses offered	15
No of universities with e-business and > 10 IS courses	27
Percent of universities with e-business and > 10 IS courses	41%
No of IS faculty with depts. with e-business courses	223
Average number of faculty with IS depts. with e-business courses	14

## **FINDINGS**

From Tables 1 and 2 it can be seen that a university would have to include the content of the 10 recommended IS'2002 courses in order to meet the requirements of IS'97 and IS'2002. In checking the course content of the 9 universities in the sample offering less than 10 IS courses, it appears that they do not likely meet the minimum standards of IS'2002. Thus at least 13 % of the universities in the sample do not meet recommended standards based on the required courses.

From Table 7 it can be seen that 55% of universities in the sample do not offer an e-business course in the department teaching their IS courses and 59% of the sample does not offer an e-business course or have less than 10 IS courses. It is difficult to determine if other departments

in a university offer an e-business course that is available for IS students, but from the numbers in Table 7 it appears that it is likely that approximately 60 % of the universities in the sample, would not meet all the requirements of IS'2002.

The sample universities were restricted to those universities accredited by AACSB and belonged to the SAPUA. Would universities not accredited by AACSB or not belonging to the SAPUA have much different results from above? This would be impossible to predict but universities that are accredited by AACSB have met high standards and universities belonging to the SAPUA are generally considered to be fairly progressive. It appears to be a reasonable conjecture that universities not accredited by AACSB or not belonging to the SAPUA are not likely to have a higher percentage of meeting the IS'2002 standards to the sample universities.

**Table 7. Comparison with Heinrichs and Banerjee (2)**

<b>Course Prefixes</b>	<b>Current Study</b>	<b>%</b>	<b>Heinrichs&amp; Banerjee</b>	<b>%</b>
MIS	27	41	5	13
IS	16	24	3	7
CIS	15	22	10	25
Other	8	13	22	55
Total universities	66		40	

**Table 8. Comparison of IS Curriculum Studies**

	<b>Current Study</b>	<b>Maier &amp; Gambill (1)</b>	<b>Heinrichs &amp; Banerjee (2)</b>
Sample Size	66	43	40
Year	2003	1996	2002
AACSB Accredited Universities	399	600	390

### IS ACCREDITATION

AACSB has accredited colleges of business and computer science and computer engineering have been accredited by the Accreditation Board for Engineering and Technology (ABET) for many years. Recently ABET has developed an accreditation program for IS. In 2002, the IS program at Pace University was accredited.

For IS accreditation ABET (5) considers the following:

- Program design and level
- Objectives and assessment
- Students
- Faculty
- Curriculum
- Technology infrastructure
- Institutional support and financial resources
- Program delivery
- Institutional facilities.

For curriculum, the ABET curriculum intent (6) is

“The curriculum combines professional requirements with general education requirements and electives to prepare students for a professional career in the information systems field, for further study in information systems, and for functioning in modern society. The professional requirements include coverage of basic and advanced topics in information systems as well as an emphasis on an IS environment. Curricula are consistent with widely recognized models and standards.”

Since IS'2002 appears to be the most widely recognized IS curriculum model, it will likely be widely used as an IS accreditation standard. From this study it appears that the offering of IS'2002. 2 an Electronic Business course and the offering of ten IS courses equivalent to the IS'2002 model IS curriculum, should be a major concern for any IS program considering accreditation by ABET.

## CONCLUSIONS

The purpose of this study was to examine the IS course offerings of the sample universities and to see how these courses compare to IS'2002 and to see which of the sample universities offer e-business courses. There will be a following paper discussing the ERP offerings of these universities. There were 66 universities in the sample offering and the following was concluded:

Thirty universities or 45% of these universities offer an e-business course.

The total number of IS courses offered was 1018.

The average number of IS courses offered was 16

There were 59 or 89% of universities offering 10 or more IS courses

There were 30 or 45 % of the universities offering an e-business course.

There were 26 or 39 % of the universities offering an e-business course and offering 10 or more IS courses.

The offering of an Electronic Business course is a key course for any accreditation of an IS program by ABET.

Having your IS curriculum “consistent with widely recognized models and standards” (6), will be a major factor in IS accreditation.

### REFERENCES

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