

# 1. USE OF THE IS 2009 CURRICULUM REPORT

The Information Systems undergraduate model curriculum report has several intended classes of users who have a stake in the achievement of quality IS degree programs:

- academic executives to whom the Information Systems program reports
- academic heads responsible for Information Systems programs
- accrediting bodies
- Information Systems faculty
- non-Information Systems faculty in the school or college where the Information Systems program resides
- Information Systems practitioners
- students in Information Systems programs

In this section, the uses of the report by these intended stakeholders are described and its value explained.

## **For Academic Executives to Whom the Information Systems Program Reports**

The IS discipline contributes in a significant way to a number of domains, including business and government. Information systems are complex systems requiring both technical and organizational expertise for design, development, and management. They affect not only operations but also the organization's strategy.

The nature of this rapidly changing field requires a unique set of resources. The minimal level of resources required to provide a viable undergraduate degree program in Information Systems is outlined below. Specifics of the resource requirements are detailed elsewhere in the document. Additional resources are necessary to support the service courses provided by the IS faculty to other academic units of the university.

### **1. Faculty Resource Requirements**

The number of faculty will depend upon the number of students majoring in Information Systems. At a minimum, a critical mass of faculty is needed to provide the degree of specialization essential for the proper coverage of the curriculum. The interests, qualifications, and scholarly contributions of the faculty members must be sufficient to teach the courses, plan and modify the courses and curriculum, and remain abreast of current developments in Information Systems. The rapid increase and change in knowledge in the Information Systems field require that faculty continuously upgrade their skills. Thus, all faculty members must remain current in the discipline. It is recommended that a significant part of each faculty member's workload be spent in receiving training in new technologies and acquiring new knowledge and skills. The changes in the field place heavy demands on IS faculty who are required to tailor the curriculum to meet local and regional conditions, develop up-to-date instructional materials, and manage student projects and internships while also maintaining their own scholarly productivity in a way that is compatible with local university expectations.

1 2. Physical Space Requirements  
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3 Physical space requirements for the Information Systems program are often similar to  
4 those of engineering, biological and physical sciences. The facilities should include:

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6 a. Access to specialized software (such as integrated development environments,  
7 modeling tools, etc.) either by making the software available to the students so  
8 that they can install it on their laptops or in sufficiently equipped laboratories.  
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10 b. Laboratories to provide experience in designing, installing, and running  
11 networks.  
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13 c. Project team laboratories to accommodate team projects essential to the IS  
14 program.  
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16 d. Classrooms equipped with computer projection, Internet, and local network  
17 access, and appropriate computing and software infrastructure, so that the entire  
18 curriculum can be adequately delivered.  
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20 3. Computing Infrastructure Requirements  
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22 Computing infrastructure consists of hardware, software, and technical support. Because  
23 of the need to keep abreast of the rapidly changing technology environment, Information  
24 Systems students and faculty must have access to computing facilities at least equivalent  
25 to those used in a typical organization operating within a program's domain. This is  
26 necessary to prepare the students for their profession and for the faculty to contribute to  
27 the creation of new knowledge in the field. The rate of change in technology suggests a  
28 rapid replacement cycle, with some technologies reaching obsolescence in less than 12  
29 months. While some of the general university or school computing laboratories may meet  
30 some of the needs of Information Systems, special infrastructure resources are necessary  
31 to support the requirements of the curriculum, including systems development, network  
32 infrastructure, and other advanced and emerging technologies. In addition to software and  
33 hardware, it is paramount to the success of Information Systems programs that adequate  
34 technical support is provided.  
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37 **For Academic Heads Responsible for Information Systems Programs**  
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39 The report provides the rationale for adopting the curriculum recommendations for an  
40 undergraduate degree program in Information Systems. The curriculum recommendations are  
41 based on an assessment of industry expectations for entry level professional employees in the  
42 Information Systems field. As discussed at a detailed level later in the report, the outcome  
43 expectations for Information Systems graduates have changed significantly with many schools  
44 increasing the emphasis on the design of domain solutions, such as the implementation of  
45 business processes using information technology. Written and oral communication skills and  
46 team skills continue to be important: graduates need to be able to interact effectively with clients  
47 and to work effectively in teams. This report gives the specific recommendations necessary to  
48 successfully implement and maintain a program in Information Systems stressing technical,  
49 behavioral, and organizational elements. A summary of the resource requirements necessary to  
50 support a viable Information Systems program is outlined later in the document.  
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## **For Accreditation Bodies that Accredite Information Systems Programs**

Accreditation of IS programs requires a widely accepted definition of the discipline and curriculum. This report, developed by the major professional and academic societies in Information Systems, provides the basis for the curriculum criteria employed in IS accreditation.

## **For Information Systems Faculty**

The IS model curriculum is intended to provide flexibility in designing IS curricula to satisfy various local requirements. IS faculty may be affiliated with schools of business, schools of public administration, stand-alone schools of Information Systems, or other variations. To better serve the diversity of IS programs, this model curriculum is the first IS curriculum to separate core and elective courses and explicitly acknowledge the significant local differences in the requirements for IS curricula. As a practical illustration of the flexibility this provides, we later present an IS Specific Course Matrix to provide examples of curriculum solutions that can be developed within the framework that this document provides.

The guidance and the structural flexibility that this curriculum provides enable faculty members to tailor and experiment with curriculum design. Based on local conditions, the desired number of core and elective courses with tailored depth of coverage for appropriate topics may be fashioned. This allows faculty to flexibly design IS curricula to meet career track expectations for graduates.

At the course level, this model curriculum continues to follow the tradition of IS curriculum recommendations and provides descriptions for core courses and a subset of key electives. These descriptions include a catalog description, learning objectives and topics for each of the courses. This material will be helpful for both individual faculty members who are working on course design and for departments that are making decisions regarding the direction their curricula should take.

## **For Non-Information Systems Faculty**

The use of information technology is pervasive in society. The requirement of the workforce to utilize this technology is increasing. Users of information technology are now expected to take personal responsibility for much of what has been handled in the past by a centralized computing services unit. While many organizations provide some user training in information technology, graduates who have an in-depth understanding of the opportunities IT capabilities can provide to their organization are in a stronger position compared to their peers without this understanding. A strong, capable Information Systems program can benefit all students in a school and provide special benefits to non-majors who desire more competence in information technology and its application to their areas of interest.

IS 2009 identifies prerequisite skills needed by all students in basic personal productivity software. Students in all majors should have a working knowledge of how to effectively utilize software for word processing, electronic mail, Web browsing, spreadsheet modeling, database management, presentation graphics, statistical analysis, and external database retrieval. Although these skills are prerequisite and not part of the exclusive domain of Information Systems, the Information Systems faculty can provide useful competence for managing the self-study modules, course modules, and testing-out examinations for the prerequisites.

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2 The IS 2009 curriculum specifies a general course (Fundamentals of Information Systems) to  
3 provide an understanding of and skills related to Information Systems suitable for all students.  
4 This course establishes a foundation for specialized courses related to functional area information  
5 systems.

6  
7 Students majoring in other subjects may wish to have a minor in Information Systems. The IS  
8 2009 curriculum defines a subset of the courses in the major suitable for a minor. The courses  
9 include IS Strategy, Management & Acquisition, Enterprise Architecture, and Data and  
10 Information Management.

### 11 12 **For Information Systems Practitioners**

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14 The report provides a basis for practitioner interaction with IS academic units in at least three  
15 ways: to gain an understanding of the model curriculum and therefore, the competencies of the  
16 graduates of the program, to identify opportunities for enhancing the educational experience for  
17 the students (for example, guest speakers, internships, advisory board memberships, and so forth),  
18 and to enable a continuous dialogue to improve the curriculum and the educational experience of  
19 students.

### 20 21 **For Information Systems Students**

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23 For students who are enrolled in an IS program, this report can add to their understanding of the  
24 breadth and depth of the IS field and the career opportunities. Information in this report can  
25 prepare students for discussions with academic advisors as to options and choices in the program  
26 and strategies for entering the job market.

## 27 28 29 **2. INFORMATION SYSTEMS MODEL CURRICULA**

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31 *IS 2009 Curriculum Guidelines for Undergraduate Degree Programs in Information Systems* is  
32 the latest report on the model curriculum work in the Information Systems field. The work of IS  
33 curriculum task forces began in the early 1970s and has continued for the past 30+ years. The  
34 Association for Computing Machinery (ACM) has been a major organizer for these task forces  
35 including the first efforts in the 1970s. Other organizations, including AIS (Association for  
36 Information Systems), AITP (formerly DPMA) and IFIP (International Federation for  
37 Information Processing), have contributed significantly to model curriculum development.

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39 IS 2009 is the third collaborative effort by ACM and AIS. Both organizations have worldwide  
40 membership. ACM has both professional and academic members in the broad field of computing.  
41 Through its Education Board, it supports a wide range of curriculum development including  
42 Computer Engineering, Computer Science, Information Systems, Information Technology, and  
43 Software Engineering. AIS, established in 1994, is primarily composed of faculty members in  
44 Information Systems. The partnership of ACM and AIS, therefore, combines the breadth of  
45 pedagogical and curriculum interests of these organizations.

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47 Since ACM and AIS are worldwide organizations, IS 2009 includes elements that make it more  
48 universally adaptable than its predecessors. The separation of the core courses from the electives  
49 makes it easier to create curricula that both are compatible with the model curriculum and address  
50 local requirements that vary widely. IS 2009 is not directly linked to a degree structure in any