



AN UPDATED INFORMATION SYSTEMS CURRICULUM FIRST REVISION

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Our original proposal for "An Updated Information Systems Curriculum" was presented on March 15, 1985 at the ACM SIGCSE Symposium (2). This paper presents our first revision of the original proposal. It includes two new courses and a redistribution of some of the topics covered on some courses.

1.0 INTRODUCTION

Further research on the latest advances of the information systems field, applying those advances in our consulting practice and our teaching experience induced us to revise the original proposal for "An Updated Information Systems Curriculum". This revision tries to provide a more in-depth coverage of some of the developments in the information systems field and to redistribute the topics covered on some of the original courses.

It should be emphasized that the curriculum is not directed at producing computer scientists or computer programmers. Instead it is designed to turn out information systems professionals prepared to offer alternatives to the information needs of any organization applying the latest advances in the information systems field.

2.0 FIRST PROPOSAL

The updated information systems curriculum presented in the Sixteenth SIGCSE Technical Symposium on Computer Science Education consists of two parts: the AACSB Common Body of Knowledge, with a strong emphasis on managerial issues, human behavior, interpersonal skills, communications skills, and organizational structures; and eight information systems courses. Some electives on topics like office automation, decision support systems, and EDP auditing and control, were also recommended.

The recommended information systems courses were:

1. Computer Systems Concepts
2. Program, Data and File Structures
3. Data Analysis and Modeling

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4. Database Management Systems
5. Systems Analysis and Design
6. Information Engineering
7. Data Communications
8. Information Resource Management

The recommendations were designed to supply the knowledge and skills needed in any of the two worlds: the typical COBOL shop or the Information Center organization. They serve equally well for an undergraduate program or a graduate one, with a difference in the coverage of the topics and a major emphasis on the managerial and organizational issues in the graduate program. (2).

3.0 RATIONALE FOR THE REVISION

After teaching the Information Engineering course, trying to apply those methodologies into our consulting practice, and researching more about the topic, we found the need of two new courses: Strategic Information Planning and Fourth Generation Languages. These two additions will enable the students to apply the new information systems field advances in either a traditional COBOL shop or an Information Center organization.

Strategic Information Planning must be the foundation process of a computerized enterprise. Through this planning process the organization defines its entities, goals, critical success factors, and information systems to support the organization in an integrated and planned way. It is the development of the understanding of the enterprise and its information, from a high level perspective: understanding that is needed to develop successful information systems.

Fourth Generation Languages are changing the way in which information systems are developed and management's information needs solved. They provide management, end-users, and data processing professionals the tools needed to develop applications in a few days, reports in hours or minutes, and access to the information at the right place and moment. Because of the large variety of capabilities offered by Fourth Generation Languages, the diversity of available languages, and the important role they are assuming substituting third generation languages, like COBOL, a course must be devoted to this topic.

4.0 REVISED PROPOSAL

The new proposal for "An Updated Information Systems Curriculum" consist of two parts: the AACSB Common Body of Knowledge, as specified in the original proposal, and ten information systems courses. The recommended information systems courses with a general outline are:

1. Computer Systems Concepts
 - Computer Structures
 - Computer Architecture and Operating Systems
 - Operating Environment for Applications Programs
 - Programming Projects

2. Program, Data and File Structures
 - Advanced Programming
 - Data Organization and Accessing
 - Program Design Techniques
3. Data Analysis and Modeling
 - The Data Environment
 - Entity-Relationship Analysis
 - Canonical Data Structures
 - Data Modeling
 - Data Administration
4. Database Management Systems
 - Database Philosophy
 - Selection, Use, and Management of Database
 - Database Access and Maintenance
 - Distributed Databases
5. Systems Analysis and Design
 - Problem Definition
 - Data Collection and Analysis
 - Analysis of Systems Alternatives
 - Determination of Feasibility
 - Development of the Systems Proposal
 - Pilot or Prototype Systems Development
 - Systems Design
 - Programs Development
 - Systems Implementation
 - Systems Review and Evaluation
6. Strategic Information Planning
 - Development of the Enterprise Model
 - Development of the Entity Model
 - Definition of each Business Area and its Goals
 - Establishment of the Critical Success Factors
 - Analysis of Current Systems
 - Information Systems Development Prioritization
7. Fourth Generation Languages
 - Facilities
 - Interacting with the DBMS
 - Application Development Using a 4GL
 - End-User Involvement
 - Selection
8. Information Engineering
 - Introduction
 - Review of Strategic Information Planning
 - Business Analysis Phase
 - Systems Design Phase
 - Construction Phase

9. Data Communications
 - Communications Environment
 - Communication Systems Components
 - Networks and Controls
 - Common Carrier Services
 - Design of Communications Networks
 - Network Management
 - Distributed Messages
 - Fourth Generation Networks
10. Information Resource Management
 - Information Systems and the Organization
 - Planning an Organizational Information System
 - Computer Center Administration
 - The Information Center Concept
 - The CIO Role

Some elective courses should be offered, on topics such as Distributed Data Processing, EDP Controls, EDP Auditing, Office Automation, Microcomputer Systems, Decision Support Systems, Human Aspects of Information Systems, and Computer Law. The more elective courses are developed and offered, the greater the opportunity to specialize in any particular area of interest, such as EDP Controls and Auditing, or Information Systems Management.

5.0 CONCLUSIONS

The changes introduced to our "Updated Information Systems Curriculum" provide an up-to-date curriculum with a in-depth coverage of some of the latest advances on the information systems field. This curriculum offers students the needed skills and knowledge to deal with the traditional systems development life cycle. It also incorporates the new trends in the information systems field, as represented by the Information Engineering and Information Center concepts.

6.0 LIST OF REFERENCES

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