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# Information Systems Accreditation Criteria for August 2000

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## Abstract

Program accreditation has been a very effective mechanism for assisting in quality assurance in programs in many disciplines, particularly at the baccalaureate level. Computer Science programs have been accredited by the Computing Sciences Accreditation Board (CSAB) beginning in 1986. Now over 150 computer science programs are accredited and more programs seek accreditation each year [1]. Since its inception, CSAB has been interested in expanding program accreditation beyond Computer Science. With funding from a grant from the National Science Foundation (NSF), Criteria have been developed for accreditation of programs in Information Systems. These Criteria will be presented to CSAB in July 2000 in the hope that they will approve the Criteria and authorize several pilot accreditation visits for the Fall of 2001, thereby allowing the possibility of accreditation of a few programs beginning in July 2002.

## Introduction

CSAB planned from its inception to consider accreditation of other types of computing programs. With the rather recent developments in curricula in IS, a good basis for the establishment of IS criteria for accreditation became available. The recent major activities in the development and dissemination of Curricula [Information Systems '97 (IS'97), Information Systems Centric Curriculum '99 (ISCC'99) and the substantial effort on IS 2000] and the adoption or adaption of these curricula are major contributions to the curricular portion of the accreditation criteria. With the curricular documents available a proposal was made to the National Science Foundation for funding of to study the feasibility of accrediting Information Systems/Science/ Technology programs and develop criteria for such accreditation. Doris Lidtke of Towson University is the principal investigator and project director. The co-principal investigators are John T. Gorgone of Bentley College, John C. Henderson of Boston University, and Willis K. King of the University of Houston. In addition to the investigators, other members of the IS Accreditation Executive Committee are David Feinstein of University of South Alabama, Benn Konsynski of Emory University, Sorel Reisman of California State University, Jon A. Turner of New York University, Joe Valacich of Washington State University, and Gayle Yaverbaum of Penn State University – Harrisburg. Two other committee groups are working on the project; one group consisting of invited high-level executives from industry and the second group consisting of broad-based academic/practitioner volunteers.

Using the basic form and format developed by the Computer Science Accreditation Commission for accrediting Computer Science programs (www.csab.org) as a pattern, the Criteria for Accreditation of Information Systems Programs was developed. The significant curriculum documents referenced above provided a basis for the Curriculum portion of the Criteria. The Draft Information Systems Accreditation Criteria was discussed at many conferences, including ACM SIGCSE, FIE, AIS, ISECON, IAIM and ICIS. Comments from these conference presentations were considered and the Draft Criteria were revised. The curriculum area seemed to be the area of greatest interest and a web survey was conducted allow public review of the curriculum. Over 300 people responded to the web survey. The survey was analyzed and the Draft Criteria were revised to become the proposed "Criteria for Accreditation of Information Systems Programs." (Appendix A)

## What Constitutes an Accredited Program

An accredited program is one that has been reviewed by qualified and trained visitors and meets the Criteria established and approved by the CSAB. Only programs that are in institutions that have regional accreditation can be considered. This means that the evaluators visiting the institution are assured that the institution has in place the necessary infrastructure to offer programs leading to the degrees they offer, particularly on the undergraduate (baccalaureate) level. Accreditation is voluntary and an institution wishing to be accredited must request an accreditation evaluation.

## The Process

The first important step in considering accreditation is to attempt, through self-analysis, to see if the program meets the CSAB Criteria. If a program needs help or guidance, the department may choose to hire a consultant

who is experienced with CSAC accreditation or may send an observer to a CSAB session on training for Program Evaluators, where the observer will learn more about the process, particularly how the Criteria are interpreted and applied.

Once the department feels that their program will probably meet the Criteria, the next step is to begin to prepare the self-study and to collect course materials. This should begin about a year prior to the visit. This is a good time to discuss the process with the administration of the institution to be certain that they are supportive of the process and willing to provide the money for the fees.

By January 31 of the year the program is to be visited, the institution needs to submit a Request for Evaluation form. By June 1 of the same year the institution must pay the fee for the accreditation visit, currently $6,100.

In late Spring the institution will be sent a list of Program Evaluators (PEs) and Team Chairpersons (TCs). The institution is asked to cross of any PEs or TCs that they choose not to have as visitors. Those excluded should include recent former faculty, consultants, graduates, and anyone who may have a conflict of interest concerning the program.

The self-study must be submitted to CSAC by June 1 of the year of the visit. This two volume document is key to the accreditation process. In preparing this self-study the faculty of the program must critically analyze their program in all its aspects. The self-study by the program being considered includes detailed documentation of the curriculum, the students, the faculty and the environment in which the program is delivered. The forms for the self-study and a sample of an accreditable program are available on the web at www.csab.org. These documents show the detail that is required, for example, in curriculum, all courses in computer science that count toward the major must be fully documented. This must include syllabi for all courses and details about the material covered in each course. In addition, faculty vitas, and information about students in the program must be provided.

In July, using the list of visitors acceptable to the institution and eliminating all PEs and TCs who live in the same or an adjacent state, CSAC will pick a TC for each institution to be visited in the fall. The TC will be given the names of at least two possible PEs to try to form a team. As soon as the TC has formed a team, the TC will contact the designated contact person at the institution and they will agree upon the exact dates and schedule for the visit.

During the two-day, on campus visit, the team will talk with students, faculty and the leading administrators. The team will also examine course displays. Each course display includes the syllabus, a copy of the textbook, all handouts supplied to the students, and samples of graded student work from homework, tests, projects and examinations. The samples of student work must include not only the work of excellent students, but also samples of work that is considered to be average and poor.

The three people who visit the institution to evaluate the program comprise a team. There are two Program Evaluators (PEs) and a Team Chair (TC). The program evaluators are nominated by the societies, which established CSAB, the Association of Computing Machinery (ACM) and the IEEE Computer Society (IEEE-CS). The TC will have served on several previous visits as a PE. Each TC is asked to evaluate the PEs on the team and based upon their evaluation and the evaluation by the institution that is visited, several PEs are invited each year to become TCs in the coming year. There is an effort made to have at least one industry representative on each team.

## Who Benefits from Accreditation

Many groups benefit from accreditation, including students, parents, employers, the public, the institution, department and the program. Students benefit by being assured that they are being taught what they need to know to prepare them to function as a professional in the information systems field. They can choose to attend a university that has shown that it provides the type of education deemed necessary by CSAB and the professional societies that have developed the Criteria: Association of Computing Machinery (ACM), Association for Information Systems (AIS), Association of Information Technology Professionals (AITP), and the IEEE-Computer Society (IEEE-CS). Parents have some assurance that they are paying for an education that will adequately prepare their son or daughter to enter the workforce or go on for graduate education in the field.

Employers value accreditation because students graduating from an accredited program have attained a certain level of competence. This provides the employer with a workforce that has acquired a certain level of ability in the field. CSAB encourages their employees to participate in the accreditation process, specifically by commenting on the Criteria, proposing and commenting on changes to the Criteria, and serving as Program Evaluators and Team Chairs for site visits to evaluate programs.

The public has a stake in accreditation, because as business, industry, government and individuals rely more and more on computers and the software that runs them, it is vital that minimum standards of preparation of workers be set in place. It is necessary that the systems upon which the public relies be designed, developed and maintained by competent professionals. Accreditation is one way to assure, at least minimum preparation, of people entering the field. As more and more computer systems can impact the life, health and safety of people everywhere, having competent information systems personnel is essential.

Accreditation benefits the institution, the department and the program being accredited. The self-study is in and of itself of benefit to the program. The reputation of the

institution is enhanced when the program is recognized as having met the standards of accreditation. The department benefits by having an accredited program when it recruits students and as it works to hire and retain faculty. Program accreditation assists in quality assurance.

## Conclusion

With the recently developed, disseminated and adopted curricula in IS, with the desire of CSAB to look beyond the accreditation of Computer Science and to consider accreditation of Information Systems programs, and with funding from the National Science Foundation, everything seems to be coming together to make accreditation of Information Systems Programs a reality. The proposed "Criteria for Accreditation of Information Systems Programs" will be presented to CSAB in July, 2000. If the Criteria are accepted, it is possible that a few pilot visits may be approved for Fall 2001 and that some programs may be accredited by Fall 2002.

## Acknowledgements

This project was funded by the National Science Foundation grant NSF DUE 9812278.

## Appendix A: Criteria for Accrediting Information Systems Programs (The Intent is given for all sections of the Criteria. The Standards and Guidance are given only for the Curriculum section.)

In order to be considered for accreditation a information systems program should be designed to give graduates a broad general education at the baccalaureate level and to enable them to function effectively in the information systems profession. Programs designed to prepare graduates for supporting roles in information systems, e.g. technician, are not eligible, nor are programs that fail to provide an adequate base for the application of concepts fundamental to the discipline of information systems. Although special circumstances such as evening or cooperative baccalaureate programs and distance education are not specifically addressed, these programs are eligible for consideration.

The criteria that follow were adapted from "Criteria for Accrediting Programs in Computer Science in the United States" published by the Computing Sciences Accreditation Board (CSAB). The criteria are intended to assure an adequate foundation in business, general education, mathematics, social sciences, and information systems fundamentals, and to assure appropriate preparation in advanced information systems areas. They are designed to be flexible enough to permit the expression of an institution's individual qualities and ideals, and are intended to encourage and stimulate creative and imaginative programs. They are to be applied with judgment. Nothing in the criteria should be interpreted as constraining an institution in the development of its educational programs.

The criteria are divided into seven major categories. Each category begins with a statement of Intent. The Intent is followed by a list of Standards. The Standards are followed by Guidance to help with interpretation of the criteria. To help institutions apply the criteria, guidance is provided for each category. **This guidance is not intended to be prescriptive but to help clarify interpretation of the Standards**.

An *Intent* provides the underlying principles associated with a category. For a program to be accreditable it must meet the Intent statement of every category.

*Standards* provide a detailed description of how an information systems program can minimally meet the statement of Intent. The word "must" is used within each standard to convey the expectation that the condition of the standard will be satisfied in all cases. Alternative approaches to achieving the Intent of a category are acceptable, but the institution must demonstrate that its approach provides an educational experience of equivalent value.

The *Guidance* Section provides institutions and program evaluators with guidance for assessing compliance with the Standards. It should not be regarded as prescriptive, but is intended to clarify the Standards.

Guidance statements generally express norms for meeting the standards. When an institution's approach does not coincide with a norm, it is their responsibility to demonstrate that its approach enables it to meet the Standard. The words "should" and "may" are used in guidance statements to convey that flexibility.

The section numbers and headings correspond to the section numbers and headings used in the Criteria. Each guidance item is either tagged [Global] or tagged with a number indicating the standard or standards that it supports, e.g. [IV-7]. "Global" guidance pertains to the entire category.

## I. Objectives and Assessments

### Intent

*The program has documented educational objectives that are consistent with the mission of the institution. The program has in place processes to regularly assess its progress against its objectives and uses the results of the assessments to identify program improvements and to modify the program's objectives.*

## II. Students

## Intent

*Students can complete the program in a reasonable amount of time. Students have ample opportunity to interact with their instructors and are offered timely guidance and advice about the program's requirements and their career alternatives. Students who graduate the program meet all program requirements.*

## III. Faculty

## Intent

*Faculty members are current and active in the discipline and have the necessary technical breadth and depth to support a modern information systems program.*

## IV. Curriculum

## Intent

*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 a supportive area. Curricula are consistent with widely recognized models and standards.*

## Standards

Curriculum standards are specified in terms of semester-hours of study. Thirty semester-hours generally constitutes one year of full-time study and is equivalent to 45 quarter-hours. A course or a specific part of a course can only be applied toward one standard.

General

The curriculum must include at least 30 semester-hours of study in information systems topics.

The curriculum must contain at lest 15 semester-hours of study in an information systems supportive area, such as business.

The curriculum must include at lease 9 semester-hours of study in quantitative analysis as specified below under quantitative analysis.

The curriculum must include at least 30 semester-hours of study in general education to broaden the background of the student.

Information systems

IV-5. All students must take a broad-based core of fundamental information systems material consisting of at least 12 semester hours

IV-6. The core materials must provide basic coverage of the hardware and software, a modern programming language, data management, networking and telecommunications, analysis and design, and role of IS in organizations.

IV-7. Theoretical foundations, analysis, and design must be stressed throughout the program.

IV-8. Students must be exposed to a variety of information and computing systems and must become proficient in one modern programming language.

IV-9. All students must take at least 12 semester hours of advanced course work in information systems that provides breadth and builds on the IS core to provide depth.

Information Systems Support Area

Quantitative Analysis

IV-11 The curriculum must include at least 9 semester-hours of quantitative analysis beyond pre-calculus.

IV-10. The 15 semester hours must be a cohesive body of knowledge to prepare the student to function effectively as an IS professional in the support area.

IV-13 Calculus or discrete mathematics must be included.

Additional Areas of Study

IV-14. The oral and written communications skills of the student must be developed and applied in the program.

IV-15. There must be sufficient coverage of global, economic, social and ethical implications of computing to give students an understanding of a broad range of issues in these areas.

IV-16 Collaborative skills must be developed and applied in the program.

## GuidanceQuantitative analysis material may be covered in courses other than mathematics courses. [IV-3 IV-12]

1. The courses taken for broadening the student's background are frequently specified by institutional requirements. [IV-4]
2. Some of the topics in the information systems segment could be covered in courses offered outside the academic unit that administers the information systems program. [IV-1, IV-4 through IV-9]
3. Programming and systems analysis and design should include laboratory work, including the use of modern software tools. [IV-1, IV-5 through IV-9]
4. The advanced courses should be the equivalent of a course in each of the following areas: systems analysis and design, computer networks, database, and project management. [IV-8]
5. Oral and written skills should be applied in information systems courses. [IV-14]
6. There should be the equivalent of at least one semester-hour of coverage of social and ethical implications of computing. [IV-15]
7. Information Systems Support Area – to be added.

## V. Technology Infrastructure

### Intent

*Computer resources are available, accessible, and adequately supported to enable students to complete their course work and to support faculty teaching needs and scholarly activity.*

## VI. Institutional Support and Financial Resources

### Intent

*The institution's support for the program and the financial resources available to the program are sufficient to provide an environment in which the program can achieve its objectives. Support and resources are sufficient to provide assurance that an accredited program will retain its strength throughout the period of accreditation.*

## VII. Program Delivery

### Intent

*There are enough faculty members to cover the curriculum reasonably and to allow an appropriate mix of teaching and scholarly activity.*

## VIII. Institutional Facilities

### Intent

*Institutional facilities including the library, other electronic information retrieval systems, computer networks, classrooms, and offices are adequate to support the objectives of the program.*

## References

[1] "Evaluative Criteria," *1999* Annual Report, Computing Sciences Accreditation Board, Inc. [available at www.csab.org].