

INTENT TO PLAN FOR BACHELOR OF SCIENCE IN COMPUTER INFORMATION TECHNOLOGY (CIT)

Board of Governors approval is sought to plan a major in Computer Information Technology (CIT). Following Board action, the Intent to Plan will be submitted to the Higher Education Policy Commission for its approval. Once the program proposal has been finalized later this year, it will be brought to the Board of Governors for final approval, and then the program must be approved by the HEPC before it is implemented.

The Computer Science, Mathematics and Engineering (CME) Department has worked during the past several years to align its curriculum to the changing environment of the computer science job market. Changes include the creation of an Applied Mathematics Concentration and a Bachelor of Science degree in Computer Engineering. The CME Department has also made strategic faculty hires to support these changes. Creation of a Bachelor of Science degree in Computer Information Technology is another step in repositioning the curriculum.

1. The Board of Governors approved Computer Information Technology (CIT) as a concentration in the Computer Science, Mathematics and Engineering Department prior to the approval of the Computer Engineering degree program.
2. The CME Department is now proposing Computer Information Technology as a Bachelor of Science degree program for several reasons.
 - Shepherd will move towards Accrediting Board for Engineering and Technology (ABET) accreditation of its Computer Engineering degree program in the future and separation of the CIT degree will strengthen that application. This is because the computer information area is a more technical field than computer science or computer engineering and having it stand alone makes a cleaner separation.
 - Recruitment into the CIT degree will be enhanced with a free-standing degree because the program can be marketed more effectively and have greater visibility than being one of several options within one CIS degree program.
 - CIT degrees are increasingly popular and different populations of students are interested in CIT programs than those interested in computer science programs. Computer Information Technology as a concentration is not positioned as well as it could be to attract those students.
3. Changing from a concentration to a degree program will have no added cost to the CME Department or the University.
4. The degree program will include three concentrations as options for students. They are Biometrics and Information Security, Web Programming and Design, and Information Technology.

5. The planned date for the new degree being offered is Fall 2009.

Additional details about this degree program are included on the following pages of the agenda book.

The following resolution is recommended for adoption by the Board:

RESOLVED, That the Shepherd University Board of Governors approves the Intent to Plan for a Bachelor of Science in Computer Information Technology, and directs the President to file the Intent to Plan with the Chancellor of the Higher Education Policy Commission for approval.

Computer Information Technology

CIT

3.7.1 Educational Objectives

The Computer Information Technology degree will provide students with the knowledge and the tools to succeed in the information technology arena. The major thrust of this discipline is that it not only expands into support systems, but also covers other aspects in the business world. A variety of skills along with technical proficiency is important in real world applications. This degree will place emphasis on the knowledge of business fundamentals.

A graduate of this program will develop an appreciation of the connection between real and digital worlds. The goal of this degree is to bridge the gap between technology and technology users with respect to understanding how computers and software applications can meet the needs of real life. The core courses in the CIT degree will instill students with a depth of knowledge in computer programming, networking, computer organization, Web programming and mathematics.

There are three different concentrations and each area focuses on a particular skill: **Biometrics and Information Security, Information Technology, and Web Programming and Design.** Each of these areas is designed to help a particular sector of the business world: the security of a network and ways to improve it; optimization of business organization and data base management; and Web design and programming.

Relationship of Objective to the Mission of Institution

"Shepherd University is a student-centered, learning community meeting the changing needs of the people of the Eastern Panhandle of West Virginia and the surrounding communities through teaching, research, service, and technology."

The Computer Information Technology program will strengthen our ability to support the mission of Shepherd University. In particular, it will:

- **Fulfill Our Duty to Serve the Community** - Make Shepherd's technological capabilities and knowledge base help to better serve the workforce and economic development of West Virginia's Eastern Panhandle and surrounding communities through collaborative arrangements with business, government, and labor.
- **Enhance Research & Publishing Capabilities** - Propagate and maintain resources and tools necessary for successful support of research projects and faculty preparation and submission of papers to academic journals and other professional publications.

Shepherd University currently has a Computer Information Sciences (CIS) degree. The CIS program at Shepherd University is a four-year course of study to prepare students in four different concentrations, Computer Science - CS, Networking and Security - NS, Computer Information Systems – CPIS, and Computer Graphics and Game Design - CGG. Shepherd's existing program emphasizes a strong foundation in computer science, networking, programming and technology which constitutes the core of all areas of CIT.

3.7.2 Special Features That Make the Institution a Desirable Place to Initiate a Program

The strong foundation in the established areas of Computer Science, Mathematics, and Engineering within the School of Natural Sciences & Mathematics all support the establishment of this new degree program. Not only does the proposed Computer Information Technology program strengthen our ability to support the mission of Shepherd University, but it will allow us to better fulfill our duty to serve the community and enhance the ability of our faculty to pursue research projects and submit papers in professional publications.

The business community in the Eastern Panhandle and the large number of Federal government agencies operating in this area have approached Shepherd and made known their desire to have the university produce graduates that better meet their workforce needs. They are willing to collaborate with us in developing and placing computer science and engineering students in their organizations.

Finally, this degree program will further the homogeneity already present among the interdisciplinary programs within the CME department. We are very confident that this degree will attract students who are interested in pursuing IT careers in the tri-state area to Shepherd University.

3.7.3 The Institution will assure High Quality Standards for the Program and Maintain a Continuing Assessment of Quality

High Quality Program

Four new faculty members joined the department since fall 2004 all at the assistant professor level. Dr. Osman Guzide has worked in industry and also as a consultant for many years. Dr. Weidong Liao has also worked as a senior software engineer and instructor in Microsoft Certified Training Center. Dr. Zhijun Wang has a Ph.D. in Computer Science and will complement the program with courses in Computer Graphics and Game Design. Dr. Seung-yun Kim has a background in Computer and Electrical Engineering and will provide the students with the necessary hardware background. Professor James Romano joined the faculty in 1972 and his contributions in programming courses have proved to be invaluable.

Assessment

The department is required by the Office of Teaching and Learning at Shepherd University to perform assessment in all areas of degree programs.

The department is also in the process of establishing guidelines of assessing this new degree. We are committed to this process as it would measure our effectiveness in preparing students for the field of information technology. We are certain this program will complement all other areas of concentrations in Computer Science, Mathematics, and Engineering.

3.7.4 Other Institutions Offering Similar Programs

University of Maryland offers a similar program. Hagerstown and Frederick Community Colleges offer two-year technology degrees in information technology related areas. The CME department has already established a joint program with Hagerstown Community College to facilitate transfer of its two-year graduates into the CME's computer engineering degree program and will use this agreement as a basis for a transfer program into the CIT degree. We have begun discussions with Frederick

Community College to create the same arrangement.

3.7.5 Statement of Societal, occupational, research, or public service needs that will be met, as well as anticipated student demand for the program.

Societal and Occupational Needs

There has been a strong demand for computer technology graduates in the IT industry. Latest trends indicate the integration of computers in a variety of applications which require a strong background in the principles of networking, computer architecture and organization coupled with business needs like Web site design and development, e-business and e-commerce, information security and biometrics will make this program more viable for the current needs of the industry.

Moreover, the introduction of this program will serve to fulfill the recent call to action by various civic and private groups like the Chamber of Commerce and the Gateway New Economic Council to increase the number of highly skilled workers in the Eastern Panhandle of West Virginia and the Tri-state region.

Student Demand for the Program

Given the affordable tuition rates at Shepherd University, growth and expansion in the IT industry, and the recent student interest in the Computer Sciences, we anticipate a high demand for this program as we are accessible to the residents of the Eastern Panhandle and Tri-State Area.

3.7.6 Additional Resources Needed to Offer Program

Faculty

No additional faculty will be required to offer the Computer Information Technology (CIT) degree program. The faculty in the Department of Computer Science, Mathematics and Engineering and School of Natural Sciences and Mathematics are capable of teaching all of the upper-division courses necessary to offer this degree.

As the program grows, new faculty will be added to meet student demand according to the university policies for the creation of new positions.

Facilities Requirements

The requirement of new facilities to support the CIT program will be minimal. The Department of Computer Science, Mathematics and Engineering currently has excellent state-of-the-art laboratory facilities that include Computational Mathematics Laboratory, Digital Logic and Circuit Design Laboratory, Networking and Security Laboratory, Programming and Software Engineering Laboratory, Computer Organization and Robotics Laboratory. These facilities can be easily adapted to teaching all the courses necessary for the CIT degree program.

Library

The library at Shepherd University has been strengthened considerably by the influx of money associated with the graduate programs. The School of Natural Sciences and Mathematics and Department of Computer Science, Mathematics and Engineering will work with the library staff to recommend resources and materials needed for this degree program.

In addition, we propose to subscribe to ACM (Association for Computing Machinery) and IEEE (Institute

of Electrical and Electronics Engineers) online digital library using group membership so that students and faculty members at Shepherd University can have access to publications from ACM and IEEE. This will benefit students and faculty members from other majors in the School of Natural Sciences and Mathematics.