

Information Technology Security

Comprehensive Academic Program Review
2006-2007

*Associate in Science Degree in
Information Technology Security*

*Certificate:
Information Technology Security*



Department of Institutional Research
and Effectiveness
St. Petersburg College

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Information Technology Security
2006-2007 Comprehensive Academic Program Review
Department of Institutional Research and Effectiveness

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Executive Summary

Introduction

The program review process at St. Petersburg College (SPC) is a collaborative effort designed to continuously measure and improve the quality of educational services provided to the community.

Program Description

The goal of Information Technology (IT) Security A.S. Program is to provide students with the knowledge and skills necessary to design, implement, and maintain secure modern information infrastructures and systems. The need for well-educated security professionals has never been greater. As private industry and governments rely more on the Internet and computer networks, skilled security specialists are in demand to protect critical information from threats such as hacker attacks, internal threats, industrial espionage, cyber-terrorists, and natural disasters.

The program coverage includes operating system security, network and web security, ethical hacking, database security, cryptography, intrusion detection (recovery and response), disaster recovery, and cyber-law.

Our program provides a "hands-on" approach to technical education that is designed to instruct the next generation of security professionals so that they will have the necessary skills in order to fill this vital need. All of the courses in the A.S. program are fully transferable to SPC's College of Technology Management Bachelor of Applied Science degree.

Program Performance

- *Actual Course Enrollment* remained relatively stable in the Information Technology Security program during the 2005-2006 Spring and Summer semesters, then increased substantially during 2006-2007.
- *Student Semester Hour (SSH) Productivity* decreased (0.70) during Summer 2007 from the Spring SSH value (0.74), in the Information Technology Security program
- The number of *program graduates* during 2006-2007 in the Information Technology Security AS program was one, and in the certificate program the number of graduates was five.
- During 2006-2007, *Fulltime faculty* taught 73% of the courses during the Fall semester, and 100% of the courses during the Spring and Summer semesters.

Program Profitability

- The *Relative Profitability Index (RPI-T)* for the Information Technology Security program increased (0.89) during 2005-2006.

Program Improvements

- There have been no *Capital Expenditures* for the Information Technology Security program during the past three years.

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Academic Outcomes

- The *2003-2004 Academic Program Assessment Report* was closed due to insufficient enrollment, graduates, and data.

Stakeholder Perceptions

- All but one of the individual average content area scores for the *Student Survey of Instruction (SSI)* were above the traditional threshold (an average of 5.0) used by the College for evaluating seven-point satisfaction scales. These results suggest general overall satisfaction with the courses within the Information Technology Security program; specifically, as they relate to faculty/student interaction, course organization, course presentation, and evaluation methodologies.
- An Information Technology Security *advisory committee* meeting was held on November 15, 2006. The meeting consisted of discussions about reorganization; the International Information Systems Security Certification Consortium (IS2) program; National Science Foundation (NSF) grant; Cyber security center; status of AS degree; Four-year Program; Faculty hiring and Credentialing Update; and Committee Comments and Suggestions.
- *Recent Graduate surveys* were not conducted, because the Information Technology Security program did not have graduates during 2004-2005.

Occupation Profile

- The Bureau of Labor Statistics does not list wage information for an Associate in Science degree in IT Security. All wage information depicted in this report is corresponds to a 4-year degree in IT Security.

State Graduates Outcomes

- *State Graduates* outcomes data was not available for any college in the state of Florida for the Information Technology Security program.

Summary

Overall, the Information Technology Security Program is moving forward and is currently improving both in its structure and design. The few noted exceptions or deficiencies relate to the reorganization that the program experienced in 2006, which are detailed in the committee minutes located in Appendix B.

The first exception noted referred to the change in both the program director and lead instructor, both of whom were replaced in spring of 2007. As part of that reorganization, the program offerings are being reviewed to ensure that the courses offer the students the most relevant training and skills to ensure that they succeed in the workforce. Some of the courses that have been offered in the past may be combined, upgraded, and/or eliminated and replaced by different courses. A few of the course offerings are excellent and will continue to be offered without substantial modifications. The learning objectives for each course are also being reviewed to ensure that they match, as much as possible, the Florida DOE Curriculum Framework for an A.S. in IT Security.



The understanding with ISC2 and the NSF Grant are also being reviewed to determine if original conditions can still be fulfilled under the newly reorganized program. If they cannot, then they may be renegotiated or a new understanding may be developed.

Enrollment: The increase in enrollment during 2006 is being augmented by better marketing to new students and more consistent communication with current students through a better a web site, a two year/certificate brochure, and a 2 year/4 year security brochure that is being jointly developed between the IT Security A.S. program and the College of Technology Management.

Productivity: The slight decline in productivity may be due to fluctuations in student enrollment. To adjust for this, a standard course offering is being constructed to provide students with a mapped plan of course offerings, thus creating the demand and increase the number of students in each course on a term basis. This has been successful within other programs throughout the college.

Program Graduates: The decline in the number of both A.S. degree and Certificate graduations 2005-2006 can possibly be attributed to the reorganization of the program and to confusion about whether the program would continue after departure of both the previous director and lead instructor. It is difficult to obtain the status of many graduates in the program. Some already reside well outside the region while others may relocate to obtain employment.

Faculty: The IT Security Program supports 1 full-time faculty member. In addition, there is also one adjunct faculty currently teaching the Laws and Legal Aspects of IT Security. The program relies heavily on the experience and skills of the faculty to impart a true understanding of the nature of the IT Security profession.

Recommendations/Action Plan

- Program Recommendations and action plans are compiled by the Provost and Program Director, and are located at the end of the document.



SPC Mission Statement

The mission of St. Petersburg College is to provide accessible, learner-centered education for students pursuing selected baccalaureate degrees, associate degrees, technical certificates, applied technology diplomas and continuing education within our service area as well as globally in program areas in which the College has special expertise. As a comprehensive, multi-campus postsecondary institution, St. Petersburg College seeks to be a creative leader and partner with students, communities, and other educational institutions to deliver enriched learning experiences and to promote economic and workforce development. St. Petersburg College fulfills its mission led by an outstanding, diverse faculty and staff and enhanced by advanced technologies, distance learning, international education opportunities, innovative teaching techniques, comprehensive library and other information resources, continuous institutional self-evaluation, a climate for student success, and an enduring commitment to excellence.

Introduction

In a holistic approach, the effectiveness of any educational institution is the aggregate value of the education it provides to the community it serves. For over seventy-five years, St. Petersburg College (SPC) has provided a wide range of educational opportunities and services to a demographically diverse student body producing tens of thousands of alumni who have been on the forefront of building this county, state, and beyond. This is due, in large part, to the College's institutional effectiveness.

Institutional Effectiveness

Institutional Effectiveness is the integrated, systematic, explicit, and documented process of measuring performance against the SPC mission for the purposes of continuous improvement of academic programs, administrative services, and educational support services offered by the College.

Operationally, the institutional effectiveness process ensures that the stated purposes of the College are accomplished. In other words did the institution successfully execute its mission, goals, and objectives? At SPC, the Offices of Planning, Budgeting, and Research work with all departments and units to establish measurable statements of intent that





are used to analyze effectiveness and to guide continuous quality improvement efforts. Each of St. Petersburg College's units is required to participate in the institutional effectiveness process.

The bottom-line from SPC's institutional effectiveness process is improvement. Once SPC has identified what it is going to do then it acts through the process of teaching, researching, and managing to accomplish its desired outcomes. The level of success of SPC's actions is then evaluated. A straightforward assessment process requires a realistic consideration of the intended outcomes that the institution has set and a frank evaluation of the evidence that the institution is achieving that intent.

There is no single right or best way to measure success, improvement, or quality. Nevertheless, objectives must be established, data related to those objectives must be collected and analyzed, and the results of those findings must be used to improve the institution in the future. The educational assessment is a critical component of St. Petersburg College's institutional effectiveness process.

Educational Assessment

Educational programs use a variety of assessment methods to improve their effectiveness. Assessment and evaluation measures are used at various levels throughout the institution to provide provosts, deans, program managers, and faculty vital information on how successful our efforts have been.

While the focus of a particular educational assessment area may change, the assessment strategies remain consistent and integrated to the fullest extent possible. The focus for Associate in Arts degrees is targeted for students continuing on to four-year degree programs as opposed to the Associate in Applied Science, Associate in Science, and Baccalaureate programs which are targeted towards students seeking employable skills. The General Education based assessments focus on the general learning outcomes from all degree programs, while Program Review looks at the viability of the specific programs.

The individual reports unique by their individual nature are nevertheless written to address how the assessments and their associated action plans



have improved learning in their program. The College has developed an Educational Assessment Website (<https://it.spcollege.edu/edoutcomes/>) to serve as repository for all SPC's educational outcomes reports and to systematically manage our assessment efforts.

Program Review Process

The program review process at St. Petersburg College is a collaborative effort to continuously measure and improve the quality of educational services provided to the community. The procedures described below go far beyond the "periodic review of existing programs" required by the State Board of Community Colleges; and exceeds the necessary guidelines within the Southern Association of Community Colleges and Schools (SACS) review procedures.

State guidelines require institutions to conduct program reviews every five years as mandated in chapter 1001.02(6) of the Florida Statutes, the State Board of Education (formerly the Florida Board of Education) must provide for the review of all academic programs.

(6) ...The programs shall be reviewed every 5 years or whenever the state board determines that the effectiveness or efficiency of a program is jeopardized. The State Board of Education shall define the indicators of quality and the criteria for program review for every program. Such indicators include need, student demand, industry-driven competencies for advanced technology and related programs, and resources available to support continuation. The results of the program reviews must be tied to the university and community college budget requests.

In addition, Rule 6A-14.060 (5) states that each community college shall:

(5) ...Develop a comprehensive, long-range program plan, including program and service priorities. Statements of expected outcomes shall be published, and facilities shall be used efficiently to achieve such outcomes. Periodic evaluations of programs and services shall use placement and follow-up data, shall determine whether expected





outcomes are achieved, and shall be the basis for necessary improvements.

Recently, SPC reduced the recommended program review timeline to three years to coincide with the long-standing three-year academic program assessment cycle, producing a more coherent and integrated review process. Figure 1 represents the relationship between program assessment and program reviewing during the three-year assessment cycle.

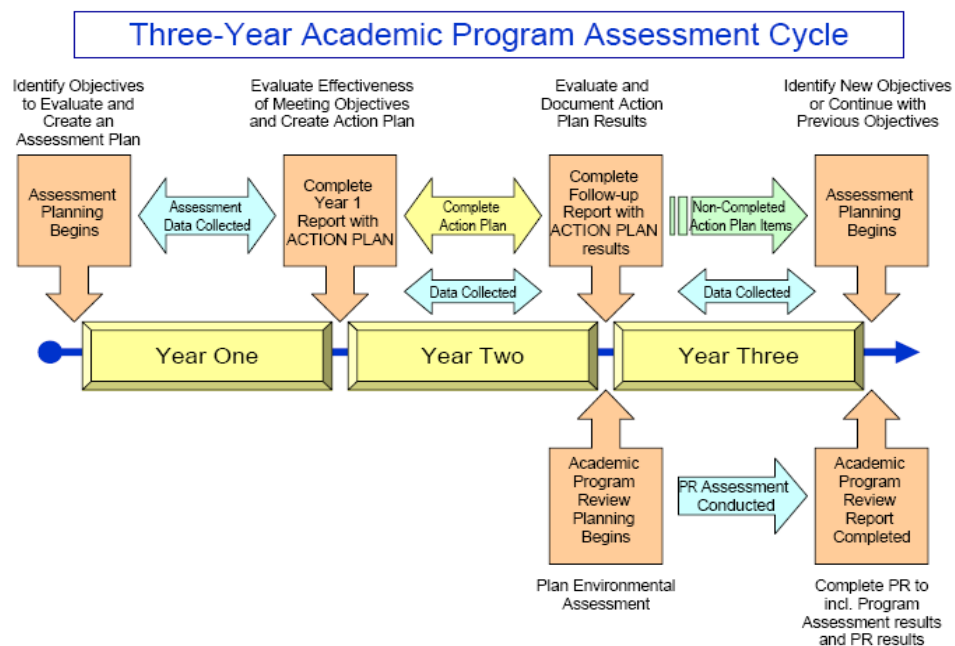


Figure 1: Three-Year Academic Program Assessment Cycle

Program Description

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For a complete listing of all courses within the Information Technology Security program, please see Appendix A.

Accreditation

No accreditation information is on file for the Information Technology Security program.





Program Performance

Actual Course Enrollment

Actual Course Enrollment is calculated using the sum of actual student enrollment for the courses within the program (Academic Organization Code). This number is a duplicated headcount of students enrolled in the program's core courses, and does not reflect the actual number of students enrolled in the A.S. program or its associated certificates (if applicable). Actual Course Enrollment remained relatively stable in the Information Technology Security program during the 2005-2006 Spring and Summer semesters, then increased substantially during 2006-2007 as shown by Figure 2.

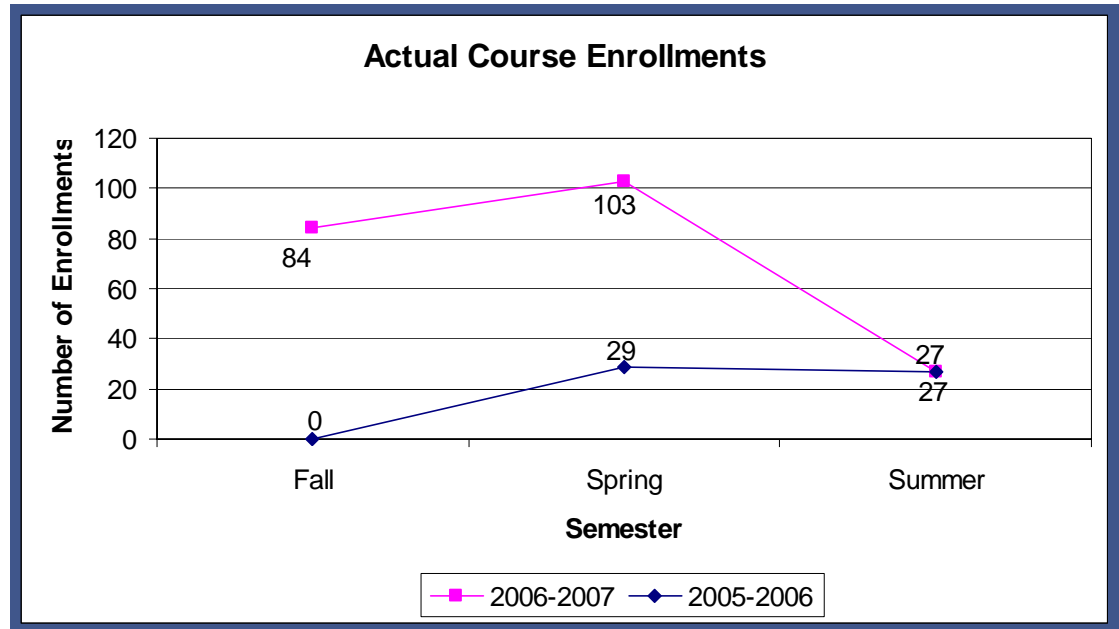


Figure 2: Actual Course Enrollment

Source: PeopleSoft Student Administration System: Course Management Summary Report (S_CMSUMM)





Productivity

Student Semester Hour (SSH) Productivity is calculated by dividing actual SSH by the budgeted SSH. SSH Productivity decreased (0.70) during Summer 2007 from the Spring SSH value (0.74), in the Information Technology Security program as shown by Figure 3.

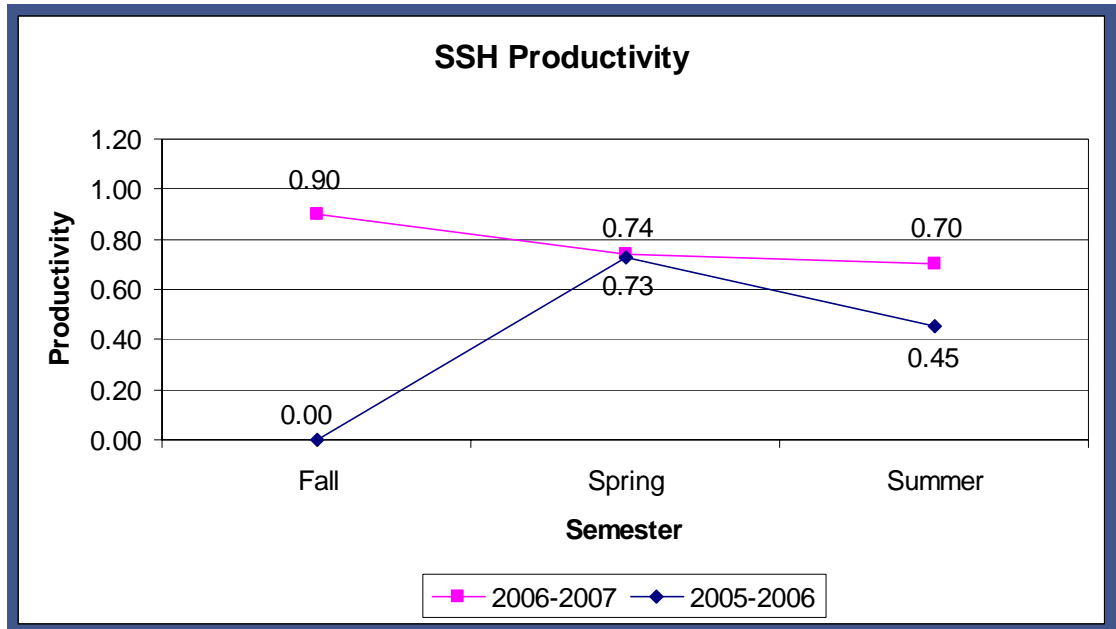


Figure 3: SSH Productivity

Source: PeopleSoft Student Administration System: Course Management Summary Report (S_CMSUMM)



Program Graduates

The number of program graduates during 2006-2007 in the Information Technology Security AS degree program was one, and in the certificate program the number of graduates was five, as shown in Table 1.

Table 1
Program Graduates

IT Security Program Graduates		
Academic Year	A.S. degree	Certificate
2005-2006	5	14
2006-2007	1	5

Source: 2006-07 SPC Factbook, Table 31





Grade Distributions

To provide a reference for program performance at the classroom level, grade distributions are provided. Table 2 includes the percentage of students receiving an A, B, C, D, or F in the program core courses. The information was compiled from the college wide grade distribution report generated at the end of the session. Some course data, such as dual credit courses generally do not end at the same time as the regular campus courses and may be omitted. In addition, the number of enrollments is a duplicated headcount where students are counted for each class registered, however, only A, B, C, D, and F grades are included in the calculations.

Table 2
Program Core Course Grade Distributions

Semester	Grade Distributions				
	A	B	C	D	F
Spring 2006	92.9%	7.1%	0.0%	0.0%	0.0%
Fall 2006	89.7%	10.3%	0.0%	0.0%	0.0%

Source: Collegewide Grade Distribution Report (Generated at the end of the session)





A classroom success rate was also calculated for the program. Classroom success is defined as the percent of students earning a grade of A, B, and C, and once again only A, B, C, D, and F grades are included in the calculations. The vast majority of students in the program succeeded in the courses as shown in Table 3.

Table 3
Classroom Success Rate

IT Security Classroom Success Rate	
Spring 2006	100%
Fall 2006	100%

Source: Collegewide Grade Distribution Report (Generated at the end of the session)





Fulltime/Adjunct Faculty Ratio

Table 4 displays the number and percentage of Information Technology Security program equated credit hours (ECHs) taught by the individual faculty classifications. During 2006-2007, Fulltime faculty taught 73% of the courses during the Fall semester, and 100% of the courses during the Spring and Summer semesters.

Table 4
Equated Credit Hours by Faculty Classification

	Fulltime Faculty		Percent of Load Faculty		Adjunct Faculty	
	Number of ECHs	% of Classes Taught	Number of ECHs	% of Classes Taught	Number of ECHs	% of Classes Taught
Fall 2006-2007	8.0	72.73%	0.0	0.00%	3.0	27.27%
Spring 2006-2007	4.5	100.00%	0.0	0.00%	0.0	0.00%
Summer 2006-2007	4.5	100.00%	0.0	0.00%	0.0	0.00%
2006-2007 Total	17.0	85.00%	0.0	0.00%	3.0	15.00%

Source: PeopleSoft Student Administration System: Faculty/Adjunct Ratio Report (S_FACRAT)





The Fulltime/Adjunct Faculty Ratio is calculated by dividing a program's adjunct's ECHs by the sum of the Adjunct's, Percent of Load's, and Fulltime Faculty's ECHs. Figure 4 displays the Fulltime/Adjunct Faculty Ratio information for 2006-2007.

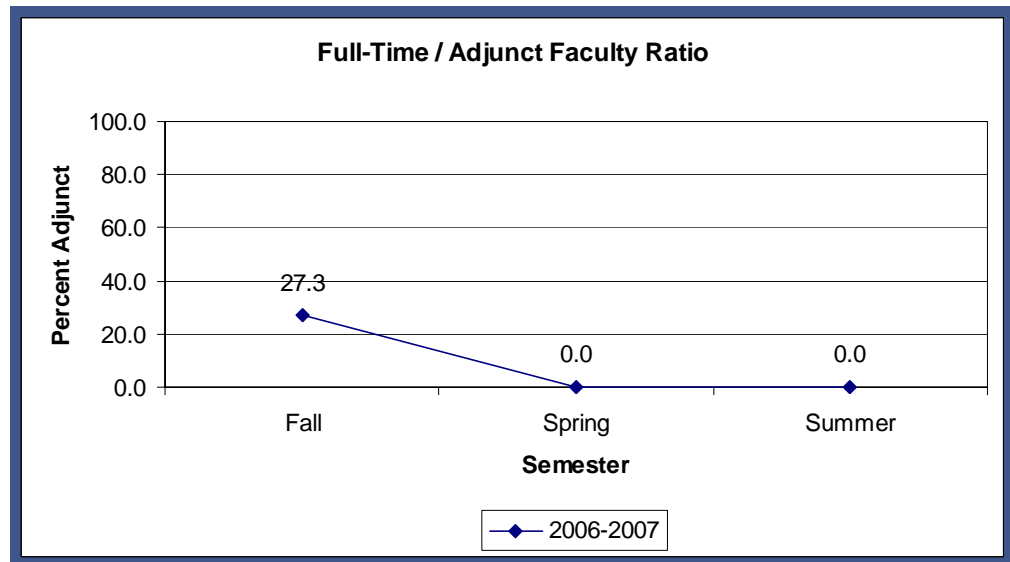


Figure 4: Full-time/Adjunct Faculty Ratio

Source: PeopleSoft Student Administration System: Faculty/Adjunct Ratio Report (S_FACRAT)



Program Profitability

Relative Profitability Index (RPI-T)

Relative Profitability Index (RPI-T) is a measure of program profitability. It is calculated by dividing a program's income by the sum of its personnel costs and current expenses. Only Fund 10 financials were used in the calculation of RPI-T for this report; specifically, 400000 level accounts were used for program revenues, 500000 level accounts were used for personnel costs, and 600000 level accounts were used for current expenses. The RPI-T for the Information Technology Security program increased (0.89) during 2005-2006, as shown in Table 5.

Table 5
Relative Profitability Index

IT Security Relative Profitability Index	
2005-2006	0.89

Source: PeopleSoft Financial Production System: Summary of Monthly Organization Budget & Actuals Status Report (ORGBUDA1) from End of Fiscal Year





Program Improvements

Capital Expenditures

There have been no Capital Expenditures for the Information Technology Security program during the past three years.

Table 6

Information Technology Security Capital Expenditures

Capital Expenditures			
Year	Capital Outlay	Account	Purchase Description
2004 - 2006	0	--	--
Total	0	--	--

Source: PeopleSoft Financial Production System: Summary of Monthly Organization Budget & Actuals Status Report (ORGBUDA1) from End of Fiscal Year





Academic Outcomes

As part of SPC quality improvement efforts, academic assessments are conducted on each AAS/AS program every three years to evaluate the quality of the program's educational outcomes. The Information Technology Security program has not been evaluated through an Academic Program Assessment Report (APAR). The 2005-2006 APAR was closed due to insufficient enrollment, graduates and data. Each of the seven MLOs are listed below:

1. The student will examine laws and associated liabilities related to computer networks, software piracy and the use of email in the workplace.
2. The student will become familiar with defending the enterprise against intrusion and attacks.
3. The student will explore the use of Network security auditing tools to identify and track users who have gained access to your system and document the details.
4. The student will understand the concepts necessary to identify the major components necessary to secure information systems.
5. The student will explore the concepts, hardware and software required to design secure information network systems.
6. The student will become familiar with the basic steps involved in setting up an Internet firewall, and includes hands-on training to manage a Firewall.
7. The student will be introduced to hands on instruction in the use of software and hardware to secure Windows networking operation systems and Linux operating systems.



Stakeholder Perceptions

Student Survey of Instruction (SSI)

Each Fall and Spring semester, St. Petersburg College (SPC) administers the Student Survey of Instruction. Students are asked to provide feedback on the quality of their instruction using a 7-point scale where 7 indicates the highest rating and 1 indicates the lowest rating.

Several variations of the SSI survey exist including lecture, non-lecture, clinical, and eCampus (on-line) versions. The purpose of the SSI survey is to acquire information on student perception of the quality of courses, faculty, and instruction, and to provide feedback information for improvement.

The survey questions are grouped into four categories; faculty/student interaction, organization, presentation, and evaluation, as defined below:

- Faculty/Student Interaction - focuses on how successful the faculty was in encouraging students to excel, the time spent on relevant course material, and responding to concerns and questions both inside and outside of the classroom.
- Organization - deals with clear instructions, defined objectives, relevant course materials, and whether the assignments were challenging.
- Presentation - focuses specifically on the instructor and their preparation for the course, enthusiasm for course, time spent on course related activities, ability to speak clearly and distinctly, thorough explanation of the subject matter, and assignment of material throughout the term.
- Evaluation - focuses on course expectations and grading policies, applying the stated grading policies consistently and impartially, and giving applicable course assignments including quizzes and exams.





Lecture. The lecture version of the survey is distributed to all students enrolled in traditional classroom sections within the College. The results show that the average scores showed a decrease during Fall 2006 from the previous SSI values during Spring 2006, which were well above the traditional threshold (an average of 5.0 used by the College for evaluating seven-point satisfaction scales). The average survey results by semester and content area are shown in Figure 5.

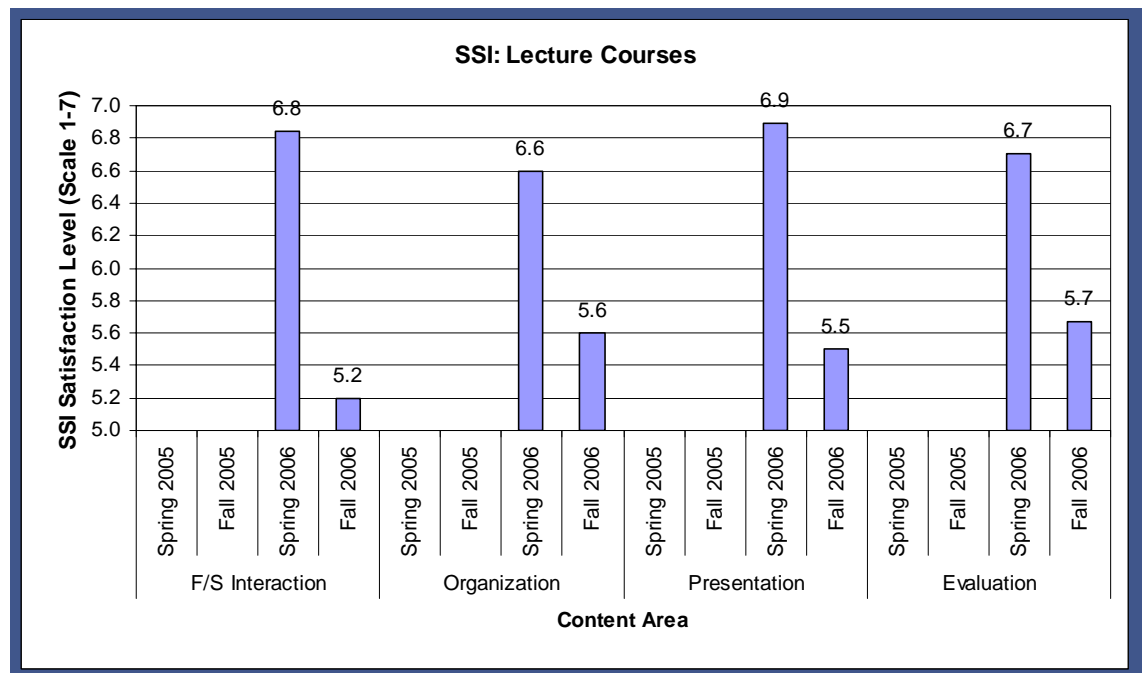


Figure 5: SSI Lecture Courses

Source: PeopleSoft Student Administration System: Query S_SSI_CHRT_QRY_CAMPUS





Non-Lecture. Lab courses and self-paced or directed individual study use the non-lecture version of the survey. Results were only available for the Fall 2006 administration of the non-lecture version of the SSI. Results indicate that the average scores were above the College' five point threshold for three of the four content areas, as shown in Figure 6.

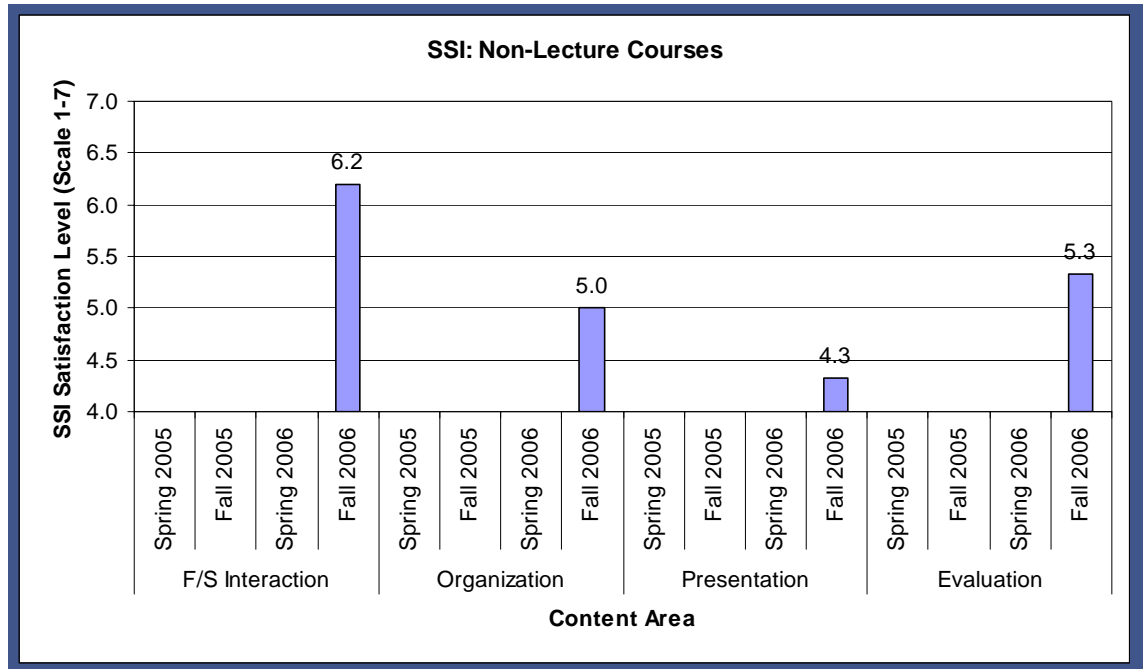


Figure 6: SSI Non-Lecture Courses

Source: PeopleSoft Student Administration System: Query S_SSI_CHRT_QRY_CAMPUS

Clinical. The clinical version of the survey is distributed to all students enrolled in a clinical specific class. There were no SSI results for Clinical classes in the Information Technology Security program during the time of the review.

eCampus. The eCampus or on-line version of the SSI survey is electronically distributed to all students enrolled in on-line courses at the College. The Project Eagle Research Capsule #4 provides information on the difference in the wording of the questions (<http://www.spcollege.edu/eagle/research/perc/perc4.htm>). There were no eCampus classes in the Information Technology Security program during the time of the review.





Summary. All but one of the individual average content area scores were above the traditional threshold (an average of 5.0) used by the College for evaluating seven-point satisfaction scales. These results suggest general overall satisfaction with the courses within the ITSEC program; specifically, as they relate to faculty/student interaction, course organization, course presentation, and evaluation methodologies.





Technical Education Advisory Committee

Community input and participation is an important component of the educational process at the College. The technical education advisory committees are an example of community input. Advisory committees meet a minimum of twice annually with additional meetings as needed for good program coordination.

Advisory committee members are appointed by the College President to serve a one-year term of office and must have a demonstrated competency in the program specialty area or an understanding of the program and of the community at large. An exception to the above may be a lay person directly involved in a related program field such as counseling, public relations, or administration of a business or industry.

Specific Duties of Advisory Committees are to:

1. serve as a communication channel between the college and the community;
2. determine specific skills and suggest related and technical information for the program;
3. suggest ways for improving public relations and articulation of the program with other institutions;
4. assist in recruiting, providing internships, and in placing qualified graduates in appropriate jobs;
5. keep the program personnel informed on changes in labor market, specific needs (competencies), and surpluses;
6. recommend curriculum revisions as necessary to comply with current trends;
7. assist in assessing the program needs in terms of the entire community (long-range planning);
8. assist program personnel in searching for sources of funding for scholarships, equipment, etc.;
9. in general, to advise, recommend, and assist in assuring a quality program as determined by community needs; and
10. discuss proposed equipment purchases in excess of \$9,999.99.



Recent Meeting Summary.

An Information Technology Security advisory committee meeting was held on November 15, 2006. The meeting consisted of discussions about reorganization; the International Information Systems Security Certification Consortium (ISC2) program; National Science Foundation (NSF) grant; Cyber security center; status of AS degree; Four-year Program; Faculty hiring and Credentialing Update; and Committee Comments and Suggestions.

Reorganization. Dr. Larry Stewart reported on recent developments which have prompted reorganization of the ITSEC program. The ITSEC program moved from EPI to Allstate, and consequently changed program directors during 2006. The CEO has a vision to recruit someone with expertise in IT Security and grant experience to ensure the College is following the provisions of the NSF grant

ISC2 program. The International Information Systems Security Certification Consortium (ISC2) program is a very valuable, unique body of knowledge. The old agreement with ISC2 was redesigned (still unsigned) but there is a general understanding. Currently a meeting of minds between ISC2 and SPC, is taking place. The training courses for Certified Information Systems Security Professional (CISSP) Certificate program were ceased and education courses for ISC2 were continued. Possible CISSP class offerings will be revisited in the future.

NSF Grant. The National Science Foundation (NSF) Grant was originally \$1 million dollars and was scaled back to \$360k for a 2-year time period. The grant is to be used to create an AS certificate and 4-year degree program.

Status of AS degree program. The goal is to prepare students from the AS degree program for the 4-year degree program with emphasis on mechanically doing, (2+2 mold) so they automatically articulate to 4-year program. The following issues with regards to the AS degree were discussed:

- The two year program is currently being upgraded to offer online classes to attract people outside of Pinellas County as well.



- Staff communicated to students and Board Members that the program would continue despite Paul Harris and Debbie Fletcher's departure.
- Most students experience but do not carry the academic credits required for a degree in the field.
- Kevin Thomas was hired temporarily to replace Debbie Fletcher. A master's degree is now required to teach in all two year programs to ensure the colleges ability to maintain regional accreditation.

The complete committee minutes are located in Appendix B.





Recent Graduate Survey Information

Recent Graduate Surveys were not conducted, because the Information Technology Security program did not have graduates during 2004-2005.





Occupation Profile

Occupation Description

The occupation description used by the Bureau of Labor Statistics is shown below:

Plan, coordinate, and implement security measures for information systems to regulate access to computer data files and prevent unauthorized modification, destruction, or disclosure of information.

US, State, and Area Wage Information

Note: The wage information depicted in Table 7 corresponds to a four-year Bachelor's degree. The Bureau of Labor Statistics does not list wage information for an Associate in Science degree in IT Security.

The distribution of 2005 wage information for a 4-year degree in Information Technology Security is located in Table 7. The median yearly income for Information Technology Security was \$59,900 in the United States, \$55,400 in the local area. The wage information is divided by percentiles for hourly and yearly wages. This information is also separated by location.

Table 7

Wage Information for Information Technology Security (4-year degree)

Location	Pay Period	2005				
		10%	25%	Median	75%	90%
United States	Hourly	\$18.17	\$22.78	\$28.81	\$36.63	\$44.84
	Yearly	\$37,800	\$47,400	\$59,900	\$76,200	\$93,300
Tampa-St. Petersburg-Clearwater, FL MSA	Hourly	\$17.21	\$20.99	\$26.62	\$34.33	\$42.44
	Yearly	\$35,800	\$43,700	\$55,400	\$71,400	\$88,300

Source: Bureau of Labor Statistics, Occupational Employment Statistics Survey; Florida Agency for Workforce Innovation



National, State, and County Trends

Note: The wage information depicted in Table 8 corresponds to a four-year Bachelor's degree. The Bureau of Labor Statistics does not list wage information for an Associate in Science degree in IT Security.

Employment trend information for a 4-year degree in Information Technology Security is included in Table 8, and divided by country and state. A significant average annual increase (38% - 45%) in employment for the profession over the next 5 - 7 years for the country and state is shown.

Table 8
State and National Trends

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Network and computer systems administrators	278,400	385,200	+ 38 %	13,770
Florida	Employment		Percent Change	Job Openings ¹
	2002	2012		
Network and computer systems administrators	12,650	18,380	+ 45 %	710

¹Job Openings refers to the average annual job openings due to growth and net replacement.

Note: The data for the State Trends and the National Trends are not directly comparable. The projections period for the State Trends is 2002-2012, while the projections period for the Country and County Trends is 2004-2014.

Source: Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections; Florida Employment Projections





State Graduates Outcomes

State outcome data was not available for any college in the state of Florida for the Information Technology Security program.





Summary

Overall, the Information Technology Security Program is moving forward and is currently improving both in its structure and design. The few noted exceptions or deficiencies relate to the reorganization that the program experienced in 2006, which are detailed in the committee minutes located in Appendix B.

The first exception noted referred to the change in both the program director and lead instructor, both of whom were replaced in spring of 2007. As part of that reorganization, the program offerings are being reviewed to ensure that the courses offer the students the most relevant training and skills to ensure that they succeed in the workforce. Some of the courses that have been offered in the past may be combined, upgraded, and/or eliminated and replaced by different courses. A few of the course offerings are excellent and will continue to be offered without substantial modifications. The learning objectives for each course are also being reviewed to ensure that they match, as much as possible, the Florida DOE Curriculum Framework for an A.S. in IT Security.

The understanding with ISC2 and the National Science Foundation (NSF) Grant are also being reviewed to determine if original conditions can still be fulfilled under the newly reorganized program. If they cannot, then they may be re-negotiated or a new understanding may be developed.

Enrollment: The increase in enrollment during 2006 is being augmented by better marketing to new students and more consistent communication with current students through a better a web site, a two-year certificate brochure, and a combined 2-year/4-year security brochure that is being jointly developed between the IT Security A.S. program and the College of Technology Management.

Productivity: The slight decline in productivity may be due to fluctuations in student enrollment. To adjust for this, a standard course offering is being constructed to provide students with a mapped plan of course offerings, thus creating the demand and increase the number of students in each course on a term basis. This has been successful within other programs throughout the college.



Program Graduates: The decline in the number of both A.S. degree and Certificate graduations in 2005-2006 may be attributed to the reorganization of the program and to confusion about whether the program would continue after departure of both the previous director and lead instructor. It is difficult to obtain the status of many graduates in the program. Some already reside well outside the region while others may relocate to obtain employment.

Faculty: The IT Security Program supports one full-time faculty member. In addition, there is one adjunct faculty currently teaching the Laws and Legal Aspects of IT Security. The program relies heavily on the experience and skills of the faculty to impart a true understanding of the nature of the IT Security profession.





Recommendations/Action Plan

Program: Information Technology Security

Date Completed:

	Action Item	Completion Date	Responsible Party
1	Review course offerings and update them to match Florida DOE Curriculum Framework	September 2007	Lead Instructor
2	Revise website for marketing purposes	October 2007	Lead Instructor
3	Review NSF Grant and ISC2 agreement	October 2007	Program Director
4	Compare courses in A.S. program and 4 year Tech Management security program to ensure that there is no redundancy and students are learning all necessary skills	November 2007	Lead Instructor



Special Resources Needed:

- Marketing materials and advertising opportunities

Area(s) of Concern/Improvement:

The advisory board discussed the concern of adding more "hands-on" experience to the courses and more activities that focus on security and troubleshooting tools. This will enable students to have both theory and practical skills when they enter the workforce. To address this concern, we may reevaluate each course to add instruction on the appropriate tools and activities that can facilitate hands-on learning in the classroom.



Program Director

8-31-07
Date



Provost

8/31/07
Date

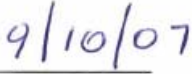


President's Cabinet Review

Summary of observations, recommendations, and decisions:



President's Signature



Date



Information Technology Security
2006-2007 Comprehensive Academic Program Review
Department of Institutional Research and Effectiveness

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Action Plan Follow-up and Evaluation Report

Program: Information Technology Security

Date Completed:

Prepared By:

I. Action Plan Item Status

	Action Item	Completion Date	Completion Status
1			
2			
3			
4			

II. Non-Completed Action Plan Items and Plan for Completion

	Action Item	Completion Date	Completion Status
1			
2			
3			
4			



III. Evaluation of the Impact of Action Plans on Program Quality

Provost

Date

Responsible VP

Date





References

Rule 6A-14.060(5). *Florida Administrative Code, Accountability Standards*. Retrieved October 2002, from the Division of Community Colleges
Web site: <http://www.firn.edu/doe/rules/6A-14.htm>

Contact Information

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Appendix A: Program Overview (2007)

INFORMATION TECHNOLOGY (IT) SECURITY (ITSEC-AS)

ASSOCIATE IN SCIENCE DEGREE
(Fully transferable to BAS in Technology Management at SPC)
Brian Frank, Program Director, AC, (727) 341-4143

GENERAL EDUCATION COURSES (18 credits)

ENC 1101	Composition I or Honors	3
SPC 1600	Introduction to Speech Communication OR (SPC 1016, 1060)	3
	Humanities/Fine Arts Approved Course	3
	Mathematics Any college level course with an MAC, MGF, MTG or STA prefix	3
	Social & Behavioral Sciences Approved Course	3
PHI 1631	Studies in Professional Ethics OR (PHI 1600, 1602H, 2635, 2649)	3
	Computer/Information Literacy Competency Requirement	

CORE COURSES (29 credits)

CEN 1300	Implementing & Supporting Microsoft Windows XP Professional	3
CEN 1301	Supporting Microsoft Windows 2000 Professional and Server	3
CET 1171C	Personal Computer Systems Repair I	3
CET 1172C	Personal Computer Systems Repair II	3
CET 1600	Network Fundamentals (Cisco)	3
CET 1610	Router Technology (Cisco)	3
CET 2615	Advanced Router Technology (Cisco)	3
CET 2620	Project Based Learning (Cisco)	3
COP 2340	Fundamentals of the Linux/Unix Open Environment	3
Elective	Any course	2

MAJOR COURSES (21 credits)

CET 2691	Laws and Legal Aspects of Information Technology Security	3
CIS 1350	Network Defense and Countermeasures	3
CIS 1353	Network Security Auditing, Attacks, and Threat Analysis	3
CIS 1354	Introduction to Network Security Foundations	3
CIS 1355	Security Engineering	3
CIS 1356	Network Security and Firewalls	3
CIS 1358	Operating System Security	3

TOTAL PROGRAM HOURS 68



Appendix A: Program Overview (2007), con't

INFORMATION TECHNOLOGY (IT) SECURITY CERTIFICATE (ITSEC-CT)

Dr. Larry Stewart, Dean (727) 341-
Debbie Fletcher, Lead Instructor, (727) 341-3268

Job Related Opportunities:

- Systems Security Professional
- IT Security Analyst
- Information Security Specialist
- IT Security Architect
- IT Security Manager
- IT Security Risk Manager
- IT Consultant

The prerequisites for entry are basic computer usage skills: editing files, navigating a file system, browsing the Web, basic knowledge of networking, and working knowledge or training in the Unix or Linux operating system.

This certificate emphasizes understanding and demonstrated skills of the following concepts related to IT security: policies, intrusion detection systems, router security, TCP/IP (Transmission Control Protocol/Internet Protocol), and network security basics; implementing and managing a firewall; auditing tools; basics of cryptography, biometrics, and file encryption; hardware and software designed to secure information network systems; and legal aspects of IT security. The courses include tasks that will enhance the students' ability to interpret data and information from various sources and create reports based upon this information.

The program is also designed to assist students in preparing for various IT Security certification exams, such as the (ISC)² CISSP[®] (Certified Information Systems Security Professional), SSCP[®] (Systems Security Certified Practitioner), and the CompTIA Security+[™] Certification. There is a lab fee for each course.

These courses will apply toward the A.S. degree in Computer Engineering Technology—IT Security option

PROGRAM REQUIREMENTS

CET	2691	Laws and Legal Aspects of Information Technology Security	3
CIS	1350	Network Defense and Countermeasures	3
CIS	1353	Network Security Auditing, Attacks, and Threat Analysis	3
CIS	1354	Introduction to Network Security Foundations	3
CIS	1355	Security Engineering	3
CIS	1356	Network Security and Firewalls	3
CIS	1358	Operating System Security	3

TOTAL CERTIFICATE HOURS **21**





Appendix B: Advisory Board Committee Minutes, 2006-2007

Minutes
IT Security Advisory Committee
November 15, 2006 2:00

Attendees: Dr. Larry Stewart, Dr. Shri Goyal, and Grace Roth

Start 2:15 p.m. Dr. Larry Stewart

- I. Recent developments Prompting Reorganization
 - A. Previously the IT Security program was housed at the EPI Center and is now housed at the Allstate Center.
 - B. IT Security program director Paul Harris is no longer with the College. Limited information was left by Mr. Harris; documents had to be found to establish beginning of semester.
 - C. The 2-year academic IT Security program is under Dr. Larry Stewart and the 4-yr academics are under Dr. Shri Goyal. A Program Director who will manage the day-to-day activities of the program will be in place soon.
 - D. Two weeks ago Debbie Fletcher resigned effective immediately; a temporary instructor was immediately hired to replace her ensuring coverage for her classes.
 - E. IT Security Board Members and Students have questioned the move of the IT Security program from the EPI center to the Allstate center. Staff thought the program did not match well with program currently offered at the Allstate Center.
 - F. The CEO has a vision to recruit someone with expertise in IT Security and grant experience to ensure the College is following the provisions of the NSF grant.

Dr. Shri Goyal

- II. ICS2 Program
 - A. ISC2 program is unique body of knowledge always updated (very valuable).
 - B. The old agreement was redesigned (still unsigned) but there is a general understanding. Some access was given but not full access to body of knowledge.
 - C. Currently a meeting of minds between ISC2 and SPC, hopefully an agreement will be signed. Right now there is a mutual respect.
 - D. The training courses for CISSP Certificate program were ceased and education courses for ISC2 were continued. Possible CISSP class offerings will be revisited in the future.





Appendix B: Advisory Board Committee Minutes, 2006-2007 (con't)

III. NSF Grant

- A. NSF Grant was originally \$1 million dollars and was scaled back to \$360k for a 2-year time period. The grant is to be used to create an AS certificate and 4-year degree program
- B. 4-year program based on body of knowledge of *all* industries and will lead to a BAS degree, and will consist of five courses. (has been approved by board but not yet finalized)
- C. The five courses will be offered in three specialized tracks. The courses are as follows:
 - 1. Core Security Principles
 - 2. Applications in Information Security
 - 3. Telecommunications Network Internet Security
 - 4. Software Essentials; Leadership; Business Architecture
 - 5. Information Security Policy, Administration and Management (Legal)**Capstone (Understanding Principles)
- D. All courses map ISC2 body of knowledge and provide most of the material for CISSP exam.

Dr. Larry Stewart

IV. Cyber Security Center for Academic Excellence

- A. The Cyber Security for Academic Excellence is not attached to the NSF Grant.
- B. The FBI would like to bring speakers and hold conferences at this center.
- C. As of November 6, 2006 a person was hired as the director who will ensure the two programs (Academics, IT Security and Cyber Security Center for Academic Excellence) work together).

V. Current Status of AS degree program

- A. Goal is to prepare students from the AS degree program for the 4-year degree program with emphasis on mechanically doing, (2+2 mold) so they automatically articulate to 4-year program.
- B. The two year program is currently being upgraded to offer online classes to attract people outside of Pinellas County as well.
- C. Staff communicated to students and Board Members the program would continue despite Paul Harris and Debbie Fletcher's departure.
- E. Most students experience but do not carry the academic credits required for a degree in the field.



Appendix B: Advisory Board Committee Minutes, 2006-2007 (con't)

F. Kevin Thomas was hired temporarily to replace Debbie Fletcher. A master's degree is now required to teach in all two year programs to ensure the colleges ability to maintain regional accreditation.

Shri Goyal

VI. Four-year Program Development

- A. Currently has three faculty members, two of which have doctoral degrees, and one has his masters.
- B. Also hiring instructors from USF to develop help develop program courses.
- C. Launching Security program later but hopes to offer courses soon.

VII. Faculty hiring and Credentialing Update

- A. Currently moving forward in developing new programs to ensure colleges accreditations making sure instructors are credentialed for courses and courses are right for industry.

Grace Roth

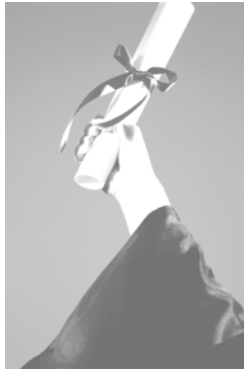
VIII. Committee Comments and Suggestions

- A. Interested in seeing a message board online for the committee to share ideas and give updates.
- B. Over program looks very effective integrating the body of knowledge with the two year and four year programs as well as staying updated with the industry.
- C. Shaun Harrison's book is highly recommended for preparation for the CISSP exam by Grace Roth. She also thinks that students' best learn IT Security by hands on experience and troubleshooting tools. Students can not learn all information via text books, hands on is a *must*.

IX. Conclusion

- A. Connect theory with true life technology to ensure success.





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