To: Masoud Milani, Associate Dean, SCIS

From: SCIS Undergraduate Committee:
Peter Clarke, Tim Downey, Vagelis Hristidis, Norman Pestaina,
Nagarajan Prabakar (chair)

Date: 4/17/09

The undergraduate committee reviewed the annual assessment report 2008-2009. The committee's recommendations are contained in the attached document.

Undergraduate Committee's Recommendations on the 2008-2009 Assessment Report

In this document, the relevant sections of the assessment report are reproduced (in italics) to facilitate referencing to the assessment report. The following acronyms are used throughout the report:

AC – Assessments Coordinator
UGC – Undergraduate Committee
SCIS – School of Computing and Information Sciences
CEC – College of Engineering and Computing

III. SURVEY RESULTS

A. Course Outcomes Survey by Students

AC observation: CGS 1920 Introduction to Computing was first offered in the Fall 2007 semester, and again in both Fall and Spring semesters of 2008. This is a 1 credit course and is required of students in all SCIS undergraduate majors. There are no numeric data for this course.

UGC recommends the addition of the course outcome assessment survey section to Course Outcome Survey by Students for CGS1920.

UGC recommends the inclusion of this course in the subject area "Communications and Ethics".

B. Course Outcomes Survey by Instructors

Subject Area: Communications & Ethics (Reported by Pat McDermott-Wells)
The Coordinator observes that some students may be taking CGS 3092 prematurely and recommends that the prerequisites be adjusted to require either ENC 3211 or COM 3011.

The UGC recommends: ENC3211 (Report and Technical Writing**)** as an additional prerequisite for CGS3092 (Professional Ethics and Social Issues in Computer Science**).**

*Subject Area: **Computer Systems** (Reported by Masoud Sadjadi)*
CDA 4101 Structured Computer Organization
Recommendation: I recommend no changes to the outcome of this course. Referring back to the reports of the past three years for this course, you can see that there are two minor issues with this course: first, students are not adequately exposed to the shared memory and MPI concepts at the end of the class as suggested; and second, there is no homework assignment, except for the term project. Unfortunately, the same exact problems have persisted for the past three years.

UGC recommended the subject area coordinator to take appropriate action in consultation with the faculty in the computer systems area. As a result of discussions with the systems area faculty, the subject area coordinator has revised the course outcomes and the outline of the syllabus.

COP 4225 Advanced UNIX Programming
Recommendation: I recommend major change to the syllabus. Based on the complaints by the students, the contents of this course need serious revisiting and a more up-to-date textbook should be selected.

UGC recommended the subject area coordinator to take appropriate action in consultation with the faculty in the computer systems area. The course syllabus and the catalog description have been updated. **This requires the approval from the SCIS faculty**.

COP 4610 Operating Systems Principles
Recommendation: I recommend removing the forth outcome of this course, namely, "Disc Allocation and Arm Scheduling". Also, the other outcomes should be revisited to include the following topics: Processes and Threads, Deadlocks, Memory Management, Input/Output, and File Systems. Also, an extensive term paper in addition to a term project seems to be too much of work for the students.

UGC recommended the subject area coordinator to take appropriate action in consultation with the faculty in the computer systems area. As a result of discussions with the systems area faculty, the subject area coordinator has revised the course outcomes of the syllabus.

COP 4226 Advanced Windows Programming
Recommendation: I recommend that the outcomes of this course to be revisited and up-to-date with the current Windows framework.

UGC recommended the subject area coordinator to take appropriate action in consultation with the faculty in the computer systems area. The course syllabus and the catalog description have been updated and have been approved by the CEC curriculum committee.

Subject Area: Foundations (Reported by Geoff Smith)
Recommendation: It seems possible that COP 4555's more concrete nature could make it helpful in preparing students for the more abstract mathematical logic in COT 3420. So perhaps it would be better for students to take COP 4555 before taking COT 3420.

UGC recommends, with the concurrence of Foundation area faculty, to change the prerequisite of COT3420 to MAD3512 and COP3337. **This requires the approval of SCIS faculty.**

Subject Area: Programming (Reported by Mark Weiss)
COP 2210 Computer Programming I
Recommendation: Since this course is primarily for computer science majors we should require a passing grade in college algebra. Please note that this recommendation was made last year also.

This recommendation was withdrawn by the subject area coordinator. No action is recommended by UGC.

COP 3337 Computer Programming II
Recommendation: The curriculum committee should investigate the feasibility of making COP-3337 into a four-credit lab lecture format, with a Tue/Thu/Fri schedule.
Recommendation: COP-3337 instructors should be encouraged to evaluate whether their grading systems can make more use of in-class exams and quizzes to ensure that all the objectives have been met for each individual student, rather than the class as a whole.

UGC recommends adding a one credit lab as a required component of COP3337. The UGC requests the subject area coordinator to develop a proposal for the one credit lab component and submit the proposal to UGC for review.

COP 4338 Computer Programming III
Recommendation: Perhaps more time could be spent on C/C++ or threading if the Java Reflection outcome was removed.

UGC recommends the subject area coordinator to take appropriate action in consultation with the faculty in the programming area.

AC Recommendation: SCIS should re-evaluate the course outcomes of COP 2210, COP 3337 and COP 3350 with a view to re-aligning the programming outcomes and syllabi of these 3 courses in the programming sequence.
AC Recommendation: SCIS should consider the feasibility of having standardized final examinations for COP 2210 or/and COP 3337.
AC Recommendation: SCIS should formalize a process for recommending placement of transfer students into either COP 2210 or COP 3337 as appropriate.

UGC recommends the subject area coordinator to take appropriate action in consultation with the faculty in the programming area.

<u>Subject Area: Software Engineering (Reported by Peter Clarke)</u>
CEN 4010 Software Engineering I
Recommendation: There is a need to have students take a programming course that contains web-based programming and working with databases before taking CEN 4010.

UGC recommends the subject area coordinator to take appropriate action in consultation with the faculty in the software engineering area.

Based on discussions about the prerequisites for CEN4010, UGC also recommends making COM3110 an additional prerequisite to CEN4010. **This requires the approval of SCIS faculty.**

CEN 4012 Software Design and Development Project
Recommendation: Currently the students in the software design and development track take the CEN 4012 Software and CIS 4911 Senior Project classes. This issue needs to be resolved so that the students only take one project course.

UGC referred this to the faculty in software engineering area. The software engineering coordinator in consultation with the software engineering faculty recommended the proposal shown in appendix SER.

UGC's recommendation, after having taken into account the response from software engineering faculty, is shown in Appendix SDD.

CEN 4021 Software Engineering II
Recommendation: There is a need to resolve the issue of cross listing of CEN 4021 an undergraduate course with CEN 5064 a graduate course with a different syllabus. Some undergraduate students are finding it difficult both in the volume of work and the teaching style used by the professor. Note graduate courses entail a small element of research in the class projects.

UGC referred this to the faculty in software engineering area. UGC's recommendation, after having taken into account the response from software engineering faculty, is shown in Appendix SDD.

The Assessment Coordinator's observation in Section III A of this report is restated here to emphasize the urgency of the Subject Area Coordinator's recommendation: The level of student satisfaction with the coverage in CEN 4021 is at 3.35, also well below the 75% threshold. A similarly unsatisfactory level, 3.38, was recorded in 2007. Obviously, there is an urgent problem here that must be remedied at once.

UGC referred this to the faculty in software engineering area. UGC's recommendation, after having taken into account the response from software engineering faculty, is shown in Appendix SDD.

C. Program Outcomes Survey by Graduating Students

AC Recommendation: The combined responses for spring and summer 2008 are shown in Appendix D and summarized in the following table. No data are available for the fall semester. The response rate to this survey is extremely low, only 4 respondents, even fewer than in previous years. This situation therefore still merits urgent attention.

UGC recommends:
1. *Improving the existing indirect measure*. Increase the student participation in the program outcome survey by conducting the survey when the student completes the senior project.
2. *Creating a direct measure.* Incorporate the assessment of the program outcomes by integrating the assessment mechanism into the senior project evaluation.
3. *Increasing the student participation.* During the survey period, SCIS web page should have a prominent link to the course outcome survey.

Outcome j: Experience state-of-the-art computing facilities
AC recommendation: After an apparent improvement to a barely acceptable level of 76% (in last year's report), the attainment level for this outcome has returned to the 70% level recorded in the 2006 and 2007 reports. This outcome is consistently perceived by our students to have very high relevance. The continuing low attainment level argues strongly for investigation. If SCIS is confident that our students are being offered acceptable environments, it may be the case that this outcome is being evaluated inappropriately. In either case, some corrective action must be taken.

UGC recommends rewording the outcome "j" as "Have experience with contemporary environments and tools necessary for the practice of computing". **This requires the approval of SCIS faculty.**

Outcome k: Success in applying for entry-level positions
AC recommendation: The data from this survey is insufficient to allow any meaningful conclusions to be drawn. We repeat our opinion from last year's report, "This evidence suggests that our students are employable when just out of school, but the timing of the exit survey is probably too early to allow a complete assessment." It is essential to put in place a system of tracking a statistically meaningful proportion of our recent graduates.

UGC recommends the use of social networking websites (facebook, LinkedIn) to maintain contact with the alumni. The tools (email, personal messages) available in these websites can be used to encourage the alumni to participate in the annual alumni survey. Include links to these sites in the school website.

IV. RECOMMENDATIONS FROM OTHER CONSTITUENTS

ACM Student Chapter recommendation: I believe that the SCIS should provide funding for tutoring. We have labs with computers, but no in-person support for the students. In the other colleges I have taught at (Miami Dade College and University of Miami), help desk personnel were situated in the labs for least 8 hours per day. Similarly, the Math department at FIU provides 16 hours per week of in-person tutoring to students, as well as extensive online help. If we are to provide a quality education to undergraduates, I believe we should provide at least the same level of support as the Math department.

UGC has referred this to the SCIS Dean and the issue has been resolved.

V. ASSESSMENT

AC Recommendation: A subset of high demand List-1 elective courses should be identified and offered on a fixed, published rotation.
AC Recommendation: SCIS should consider creating a Special Topics slot in the regular schedule. Lower-demand List-1 elective courses should be offered in this slot on at least a biennial basis. A course that is not offered within a 2-year period should be removed from List-1.

UGC concurs and refers this to the undergraduate program director.

Program Outcomes Survey by Graduating Students (Exit Survey)
AC Recommendation: Our first group of graduating students completed the Senior Project, CIS 4911, in Fall 2008. There are already in place tools for measuring attainment of CS program outcomes from student performance in CIS 4911. The mechanisms for assessing these metrics and incorporating the results into the annual assessment process should be formalized and utilized during the next assessment cycle.

UGC recommends

1. Update the Assessment Mechanisms and Procedures document to include senior project evaluations into the annual assessment process. The recommendation for updating the document is shown in Appendix AMP.
2. Rewrite the Assessment Plan document. The recommendation for updating the document is shown in Appendix AP.
3. Add guidelines to the current rubric for assessing senior project. Sample guidelines are shown in Appendix SPG.
4. Add CGS3092 as an additional prerequisite to CIS4911.

AC Recommendation: SCIS should consider instituting embedded questions in the final examinations of selected required courses, at least one in each subject area of the CS major. A procedure for assessing attainment of program outcomes from student performance on these embedded questions should be developed and put in place.

UGC recommends no action at this time since this would fill the same need addressed by the inclusion of the senior project.

AC Recommendation: The SCIS Assessment Plan (Appendix A) and Assessment Procedures and Mechanisms (Appendix C) should be amended to incorporate these direct measures.
This is addressed in the preceding UGC recommendations.

AC Recommendation: SCIS must find means of elevating the response rates to the student surveys, Course Outcomes Surveys by Students, and Program Outcomes Survey by students. Alternatively, SCIS may consider discontinuing some or all of these surveys.

Please see the recommendations under Program Outcomes Survey by Graduating Students.

Appendix SER

Software Engineering Area Faculty Recommendations on SDD Track:

1. Keep the SDD track
2. Remove the CEN 4012 Software Design and Development Project from the curriculum
3. Students in the SDD track should focus on a software-intensive Senior Project
4. Students in the SDD track should take any two courses from the following list:

    CEN 4021 Software Engineering II
    CEN 4023 Component-Based Software Development
    CEN 4XXX Fundamentals of Software Testing
    CEN 5064 Software Design
    CEN 5076 Software Testing
    CEN 6070 Software Verification
    CEN 6075 Software Specification

No courses shall be cross-listed.

Appendix SDD

UGC recommendations for SDD track:

After having taken into account the response from software engineering area faculty, UGC recommends:

1. Students are no longer required to take CEN 4012 Software Design & Development Project. Instead, students should focus on a software-intensive Senior Project.
2. Students are required to take CEN4021 Software Engineering II.
3. Students should take one course from the following list to replace the credits from Software Design Project class:
   CEN 4023 Component-Based Software Development
   CEN 4XXX Fundamentals of Software Testing
4. The required and elective courses for this track must be made available on a published schedule. For example,

    CEN4010 will be offered every Fall term

    CEN4021 will be offered every Spring term

    One of the elective courses will be offered every Spring term
5. A student may select this track only after successful completion of CEN 4010, and with the approval of an SCIS academic advisor.

Appendix AMP

SCHOOL OF COMPUTING AND INFORMATION SCIENCES

ASSESSMENT MECHANISMS AND PROCEDURES of the Bachelor of Science in Computer Science

I. INTRODUCTION

The School of Computer and Information Sciences (SCIS) at Florida International University uses several mechanisms to assess the extent to which its undergraduate program outcomes and objectives are being met. Further, the School has defined procedures to evaluate the assessment results and to identify ways to improve its curriculum based on the assessment results, as deemed necessary and appropriate by its faculty.

SCIS currently uses four survey instruments:

1. Course Outcomes Survey by Students
2. Course Outcomes Survey by Instructors
3. Survey of Graduating Students
4. Survey of Alumni

Direct measure of attainment of the program outcomes is performed by assessment of student performance in the Senior Project course (Capstone course) taken in the students' final semester.

In addition to the data from the survey instruments and Senior Project assessment, SCIS seeks recommendations from other constituents of the BS in CS program, including the Industrial Advisory Board, Women in Engineering and Computer Science group, and the ACM student chapter.

II. ADMINISTRATIVE STRUCTURE

To administer and evaluate these assessments, SCIS has created an administrative structure that includes:

- the Undergraduate Program Director (UPD),
- the Assessments Coordinator (AC),
- the Subject Area Coordinators (SACs)

The Undergraduate Program Director is appointed by Dean of the School.
The Assessments Coordinator and the Subject Area Coordinators are appointed by the Undergraduate Program Director.

Each course in the BS in Computer Science program falls under one of five subject areas, each with its own SAC: Programming, Software Engineering, Computer Systems, Foundations, and Communication & Ethics. Each Subject Area Coordinator is responsible for writing an annual report detailing recommendations for modifications pertaining to all courses in their respective subject area.

The Assessments Coordinator is responsible for writing an annual report summarizing the recommendations of the SACs, and recommendations received from the other program constituents. The AC's report is submitted to the SCIS Undergraduate Committee for consideration.

On consideration of the AC and SAC reports, the SCIS Undergraduate Committee may subsequently make recommendations to the full SCIS faculty. Recommendations adopted by the SCIS faculty are implemented via the normal academic procedures of the university.

The Undergraduate Program Director bears the overall responsibility for assessing the undergraduate programs of the School as well as ascertaining that defined procedures are followed in a timely fashion.

III. ASSESSMENT INSTRUMENTS AND PROCEDURES

As indicated earlier, SCIS utilizes data from the survey instruments and Senior Project evaluation, and recommendations from its constituent groups, to assess whether the program outcomes and objectives of the BS in Computer Science program are being met. The details of these assessment mechanisms, and their application, are described below.

A. SURVEY INSTRUMENTS:

SCIS currently uses four survey instruments. All surveys are conducted online. The Associate Director for Computing Technologies is responsible for ensuring that meaningful statistics for each survey are available within a month after the semester concludes.

The student and instructor Course Outcomes Survey statistics are analyzed and reported in the annual reports of the Subject Area Coordinators.

The Graduating Students and Alumni survey statistics are analyzed and reported in the annual report of the Assessments Coordinator.

1. Course Outcomes Survey by Students

This survey is undertaken during the final two weeks of every semester.

Students of every class offered during the semester are asked to rate each course outcome from two perspectives by indicating the extent to which they agree or disagree with two assertions about that outcome:

- *I believe that this is a valuable outcome for this course*
- *The subject matter of this outcome was covered adequately in class*

Responses are given on a scale of 1 to 5 with 5 indicating strong agreement with the assertion, and 1 indicating strong disagreement. The students' responses from both perspectives, *value of outcome* and *adequacy of coverage*. are averaged across the class, individually for each outcome, and cumulatively for all outcomes

2. Course Outcomes Survey by Instructors

This survey is undertaken at the conclusion of every semester.

For each class offered during any semester, the instructor of the class completes a grid showing how course assignments and tests relate to the individual course outcomes. The instructor rates each course outcome from two perspectives:

- The *appropriateness* of the outcome is rated as one of *essential*, *appropriate*, or *inappropriate*.
- The in-class coverage of the outcome is rated as one of *extensively*, *adequately*, *not enough*, or *not at all*.

The instructor also provides ratings of the *relevance* and *student mastery* of the *course prerequisite outcomes*, and may choose to provide recommendations for additional prerequisite outcomes.

3. Survey of Graduating Students (Program Outcomes)

This survey is undertaken during the final two weeks of every semester.

The graduating student is asked to rate each of the BS in Computer Science (curricular) Program Outcomes, *a* through *j*, from 2 perspectives.

- The graduating student indicates the extent to which they agree or disagree with the following assertion:
- *This program outcome has been met for me personally*
- The graduating student indicates how meaningful they consider the outcome to be:
- *How meaningful do you consider this outcome to be for you personally?*

Program outcomes *k* and *l* relate to the success of the graduating student in finding CS-related employment, and admission to graduate school respectively. For each of these 2 outcomes, *k* and *l*, the student indicates how successful they have been, and how their CS education has contributed to that success.

Responses to all questions are given on a scale of 0 through 5, with 0 being least favorable, and 5 being most favorable, and are averaged across all students completing the survey.

4. Survey of Alumni (Program Objectives)

This survey is undertaken by graduates of the BS in Computer Science program, and is conducted every three years.

Alumni completing this survey are asked to provide ratings of the several facets of the BS in Computer Science Program Objectives under four broad areas:

- quality of Educational Experience (6 facets)
- quality of Faculty and Instruction (4 facets)
- quality of preparation in the Curricular Areas (4 facets)
- promotion of Diversity and Healthy Environment (4 facets)

Each facet is rated on a scale of 0 (Unsatisfactory) through 4 (Excellent). The ratings are averaged for each individual facet (18), for each area (4), and cumulatively across all facets.

B. RECOMMENDATIONS:

Periodically, we seek out recommendations for curricular changes from diverse bodies and interest groups. In all cases, curriculum modifications based on these recommendations will be included in the annual report submitted by the AC to the School's curriculum committee.

1) Industry Advisory Board (IAB)

The IAB of the School is expected to meet once a year to discuss among other things, how we can prepare our students better to face the current challenges in the field. The Dean of the School, the UPD, and the AC will review these formal and informal recommendations of the Board.

2) Women in Engineering and Computer Science (WIECS) group

The WIECS women's forum meets occasionally throughout the year under the leadership of a faculty member of the School. The problems faced by women in science areas of endeavor are unique, and we take the recommendations of this group to address their concerns about our curriculum and how can we assist them to perform better and attract more women into our program. The AC and the UPD review the recommendations of the group on an annual basis.

3) ACM Student Chapter

The members of our ACM Student Chapter meet periodically throughout the year. Recommendations made by this group through their faculty advisor are reviewed by the AC and the UPD on an annual basis.

C. SENIOR PROJECT

For the purpose of assessing the BS in CS Program Outcomes via the Senior Project, the UPD, in consultation with the faculty, constitutes an evaluation team(s) of at least 3 persons to include

1. The Senior Project course coordinator/instructor (faculty),

2. A second faculty member not associated with the project,
3. A non-faculty representative from the SCIS Industry Advisory Board, or person with similar experience nominated by the Board.

Several such teams may be constituted, based on the number of student projects to be evaluated.

The evaluation team observes the students' oral presentations and/or demonstrations of their project. The evaluation team has access to all artifacts produced by the student team to satisfy the requirements of the Senior Project course.

The evaluation team completes a suitable instrument to indicate their assessment of the extent to which the students' work demonstrates attainment of the BS in Computer Science Program Outcomes. The instrument includes rubrics to guide their evaluations. The instrument and included rubrics are published on the SCIS assessment web page.

The completed evaluations, together with the project artifacts, become components of the annual assessment process, and are maintained until at least the following ABET accreditation site visit.

IV. IMPLEMENTING CURRICULUM CHANGES:

The Assessment Coordinator's annual report is considered by the SCIS Undergraduate Committee. The UGC provides the SCIS faculty with a summary of recommendations for program adjustment.
The specific responsibilities of the various participants in the assessment process, and the timetable of assessment activities, are detailed in the companion document Assessment Plan of the Bachelor of Science in Computer Science.

Revised: April 12, 2009

Appendix AP

SCHOOL OF COMPUTING AND INFORMATION SCIENCES

ASSESSMENT PLAN
of the
Bachelor of Science in Computer Science

I. INTRODUCTION

The document, Assessment Mechanisms and Procedures, of the School of Computing and Information Sciences (SCIS), describes the means by which the School conducts the annual assessment of its BS in Computer Science program. The instruments employed for assessment, and the SCIS administrative structure for performing the assessment are described in that document.

The assessment mechanisms employed include

- Survey Instruments
    1. Course Outcomes Survey by Students
    2. Course Outcomes Survey by Instructors
    3. Survey of Graduating Students
    4. Survey of Alumni
- Recommendations from constituents
    1. Industry Advisory Board (IAB)
    2. Women in Engineering and Computer Science (WIECS)
    3. ACM Student Chapter
- Senior Project Assessment

The administrative structure for conducting the assessment comprises

- The Undergraduate Program Director (UPD)
- The Assessments Coordinator (AC)
- The Subject Area Coordinators (SACs)

The assessment procedures are performed by the SCIS Subject Area Coordinators and the SCIS Assessments Coordinator. Their findings are reported to the SCIS Undergraduate Committee for evaluation, resulting in a set of recommendations to the SCIS faculty.

This document, the SCIS Assessment Plan, defines the implementation of the entire assessment cycle. It specifies the roles of all participants in the process, and sets out a timetable for execution of those roles.

II. PARTICIPANTS

1) The Undergraduate Program Director (UPD)

The Undergraduate Program Director is appointed by the Dean of the School of Computing and Information Systems. The UPD bears overall responsibility for the administration of all SCIS undergraduate programs.

The role of the UPD relevant to the assessment process is

- To designate the chair of the SCIS Undergraduate Committee (below)
- To ensure that the assessment timetable is followed and that the procedures are otherwise executed as set forth in this document and in the Assessments Mechanisms and Procedures Document
- To document and implement program adjustments arising from the annual assessment process that are approved by the SCIS faculty and, if necessary College and University Curriculum Committees.

2) The Subject Area Coordinators (SACs)

The Subject Area Coordinators may be appointed by the UPD or elected by the SCIS faculty. Each SAC bears responsibility for a group of courses in the BS in Computer Science curriculum:

Foundations Subject Area courses:
MAD 2104, MAD 3512, COT 3420, COP 4555
List 2 electives: MAD 3305, MAD 3401, MAD 4203, MHF 4302

Programming Subject Area courses:
COP 2210, COP 3337, COP 3530, COP 4338

Software Engineering Subject Area courses:
CEN 4010, CEN 4012, CEN 4021, CEN 4023, CIS 4911

Computer Systems Area courses:
COP 3402, CDA 4101, COP 4540, COP 4610
List 1 electives: CAP 4710, CAP 4770, CDA 4400, CNT 4403,
CNT 451, COP 4225, COP 4226

Communications & Ethics Area courses:
CGS 1920, CGS 3092, COM 3011, ENC 3211

Calculus and Physics Area courses:
MAC 3311, MAC 3312, PHY 2048(L), PHY 2049(L), STA 3033

The role of a Subject Area Coordinator is:

- To maintain a common syllabus for each SCIS course in their area.
- To liaise with the academic unit teaching a non-SCIS course that is a required or elective course in the BS in CS program.
- To interpret the data from the Student and Instructor Course Outcomes surveys for each course in their area.
- To prepare an annual report presenting the findings from the course surveys, and to make recommendations based on these findings.

3) The Assessments Coordinator (AC)

The Assessments Coordinator is appointed by the SCIS Dean. The role of the AC is:

- To interpret the data from the Survey of Graduating Students, Senior Project assessment, and Alumni survey.
- To prepare the SCIS annual assessment report. The report presents the data from these assessment mechanisms and resulting findings and recommendations, and summarizes the recommendations from the several SAC annual reports.
- To monitor the BS in CS program for compliance with the ABET accreditation criteria.
- To prepare the ABET accreditation self-study report, and program documentation as may be required by ABET.

The Assessments Coordinator should not simultaneously be a Subject Area Coordinator, except for the Calculus and Physics area (liaison).

4) The Undergraduate Committee (UGC)

The Undergraduate Committee may be appointed by the SCIS Dean or elected by the SCIS faculty. The UGC Chair convenes and conducts all UGC meetings as necessary. The Undergraduate Program Director and Assessments Coordinator are ex-officio members of the Undergraduate Committee.

The UGC has the responsibility of considering proposed changes to the existing SCIS undergraduate courses and programs, and of making recommendations, based on these considerations, to the full SCIS faculty.

The role of the UGC in the assessment process specifically, is to consider the AC's annual assessment report. Each AC or SAC recommendation contained in the annual report is evaluated by the UGC. Where helpful, the UGC may require further input or clarification from the author (AC or SAC) of a recommendation. At the conclusion of their deliberations, the UGC chair prepares a summary of recommendations for presentation to the SCIS faculty. In the summary:

- The UGC may endorse an AC or SAC recommendation for adoption by the SCIS faculty.
- The UGC may endorse an AC or SAC recommendation and propose to the SCIS faculty a means of enacting the recommendation.
- The UGC may decline to act on a recommendation, setting forth reasons for its decision.
- The UGC may author its own recommendations to the SCIS faculty.

5) The SCIS Faculty

The SCIS faculty, collectively, has sole responsibility for promulgating and modifying its academic programs. The SCIS faculty approves or rejects any recommendations for adjustments to the BS in Computer Science program. Adoption of SCIS approved program adjustments may be subject to final approval of College and University Curriculum Committees.

III. SCHEDULE

1) Surveys

The schedule for administering Course Outcomes, Graduating Students and Alumni surveys is set out in the SCIS Assessment and Mechanisms document. All surveys are carried out on-line.

The SCIS Director for IT and Business Relations has the responsibility of ensuring that the data from any survey is available within one month of conclusion of the survey.

2) Senior Project Assessment

Student Senior Projects are presented at the end of every semester. The resulting assessment data are collected by the Senior Project coordinator and are available by the start of the following semester.

3) Subject Area Coordinator Annual Reports

The SAC annual reports cover the Spring, Summer, and Fall semesters of one calendar year. The SAC annual reports are made available to the Assessments Coordinator by the end of January of the following year.

4) Recommendations from Constituents

Recommendations from IAB, WEICS, ACM Chapter, or other constituent group are provided to the assessments Coordinator no later than the end of January of each year.

5) Assessment Coordinator Annual Report

The AC annual report incorporates data and recommendations from all of the sources listed above. The report covers the period of one calendar year and is made available to the Undergraduate Committee by the end of February of the following year.

6) Undergraduate Committee Summary of Recommendations

UGC meetings to consider the annual assessment report are conducted during the months of February, March and April. UGC concludes all deliberations, and the UGC summary of recommendations is made available to the SCIS faculty, no later than two weeks prior to the end of the Spring semester.

The UGC chair should prioritize recommendations for adjustments to the BS in CS program that require further approval by the College Curriculum Committee. The SCIS Dean and/or UPD should expedite SCIS faculty consideration of such recommendations, bearing in mind the deadlines of the College Curriculum Committee, and with a view to implementation at the start of the next academic year.

7) SCIS Faculty Assessment Meeting

The SCIS Dean convenes a meeting of the SCIS faculty to consider the UGC recommendations prior to the end of the Spring semester, but no sooner than one week following receipt of the UGC summary of recommendations. Should matters be left over from this meeting, such matters should be addressed during the first meeting of the full SCIS faculty in the following Fall semester.

IV. ENACTMENT

- UGC recommendations not requiring faculty approval must be enacted by the responsible entity, SAC or UPD, immediately and reported to the next meeting of the full SCIS faculty.

- UGC recommendations approved by the SCIS faculty during the Spring meeting, and not requiring further approval by the College, must be enacted by the UPD as soon as practicable, and by the start of the following Summer semester if at all possible.
- Recommendations approved by the SCIS faculty during the Fall meeting, and not requiring further approval by the College, must be enacted by the UPD as soon as practicable during the Fall semester.
- Recommendations for BS in CS program adjustments approved by the SCIS faculty, and subsequently approved by the College and/or University Committees, must be enacted at the earliest possible date following approval by the highest Committee.

The Undergraduate Program Director has overall responsibility for enactment of all program adjustments resulting from the annual assessment process. The UPD is charged with documentation and publication of program adjustments.

Revised: April 12, 2009

Appendix SPG

Senior Project
Assessment of BS in CS Program Outcomes
of the
School of Computing and Information Sciences
Florida International University

Project Title _____

Number of team members: _____ Semester & Year _____

Project origination: Industry ____ Faculty ____ Other (specify)_____

Date of observation:_____

Observation Team

Name	Affiliation
_____	_____
_____	_____
_____	_____

==========

Your responses to this survey instrument will be used solely for the purpose of assessing the program outcomes of the BS in Computer Science program of the School of Computing and Information Sciences at FIU. The survey is expressly NOT for assessment of student performance in the SCIS Senior Project course, nor for assessment of the instructor(s) of the course, and will not be construed as such.

For each Program Outcome, you are asked to indicate your assessment of the extent to which attainment of that outcome is demonstrated in this Senior Project. Please provide an assessment score from 1 to 5 on the following scale:

Rating	Criterion
5	The project provides **excellent** indication of attainment of this outcome
4	The project provides a **good** indication of attainment of this outcome
3	The project provides **fair** indication of attainment of this outcome
2	The project provides **minimal** indication of attainment of this outcome
1	The project provides **zero** indication of attainment of this outcome
0	The project does not address this particular outcome, (i.e. N/A)

In order to assist you in your evaluation, a number of checkpoints are provided for each program outcome. These are not exhaustive and you are not limited to solely these checkpoints. You should apply any others that you observe, but please do list them.

Program Outcome *(a)*: *Demonstrate proficiency in the foundation areas of Computer Science including mathematics, discrete structures, logic and the theory of algorithms*

_____ Project utilized some knowledge of mathematics

_____ Project utilized some statistical techniques

_____ Project utilized some elements of computational or mathematical logic

_____ Project utilized some aspects of theoretical computer science (e.g. automata)

_____

Program Outcome *(b)*: *Demonstrate proficiency in various areas of Computer Science including data structures and algorithms, concepts of programming languages and computer systems*

_____ Project demonstrated knowledge of data structures

_____ Project demonstrated knowledge of algorithmic development

_____ Project demonstrated knowledge of programming language concepts

_____ Project demonstrated knowledge of computer systems

_____

Program Outcome *(c)*: *Demonstrate proficiency in problem solving and application of software engineering techniques*

_____ Project objectives were clearly specified and analyzed

_____ Project evidenced consideration of design alternatives

_____ Project utilized sound implementation techniques

_____ There is evidence that the implementation was tested and/or evaluated

_____

Program Outcome *(d)*: *Demonstrate mastery of at least one modern programming language [and proficiency in at least one other]*

_____ Project was implemented using a modern programming language

_____ Code is modular and/or reusable and documented

_____ Code appears to be reasonably efficient rather than “brute force”

_____ Code is understandable and meets specifications

_____

Program Outcome *(e)*: *Demonstrate understanding of the social and ethical concerns of the practicing computer scientist*

_____ Project documents sources and references

_____ Project identifies and addresses any relevant ethical issues

_____ Project identifies and addresses any relevant social issues

_____ Project documents anticipated impact on users and/or clients

_____

Program Outcome *(f)*: *Demonstrate the ability to work cooperatively in teams*

_____ Project evidences equitable participation by team members

_____ Project team members negotiated consensus and/or compromise

_____ Project team set out and followed a schedule for timely completion

_____ Project team activity is documented

_____

Program Outcome *(g)*: *Demonstrate effective communication skills*

_____ Student's presentations captured the essential features of their project

_____ Project artifacts communicate and/or project essentials

_____ Project reports are well organized and written

_____ Students are able to communicate their ideas to a non-CS audience

_____

Program Outcome *(j)*: *Have experience with contemporary environments and tools necessary for the practice of computing*

_____ Contemporary design tools were utilized in the project

_____ Project implementation utilized a modern IDE

_____ Automated validation/testing tools were employed

_____ Appropriate presentation aids were used to demonstrate/present the project

_____

Your further observations re attainment of the BS in CS program outcomes **evidenced in this project** would be appreciated.

_____

_____

_____

_____

_____

Outcomes Assessment via Senior Project

BS in CS: Program Outcomes		Rating
a)	Demonstrate proficiency in the foundation areas of Computer Science including mathematics, discrete structures, logic and the theory of algorithms	
b)	Demonstrate proficiency in various areas of Computer Science including data structures and algorithms, concepts of programming languages and computer systems	
c)	Demonstrate proficiency in problem solving and application of software engineering techniques	
d)	Demonstrate mastery of at least one modern programming language and proficiency in at least one other.	
e)	Demonstrate understanding of the social and ethical concerns of the practicing computer scientist.	
f)	Demonstrate the ability to work cooperatively in teams.	
g)	Demonstrate effective communication skills.	
j)	Have experience with contemporary environments and tools necessary for the practice of computing.	