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APPENDIX A-1: BS in CS *Program Educational Objectives* – Effective Fall 2015

https://abet.cs.fiu.edu/csassessment/bs-cs-program-objectives-outcomes/

Program Educational Objectives for the BS in CS Program

Graduates of the BS program in Computer Science or Information Technology will

1. Be successful in applying for entry level professional positions in computing-related fields, or for admission to graduate programs.

2. Be prepared for career accomplishment, responsibility and advancement in computing-related professions by virtue of having received in the BS program

    2.1.   A high-quality technical education in computing,
    2.2.   Communication and team-work skills,
    2.3.   Awareness of the ethical and social responsibilities of their profession,
    2.4.   An ability to engage in continued professional development activities.

APPENDIX A-2: BS in CS *Student Outcomes* – Effective Fall 2015

https://abet.cs.fiu.edu/csassessment/bs-cs-program-objectives-outcomes/

Student Outcomes for BS in CS Program

Graduates of the BS program in Computer Science will attain, by the time of graduation

(a) An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline.

(b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.

(c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.

(d) An ability to function effectively on teams to accomplish a common goal.

(e) An understanding of professional, ethical, legal, security and social issues and responsibilities.

(f) An ability to communicate effectively with a range of audiences.

(g) An ability to analyze the local and global impact of computing on individuals, organizations, and society.

(h) Recognition of the need for and an ability to engage in continuing professional development.

(i) An ability to use current techniques, skills, and tools necessary for computing practice.

(j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.

(k) An ability to apply design and development principles in the construction of software systems of varying complexity.

APPENDIX B-1: BS in CS *Assessment Plan*

SCHOOL OF COMPUTING AND INFORMATION SCIENCES
ASSESSMENT PLAN
of the
Bachelor of Science in Computer Science Program

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 biennial 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. These means include:

- Survey Instruments
    1. Course Outcomes Survey by Students
    2. Course Outcomes Survey by Instructors
    3. Survey of Graduating Students
    4. Survey of Alumni
    5. Survey of IAB members and Employers

- Recommendations from constituents
    1. Industry Advisory Board (IAB)
    2. Women in Engineering and Computer Science (WIECS)
    3. ACM Student Chapter
    4. Students in Technology, Academia, Research, and Service Group (STARS)
    5. Upsilon Pi Epsilon (UPE)
    6. Programming Team
    7. Google Developers Students Club

- Direct Measures
    1. Senior Project Assessment
    2. Course-Embedded 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 Director of SCIS. 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 biennial 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. In this evaluation cycle, a new Subject Area, Applications, is introduced. Each SAC bears responsibility for a group of courses in the BS in Computer Science curriculum:

Applications Subject Area courses:
- CAP 4052, CAP 4104, CAP 4612, CAP 4630, CAP 4641, CAP 4710, CAP 4770, CAP 4830.
Computer Organization Subject Area courses:
- CDA 3102, CDA-3103, CDA-4101, CNT-4713, COP-4610.
Computer Systems Subject Area courses:
- CAP 4453, CDA 4625, CEN-4083, CIS 4731, COP-4604, COP-4710, COT-4431.
Foundations Subject Area courses:
- CAP 4506, COP 4534. COP 4555, COT 3100, COT 3510, COT 3541, COT 4521.
  Math Courses: (MAC 2311, MAC 2312), MAD-2104, MAD 3305, MAD 3401, MAD-3512, MAD 4203, MHF 4302.
Professional Development Subject Area courses:
- CGS-1920, CGS-3095, ENC-3249, (STA 3033, PHY 2048, PHY 2049).
Programming Subject Area courses:
- COP-2210, COP-3337, COP-3530, COP-4338, COP-4226, COP-4520.
Senior/Capstone Project Subject Area Courses:
- CIS 3950, CIS 4911, CIS 4951, IDS 4918.
Software Engineering Subject Area courses:
- CEN-4010, CEN-4021, CEN-4072.

The above lists will be modified as and when needed to reflect the changing requirements of the Program or addition of new area-specific courses. The UPD and SACs will be responsible to suggest these area-specific modifications.

The role of a Subject Area Coordinator is:

- To maintain a common syllabus for each SCIS course in their area.
- To maintain the instruments and rubrics for course-embedded assessment 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 a biennial 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 Director. 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 biennial assessment report every odd year (2013-14). The report presents the data from these assessment mechanisms and resulting findings and recommendations, and summarizes the recommendations from SAC 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 Director 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 biennial assessment report. Each AC or SAC recommendation contained in the biennial 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) Direct Measures Assessment
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. Data from the course-embedded assessments are prepared by the SAC's and are made available by the start of the next semester.

3) Subject Area Coordinator Biennial Reports
The SAC biennial reports cover the Summer, Fall, and Spring semesters of two previous years. These reports are made available to the Assessments Coordinator by the end of September of every odd year.

4) Recommendations from Constituents
Recommendations from IAB, WIECS, ACM Chapter, or other constituent group are provided to the assessments Coordinator no later than the end of September of every odd year.

5) Assessment Coordinator Biennial Report
The AC biennial report incorporates data and recommendations from all of the sources listed above. The report covers the period of two years (six semesters) and is made available to the Undergraduate Committee by the end of the Fall term of every odd year.

6) Undergraduate Committee Summary of Recommendations
UGC meetings to consider the biennial assessment report are conducted during the first two months of the Spring term of every even year. UGC concludes all deliberations, and the UGC summary of recommendations is made available to the SCIS faculty by the end of February of every even year.

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 Director 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 Director convenes a meeting of the SCIS faculty to consider the UGC recommendations prior to the end of the Spring semester of every even year, if practical, 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 considered by the responsible entity, SAC or UPD, immediately and reported to the next meeting of the full SCIS faculty. The Director or the Associate Director of the School may veto such recommendations if they are deemed to be impractical to implement.
- UGC recommendations approved by the SCIS faculty, 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 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 assessment process. The UPD is charged with documentation and publication of program adjustments.

Revised: February 19, 2015 [Subject Areas and List of Constituents are modified]

APPENDIX B-2: BS in CS *Assessment Mechanisms & Procedures*

SCHOOL OF COMPUTING AND INFORMATION SCIENCES
ASSESSMENT MECHANISMS AND PROCEDURES
of the
Bachelor of Science in Computer Science Program

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 five survey instruments:
1. Course Outcomes Survey by Students
2. Course Outcomes Survey by Instructors
3. Survey of Graduating Students
4. Survey of Alumni
5. Survey of IAB members and Employers

Direct measure of attainment of the Program Educational Objectives 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, Students in Technology, Academia, Research, and Service 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 Director 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 eight subject areas, each with its own SAC: Applications, Computer Organization, Computer Systems, Foundations, Professional Development, Programming, Software Engineering, and Project. Each Subject Area Coordinator is responsible for writing a

biennial report detailing recommendations for modifications pertaining to all courses in their respective subject area.

The Assessments Coordinator is responsible for writing a biennial 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 five survey instruments. All surveys are conducted online. The SCIS Director for IT and Business Relations is responsible for ensuring that meaningful statistics for each survey are available within a month after the survey period concludes.

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

The Graduating Students and Alumni survey statistics are analyzed and reported in the biennial 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 (Student Outcomes)

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

The graduating student is asked to rate each of the BS in Computer Science (curricular) Student Outcomes *a* through k, from two 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 Educational Objectives *i and j* 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, *i* and *j*, 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 Educational Objectives)

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

Alumni completing this survey are asked to provide ratings of the several facets of the BS in Computer Science Program Educational 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.

5. Survey of Employers (Program Educational Objectives)

This survey is undertaken by employers of students who received their BS in CS degree from our School. It is conducted once every two years.

Employers completing this survey are asked to provide ratings of our students' performance and abilities that are included in the Program Educational Objectives. These are:

- mastery of the fundamental computer science concepts and problem solving using them
- ability to communicate verbally
- ability to communicate in written form
- ability to work cooperatively in a team
- understanding of social and ethical concerns of a practicing computer scientist
- ability to learn emerging and new concepts and technologies

Each aspect is rated on a scale of 0 (Poor) through 4 (Excellent). Average ratings are used for assessment purposes.

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 biennial 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 twice a year to discuss among other things, how we can prepare our students better to face the current challenges in the field. The Director 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 a biennial 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 a biennial basis.

4) Students in Technology, Academia, Research, and Service (STARS) group:

The members of STARS meet periodically throughout the year. Recommendations made by this group through their faculty advisor are reviewed by the AC and the UPD on a biennial basis.

5) Upsilon Pi Epsilon:

The members of UPE meet periodically throughout the year. Recommendations made by this group through their faculty advisor are reviewed by the AC and the UPD on a biennial basis.

6) Programming Team:

The members of Programming Team meet periodically throughout the year. Recommendations made by this group through their faculty advisor are reviewed by the AC and the UPD on a biennial basis.

7) Google Developers Student Club:

This is a new Student Club that began operating during 2019-2021 Assessment Period. The members of GDSC meet periodically throughout the year. Recommendations made by this group through their faculty advisor are reviewed by the AC and the UPD on a biennial basis.

C. DIRECT MEASURES

1. Senior Project Assessment

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

1. The Senior Project course coordinator/instructor (faculty), and
2. A second faculty member not associated with the project.

A third member may be added for this assessment from time-to-time depending on the subject matter of the project. This person is typically, 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 members of the evaluation team complete a suitable instrument to indicate their assessment of the extent to which the students' work demonstrates attainment of the BS in Computer Science Program Educational Objectives. The instrument includes rubrics to guide their evaluations. The instrument and included rubrics must be published.

The completed evaluation instruments, together with the project artifacts, become components of the assessment process, and must be maintained until at least the following ABET accreditation site visit.

2. Course-Embedded Assessment

In addition to assessment via the Senior Project, the Undergraduate Program Director and Assessments Coordinator, in consultation with the relevant Subject Area Coordinators, may designate courses for sampling of student work (exams and/or projects), for the purpose of assessing attainment of Student Outcomes. The particular

courses to be sampled may be determined from semester to semester. The Subject Area Coordinators will maintain suitable sampling mechanisms and rubrics for assessment of Student Outcomes via the courses in their areas.

IV. IMPLEMENTING CURRICULUM CHANGES:

The Assessment Coordinator's biennial written report is submitted to the SCIS Undergraduate Committee by the end of Fall term of every odd year. The report includes recommended curriculum modifications based on all of the assessment mechanisms. The SCIS Undergraduate Committee completes all internal deliberations in the School by the end of February of every even year. The SCIS faculty considers these recommendations by the end of the Spring term of every even year if practical. In the worst case, the faculty considers them in early Fall term of every even year. The faculty approved changes in our curriculum are submitted to the College Curriculum Committee at the earliest possibility. The University approved curriculum modifications are implemented no later than in the subsequent Fall semester.

Revised: February 19, 2015 [Recommendations and Senior Project Assessment sections are modified to include the changes occurred as well as practice observed.]

Applications Subject Area Coordinator Report
Leonardo Bobadilla
October 15, 2021

Introduction:
The Applications area consists of the following eight courses with syllabi links:

CAP-4052 Introduction to Game Design & Development
CAP-4104 Human-Computer Interaction
CAP-4612 Introduction to Machine Learning
CAP-4630 Artificial Intelligence
CAP-4641 Natural Language Processing
CAP-4710 Principles of Computer Graphics
CAP-4770 Introduction to Data Mining
CAP-4830 Fundamentals of Modeling & Simulations

The assessment report given below for all other courses is based on student responses about the course outcomes and the faculty course appraisals.

1. CAP-4052 Introduction to Game Design & Development
The course has not been offered during the evaluation period.
Recommendation: The course should be offered more often.

2. CAP-4104: Human-Computer Interaction
The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	0	0.00	0.00	
Spring 2020	0	0.00	0.00	
Summer 2020	0	0.00	0.00	
Fall 2020	0	0.00	0.00	
Spring 2021	8	4.39	4.34	lisetti
	=======	=======	=======	
Total	8	4.39	4.34	Weighted Avg

The course has been only taught once in the evaluation period. For all seven outcomes of the course, most of the students (more than 80%) agree strongly or moderately. Students generally found the content of the class valuable and enjoyable. However, the instructor expressed a concern related to the preparation and time availability of the students.

Recommendation: The course should be offered more often. Perhaps the instructor should suggest some prerequisites to ensure students are better prepared before taking the class.

3. **CAP-4630 Introduction to Machine Learning**
The course has not been offered during the evaluation period.
Recommendation: The course should be offered more often.

4. **CAP-4630 Artificial Intelligence**

The following table shows a summary of the course assessment evaluations:

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	2	3.50	3.00	jabobadi
Spring 2020	0	0.00	0.00	
Summer 2020	0	0.00	0.00	
Fall 2020	4	5.00	4.83	jabobadi
Spring 2021	0	0.00	0.00	
	======	=====	======	
Total	6	4.50	4.22	Weighted Avg

For all five outcomes of the course, most of the students agree either strongly or moderately. The course went through a revision modification by the instructor based on the feedback of the students. This substantially improve the outcomes and the flow of the course as determined by the evaluations.

Recommendation: As suggested by some students, the number of questions in exams can be reduced.

5. **CAP-4641: Natural Language Processing**

The following table shows a summary of the course assessment evaluations:

CAP 4641	Natural Language Processing		
	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	0	0.00	0.00	
Spring 2020	1	4.75	4.00	aacharya
Summer 2020	0	0.00	0.00	
Fall 2020	0	0.00	0.00	
Spring 2021	5	4.00	3.12	aacharya
	=======	=======	=======	
Total	6	4.13	3.27	Weighted Avg

For all four outcomes of the course, most of the students agree either strongly or moderately. There were some concerns about the coverage adequacy.

Recommendation: A student mentioned that it would be good to cover practical aspects of the subject. That seems to be a valid suggestion

6. **CAP-4710: Principles of Computer Graphics**

The following table shows a summary of the course assessment evaluations:

CAP-4710	Principles of Computer Graphics		
	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	0	0.00	0.00	
Spring 2020	1	2.88	2.86	wzeng
Summer 2020	0	0.00	0.00	
Fall 2020	0	0.00	0.00	
Spring 2021	1	5.00	5.00	kgholami
	=======	=======	=======	

Total	2	3.94	3.93	Weighted Avg

An student had some comments about the lack of guidance for certain topics from the Spring 2020 instructor. The situation seem to improve with the change of instructor in Spring 2021.There were no concerns from the instructor appraisals.

Recommendation: No change in the curriculum or outcomes is suggested.

7. CAP-4770: Introduction to Data Mining

The following table shows a summary of the course assessment evaluations:

CAP-4770	Introduction to Data Mining			
	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	1	5.00	5.00	antherna
Fall 2019	1	5.00	5.00	antherna
Spring 2020	0	0.00	0.00	
Summer 2020	1	5.00	5.00	antherna
Fall 2020	2	5.00	4.92	antherna
Spring 2021	3	4.28	4.22	
	=======	=======	=======	
Total	8	4.73	4.69	Weighted Avg

For all outcomes of the course, most of the students agree strongly. There were no concerns from the students.

Recommendation: No change in the curriculum or outcomes is suggested.

8. CAP-4830 Fundamentals of Modeling & Simulations

The following table shows a summary of the course assessment evaluations:

CAP-4830	Fundamentals of Modeling & Simulations			
	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	0	0.00	0.00	
Spring 2020	0	0.00	0.00	
Summer 2020	0	0.00	0.00	
Fall 2020	0	0.00	0.00	
Spring 2021	4	4.53	4.60	rwhittak
	=======	=======	=======	
Total	4	4.53	4.60	Weighted Avg

For all outcomes of the course, most of the students agree strongly. No major concerns from students.

Recommendation: No change in the curriculum or outcomes is suggested.

Overall observation: Student participation in the course evaluation system since Summer 2019 is consistently low. This may be due to the migration of the evaluation process to fully online mode after Spring 2018. Perhaps students who complete course evaluation before the final exam week, may be given preference in advising, student workshop registrations, etc.

Computer Organization: Subject Area Coordinator Report
Dong Chen
November 14, 2021

Introduction:

The Computer Organization area consists of the following five courses with syllabi links:
CDA-3102 Computer Architecture
CNT-4713 Net-Centric Computing
COP-4610 Operating Systems Principles

CDA-3102 is a new course to replace CDA-3103 and CDA-4101. Since CDA-3102 was offered only from Fall 2020, there is no evaluation from Summer 2019 to Summer 2020. COP-4713 was not provided in summer 2020 and fall 2020, so there is not evaluation for these two semesters. The assessment report given below is based on student responses about the course outcomes and the faculty course appraisals.

1. **CDA-3102: Computer Architecture**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	N/A	N/A	N/A	
Fall 2019	N/A	N/A	N/A	
Spring 2020	N/A	N/A	N/A	
Summer 2020	N/A	N/A	N/A	
Fall 2020	1	3.71	4.29	tcickovs
Spring 2021	46	4.39	4.36	Tcickovs, crahn, milani
	=======	=======	=======	
Total	47	4.37	4.36	Weighted Avg

For all five outcomes of the course, most of the students (80%) agree either strongly or moderately. There is no significant concern expressed by the students or faculty.

Recommendation: Continue the use interactive textbooks (Zybooks) and in the new course CDA-3102 since ZyBooks was helpful in improving student learning.

2. **CNT-4713: Net-Centric Computing**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	3	4.95	2.81	rbalm001
Fall 2019	4	3.36	3.51	downeyt, afanasyev
Spring 2020	3	2.33	2.33	rbalm001, afanasyev
Summer 2020	N/A	N/A	N/A	
Fall 2020	N/A	N/A	N/A	

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Spring 2021	9	4.56	4.35	downeyt, afanasyev
	=======	=======	=======	
Total	19	4.02	3.61	Weighted Avg

For all seven outcomes of the course, most of the students (more than 80%) agree either strongly or moderately. There is no significant concern expressed by the students or faculty.

Recommendation: No change is needed on the course outcomes or syllabus.

3. **COP-4610: Operating Systems Principles**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	5	4.56	4.56	osorioj
Fall 2019	8	4.88	4.31	dochen, kgholami, raju
Spring 2020	3	4.53	4.53	kgholami
Summer 2020	3	5.00	4.86	osorioj, kgholami
Fall 2020	1	5.0	5.0	raju
Spring 2021	16	4.54	4.59	kgholami, xinchen, emonte02, raju
	=======	=======	=======	
Total	36	4.67	4.55	Weighted Avg

For all five outcomes of the course, most of the students (more than 90%) agree either strongly or moderately. There is no significant concern expressed by the students or faculty.

Recommendation: No change is needed on the course outcomes or syllabus.

Overall observation: Student participation in the course evaluation system since Summer 2019 is consistently low. This may be due to the migration of the evaluation process to fully online mode after Spring 2018 and Covid-19 pandemic. Perhaps students who complete course evaluation before the final exam week, may be given preference in advising, student workshop registrations, extra credits, etc. Also, the Covid-19 pandemic has some impact on students' course preparation and faculty's course delivery format. Continuing to provide interactive textbooks or Zoom videos might reduce the impacts and help improve student learning.

Computer Programming: Subject Area Coordinator Report

Janki Bhimani

September 27, 2021

Introduction:

The Computer Programming area consists of the following six courses with syllabi links:

1. **COP-2210 - Computer Programming I,**
2. **COP-3337 - Computer Programming II,**
3. **COP-3530 – Data Structures,**
4. **COP-4226 - Advanced Windows Programming,**
5. **COP-4338 – Systems Programming,**
6. **COP-4520 - Introduction to Parallel Computing**

1. **COP-2210**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	8	4.71	4.75	charters
Fall 2019	7	4.67	4.08	antherna, dledavis, shawg, rwhittak
Spring 2020	4	4.98	4.82	Rwhittak, spisano
Summer 2020	11	4.59	4.40	Rwhittak, charters, kgholami
Fall 2020	2	4.60	4.60	rwhittak
Spring 2021	27	4.82	4.71	Rwhittak, spisano
	=======	=======	=======	
Total	59	4.75	4.59	Weighted Avg

For all ten outcomes of the course, most of the students (80%) agree either strongly or moderately. There is no significant concern expressed in the Students Suggestions section.

Recommendation: Continue the use interactive textbooks (Zybooks) and ZyLabs along with the lectures handouts, since they were helpful in improving student learning.

2. **COP-3337**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	10	4.42	3.76	Smithjo, crahn, kgholami
Fall 2019	8	4.64	4.05	rwhittak, shawg, wfeildjr, crahn, fsaeed
Spring 2020	15	3.71	3.54	shawg, smithjo, wfeildjr, Navlakha, crahn

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2020	4	4.85	3.43	Smithjo, crahn, rwhittak
Fall 2020	7	3.61	2.61	Shawg, kgholami
				kgholami, rwhittak, smithjo,
Spring 2021	32	4.60	4.38	charlyne, crahn, fsaeed
	=======	=======	=======	
Total	76	4.33	3.89	Weighted Avg

For all ten outcomes of the course, most of the students (more than 80%) agree either strongly or moderately. Students expressed a big learning gap between Programming 1 and 2. Many students find Programming 2 much more tougher than Programming 1.

Recommendation: No change is needed on the course outcomes or syllabus.

3. **COP-3530**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	4	4.93	4.75	abajuelo
Fall 2019	10	4.92	4.43	abajuelo, antherna
Spring 2020	5	4.63	4.54	Abajuelo, antherna
Summer 2020	2	4.43	4.57	abajuelo
Fall 2020	4	3.79	2.85	Abajuelo, smithjo
				antherna, kgholami,
Spring 2021	27	4.47	4.34	abajuelo, jbhimani
	=======	=======	=======	
Total	52	4.55	4.30	Weighted Avg

For all seven outcomes of the course, most of the students (more than 80%) agree either strongly or moderately. Students expressed that half-semester format is a rather tight timeframe for this class, so term A and B should be avoided given the high importance of this course towards career making in computer software.

Recommendation: No change is needed on the course outcomes or syllabus.

4. **COP-4226**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	2	4.94	4.94	downeyt
Spring 2020	0	0.00	0.00	
Summer 2020	0	0.00	0.00	
Fall 2020	1	4.12	4.12	kgholami

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Spring 2021	0	0.00	0.00	
	=======	=======	=======	
Total	3	4.67	4.67	Weighted Avg

For all eight outcomes of the course, most of the students (more than 80%) agree either strongly or moderately. There is no significant concern expressed by the students or faculty.

Recommendation: No change is needed on the course outcomes or syllabus.

5. **COP-4338**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	7	4.04	3.00	crahn, kgholami
Fall 2019	8	4.45	3.80	Crahn, liux
Spring 2020	4	4.64	4.57	Kgholami, Crahn
Summer 2020	1	5.00	4.43	Crahn
Fall 2020	2	4.36	4.07	caralons, crahn
Spring 2021	34	4.05	3.42	caralons, kgholami, Crahn
	=======	=======	=======	
Total	56	4.18	3.54	Weighted Avg

For all seven outcomes of the course, most of the students (more than 80%) agree either strongly or moderately. Students requested to have more online sessions for this course and reduce homeworks.

Recommendation: No change is needed on the course outcomes or syllabus.

6. **COP-4520**
The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	0	0.00	0.00	
Spring 2020	0	0.00	0.00	
Summer 2020	0	0.00	0.00	
Fall 2020	0	0.00	0.00	
Spring 2021	0	0.00	0.00	
	=======	=======	=======	
Total	0	0	0	Weighted Avg

Recommendation: N/A

Foundations Subject Area Coordinator Report
Mohammadhadi Amini
October, 2021

Introduction:

The Computer Organization area consists of the following five courses with syllabi links:
CAP-4506 Introduction to Game Theory
COP-4534 Algorithm Techniques
COP-4555 Principles of Programming Languages
COT-3100 Discrete Structures
COT-3510 Applied Linear Structures for Computing
COT-3541 Logic for Computer Science
COT-4521 Introduction to Computational Geometry

COT-3510 is a new course. Since COT-3510 is being offered only from Fall 2021, there is no evaluation for this course. The assessment report given below for all other courses are based on student responses about the course outcomes and the faculty course appraisals.

1. **CAP-4506: Introduction to Game Theory**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019				
Fall 2019				
Spring 2020				
Summer 2020				
Fall 2020	3			rwhittak
Spring 2021	1			rwhittak
	=======	=======	=======	
Total	4	0.00	0.00	Weighted Avg

The evaluations for this course were not available. However, the only comment from the four participants in the survey was very positive.

Recommendation: The instructor may encourage students to participate in survey. Also, the course appraisals by instructor could be beneficial.

2. **COP-4534: Algorithm Techniques**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019				
Fall 2019	1	5.00	4.67	nxie
Spring 2020	1	5.00	5.00	amondal
Summer 2020				
Fall 2020	1	5.00	5.00	nxie
Spring 2021	1	4.67	4.33	antherna

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=======        =======    =======
```
Total   4   4.92   4.75   Weighted Avg

For all outcomes of the course, most of the students agree either strongly or moderately. No concerns expressed by students.There is one concern expressed by the faculty.

The faculty expressed some concerns about students' preparation. Below is the instructor feedback: "Students generally lack background in basic discrete probability theory. It would be great to add some probability theory materials to the "Discrete Math" course."; "Students generally lack background in basic discrete probability theory. Their preparation in combinatorics is not satisfactory either. It would be great to add some probability theory materials and let students practice more on basic combinatorics problems in the "Discrete Structures" course.", as well as "In general, the students' preparation for taking this course was: Deficient".

Recommendation: An introductory lecture with for probability theory would be helpful.

3. **COP-4555: Principles of Programming Languages**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019				
Fall 2019	10	4.60	4.40	gmuradre,navlakha
Spring 2020	6	4.86	4.95	downeyt
Summer 2020				
Fall 2020	5	5.00	5.00	kgholami
Spring 2021	11	4.32	3.97	downeyt
	=======	=======	=======	
Total	32	4.61	4.45	Weighted Avg

For all six outcomes of the course, most of the students (more than 80%) agree either strongly or moderately. There is a concern expressed by the students who have taken the course in Spring 2021 regarding the assignments and time that was assigned for each homework. Instructors recommended more strong basic math background, "The mastery of students for COP-3530: Basic mathematical maturity is Deficient"

Recommendation: The instructors are recommended to briefly review the COP3530 necessary materials during the first part of the course. No change is needed on the course outcomes or syllabus. (COP3530 is already a prerequisite.)

4. **COT-3100: Discrete Structures**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	6	4.69	4.69	rwhittak,kgholami
Fall 2019	6	4.93	4.84	moamini,rwhittak
Spring 2020	8	4.38	3.91	abajuelo,rwhittak
Summer 2020	4	4.64	4.18	abajuelo,rwhittak

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Fall 2020	5	4.69	4.61	abajuelo,rwhittak
Spring 2021	63	4.82	3.86	rwhittak
	=======	=======	=======	
Total	92	4.77	4.04	Weighted Avg

For all seven outcomes of the course, most of the students (more than 80%) agree either strongly or moderately. There is no significant concern expressed by the students or faculty, except for one of the online sessions that students asked for more time for the exams. Zybooks lends itself as a valuable resource. Some instructors raised the concern for deficient skills in MAC-1105, COP-2210 , and/or COP-2250 during the first week of the semester. Instructors are encouraged to evaluate the students' understanding of the prerequisite materials during the first week of semester and provide additional resources to student who have lack of required knowledge.

Recommendation: No change is needed on the course outcomes or syllabus.
As some instructors raised the concern for deficient skills in MAC-1105, COP-2210, and/or COP-2250 during the first week of the semester; Instructors are encouraged to evaluate the students' understanding of the prerequisite materials during the first week of semester and provide additional resources to student who have lack of required knowledge.

Overall observation: Given the high registration for this course, student participation in the course evaluation system since 2019 is consistently low. Perhaps students who complete course evaluation before the final exam week, may be given preference or receive incentives to encourage them for participating in evaluation.

5. **COT-3510: Applied Linear Structures for Computing**

COT-3510 is a new course. Since COT-3510 is being offered only from Fall 2021, there is no evaluation for this course. The assessment report given below for all other courses is based on student responses about the course outcomes and the faculty course appraisals.

6. **COT-3541 Logic for Computer Science**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	4	4.44	4.33	abajuelo
Fall 2019	8	4.56	4.88	abajuelo
Spring 2020	5	4.50	4.40	
Summer 2020	1	3.75	3.75	abajuelo
Fall 2020	1	5.00	4.00	
Spring 2021	4	4.82	3.84	
	=======	=======	=======	
Total	23	4.56	4.41	Weighted Avg

For all four outcomes of the course, most of the students (more than 80%) agree either strongly or moderately. There is no significant concern expressed by the students or faculty. There is a concern regarding the required theory for this course mentioned by a student: "However, I find it difficult that adding an additional layer of complexity when explaining the course makes it more difficult when grasping the concept being taught.". Also, one instructor suggested multiple times to add this course to mandatory courses.

Recommendation: No change is needed on the course outcomes or syllabus.

7. **COT-4521 Introduction to Computational Geometry**

No evaluations were available for this course for this evaluation period.

Appendix: Comments from students for the Foundations Courses

CAP 4506	
Fall 2020	1) I really enjoyed this course and I liked the way it was conducted. Professor Whittaker made sure not to burden us with tedious lectures or too many assignments but instead utilized class time to address our concerns with the material and to have guided discussions that related the topics we learned to the real world. This was very engaging and showed how he cares for his students. The exams and homework were well-spaced out, and the reviews he provided were more than enough to prepare for them.
Spring 2021	NA

COP 4534	
Spring 2020	1) The first question on the final, while being very simple had way too many branches and required a lot of attention and planning that ended up cutting into the time I needed for the other problems. I would suggest making a version with less nodes to reduce the amount of wasted dead ends.
Spring 2021	1) This is a great class, definitely challenging but the knowledge we gain here is super valuable, not only to keep growing our problem-solving skills but is also to train for job interviews. 2) I strongly disagree with this instructor's hiding of previous quiz answers for the entirety of the semester and requiring students to attend office hours to see what answers they did not answer correctly. There is no way for students to learn from their mistakes if they cannot review what mistakes were made when they are unable to attend office hours. I, and maybe others, could have performed better in this course if we had had the opportunity to review our previous quiz answers and to learn from them.

COP 4555	
Fall 2019	1) To elaborate on the homework question above, I wish there was more homework assigned that focused on a specific topic learned for more practice. 2) The class would've been a greater learning experience if F# was taught earlier in the course instead of the last half including more and harder homework assignments related to the language. Even an end of a semester project would prove valuable for many CS students to add to their resume or for their future interviews. It keeps us competitive with other universities. Students will also be able to gain a better understanding of what functional programming is and how to use it to their advantage. Additionally, the content studied in the first half is what should've been already learned in Theory of Algorithms and maybe could've been just a brief overview. It was content that wasn't really put into practice even though the class itself is meant to be about programming. It would also be beneficial to even try out to create our own programming language as an end of semester project. Overall, the class should either be made harder or an elective.
Fall 2020	1) Professor Reis was an excellent instructor and I thoroughly enjoyed this class. He made sure that class was engaging and that the lectures were well planned out and covered every topic. Homework and exams were well spaced out and not overly difficult. Professor Reis was very fair and accommodating throughout the semester, and it was clear he always put his students first. 2) He is the best teacher in the entire school. Period
Spring 2020	1) This is by far the best course I have taken at FIU mostly due to the instructor. 1) Great class. Balanced amount of work. Well organized class. 2) Professor Reis was a great professor and was really fair during these difficult times. My only suggestion is it would be cool if he showed a more real world example when covering syntax and lexical analysis using something like a simplified compiler. He did a great job covering this module, though so this is a minor suggestion.
Spring 2021	1) My only issue with the course was the short amount of time that we had to complete Problem Set 3 in comparison to the previous two. Everything else was great and I'm really glad I took this course with this instructor 2) Make the grading scale for Professor Downey's COP 4555 class more fair. 3) This professor is the worst I have ever taken 1) Great class, it was interesting and challenging. I learned a lot and the assignments were actually kind of fun. Professor Reis taught this class very well. He created an engaging, interactive, educational experience. My only suggestion would be to provide a clearer outline of when the students are supposed to complete the material. Modules were not sorted into weeks, so it was a bit hard to discern the intended pace.

COT 3100	
Fall 2019	1) Excellent professor. Very helpful. Explains great. 2) This seems like a good course, but I would not take it on a short semester.
Summer 2019	1) I had an enjoyable experience taking this course. 2) Professor Kianoush Gholamiboroujeni is really amazing. Caring reachable and very knowledgeable 3) Zybooks is a great tool to learn and apply the information for each section. Though I feel in a class like discrete structures there needs to be more emphasis on practicing the application of the information. The test questions did not correlate with the examples and practice in Zybooks. It would be nice to be able to have interactive questions and examples with the instructor, though that is a shortcoming of the online structure. The instructor was very responsive and thorough to questions.
Spring 2020	1) Professor rushed through all the material and did not help students with homework after expressing concerns and asking questions. Tests before homework is not a good idea as it induces stress and anxiety as students are unsure whether the work they are doing is correct or incorrect. 2) The material for the class was not that bad but I feel like the exercises done in class did not relate that much to exams even though I studied really hard for them. I believe more practice problems should be done in class where we actually try with the professor. 3) I loved this class. Very good professor.
Fall 2020	1) Hard topics but Prof. Whittaker is a master at explaining and making students understand the concepts. 2) Try to be more interactive with students, you lectured a lot and a lot of students started not attending (unsure if they dropped). Maybe encourage more communication and discussion on the topic. 1) The course was doable in the sense that assignments had plenty of questions to do. The only issue was that some assignments would contain python when the class was about Discrete Structures. Furthermore, some assignments contained due dates that were small usually a week which overlapped with other courses causing many times to worry about both assignments or multiple assignments from different courses.
Spring 2021	1) N/A 2) The content of the course was at times not in line with the quiz questions. There were times when I found that I did not know the answers to quiz questions, only to find them in the next section of the module. I would suggest either keeping consistent with what we are learning during the

zyBooks sessions, or giving fair warning that the quizzes will cover multiple sections. Thanks!

3) Whittaker's notes are amazing study guides

4) Lectures has to be more foundational rather than initially difficult and filled with explanations that won't help the students.

5) Overall, I enjoy taking this course and I feel adequately challenged. I think I am learning the material and doing the homework assignment solidifies what I am learning. If I could change one thing, it would be the second test in this course. The class had an average of 20%. I personally did all the homework, watched all the lectures, and studied for over a week. I knew the material and had all As on the homework and tests except for one going into the exam. The test was very fast and there was no time to check work or really think about the questions. We are being offered additional work to help with our grades, but usually if a test has a 20% average it isn't entirely the students' fault and there may be something wrong with the test itself. Other than that, Professor Ning Xe and his TA Yekun Xu where very responsive and professional when I communicated questions to them via email and office hours.

6) none.

7) I think this course is difficult because it's an entirely new way of viewing math contrary to the linear calculations I've done in previous courses. Learning this course material is difficult and I think 1 semester for this course is pushing what is actually achievable for most people.

8) The homework did not properly prepare the class for either of the two exams that were taken as of now, and this causes debilitation among the students for the final exam. The class averages for homework were always much higher than the exam grades, with no real way to check as to why that is.

9) The professor structured the course material really well and was easily available to us if we had any questions.

10) I would recommend a lecture video to use as a review prior to an exam as another resource for studying.

11) The homework that was given as well as the videos that Mr.Xie and required text was fine. It was enough to solve the assignments but other video recommendations as well outside of just his videos would assist more. I feel that it prepares us to answer the homework which is why students

would do well on them but not the exams. The exam feels familiar to what we do but is too broad. A study guide given to the students to narrow down what they should be focusing on would help immensely. Anything that I mark as "disagree" means that is an area that should be focused on to make it easier to understand for the students. The others can be kept the same or improved if possible.

12) Have a larger window of time to take assessments. Allowing only a 1 hour window to take a 1 hour test may not be considered fair for students who might not be able to take the test at the specified time or for students who might have technical issues and delays while the 1 hour time window ticks away. (On one occasion, I had honorlock issues for about 20 minutes, which left only 40 minutes for the exam before it closed.) This would most likely result in more work for the professors/assistants and place unnecessary stress on the students. Although the professor has tried finding a specific time that best accommodates the students by means of polls and suggestions, simply allowing tests to be taken at any point during the day specified by the professor may be a much better option.

13) The video lectures are too long. Much of this is due to the professor taking the time to write everything out. In an online environment, it would be much more beneficial to have PowerPoint-like slides with headers, key points with space to write out problem sets. These slides should also be available to students. Answers to HW and exams were never made available. It's hard to improve when no feedback is given.

14) 1. I think the zoom meetings should be recorded. I'm usually not available for attending in real time. Zoom meetings would be a good opportunity to discuss homework problems. 2. Creating pdf documents summarizing lecture videos and examples would be nice. It would provide a quick way to study for tests and provide student some indication if he was understanding all the material he was expected. 3. The course covers a lot of fringe mathematical topics that I have only seen for the first time. It is a lot of material to digest in a short amount of time. I can't help but wonder if the class should be broken up into 2 courses. All topics listed were covered with about equal time. But due to time constraints, I didn't have enough time to master one topic before moving on to the next.

15) The professor should try to provide more examples of problems, correct homework and exam answers should be

provided once grades are finalized. Study guides before exams would also be useful.

16) The handwriting within the instructions videos was hard to read and understand. The quizzes did not correlate with the homework and the material covered in the instruction videos. Wrong questions are not corrected on the assignments; homework is just scored with no feedback.

17) The material for this class is both incredible large and difficult. That's understandable for a 4 credit upper level class but I have never studied so hard and received so many failures and mediocre grades. I feel as though there would have been less of a problem if the homework wasn't virtually impossible at times to complete. I felt like for every HW I did I was missing key info from lessons I needed in order to complete the homework. This is especially true for theoretical problems. The 2nd midterm was horrendous. The format change coupled with the difficulty of the material made it a recipe for disaster for the class. There are multiple problems I couldn't recognize despite the test supposedly coming from the HW. Then a good chuck of problems wanted decimal form which we had never used The only thing that stopped me from dropping was knowing my classmates were having an equally difficult time.

18) Professor Xie is incredibly knowledgeable about the class topics, and is readily available for communication when needed. However, though the class seems to be designed with good student potential in mind, it is incredibly, and perhaps even inappropriately, hard, to the point where the more-than-generous grading scale is not even help enough to guarantee a good grade. The class structure itself is pretty simple, and the homeworks are very well designed and useful for cementing class material. The tests, however, are designed completely different in both procedure, presentation, and question, and lead most students to fail them. Professor Xie, while available for communication, has been incredibly unreasonable when handling the underperformance of students in his tests, and has proved of no true help in helping to better student performance. The class itself includes difficult material, but the the course's overall difficulty has been enlarged by the fully-online platform and the professor's inadequately-designed tests and relative unwillingness to help student success.

19) There was an abundance of videos for the class which apart from reading the textbook it added a lot of hours to the learning process. Not only that but a lot of the videos

didn't correctly explain how to do the homework or the tests. The hw, did not prepare us for the exams.

20) While I appreciate the extra credit opportunities offered, I still think the second midterm should have been curved, especially when the class average was a 19. Overall Professor Xie is usually receptive of feedback and does a good job teaching. The lecture slides are helpful.

21) This is definitely a challenging course, but Professor Xie did a remarkably good job at presenting the information to us. I do feel that towards the end of the first half of the class and continuing to the end, he deviated from the textbook teaching methods and tried to present information in his own way - which is fine - but felt unrehearsed and difficult to follow at times. Also, a lot of assumption is made as we progress - and while I understand the reason for him not wanting to reiterate information from previous sections - with such a dense course I feel it would be beneficial to us to hear the definitions of terms or concepts of theorems more than once to better see the evolution of ideas and concepts.

22) Better study material

23) Better reflect homework in exams.

24) None to give

25) The homework in this course was quite difficult, but not overwhelmingly so. The professor did an excellent job in explaining and preparing us for the homework assignments and quizzes through his whiteboard lessons.

26) This was an online course, and most of the learning materials were videos. I would consider very useful if the videos were shorter and we as students may see the professor in a little square in the corner, while he explains the subjects.

27) It may be nice to have the homeworks split into different assignments that focus on different aspects of the chapter/module being focused on. It is often difficult to understand the course material with just video lectures and the assigned book. It would be helpful to maybe get handouts or assignments that build on our understanding in replacement of a few homework assignments.

28) I'm not sure how this class correlates with the actual IT program, some sections of the class I found useful and coincided with my programming class, but for the most part I cannot see how it ties in with the degree. While the instructor is knowledgeable in the subject, I feel that he was severely lacking for this class. His lectures were to complex and vague on most accounts. Homework assignments were very time consuming due to the requirement that all work had to be typed. Exams were atrocious, no study guide was provided for each exam, instead were told that if homework was completed you would do well on exam, that was not the case. A lot of the material in the exam was not covered in the lecture and the questions on the exam did not in any way resemble the questions that were given in the homework.

29) There should be study guides for the exam and the exams should be similar to the study guide rather than make it unpredictable and not be a part of what we learned.

30) I would recommend that the professor focus more on making sure the students understand the material than assume everyone that takes an online class is going to cheat during tests. I am dyslexic and was afraid to ask for more time after going to office hours. I have to write down math problems to understand them. If we only get 2 to 4 minutes per question I have just enough time to write down the problem and maybe understand it. I would recommend changing: 1. Office hours: they should be open to the entire class than one-on-one. If it is open to the group, others can learn off each other's questions. 2. Have some form of written material on what the lectures will be covering. The written lecture are are hard to read and understand. I tried following in the book but the professor jumps around too much. 3. Tell us what we got wrong on tests! This assuming everyone is cheating and you will not release the test because you don't want it out there for others to cheat is ridiculous. Even if you let us take the tests open book we would still get every problem wrong. The lecture are all over the place and very vague. 4. Clear Instructions. This is a must. All semester we all had to guess at what the professor was asking for. Then on midterm 2 where the average score was a 20, he said that the answer is either right or wrong for a fill in test. At least make it a paragraph answer so we might get partial credit. I normally wait till after the final to fill these out but I would like the extra credit and so does the rest of my class. I try not to take the same professor more than once unless I really like their teaching

	style. FIU fully online has been 50/50 for me. I've had some really amazing professors, some with few flaws but there is a balance to the class, and then this professor. I get the impression this is Professor Xie's first online class? He is super smart in the subject but I wouldn't recommend someone take his online class unless he had another program assisting it, like Rational Reasoning or Pearsons. 31) The professor needs to organize his lectures. He was all over the place. He should provide study guides and better feedback on the homework. This would help with where students should focus on going into an exam. 32) It would have probably been a better and easier time learning this in person, but overall it was not that bad. 33) A bit more communication from the professor would help 34) Language barrier makes it difficult to understand topics 35) I would have liked it better if the course went more in depth about the applications of the materials we learned.

COT-3541

Comment by instructor: I think that the COT-3541 course has effectively challenged students to think. One of my main goals in this course is to inform my students that the effectiveness of logic in computer science spans a wide spectrum of areas, from artificial intelligence to software engineering. Overall, logic provides computer science with both a unifying foundational framework and a powerful tool for modeling and reasoning about aspects of computation. I have put much effort into this course in applying the theory to formally solve problem specially in PROLOG. I also want to write here that in my opinion, it is an error to have removed since Spring 2020 the COT-3541 course from the list of mandatory courses of our Computer Science curriculum.

Fall 2019	1) Prolog is such an useless language, this class expect us to become super proficient in 3 weeks.

	2) Prolog exam should be more experimental. With maybe the use of computers so the experience is closer to reality
Summer 2019	1) I like that Dr. Bajuelos present examples of each new topic in class and show us how implement it in real life. 2) The course was great!
Spring 2020	1) This course is heavily dependent in mathematical concepts that of course is expected to be known since introductory course in CS. However, I find it difficult that adding an additional layer of complexity when explaining the course makes it more difficult when grasping the concept being taught. Give for example Hilbert's theorem, the instructional concept neither the book not expose in plain English how it works, instead, the instructional material raveled further in complexity. My point is, a tiny content of easier to understand material would be beneficial in understanding complexity in the long term.
Spring 2021	1) This is the second course I have taken with this professor and I do like the style and form with which he goes about this course. His discussion boards are the more engaging part of his courses and it helps a lot when it comes to gaining a good understanding of the course material. In this course however the biggest issue was lack of instructional material. For each module he gave use very simple and dry "notes" to help us understand the course material. I feel like a course like this needs a more hands on approach. I.E. lecture videos and step by step example problems. The lack of instructional material made the homeworks feel like a shock and took much longer to even figure out what the question was asking, then to solve the questions themselves. 2) The topics in this course can be hard to understand because it is too theoretical. It would be best to include video lectures explaining the topics of each module.

Professional Development: Subject Area Coordinator Report
Richard Whittaker
October 10, 2021

Subject Area: Professional Development

CGS-1920: Introduction to Computing
CGS-3095: Technology in the Global Arena
ENC-3249: Professional and Technical Writing for Computing

The following report was generated by utilizing data from the Course Appraisal and Course Evaluation Systems and covers the time period from Summer 2019 to Spring 2021.

1. CGS-1920: Introduction to Computing

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	2	4.36	4.57	
Fall 2019	6	4.89	4.59	Juanc, tsolis
Spring 2020	3	4.71	4.57	Juanc, tsolis
Summer 2020	0	0.00	0.00	Juanc, tsolis, mlangen
Fall 2020	4	4.97	4.68	Juanc, tsolis
Spring 2021	8	4.85	4.74	Juanc, tsolis, mlangen
	=======	=======	=======	
Total	23	4.82	4.66	Weighted Avg

The faculty that have taught this course have discussed changing the title of this course to "Intro to the Field of Computing". In the past, it has been brought up to change the title to "Seminar in Computing" to clarify that it is not a programming course. Currently, the faculty believes that "Intro to the Field of Computing" would be a better choice.

Recommendation: No changes are recommended.

2. CGS-3095: Technology in the Global Arena

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	12	4.79	4.42	mlangen, ivarodri, crahn
Fall 2019	2	3.86	4.31	ivarodri, crahn
Spring 2020	7	4.39	4.29	mlangen, mcdwells, rcahn
Summer 2020	1	5.00	5.00	crahn
Fall 2020	4	4.78	4.81	crahn
Spring 2021	46	4.78	4.77	spisano , mcdwells, rcahn
	=======	=======	=======	

| Total | 72 | 4.72 | 4.66 | Weighted Avg |

The majority of students found the course material beneficial and adequate for understanding key computing related issues. In addition, a few students commented that the textbook was not helpful for the course.

Recommendation: No changes are recommended.

3. ENC-3249: Professional and Technical Writing for Computing

The Course Appraisal and Course Evaluation Systems did not provide data regarding this course. Reason being this course is taught by the English Department. Using the CGS 3095 course which has writing assignments as a proxy, students' writing skills were found to range from deficient to adequate.

Recommendation: No changes are recommended.

Capstone and Senior Project: Subject Area Coordinator Report
Masoud Sadjadi
October 15, 2021

Introduction:

The Capstone, Senior Project, and VIP area consists of the following four courses with syllabi links:

CIS-3950 Capstone I
CIS-4951 Capstone II
CIS-4911 Senior Project
IDS-4918 Vertically Integrated Projects - C

CIS-3950 and CIS-4951 are new courses to replace CIS-4911 over time; we will continue offering CIS-4911 until students who started the program with CIS-4911 have sufficient time to graduate taking CIS-4911 during their last semester if they chose so. The assessment report given below for all other courses is based on student responses about the course outcomes and the faculty course appraisals.

1. **CIS-33950: Capstone I**

CIS-3950 was first offered in Summer 2020 under CIS-3996 and then under CIS-3950 in Fall 2020 and Spring 2021. The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Professor
Summer 2019				
Fall 2019				sadjadi
Spring 2020				sadjadi
Summer 2020				sadjadi
Fall 2020	2	4.82	4.50	sadjadi
Spring 2021	44	4.68	4.48	sadjadi
	=======	=======	=======	
Total	46	4.69	4.48	

For all the eleven outcomes of the course, most of the students (more than 89%) agree either strongly or moderately.. In summary, there have been three main concerns raised by students.
- Inadequate tools forced to be used for communications, meetings, announcements, assignment submissions, etc.
- The role and responsibilities of Capstone I & II students were not clear.
- The projects need to be more diverse.

Recommendation: This course is new and has only been offered for one year. Therefore, it is understandable to have some issues during the first couple of years that this course is being offered. Nevertheless, the following recommendations are provided based on the instructor's and the students' comments/feedback.
- Allow students to pick the tools for communications among themselves so that they can easily conduct their meetings and do online/offline communications.
- The role of the Capstone I and Capstone II students should be clearly communicated to the students.

- Finally, the instructor should seek different ways to attract more diverse project proposals to be available to our students to pick from.

2. **CIS-4951: Capstone II**

CIS-4951 was first offered in Fall 2020. The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Professor
Summer 2019				
Fall 2019				sadjadi
Spring 2020				sadjadi
Summer 2020				sadjadi
Fall 2020	2	4.95	5.00	sadjadi
Spring 2021	46	4.65	4.40	sadjadi
	=======	=======	=======	
Total	48	4.66	4.43	

For all the eleven outcomes of the course, most of the students (more than 88%) agree either strongly or moderately. In summary, there have been five main concerns raised by students.
- Inadequate tools forced to be used for communications, meetings, announcements, assignment submissions, etc.
- The role and responsibilities of Capstone I & II students were not clear.
- The projects need to be more diverse.
- The load on Capstone II students is more than two credits.
- Some project product owners/mentors were not responsive.

Recommendation: This course is new and has only been offered for only two semesters. Therefore, it is understandable to have some issues during the first couple of years that this course is being offered. Nevertheless, the following recommendations are provided based on the instructor's and the students' comments/feedback.
- Allow students to pick the tools for communications among themselves so that they can easily conduct their meetings and do online/offline communications.
- The role of the Capstone I and Capstone II students should be clearly communicated to the students.
- The instructor should seek different ways to attract more diverse project proposals to be available to our students to pick from.
- The load for Capstone II students should be better distributed. Those students who have contributed significantly to the project while taking their Capstone I should be rewarded while taking their Capstone II by have less workload.
- The instructor should recruit more responsible project product owners/mentors and clearly communicate to them that they are expected to be available to their assigned students and answer their questions daily. They must also be available and well-prepared for the Planning, Review, and Retrospective meetings.

3. **CIS-4911: Senior Project**

CIS-4911 is going to be phased out and eventually replaced by Capstone I & II. The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Professor
Summer 2019	5	4.65	4.60	
Fall 2019	9	4.70	3.98	sadjadi
Spring 2020	3	4.27	3.94	sadjadi
Summer 2020	2	5.00	5.00	sadjadi
Fall 2020	3	4.42	3.75	sadjadi
Spring 2021	14	4.60	4.22	sadjadi
	=======	=======	=======	
Total	36	4.61	4.19	

For all the eleven outcomes of the course, most of the students (more than 83%) agree either strongly or moderately. In summary, there have been eight main concerns raised by students.

- Inadequate tools forced to be used for communications, meetings, announcements, assignment submissions, etc.
- Unclear role of Capstone I, II, and Senior Project students working together in one project.
- Lack of sufficient communications delay is responding to the students by the instructor (raised by two students).
- Large group sizes.
- Grades to be better communicated throughout the semester.
- Project list should be given earlier.
- No end of semester surprise for the final deliverables.
- Provide virtual computers.

Recommendation: This is a three-credit course, and it must be taken during the last semester before graduation by our Computer Science students. There are plenty to be learned and performed during one semester and that is why we are replacing it with Capstone I and II that are being taken by our students in two semesters consequently or even with some semesters skipped in between. We have continued offering this course along with Capstone I & II to accommodate those students who were not aware of Capstone I & II when they joined our program and would need to graduate within the next semester. However, we are hoping that over time, this course is phased out and fully replaced by Capstone I & II. Having said the above, based on the comments/feedback by the instructor and the students, here are some recommendations.

- Allow students to pick the tools for communications among themselves so that they can easily conduct their meetings and do online/offline communications.
- The role of the Capstone I, Capstone II, and Senior Project students assigned to the same project should be clearly communicated to the students.
- The instructor must be consistent in responding to all students on time. It appears that only two students (out of hundreds who have taken this course) complained about lack/delayed responses by the instructor.
- The instructor should seek different ways to attract more project proposals so that the group sizes are more manageable.
- The instructor must make sure that the grades are being communicated to the students throughout the semester (only one student complained).
- The instructor should project the list of available projects during the first week of the semester.
- The expectations of the end of the semester final deliverable should be communicated better at the beginning of the semester to avoid any surprises.
- The instructor should ask the school to provide students with virtual computers if they need one or more for their projects. In the past, the instructor has been arranged for all students to receive a virtual machine at

the beginning of the semester, but as a very few students used such pre-assigned virtual machines, it turned out to be a big waste of resources. So, it was decided to do the assignments on a need basis. The instructor should clearly communicate to all students that they can request for one or more virtual machines for their projects at the beginning of the semester.

4. IDS-4918: Vertically Integrated Projects - C

IDS-4918 was not offered in this period. The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2017				
Fall 2017				
Spring 2018				
Summer 2018				
Fall 2018				
Spring 2019				
	=======	=======	=======	
Total				

There is no data as this course was not offered during this period.

Recommendation: There is no data as this course was not offered during this period.

Overall observation: There is no data as this course was not offered during this period.

Software Engineering: Subject Area Coordinator Report
Monique Ross
October 15, 2021

Introduction:

The Software Engineering area consists of the following five courses with syllabi links:

CEN-4010 Software Engineering I
CEN-4021 Software Engineering II
CEN-4072 Fundamentals of Software Testing

The assessment report, given below for all courses, is based on student responses about the course outcomes and the faculty course appraisals.

1. **CEN-4010 Software Engineering I**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	5	4.83	4.53	aleroque, sabhatti
Fall 2019	4	3.72	3.47	aleroque, clarkep
Spring 2020	4	4.09	4.03	aleroque, sabhatti
Summer 2020	1	5.00	3.86	aleroque
Fall 2020	4	4.60	4.23	clarkep, kgholami, sabhatti
Spring 2021	24	4.54	4.22	aleroque, dledavis, lenherna, moross
	=======	=======	=======	
Total	42	4.47	4.16	Weighted Avg

For all five outcomes of the course, most of the students (90%) agree either strongly or moderately. There is no significant concern expressed in the Students Suggestions section.

Recommendation: Reconsider the pre-requisites for this class. While students are not complaining faculty evaluations suggest that the absence of database and opportunities for students to practice teamwork and full stack development prior to this course is of concern.

2. **CEN-4021 Software Engineering II**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	1	5.00	4.50	lenherna
Spring 2020	0	0.00	0.00	
Summer 2020	0	0.00	0.00	

	Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Fall 2020	5	5.00	5.00	lenherna
Spring 2021	4	5.00	5.00	lenherna
	=======	=======	=======	
Total	10	5.00	4.95	Weighted Avg

For all five outcomes of the course, most of the students (more than 100%) agree either strongly or moderately. There is no significant concern expressed by the students; however, faculty expressed concern related to effective team work.

Recommendation: Continue to investigate opportunities for students to work in teams prior to Software Engineering I and II to help foster good habits related to working with others.

3. **CEN-4072 Fundamentals of Software Testing**

The following table shows a summary of the course assessment evaluations:

	Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	0	0.00	0.00	
Spring 2020	1	5.00	5.00	clarkep
Summer 2020	0	0.00	0.00	
Fall 2020	2	5.00	5.00	clarkep
Spring 2021	31	4.19	3.97	clarkep
	=======	=======	=======	
Total	34	4.26	4.06	Weighted Avg

For all seven outcomes of the course, most of the students (more than 80%) agree either strongly or moderately. The faculty have noted concerns related to basic mathematical understanding necessary to be successful in test generation (noting specifically the CS BA students).

Recommendation: Consider whether this course is appropriate for the CS BA as an elective.

Systems: Subject Area Coordinator Report

Gregory Murad Reis

October 7, 2021

Introduction:

The Systems area consists of the following seven courses with syllabi links:

CAP-4453 Introduction to Robot Vision*
CDA-4625 Introduction to Mobile Robots
CEN-4083 Introduction to Cloud Computing
CIS-4731 Fundamentals of Blockchain Technologies*
COP-4604 Advanced Unix Programming*
COP-4710 Database Management
COT-4431 Applied Parallel Computing*

CPA-4453, **CIS-4731**, **COP-4604**, and **COT-4431** were not offered during the period between Summer 2019 and Spring 2021 mainly because they were recently designed courses; therefore, there are no evaluations for these courses*. I recommend trying to offer the aforementioned courses at least once year since they were accepted by the Undergraduate Committee and students need to take electives in order to graduate in the 4-year desired period. Moreover, I would recommend having the syllabus of **CAP-4453 - Introduction to Robot Vision** match the template of our School. The current version has a format that hinders the reading of the document.

The assessment report given below for all other courses is based on student responses about the course outcomes and the faculty course appraisals.

1. **CDA-4625: Introduction to Mobile Robotics**

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	0	0.00	0.00	
Spring 2020	0	0.00	0.00	
Summer 2020	0	0.00	0.00	
Fall 2020	0	0.00	0.00	
Spring 2021	4	4.69	4.67	jabobadi
	=======	=======	=======	
Total	4	4.69	4.67	Weighted Avg

For all 8 outcomes of the course, most of the students (75%) agree either strongly or moderately. There is no significant concern expressed in the Students Suggestions section.

Recommendation: Continue having hands-on labs and encourage students to continue learning about electronics and the basics of assembling a robot with sensors and actuators. It will be interesting to implement the computer

vision programs developed in the labs into the robots. A last recommendation would be to have more practice of Bayes Theorem and Gaussian Distribution in the prerequisite course STA-3033.

2. <u>CEN-4083: Introduction to Cloud Computing</u>

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	0	0.00	0.00	
Fall 2019	1	5.00	5.00	sabhatti
Spring 2020	2	3.62	2.62	sabhatti
Summer 2020	2	5.00	5.00	aleroque
Fall 2020	2	4.25	4.38	aleroque
Spring 2021	8	4.84	4.88	sabhatti
	=======	=======	=======	
Total	15	4.63	4.54	Weighted Avg

For all 4 outcomes of the course, most of the students (more than 80%) agree either strongly or moderately. There was concern about the outline and expectations of the labs and homework assignments.

Recommendation: The assignments need to be written with a greater level of details including the specific goals and expectations. Moreover, assignments should not be designed with the assumption that students had previous experience in Cloud Computing.

3. <u>COP-4710: Database Management</u>

The following table shows a summary of the course assessment evaluations:

	No. of Student Responses	Value of Outcome	Coverage Adequacy	Usernames of Instructors
Summer 2019	5	4.83	4.68	rbalm001, lenherna
Fall 2019	7	4.84	4.25	navlakha, rbalm001
Spring 2020	6	4.90	4.90	navlakha, spisano
Summer 2020	1	5.00	5.00	lenherna
Fall 2020	2	4.86	4.86	spisano,chens
Spring 2021	42	4.44	4.35	spisano, prabakar, chens
	=======	=======	=======	
Total	63	4.58	4.44	Weighted Avg

For all 7 outcomes of the course, most of the students (87%) agree either strongly or moderately. This is an outstanding number of students satisfied with the course's outcomes. There is no significant concern expressed by the students or faculty besides recommending a slightly larger number of assignments and labs instead of most of the grade being focused on the exams.

Recommendation: Some sections offered only 2 exams which made up a large portion of the final grade. It would be beneficial to distribute the grade across different assignments, hands-on labs, case studies, and work in groups. I would suggest more small projects, and less homework assignments taken from the textbooks and focused only on the theoretical foundations of database management.

APPENDIX D-1: Exit (Graduating Student) Survey

Raw Data and Statistics for Individual Semesters

The statistics calculated from raw data of the survey by Graduating Students (EXIT Survey) for individual semesters in this Assessment Period are presented here. The aggregate statistical results for all semesters from Summer 2019 to Spring 2021 are also included below.

PROGRAM EDUCATIONAL OBJECTIVE	TOTAL WEIGHTED SCORE	NUMBER OF RESPONSES	AVERAGE SCORE
Apply knowledge of Computing and Mathematics			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00
Analyze a problem and its computing requirements			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00
Design, Implement, and Evaluate a computer system			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00
Ability to function effectively in teams			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00
Understanding of Social and Ethical Issues			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00
Demonstrate Effective Communication Skills			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00
Analyze local and global impact of computing			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00
Ability to engage in continuing professional dev.			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00
Ability to use current techniques, skills, and tools			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00
Apply computer theory to model computer systems			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00
Apply design and dev. To construct software systems			
Outcome has been met for me personally	5	1	5.00
How meaningful the outcome is for me personally	5	1	5.00

PROGRAM EDUCATIONAL OBJECTIVE	TOTAL WEIGHTED SCORE	NUMBER OF RESPONSES	AVERAGE SCORE
Apply knowledge of Computing and Mathematics			
Outcome has been met for me personally	19	5	3.80
How meaningful the outcome is for me personally	21	5	4.20
Analyze a problem and its computing requirements			
Outcome has been met for me personally	23	5	4.60
How meaningful the outcome is for me personally	24	5	4.80
Design, Implement, and Evaluate a computer system			
Outcome has been met for me personally	23	5	4.60
How meaningful the outcome is for me personally	24	5	4.80
Ability to function effectively in teams			
Outcome has been met for me personally	19	5	3.80
How meaningful the outcome is for me personally	23	5	4.60
Understanding of Social and Ethical Issues			
Outcome has been met for me personally	17	5	3.40
How meaningful the outcome is for me personally	22	5	4.40
Demonstrate Effective Communication Skills			
Outcome has been met for me personally	17	5	3.40
How meaningful the outcome is for me personally	24	5	4.80
Analyze local and global impact of computing			
Outcome has been met for me personally	21	5	4.20
How meaningful the outcome is for me personally	23	5	4.60
Ability to engage in continuing professional dev.			
Outcome has been met for me personally	21	5	4.20
How meaningful the outcome is for me personally	24	5	4.80
Ability to use current techniques, skills, and tools			
Outcome has been met for me personally	18	5	3.60
How meaningful the outcome is for me personally	24	5	4.80
Apply computer theory to model computer systems			
Outcome has been met for me personally	23	5	4.60
How meaningful the outcome is for me personally	24	5	4.80
Apply design and dev. To construct software systems			
Outcome has been met for me personally	22	5	4.40
How meaningful the outcome is for me personally	24	5	4.80

PROGRAM EDUCATIONAL OBJECTIVE	TOTAL WEIGHTED SCORE	NUMBER OF RESPONSES	AVERAGE SCORE
Apply knowledge of Computing and Mathematics			
Outcome has been met for me personally	103	24	4.29
How meaningful the outcome is for me personally	110	24	4.58
Analyze a problem and its computing requirements			
Outcome has been met for me personally	101	23	4.39
How meaningful the outcome is for me personally	110	23	4.78
Design, Implement, and Evaluate a computer system			
Outcome has been met for me personally	95	23	4.13
How meaningful the outcome is for me personally	107	23	4.65
Ability to function effectively in teams			
Outcome has been met for me personally	97	23	4.22
How meaningful the outcome is for me personally	105	23	4.57
Understanding of Social and Ethical Issues			
Outcome has been met for me personally	92	23	4.00
How meaningful the outcome is for me personally	94	23	4.09
Demonstrate Effective Communication Skills			
Outcome has been met for me personally	89	23	3.87
How meaningful the outcome is for me personally	100	23	4.35
Analyze local and global impact of computing			
Outcome has been met for me personally	89	24	3.71
How meaningful the outcome is for me personally	85	23	3.70
Ability to engage in continuing professional dev.			
Outcome has been met for me personally	97	23	4.22
How meaningful the outcome is for me personally	104	23	4.52
Ability to use current techniques, skills, and tools			
Outcome has been met for me personally	93	23	4.04
How meaningful the outcome is for me personally	104	23	4.52
Apply computer theory to model computer systems			
Outcome has been met for me personally	95	23	4.13
How meaningful the outcome is for me personally	102	23	4.43
Apply design and dev. To construct software systems			
Outcome has been met for me personally	92	23	4.00
How meaningful the outcome is for me personally	103	23	4.48

PROGRAM EDUCATIONAL OBJECTIVE	TOTAL WEIGHTED SCORE	NUMBER OF RESPONSES	AVERAGE SCORE
Apply knowledge of Computing and Mathematics			
Outcome has been met for me personally	47	11	4.27
How meaningful the outcome is for me personally	46	11	4.18
Analyze a problem and its computing requirements			
Outcome has been met for me personally	40	11	3.64
How meaningful the outcome is for me personally	46	11	4.18
Design, Implement, and Evaluate a computer system			
Outcome has been met for me personally	43	11	3.91
How meaningful the outcome is for me personally	47	11	4.27
Ability to function effectively in teams			
Outcome has been met for me personally	48	11	4.36
How meaningful the outcome is for me personally	49	11	4.45
Understanding of Social and Ethical Issues			
Outcome has been met for me personally	36	11	3.27
How meaningful the outcome is for me personally	38	11	3.45
Demonstrate Effective Communication Skills			
Outcome has been met for me personally	44	11	4.00
How meaningful the outcome is for me personally	48	11	4.36
Analyze local and global impact of computing			
Outcome has been met for me personally	37	11	3.36
How meaningful the outcome is for me personally	40	11	3.64
Ability to engage in continuing professional dev.			
Outcome has been met for me personally	50	11	4.55
How meaningful the outcome is for me personally	52	11	4.73
Ability to use current techniques, skills, and tools			
Outcome has been met for me personally	40	11	3.64
How meaningful the outcome is for me personally	45	11	4.09
Apply computer theory to model computer systems			
Outcome has been met for me personally	43	11	3.91
How meaningful the outcome is for me personally	45	11	4.09
Apply design and dev. To construct software systems			
Outcome has been met for me personally	44	11	4.00
How meaningful the outcome is for me personally	50	11	4.55

PROGRAM EDUCATIONAL OBJECTIVE	TOTAL WEIGHTED SCORE	NUMBER OF RESPONSES	AVERAGE SCORE
Apply knowledge of Computing and Mathematics			
Outcome has been met for me personally	40	9	4.44
How meaningful the outcome is for me personally	39	9	4.33
Analyze a problem and its computing requirements			
Outcome has been met for me personally	39	9	4.33
How meaningful the outcome is for me personally	42	9	4.67
Design, Implement, and Evaluate a computer system			
Outcome has been met for me personally	39	9	4.33
How meaningful the outcome is for me personally	38	9	4.22
Ability to function effectively in teams			
Outcome has been met for me personally	35	9	3.89
How meaningful the outcome is for me personally	39	9	4.33
Understanding of Social and Ethical Issues			
Outcome has been met for me personally	39	9	4.33
How meaningful the outcome is for me personally	42	9	4.67
Demonstrate Effective Communication Skills			
Outcome has been met for me personally	34	9	3.78
How meaningful the outcome is for me personally	41	9	4.56
Analyze local and global impact of computing			
Outcome has been met for me personally	35	9	3.89
How meaningful the outcome is for me personally	39	9	4.33
Ability to engage in continuing professional dev.			
Outcome has been met for me personally	39	9	4.33
How meaningful the outcome is for me personally	42	9	4.67
Ability to use current techniques, skills, and tools			
Outcome has been met for me personally	37	9	4.11
How meaningful the outcome is for me personally	42	9	4.67
Apply computer theory to model computer systems			
Outcome has been met for me personally	38	9	4.22
How meaningful the outcome is for me personally	40	9	4.44
Apply design and dev. To construct software systems			
Outcome has been met for me personally	41	9	4.56
How meaningful the outcome is for me personally	42	9	4.67

SPRING 2021
GRADUATING

	TOTAL	NUMBER OF	AVERAGE

PROGRAM EDUCATIONAL OBJECTIVE	WEIGHTED SCORE	RESPONSES	SCORE
Apply knowledge of Computing and Mathematics			
Outcome has been met for me personally	68	16	4.25
How meaningful the outcome is for me personally	72	16	4.50
Analyze a problem and its computing requirements			
Outcome has been met for me personally	68	16	4.25
How meaningful the outcome is for me personally	74	16	4.63
Design, Implement, and Evaluate a computer system			
Outcome has been met for me personally	67	16	4.19
How meaningful the outcome is for me personally	74	16	4.63
Ability to function effectively in teams			
Outcome has been met for me personally	68	16	4.25
How meaningful the outcome is for me personally	72	16	4.50
Understanding of Social and Ethical Issues			
Outcome has been met for me personally	66	16	4.13
How meaningful the outcome is for me personally	74	16	4.63
Demonstrate Effective Communication Skills			
Outcome has been met for me personally	64	16	4.00
How meaningful the outcome is for me personally	72	16	4.50
Analyze local and global impact of computing			
Outcome has been met for me personally	63	16	3.94
How meaningful the outcome is for me personally	70	16	4.38
Ability to engage in continuing professional dev.			
Outcome has been met for me personally	66	16	4.13
How meaningful the outcome is for me personally	67	16	4.19
Ability to use current techniques, skills, and tools			
Outcome has been met for me personally	64	16	4.00
How meaningful the outcome is for me personally	74	16	4.63
Apply computer theory to model computer systems			
Outcome has been met for me personally	65	16	4.06
How meaningful the outcome is for me personally	74	16	4.63
Apply design and dev. To construct software systems			
Outcome has been met for me personally	66	16	4.13
How meaningful the outcome is for me personally	74	16	4.63

APPENDIX D-2: Exit (Graduating Student) Survey

PROGRAM EDUCATIONAL OUTCOME	TOTAL RESPONSES	FINAL SCORE
A-Ability to apply knowledge of computing and mathematics		
Outcome has been met for me personally	66	4.27
How meaningful the outcome is for me personally	66	4.44
B-Ability to analyze problem - identify and define its computing requirements		
Outcome has been met for me personally	65	4.25
How meaningful the outcome is for me personally	65	4.63
C-Ability to design, implement, and evaluate a computer-based system		
Outcome has been met for me personally	65	4.18
How meaningful the outcome is for me personally	65	4.54
D-Ability to function effectively on teams to accomplish a common goal		
Outcome has been met for me personally	65	4.18
How meaningful the outcome is for me personally	65	4.51
E-Understanding of professional, ethical, legal, security, and social issues		
Outcome has been met for me personally	65	3.92
How meaningful the outcome is for me personally	65	4.23
F-Ability to communicate effectively with a range of audiences		
Outcome has been met for me personally	65	3.89
How meaningful the outcome is for me personally	65	4.46
G-Ability to analyze local and global impact of computing on society		
Outcome has been met for me personally	66	3.79
How meaningful the outcome is for me personally	65	4.03
H-Ability to engage in continuing professional development		
Outcome has been met for me personally	65	4.28
How meaningful the outcome is for me personally	65	4.52
I-Ability to use current techniques, skills, and tools necessary for computing practice		
Outcome has been met for me personally	65	3.95
How meaningful the outcome is for me personally	65	4.52
J-Apply math foundations and algorithmic principles in design of computer systems		
Outcome has been met for me personally	65	4.14
How meaningful the outcome is for me personally	65	4.46
K-Apply design and development principles to construct complex software systems		
Outcome has been met for me personally	65	4.15

How meaningful the outcome is for me personally	65	4.58

AVERAGE RATING OF STUDENT OUTCOMES - 'A' TO 'K'

ATTAINMENT	4.09
RELEVANCE	4.45

AVERAGE RATING OF STUDENT OUTCOMES - A, B, C, E, G, I, J, K

ATTAINMENT	4.08
RELEVANCE	4.43

APPENDIX E-1: Alumni Survey - Raw Data and Statistics

The Alumni Survey data for this cycle was collected between May 2021 and November 2021. It is presented below along with statistical results.

PROGRAM EDUCATIONAL OBJECTIVE	SCORES - # OF STUDENTS RESPONDING					TOTAL WEIGHTED SCORE	NUMBER OF RESPONSES	AVERAGE SCORE	PERCENTAGE
	Excellent	Good	Satisfactory	Poor	Unsatisfactory				
	4	3	2	1	0				
EDUCATIONAL EXPERIENCE									
Capacity for Personal growth	39	24	8	1	1	245	73	3.36	83.90
Capacity for Lifelong learning	44	22	5	2	0	254	73	3.48	86.99
Development of Communication Skills	28	30	13	2	0	230	73	3.15	78.77
Awareness of Social & Ethical Responsibility	26	25	15	3	1	212	70	3.03	75.71
Preparation for career in CS	28	26	15	3	1	223	73	3.05	76.37
Preparation for Graduate Study	28	27	15	2	0	225	72	3.13	78.13
PREPARATION UPON GRADUATION									
Quality of Preparation - Computer programming	29	19	17	1	1	208	67	3.10	77.61
Quality of Preparation - Systems Development	18	24	18	5	1	185	66	2.80	70.08
Quality of Preparation - Data Structures & Algo.	32	19	14	2	0	215	67	3.21	80.22
Quality of Preparation - Comp. Architecture & Org.	23	21	18	4	1	195	67	2.91	72.76
FACULTY AND INSTRUCTION									
Dedication of Faculty to UG Teaching	31	29	9	3	1	232	73	3.18	79.45
Expertise of Faculty in Subject Areas	37	21	11	1	0	234	70	3.34	83.57
Mentorship provided by Faculty	21	18	22	6	3	188	70	2.69	67.14
Overall Instructional Capability of Faculty	25	25	19	1	0	214	70	3.06	76.43
DIVERSITY PROMOTION AND ENVIRONMENT									
Effectiveness in maintaining diverse student body	34	19	11	1	0	216	65	3.32	83.08
Diversity as agent for personal growth	32	18	16	5	1	219	72	3.04	76.04
Diversity as agent for awareness of social concerns	20	27	14	3	1	192	65	2.95	73.85
Extent to which healthy learning env. Is promoted	23	24	17	1	0	199	65	3.06	76.54
OVERALL RATING OF EDUCATIONAL EXPERIENCE	193	154	71	13	3	1389	434	3.20	80.01
OVERALL RATING OF PREPARATION UPON GRADUATION	102	83	67	12	3	803	267	3.01	75.19
OVERALL RATING OF FACULTY & INSTRUCTION	114	93	61	11	4	868	283	3.07	76.68
OVERALL RATING OF DIVERSITY PROMOTION & ENV.	109	88	58	10	2	826	267	3.09	77.34
OVERALL SATISFACTION WITH BS-CS PROG. OBJECTIVES	518	418	257	46	12	3886	1251	3.11	77.66

APPENDIX E-2: Employer Survey Instrument
FLORIDA INTERNATIONAL UNIVERSITY
SCHOOL OF COMPUTER SCIENCE
(CONFIDENTIAL) EMPLOYER EVALUATION

To: The Evaluator

The School of Computer Science at Florida International University seeks your confidential opinion about our graduates and your employees, with the goal of using this information to help us assess the effectiveness of our program in preparing our students to enter the work-place. Please rest assured that your opinions will be used only to strengthen our programs and not for any other purpose. We urge you to complete this survey based on the performance of all, or most of our graduates employed by your company. Thank you for your participation.

_____

Part-A:

Your Name:

Your Position:

Company Name:

Office Address:

Office Phone:

E-mail:

Part-B:

Please rate the following skills of our graduates: {Choices: Outstanding, Excellent, Good, Fair, Poor, Unable to Comment}

1) Ability to communicate orally

2) Ability to communicate in written form

3) Ability to work cooperatively in a team

4) Understanding of the social and ethical concerns of practicing computer scientist

5) Mastery of the fundamental computer science concepts and ability to solve computing problems using them

6) Ability to learn emerging and new concepts and technologies

Part-C:

Based on your satisfaction with our graduates, will you consider our future graduates for employment in your company?

YES   NO

Part-D: Additional comments, suggestions, and observations:

APPENDIX E-3: Employer Survey Raw Data and Statistics

The Employer Survey data for this cycle was collected between May 2021 and November 2021. It is presented below along with statistical results.

TOTAL RESPONSES → 50 (No more than 28 for any question)

SCIS Prog. Objective	Question about our Graduates	EMPLOYER SURVEY 2019-2021							
		EMPLOYER RESPONSES							
		Excellent	Very Good	Good	Fair	Poor	Total	Weighted Score	Percentage
	Response Score -->	4	3	2	1	0		Max. = 4	
2.1	Mastery of CS concepts & ability to solve problems	11	10	4	1	0	26	3.19	79.81
2.2	Ability to Communicate Verbally	12	13	3	0	0	28	3.32	83.04
2.2	Ability to Communicate in Written Form	12	8	4	1	0	25	3.24	81.00
2.2	Ability to work cooperatively in a team	15	9	3	1	0	28	3.36	83.93
2.3	Understanding of Social and Ethical Concerns	7	12	2	0	1	22	3.09	77.27
2.4	Ability to learn Emerging Concepts and Technologies	15	7	3	0	0	25	3.48	87.00
1	Will you consider employing our graduates in future	Yes = 28	No = 0				154		
	OVERALL SCORE OF OUR GRADUATES	3.29							
	Percentage	82.14							

APPENDIX F: Course-Embedded Assessment Summaries
Fall 2019 and Spring 2020

DIRECT ASSESSMENT SUMMARY OF CS COURSES (SENIOR PROJECT EXCLUDED) - FALL 2019-SPRING 2020

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Spring 2020	CDA 3102	Computer Architecture	260	0	0.00	0.00
		AL Programming, Circuits,	249	1	2.17	2.17
		Architecture, Etc.	246	1	2.17	4.35
			243	1	2.17	6.52
			242	3	6.52	13.04
			235	2	4.35	17.39
			230	1	2.17	19.57
			228	2	4.35	23.91
			226	3	6.52	30.43
			220	1	2.17	32.61
			219	1	2.17	34.78
			217	2	4.35	39.13
			216	1	2.17	41.30
			214	1	2.17	43.48
			212	1	2.17	45.65
			211	3	6.52	52.17
			210	1	2.17	54.35
			209	1	2.17	56.52
			204	2	4.35	60.87
			203	1	2.17	63.04
			202	2	4.35	67.39
			198	1	2.17	69.57
			192	1	2.17	71.74
			189	1	2.17	73.91
			187	1	2.17	76.09
			184	2	4.35	80.43
			183	2	4.35	84.78
			177	1	2.17	86.96
			173	1	2.17	89.13
			169	2	4.35	93.48
			167	1	2.17	95.65
			159	1	2.17	97.83
			131	1	2.17	100.00
			TOTAL-->	46		

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Spring 2020	CEN 4010	Software Engineering	12	35	74.47	74.47
		Implementation and Validation	11	7	14.89	89.36
			10	4	8.51	97.87
			6	1	2.13	100.00
			TOTAL-->	47		
	70% cut-off --> (7)	97.87	75% cut-off --> (7.5)		89.36	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	CGS 3095	Professional Development	4	37	48.68	48.68
		Social & Ethical Concerns	3	18	23.68	72.37
			2	10	13.16	85.53
			1	11	14.47	100.00
			0	0	0.00	100.00
			TOTAL -->	76		
			75% cut-off --> (3)		72.37	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	CGS 3095	Professional Development	4	43	56.58	56.58
		Communication Skills	3	9	11.84	68.42
			2	7	9.21	77.63
			1	17	22.37	100.00
			0	0	0.00	100.00
			TOTAL -->	76		
			75% cut-off --> (3)		68.42	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	CGS 3095	Professional Development	4	41	53.95	53.95
		Legal, ethical, and social impacts	3	13	17.11	71.05
		of technology as related to	2	7	9.21	80.26
		individual privacy, security, and	1	15	19.74	100.00
		anonymity in societies across	0	0	0.00	100.00
		the globe and in the global				
		internet society	TOTAL -->	76		
			75% cut-off --> (3)		71.05	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	CGS 3095	Professional Development	4	12	15.79	15.79
		Legal, ethical, and social impacts	3	18	23.68	39.47
		of technology as related to	2	19	25.00	64.47
		intellectual property rights, and	1	27	35.53	100.00
		how the global reach of the	0	0	0.00	100.00
		internet effects these issues				
			TOTAL -->	76		
			75% cut-off --> (3)		39.47	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	CGS 3095	Professional Development	4	47	61.84	61.84
		Computing Professional's Roles	3	6	7.89	69.74
		and Responsibilities as related to	2	13	17.11	86.84
		intellectual property, privacy,	1	10	13.16	100.00
		anonymity, legal, social, and	0	0	0.00	100.00
		ethical issues				
			TOTAL -->	76		
			75% cut-off --> (3)		69.74	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3337	Programming	8	15	57.69	57.69
		Inheritance & Polymorphism	7	3	11.54	69.23
			6	3	11.54	80.77
			5	4	15.38	96.15
			4	1	3.85	100.00
			TOTAL-->	26		
			75% cut-off -> (6)		80.77	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3337	Programming	8	17	68.00	68.00
		Exceptions	7	5	20.00	88.00
			6	1	4.00	92.00
			5	2	8.00	100.00
			TOTAL-->	25		
			75% cut-off -> (6)		92.00	

SEMESTER	COURSE	PROGRAM OBJECTIVE	Score	# Students	%	Cumulative

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3530	Programming	16	1	3.448276	3.45
	Hybrid	Data Structures & Analysis of Algo.	15	2	6.896552	10.34
			14	3	10.34483	20.69
			13	5	17.24138	37.93
			12	2	6.896552	44.83
			11	1	3.448276	48.28
			9	2	6.896552	55.17
			8	1	3.448276	58.62
			7	3	10.34483	68.97
			5	3	10.34483	79.31
			4	5	17.24138	96.55
			3	1	3.448276	100.00
			Total -->	29		
			75% cut-off -> (12)		44.83	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3530	Programming	8	14	40.00	40.00
	Hybrid	Abstraction	7	6	17.14	57.14
			6	4	11.43	68.57
			5	4	11.43	80.00
			4	3	8.57	88.57
			3	2	5.71	94.29
			2	2	5.71	100.00
			Total -->	35		
			75% cut-off -> (6)		68.57	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3530	Programming	12	14	40.00	40.00
	Hybrid	Use of Java API	11	3	8.57	48.57
			10	6	17.14	65.71
			9	5	14.29	80.00
			8	2	5.71	85.71
			7	2	5.71	91.43
			6	2	5.71	97.14
			5	1	2.86	100.00
			Total -->	35		
			75% cut-off -> (9)		80.00	

SEMESTER	COURSE	PROGRAM OBJECTIVE	Score	# Students	%	Cumulative

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3530 Hybrid	Programming Linked Structures	8	15	46.88	46.88
			7	4	12.50	59.38
			6	5	15.63	75.00
			5	3	9.38	84.38
			4	3	9.38	93.75
			2	2	6.25	100.00
			Total -->	32		
			75% cut-off -> (6)		75.00	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3530 Hybrid	Programming Recursion	8	16	48.48	48.48
			7	5	15.15	63.64
			6	2	6.06	69.70
			5	8	24.24	93.94
			4	2	6.06	100.00
			Total -->	33		
			75% cut-off -> (6)		69.70	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 4338	Computer Systems Execution and Locking	6	31	75.61	75.61
			5	2	4.88	80.49
			3	8	19.51	100.00
			Total -->	41		
			75% cut-off --> (4.5)		80.49	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 4555	Foundations Survey of Programming Languages	10	3	6.82	6.82
			9	6	13.64	20.45
			8	6	13.64	34.09
			7	10	22.73	56.82
			6	8	18.18	75.00
			5	8	18.18	93.18
			4	3	6.82	100.00
			Total -->	44		
	70% cut-off --> (7)	56.82	75% cut-off --> (7.5)		34.09	

SEMESTER	COURSE	PROGRAM OBJECTIVE	Score	# Students	%	Cumulative

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 4610	Computer Systems	9	2	6.45	6.45
		Memory Management	8	2	6.45	12.90
			7	8	25.81	38.71
			6	5	16.13	54.84
			5	8	25.81	80.65
			4	3	9.68	90.32
			3	3	9.68	100.00
			Total -->	31		

66.66% cut-off --> (6)   54.84   75% cut-off --> (6.75)   38.71

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 4610	Computer Systems	8	3	10.34	10.34
		Storage Management	7	6	20.69	31.03
			6	16	55.17	86.21
			5	4	13.79	100.00
			Total -->	29		

75% cut-off --> (6)   86.21

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 4710	Computer Systems	16	0	0.00	0.00
		Database Management	15	2	5.13	5.13
			14	2	5.13	10.26
			13	3	7.69	17.95
			12	4	10.26	28.21
			11	4	10.26	38.46
			10	4	10.26	48.72
			9	4	10.26	58.97
			8	6	15.38	74.36
			7	3	7.69	82.05
			6	4	10.26	92.31
			4	3	7.69	100.00
			Total -->	39		

50% cut-off --> (8)   74.36   75% cut-off --> (12)   28.21

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COT 3100	Foundations	15	7	22.58	22.58
		Discrete Structures	14	6	19.35	41.94

67

			Score	# Students	%	Cumulative
			12	6	19.35	61.29
			11	4	12.90	74.19
			10	4	12.90	87.10
			9	1	3.23	90.32
			8	2	6.45	96.77
			7	1	3.23	100.00
			Total -->	31		
			75% cut-off --> (12)		61.29	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	MAD 3512	Foundations	100	0	0.00	0.00
		Theory of Algorithms	90	0	0.00	0.00
			80	2	8.33	8.33
			70	7	29.17	37.50
			60	7	29.17	66.67
			50	2	8.33	75.00
			40	3	12.50	87.50
			30	1	4.17	91.67
			20	2	8.33	100.00
			TOTAL-->	24		
	60% cut-off --> (60)		66.67	75% cut-off --> (75)	8.33	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3530	Programming	14	0	0	0.00
	RVC	Data Structures & Analysis of Algo.	13	5	11.36364	11.36
			12	1	2.272727	13.64
			11	3	6.818182	20.45
			10	3	6.818182	27.27
			9	14	31.81818	59.09
			8	6	13.63636	72.73
			7	3	6.818182	79.55
			6	2	4.545455	84.09
			5	3	6.818182	90.91
			3	4	9.090909	100.00
			Total -->	44		
			75% cut-off -> (10.5)		20.45	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3530 RVC	Programming Abstraction	8	19	38.00	38.00
			7	16	32.00	70.00
			6	6	12.00	82.00
			5	6	12.00	94.00
			4	3	6.00	100.00
			Total -->	50		
			75% cut-off -> (6)		82.00	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3530 RVC	Programming Use of Java API	12	20	40.00	40.00
			11	5	10.00	50.00
			10	14	28.00	78.00
			9	5	10.00	88.00
			8	2	4.00	92.00
			7	2	4.00	96.00
			6	1	2.00	98.00
			5	1	2.00	100.00
			Total -->	50		
			75% cut-off -> (9)		88.00	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3530 RVC	Programming Linked Structures	8	23	46.00	46.00
			7	6	12.00	58.00
			6	5	10.00	68.00
			5	12	24.00	92.00
			4	4	8.00	100.00
			Total -->	50		
			75% cut-off -> (6)		68.00	

SEMESTER	COURSE NUMBER	PROGRAM OBJECTIVE TOPIC DESCRIPTION	Score	# Students	%	Cumulative
Fall 2019	COP 3530 RVC	Programming Recursion	8	22	44.00	44.00
			7	8	16.00	60.00
			6	9	18.00	78.00
			5	7	14.00	92.00
			4	2	4.00	96.00
			3	2	4.00	100.00
			Total -->	50		
			75% cut-off -> (6)		78.00	

Rating-Sheet

Senior Project

Assessment of Student Outcomes of the BS in Computer Science
of the
FIU School of Computing and Information Sciences

Project Title: **«Title1»**

Number of team members: **«Team_Members»**   Semester & Year: **«Semester»**

Project origination: **«Origination»**

Evaluator   Affiliation

«Evaluator»   **«Evaluator_Affiliation»**

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Your responses to this survey instrument will be used solely for the purpose of assessing the Student 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).

For each Student Outcome, decide whether this project provides sufficient evidence to make a judgment about the students' attainment of that Student Outcome. If so, please indicate your assessment of the level of attainment of that Student Outcome demonstrated in this project:

Rating	Criterion
n/a	The project does not provide clear evidence about this particular outcome
1	The project demonstrates **poor** attainment of this outcome
2	The project demonstrates **fair** attainment of this outcome
3	The project demonstrates **good** attainment of this outcome
4	The project demonstrates **very good** attainment of this outcome
5	The project demonstrates **excellent** attainment of this outcome

BS in CS Student Outcomes Assessment via Senior Project

Student Outcomes		Rating
a)	An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline.	«a»
b)	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.	«b»
c)	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	«c»
d)	An ability to function effectively on teams to accomplish a common goal.	«d»
e)	An understanding of professional, ethical, legal, security and social issues and responsibilities.	«e»
f)	An ability to communicate effectively with a range of audiences.	«f»
g)	An ability to analyze the local and global impact of computing on individuals, organizations, and society.	«g»
h)	Recognition of the need for and an ability to engage in continuing professional development.	«h»
i)	An ability to use current techniques, skills, and tools necessary for computing practice.	«i»
j)	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.	«j»
k)	An ability to apply design and development principles in the construction of software systems of varying complexity.	«k»

Rubric («Semester»)

Senior Project

Assessment of Student Outcomes of the BS in Computer Science
of the
School of Computing and Information Sciences
Florida International University

The School of Computing and Information Sciences evaluates the Senior Projects of its graduating seniors for the purpose of assessing the level of attainment of the Student Outcomes of the BS in Computer Science program.

Your responses to this survey will be used solely for the purpose of assessing the Student Outcomes of the BS in Computer Science program of the School of Computing and Information Sciences at FIU. This survey is expressly NOT for assessment of student performance in the SCIS Senior Project course for assignment of letter grade, nor for assessment of the instructor(s).

Rating Instructions
For each program outcome standard, you are provided with a check-list of 7 or more criteria that evidence attainment of that standard. Please check all criteria that are represented in this project. You may include additional criteria that are not explicitly listed; if so, please record the additional criteria in the appropriate sections. Unless noted otherwise, the number of checked criteria in each section, <u>up to a maximum of 5</u>, will be recorded as your rating of attainment of that outcome standard evidenced in the project.

Project Title: **«Title1»**

Semester & Year: **«Semester»**

Moderator (Faculty / Industry Sponsor): **«Moderator»**

Evaluators: **«Evaluator»**

Student Outcome (a): *An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline.*

| « | Enter **n/a** if this Knowledge Area is not significantly represented in this project. Otherwise, please record the number of checked criteria, up to a maximum of 5. |

«a1»   Students used math expressions in their project.

«a2»   Students used logical expressions in their project.

«a3»   Students used statistics to characterize and interpret data in their project.

«a4»   Students used models to solve problems in their project.

«a5»   Students performed data analysis in their project.

«a6»   Students developed mathematical algorithms in their project.

«a7»   Students analyzed complexity and efficiency in their project.

«a8»   Students developed model for some processes in their project.

«a9»   Students used formal verification and formal proofs in their project.

Student Outcome (b): *An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.*

«

Enter n/a if this Knowledge Area is not significantly represented in this project. Otherwise, please record the number of checked criteria, up to a maximum of 5.

«b1» Students casted a real-world problem to a computing problem in their project.

«b2» Students modified problem definition as new information arrived in their project.

«b3» Students elicited requirement from users in their project.

«b4» Students developed requirements specifications in their project.

«b5» Students conducted feasibility studies in their project.

«b6» Students formulated solution strategies in their project.

«b7» Students estimated resources required for their proposed solution.

«b8» Students evaluated the space, time, and financial demands of their solution.

«b9» Students mapped identified appropriate languages, platforms, and hardware in their project.

Student Outcome (c): *An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.*

| «C | Enter **n/a** if this Knowledge Area is not significantly represented in this project. Otherwise, please record the number of checked criteria, up to a maximum of 5. |

  «c1»   Students applied software engineering principles to produce their solution to the problem in their project.

  «c2»   Students considered alternatives technologies and development methodologies in their project.

  «c3»   Students developed design documents in their project.

  «c4»   Students used two or more high level languages in their project.

  «c5»   Students developed metrics for testing and verifying their solution in their project.

  «c6»   Students created a set of tests and use them to verify their solution.

  «c7»   Students measured system performance and quality of service in their project.

Student Outcome (d): *An ability to function effectively on teams to accomplish a common goal.*

«	Enter **n/a** if this Knowledge Area is not significantly represented in this project. Otherwise, please record the number of checked criteria, up to a maximum of 5.

To be completed by an evaluator

«d1»   All team members contributed equally to the project.

«d2»   All team members activities were appropriately and adequately documented.

To be completed from the data obtained from team members' peer evaluations
Each team member rates each of the other members of their team individually on each criterion listed below on a scale of 1 to 5. The mean of all ratings for each criterion is recorded.
The rubric item is checked only if the project (mean) score >= 4.0 for each of the 2 criteria.

«d3»   Team members' roles were clearly defined and executed

Criterion	Mean Score
1: *Team members had clear understanding of expectations.*	«d31»
2: *Team members maximized the use of their individual skill sets.*	«d32»

«d4»   Project team set out and followed a schedule for timely completion

Criterion	Mean Score
3: *Team members complied with mechanisms to track progress.*	«d41»
4: *Team members completed assignments in a timely fashion.*	«d42»

«d5»   Project team negotiated consensus when needed

Criterion	Mean Score
5: *Team members showed respect for other team members opinions.*	«d51»
6: *Team members were able to negotiate and compromise.*	«d52»

«d6»   Project completion evidences equitable participation by team members

Criterion	Mean Score
7: *Team members contributed ideas and viewpoints.*	«d61»
8: *Team members did their fair share of the work.*	«d62»

«d7»   Team members shared responsibility for success and failure

Criterion	Mean Score
9: *Team members actively sought & shared information from each other.*	«d71»
10: *Team members were adaptable to changing requirements.*	«d72»

Student Outcome (e): *An understanding of professional, ethical, legal, security and social issues and responsibilities.*

«	**Enter n/a if this Knowledge Area is not significantly represented in this project. Otherwise, please record the number of checked criteria, up to a maximum of 5.**

«e1»   Students demonstrated understanding of intellectual property issues in their project.

«e2»   Students demonstrated working knowledge of a code of ethics in their project.

«e3»   Students recognized situations where discrimination arouse in their project.

«e4»   Students demonstrated proper etiquette and proactive social behavior in professional situations in their project.

«e5»   Students suggested remedies for specific situations which create a hostile work environment in their project.

«e6»   Students properly cited documents sources and references in their project.

«e7»   Students identified and addressed some relevant legal issues in their project.

«e8»   Students identified and addressed some relevant privacy issues in their project.

«e9»   Students identified and addressed some relevant security issues in their project.

Program Outcome (f): *An ability to communicate effectively with a range of audiences.*

| «f | Enter **n/a** if this Knowledge Area is not significantly represented in this project. Otherwise, please record the number of checked criteria, up to a maximum of 5. |

Written presentation

«f1»   Completeness   Students documented all essential project features.

«f2»   Organization   Students provided a well-organized final document.

Oral Presentation
1) Rate each presenter individually using the oral presentation rubric provided
2) Record the presenters' ratings of each presenter in each rubric item
3) Calculate the mean presenter rating for each rubric item
4) ***For each rubric item, check only if the mean score >= 3.0***

«f3»   Domain Knowledge:

Presenter 1	Presenter 2	Presenter 3	Presenter 4	Presenter 5	Mean
«f31»	«f32»	«f33»	«f34»	«f35»	«f36»

«f4»   Organization:

Presenter 1	Presenter 2	Presenter 3	Presenter 4	Presenter 5	Mean
«f41»	«f42»	«f43»	«f44»	«f45»	«f46»

«f5»   Presentation Aids:

Presenter 1	Presenter 2	Presenter 3	Presenter 4	Presenter 5	Mean
«f51»	«f52»	«f53»	«f54»	«f55»	«f56»

«f6»   Elocution:

Presenter 1	Presenter 2	Presenter 3	Presenter 4	Presenter 5	Mean
«f61»	«f62»	«f63»	«f64»	«f65»	«f66»

«f7»   Audience Contact:

Presenter 1	Presenter 2	Presenter 3	Presenter 4	Presenter 5	Mean
«f71»	«f72»	«f73»	«f74»	«f75»	«f76»

Student Outcome (g): *An ability to analyze the local and global impact of computing on individuals, organizations, and society.*

«g»	**Enter n/a if this Knowledge Area is not significantly represented in this project. Otherwise, please record the number of checked criteria, up to a maximum of 5.**

 «g1»   Students demonstrated understanding of various ways in which computing technology impacts individuals in their project.

 «g2»   Students demonstrated understanding of various ways in which computing technology impacts organizations in their project.

 «g3»   Students demonstrated understanding of various ways in which computing technology impacts societies in their project.

 «g4»   Students identified key concepts, definitions, and facts associated with positive impacts of computer technology in their project.

 «g5»   Students identified key concepts, definitions, and facts associated with negative impacts of computer technology in their project.

 «g6»   Students demonstrated appropriate and comprehensive critical thinking skills and habits of mind to analyze, evaluate and synthesize evidence in their project.

 «g7»   Students recognized and suggested appropriate remedies for activities involving computing technology which affect adversely users of computing technologies in their project.

Student Outcome (h): *Recognition of the need for and an ability to engage in continuing professional development.*

«	Enter **n/a** if this Knowledge Area is not significantly represented in this project. Otherwise, please record the number of checked criteria, up to a maximum of 5.

«h1»   Students identified the competencies and knowledge required by particular application domains in their project.

«h2»   Students demonstrated knowledge of the history of computing and the rapidly evolving nature of the computing discipline in their project.

«h3»   Students showed an understanding of what skill sets are currently desired by employers in their project.

«h4»   Students showed knowledge of computer-related professional organizations (ACM, IEEE), publications, and conferences.

«h5»   Students showed knowledge of various avenues for professional development past the undergraduate college experience.

«h6»   Students demonstrated learning of a new development tool without instructor guidance in their project.

«h7»   Students demonstrated the ability to research topics using the web, library, and professional publications in their project.

«h8»   Students demonstrated ability to reflect on their learning process and their own understanding in their project.

Program Outcome (i): *An ability to use current techniques, skills, and tools necessary for computing practice.*

«i» Enter **n/a** if this Knowledge Area is not significantly represented in this project.
Otherwise, please record the number of checked criteria, up to a maximum of 5.

Self-ratings of competency are provided by the student project-team on the following scale:
      5: Expert, **4**: Advanced, **3**: Competent, **2**: Intermediate, *1*: Novice
Check-mark is earned if the team's competency rating is 2 or higher.

«i1»   Students used contemporary presentation and demonstration tools in their project.

«i2»   Students developed artifacts using modern document preparation tools in their project.

«i3»   Students employed management and/or version control software in their project.

«i4»   Students utilized modeling software in their project.

«i5»   Students utilized contemporary database management systems in their project.

«i6»   Students performed web-based programming (server, web-page, etc.) in their project.

«i7»   Students performed testing using contemporary validation/testing software in their project.

Student Outcome (j): *An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.*
<u>*Mathematical Foundations*</u>

«j	**Enter n/a if this Knowledge Area is not significantly represented in this project.** **Otherwise, please record the number of checked criteria, up to a maximum of 5.**

«j1»   Students used math expressions in their project.

«j2»   Students used logical expressions in their project.

«j3»   Students used statistics in their project.

«j4»   Students performed formal proofs.

«j5»   Students implemented mathematical algorithms.

«j6»   Students developed models in their project.

«j7»   Students demonstrated the use of design trade off in their project.

Student Outcome (k): *An ability to apply design and development principles in the construction of software systems of varying complexity.*

«   **Enter n/a if this Knowledge Area is not significantly represented in this project. Otherwise, please record the number of checked criteria, up to a maximum of 5.**

«k1»   Students contributed in the design and development of a small-, medium-, or large-scale software system in their project.

«k2»   Students demonstrated understanding of the Software Development Life Cycle in their project.

«k3»   Students developed Project Specification in their project.

«k4»   Students performed Feasibility Study and/or develop Project Plan in their project.

«k5»   Students developed Requirements Documentation in their project.

«k6»   Students developed Design Documentation in their project.

«k7»   Students performed and documented testing and/or evaluation of the implementation in their project.

«k8»   Students performed system walkthroughs in their project.

Notes: «Notes»

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APPENDIX G-2: Senior Project Assessment Results – Summer 2019

	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Project 1	3	5	5		3	5		4		3	5
EFPO EF or T - V2	3	5	5	5	3	5		5	5	3	5
Project 2	3	5	5		3	5		4		3	5
EFWA EF or T - V2	3	5	5	5	3	5		5	5	3	5
Project 3	3	5	5		3	5		4		3	5
EFVT EF or T - V2	3	5	5	5	3	5		5	5	3	5
Project 4	3	5	5		3	5		4		3	5
EFEC EF or T - V2	3	5	5	5	3	5		5	5	3	5
Project 5	3	5	5		3	5		4		3	5
EFWE EF or T - V2	3	5	5	5	3	5		5	5	3	5
Project 6	5	5	5		3	5		4		4	5
EFTT EF or T - V2	5	5	5	5	3	5		5	4	4	5
Project 7	5	5	5		3	5		4		4	5
EFDT EF or T - V2	5	5	5	5	3	5		5	4	4	5
Project 8	5	5	5		3	5		4		4	5
EFST EF or T - V2	5	5	5	5	3	5		5	4	4	5
	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Mean	3.75	5	5	5	3	5		4.5	4.625	3.375	5

APPENDIX G-3: Senior Project Assessment Results – Fall 2019

	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Project 1	3	5	3		2	5		5		3	5
AMPATH Web Portal	5	5	3	5	2	5	3	5	5	3	5
Project 2	3	5	5		2	5		5		3	5
Analyzing Bio Networks	5	5	5	5	2	5		5	4	3	5
Project 3	3	5	5		2	5		5		3	5
BOLO	3	5	5	5	2	5		5	5	3	5
Project 4	3	5	5		2	5		5		3	5
Basic LMS on Facebook	3	5	5	5	2	5		5	5	3	5
Project 5	3	5	5		2	5		5		3	5
Biometric Identification	3	5	5	5	2	5		5	5	3	5
Project 6	3	5	5		2	5		5		3	5
CREST EnvoScholar	3	5	5	5	2	5		5	5	3	5
Project 7	3	5	5		2	5		5		3	5
Cloud Enabling Work Q	3	5	5	5	2	5		5	5	3	5
Project 8	3	5	5		2	5		5		3	5
Crowd-Sourcing Parking	3	5	5	5	2	5		5	5	3	5
Project 9	3	5	5		2	5		5		3	5
Data Hub 311 Requests	3	5	5	5	2	5		5	5	3	5
Project 10	3	5	5		2	5		5		3	5
EF or T - EFDT	3	5	5	5	2	5		5	5	3	5
Project 11	3	5	5		2	5		5		3	5
EF or T - EFTT	3	5	5	5	2	5		5	4	3	5
Project 12	3	5	5		2	5		5		3	5
EF or T - EFVT	3	5	5	5	2	5		5	5	3	5
Project 13	3	5	5		2	5		5		3	5
EF or T - EFWA	3	5	5	5	2	5		5	5	3	5
Project 14	3	5	5		2	5		5		3	5
EF or T - EFWE	3	5	5	5	2	5		5	5	3	5
Project 15	3	5	5		2	5		5		3	5
Infant Food Freq. Ques.	3	5	5	3	2	5		5	5	3	5
Project 16	3	5	5		2	5		5		3	5
Intelligent BIM Virt. Asst	3	5	5	5	2	5		5	5	3	5
Project 17	3	5	5		2	5		5		3	5
Moms & Infants Healthy	3	5	5	5	2	5		5	5	3	5
Project 18	3	5	5		2	5		5		3	5
Mobile Internet of Things	3	5	5	5	2	5		5	5	3	5
Project 19	3	5	5		2	5		5		3	5
Mobile Judge	3	5	5	5	2	5		5	5	3	5
Project 20	3	5	5		2	5		5		3	5
One-Stop Film Permitting	3	5	5	5	2	5		5	4	3	5
Project 21	3	5	5		2	5		5		3	5
Online Graduation	3	5	5	5	2	5		5	5	3	5
Project 22	3	5	5		2	5		5		3	5
Patrol Shift Bid Scheduler	3	5	5	5	2	5		5	5	3	5
Project 23	3	5	5		2	5		5		3	5
Robotics Academy	3	5	5	5	2	5		5	5	3	5
Project 24	3	5	5		2	5		5		3	5
Senior Project Web App	3	5	5	5	2	5		5	5	3	5
Project 25	3	5	5		2	5		5		3	5
SkillCourt	3	5	5	5	2	5		5	5	3	5
Project 26	3	5	5		2	5		5		3	5
Smart Phones - Vision ---	3	5	5	5	2	5		5	5	3	5
Project 27	3	5	5		2	5		5		3	5
Snackability	3	5	5	5	2	5		5	5	3	5
Project 28	3	5	5		2	5		5		3	5
Style-On Cosmetic App	3	5	5	5	2	5		5	5	3	5
Project 29	3	5	5		2	5		5		3	5
Vertically Integrated Proj.	3	5	5	5	2	5		5	5	3	5
Project 30	3	5	5		2	5		5		3	5
Virtual Roll Call	3	5	5	5	2	5		5	5	3	5
Project 31	3	5	5		2	5		5		3	5
Voice Controlled VR Appl	3	5	5	5	2	5		5	5	3	5
Project 32	3	5	5		2	5		5		3	5
Volunteer Attendance	3	5	5	5	2	5		5	5	3	5
Project 33	3	5	5		2	5		5		3	5
Wearable Tech. High BMI	3	5	5	5	2	5		5	5	3	5
	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Mean	*3.06061*	*5*	*4.93939*	*4.93939*	*2*	*5*	*3*	*5*	*4.90909*	*3*	*5*

APPENDIX G-4: Senior Project Assessment Results – Spring 2020

	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Project 1	5	5	3		2	5		5		3	5
AmLight - V3	5	5	3	5	2	5	3	5	4	3	5
Project 2	5	5	3		2	5		5		3	5
AMPATH Web - V2	5	5	3	5	2	5		5	4	3	5
Project 3	3	5	5		2	5		5		3	5
Analyzing Bio Netwks - V2	3	5	5	5	2	5		5	5	3	5
Project 4	3	5	5		2	5		5		3	5
AR VR Training - Robotics	3	5	5	5	2	5		5	5	3	5
Project 5	3	5	5		2	5		5		3	5
Auto Spherification - V1	3	5	5	5	2	5		5	5	3	5
Project 6	3	5	5		2	5		5		3	5
Basic LMS Facebook - V4	3	5	5	5	2	5		5	5	3	5
Project 7	3	5	5		2	5		5		3	5
BOLO - V14	3	5	5	5	2	5		5	5	3	5
Project 8	3	5	5		2	5		5		3	5
Combo Heavy Bag - V2	3	5	5	5	2	5		5	5	3	5
Project 9	3	5	5		2	5		5		3	5
Constrn Web App - V1	3	5	5	3	2	5		5	5	3	5
Project 10	3	5	5		2	5		5		3	5
Dig. Grad & Reunions - V2	3	5	5	5	2	5		5	5	3	5
Project 11	3	5	5		2	5		5		3	5
DML for MPR - V1	3	5	5	5	2	5		5	4	3	5
Project 12	3	5	5		2	5		5		3	5
Dr Horticulture - V2	3	5	5	5	2	5		5	5	3	5
Project 13	3	5	5		2	5		5		3	5
Empwrd FOREX D Trdr - V4	3	5	5	5	2	5		5	5	3	5
Project 14	3	5	5		2	5		5		3	5
Empwrd FOREX S Trdr - V4	3	5	5	5	2	5		5	5	3	5
Project 15	3	5	5		2	5		5		3	5
Empwrd FOREX T Trdr - V4	3	5	5	5	2	5		5	5	3	5
Project 16	3	5	5		2	5		5		3	5
Empwrd FOREX V. Tools - V4	3	5	5	5	2	5		5	5	3	5
Project 17	3	5	5		2	5		5		3	5
Empwrd FOREX Acc. - V4	3	5	5	5	2	5		5	5	3	5
Project 18	3	5	5		2	5		5		3	5
Empwrd FOREX Exch - V4	3	5	5	5	2	5		5	5	3	5
Project 19	3	5	5		2	5		5		3	5
Infant FFQP Clin. Site - V3	3	5	5	5	2	5		5	5	3	5
Project 20	3	5	5		2	5		5		3	5
Infant FFQP Par. Site - V3	3	5	5	5	2	5		5	4	3	5
Project 21	3	5	5		2	5		5		3	5
Intell. BIM Virt. Asst. - V3	3	5	5	3	2	5		5	5	3	5
Project 22	3	5	5		2	5		5		3	5
Keep Moms & Inf. Hlthy - V2	3	5	5	5	2	5		5	5	3	5
Project 23	3	5	5		2	5		5		3	5
ML - Sm. Bus. Mrchand. - V1	3	5	5	5	2	5		5	5	3	5
Project 24	3	5	5		2	5		5		3	5
MathBotics - V1	3	5	5	5	2	5		5	5	3	5
Project 25	3	5	5		2	5		5		3	5
MIMIC - V3	3	5	5	5	2	5		5	5	3	5
Project 26	3	5	5		2	5		5		3	5
Parkinson's Support - V1	3	5	5	5	2	5		5	5	3	5
Project 27	3	5	5		2	5		5		3	5
Patrol Shift Scheduler - V3	3	5	5	5	2	5		5	5	3	5
Project 28	3	5	5		2	5		5		3	5
Ped. Em. Medicine App - V1	3	5	5	5	2	5		5	5	3	5
Project 29	3	5	5		2	5		5		3	5
Robotics Acad. Website - V2	3	5	5	5	2	5		5	5	3	5
Project 30	3	5	5		2	5		5		3	5
Sensor Integration Proj - V1	3	5	5	5	2	5		5	5	3	5
Project 31	3	5	5		2	5		5		3	5
Skill Court - V12	3	5	5	5	2	5		5	5	3	5
Project 32	3	5	5		2	5		5		3	5
Smart Home - V1	3	5	5	5	2	5		5	5	3	5
Project 33	3	5	5		2	5		5		3	5
Sprint Optimizer - V1	3	5	5	5	2	5		5	5	3	5
Project 34	3	5	5		2	5		5		3	5
Virt. Adv. Academy - V1	3	5	5	5	2	5		5	5	3	5
Project 35	3	5	5		2	5		5		3	5
Virtual Roll Call - V8	3	5	5	5	2	5		5	5	3	5
Project 36	3	5	5		2	5		5		3	5
Vocabulary in Reading - V5	3	5	5	5	2	5		5	5	3	5
Project 37	3	5	5		2	5		5		3	5
Voive VR - V2	3	5	5	3	2	5		5	5	3	5
Project 38	3	5	5		2	5		5		3	5
Volunteer Attend. Sys - V2	3	5	5	5	2	5		5	5	3	5
Project 39	3	5	5		2	5		5		3	5
Yachet Charter Appl - V1	3	5	5	5	2	5		5	5	3	5
	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Mean	*3.4*	*5*	*4.6*	*4.8*	*2*	*5*	*3*	*5*	*4.8*	*3*	*5*

APPENDIX G-5: Senior Project Assessment Results – Summer 2020

	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Project 1	3	5	5		2	5		5		3	5
AmLight - V4	5	5	5	5	2	5	3	5	5	3	5
Project 2	3	5	5		2	5		5		3	5
AMPATH Web Intrfce - V3	5	5	5	5	2	5	3	5	5	3	5
Project 3	3	5	5		2	5		5		3	5
Apply 4DX to Sr Proj - V1	3	5	5	5	2	5		5	5	3	5
Project 4	3	5	5		2	5		5		3	5
Aviation Job Board - V1	3	5	5	5	2	5		5	5	3	5
Project 5	3	5	5		2	5		5		3	5
Baby Feed - V4	3	5	5	5	2	5		5	5	3	5
Project 6	3	5	5		2	5		5		3	5
BOLO - V15	3	5	5	5	2	5		5	5	3	5
Project 7	3	5	5		2	5		5		3	5
BRAINGIS	3	5	5	5	2	5		5	5	3	5
Project 8	3	5	5		2	5		5		3	5
Combo Counter - V3	3	5	5	5	2	5		5	5	3	5
Project 9	3	5	5		2	5		5		3	5
Keep Moms & Inf. Hlthy - V3	3	5	5	5	2	5		5	5	3	5
Project 10	3	5	5		2	5		5		3	5
LMS App on Facebook - V5	3	5	5	5	2	5		5	5	3	5
Project 11	3	5	5		2	5		5		3	5
ML Optimization - V1	3	5	5	5	2	5		5	5	3	5
Project 12	3	5	5		2	5		5		3	5
Patrol Shift Bid Sched. - V4	3	5	5	5	2	5		5	5	3	5
Project 13	3	5	5		2	5		5		3	5
Ped. Em. Medicine App - V2	3	5	5	5	2	5		5	5	3	5
Project 14	3	5	5		2	5		5		3	5
Robotics Acad Website - V3	3	5	5	5	2	5		5	5	3	5
Project 15	3	5	5		2	5		5		3	5
Skill Court - V13	3	5	5	5	2	5		5	5	3	5
Project 16	3	5	5		2	5		5		3	5
Sprint Optimizer - V2	3	5	5	5	2	5		5	5	3	5
	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Mean	*3.2*	*5*	*5*	*5*	*2*	*5*	*3*	*5*	*5*	*3*	*5*

	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Project 1	3	5	5		2	2		5		3	5
AmLight	5	5	5	5	2	5	3	5	5	3	5
Project 2	3	5	5		2	2		5		3	5
AMPATH	5	5	5	5	2	5	3	5	5	3	5
Project 3	3	5	5		2	2		5		3	5
Aviation Job Board Portal	3	5	5	5	2	5		5	5	3	5
Project 4	3	5	5		2	2		5		3	5
Baby Feed	3	5	5	5	2	5		5	5	3	5
Project 5	3	5	5		2	2		5		3	5
BBQUDA	3	5	5	5	2	5		5	5	3	5
Project 6	3	5	5		2	5		5		3	5
BOLO	3	5	5	5	2	5		5	5	3	5
Project 7	3	5	5		2	5		5		3	5
Cybersecurity in SDN	3	5	5	5	2	5		5	5	3	5
Project 8	3	5	5		2	2		5		3	5
Enabling Wearable Tech	3	5	5	5	2	5		5	5	3	5
Project 9	3	5	5		2	2		5		3	5
Grader Finder Canvas App	3	5	5	5	2	5		5	5	3	5
Project 10	3	5	5		2	2		5		3	5
Intell. BIM Virtual Asst.	3	5	5	5	2	5		5	5	3	5
Project 11	3	5	5		2	2		5		3	5
LMS App on Facebook	3	5	5	5	2	5		5	5	3	5
Project 12	3	5	5		2	2		5		3	5
MathBotics	3	5	5	5	2	5		5	5	3	5
Project 13	3	5	5		2	2		5		3	5
METIS	3	5	5	5	2	5		5	5	3	5
Project 14	3	5	5		2	5		5		3	5
Keep Moms & Inf. Hlthy	3	5	5	5	2	5		5	5	3	5
Project 15	3	5	5		2	5		5		3	5
Patrol Shift Bid Scheduler	3	5	5	5	2	5		5	5	3	5
Project 16	3	5	5		2	2		5		3	5
Ped. Em. Med. (PEM) App	3	5	5	5	2	5		5	5	3	5
Project 17	3	5	5		2	2		5		3	5
PluMA 2.0 GUI	3	5	5	5	2	5		5	5	3	5
Project 18	3	5	5		2	2		5		3	5
PluMA 2.0 Windows	3	5	5	5	2	5		5	5	3	5
Project 19	3	5	5		2	2		5		3	5
Robotics Acad. Website	3	5	5	5	2	5		5	5	3	5
Project 20	3	5	5		2	2		5		3	5
Skill Court	3	5	5	5	2	5		5	5	3	5
Project 21	3	5	5		2	2		5		3	5
Snackability	3	5	5	5	2	5		5	5	3	5
Project 22	3	5	5		2	5		5		3	5
StyleOn	3	5	5	5	2	5		5	5	3	5
	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Mean	3.2	5	5	5	2	3.8	3	5	5	3	5

APPENDIX G-7: Senior Project Assessment Results – Spring 2021

	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Project 1	3	5	5		2	5		5		3	5
Agineek	3	5	5	5	3	5	3	5	5	3	5
Project 2	5	5	5		2	5		5		3	5
ANanSI	5	5	5	5	3	5	0	5	5	3	5
Project 3	3	5	5		2	5		5		3	5
Baby Feed	4	5	5	5	4	5	3	5	5	4	5
Project 4	3	5	5		2	5		5		3	5
BBQUDA	3	5	5	5	3	5	0	5	5	3	5
Project 5	3	5	5		2	2		5		3	5
ComboCounter Heavy Bag	3	5	5	5	3	2	0	5	5	3	5
Project 6	4	5	5		2	5		5		3	5
CyFinder	4	5	5	5	3	5	0	5	5	3	5
Project 7	3	5	5		2	5		5		3	5
Data Labeling by Active Learning	5	5	5	5	3	5	0	5	5	3	5
Project 8	3	5	5		2	5		5		3	5
Diet Therapy App	3	5	5	5	3	5	3	5	5	3	5
Project 9	3	5	5		2	2		5		3	5
Dr. Horticulture	3	5	5	5	3	2	0	5	5	3	5
Project 10	3	5	5		2	2		5		3	5
Gamification of LMS App	3	5	5	5	3	2	0	5	5	3	5
Project 11	4	5	5		2	2		5		3	5
jTLEX	5	5	5	5	3	2	0	5	5	3	5
Project 12	3	5	5		2	2		5		3	5
MathBotics	3	5	5	5	3	2	0	5	5	3	5
Project 13	3	5	5		2	5		5		3	5
Mitigating Impacts of COVID-19	3	5	5	5	3	5	3	5	5	3	5
Project 14	3	5	5		2	5		5		3	5
Pediatric Em. Medicine App	3	5	5	5	3	5	3	5	5	3	5
Project 15	3	5	5		2	5		5		3	5
Pet Care	3	5	5	5	3	5	3	5	5	3	5
Project 16	4	5	5		2	2		5		3	5
Snack-ability	4	5	5	5	3	2	3	5	5	4	5
Project 17	3	5	5		2	5		5		3	5
The Robotics Academy	3	5	5	5	3	5	0	5	5	3	5
Project 18	4	5	5		2	2		5		3	5
Vocabulary in Reading Studies	4	5	5	5	3	2	0	5	5	3	5
Project 19	3	5	5		2	2		5		3	5
Voice Controlled VR Appl.	3	5	5	5	3	2	0	5	5	3	5
Project 20	3	5	5		2	5		5		3	5
Volunteer Attendance System	3	5	5	5	3	5	0	5	5	3	5
	Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Mean	3.45	5	5	5	2.55	4.1	0.9	5	5	3.05	5

Senior Project Assessment Results Summary – Summer 2019 to Spring 2021
Student Outcomes in CIS 4911 --- 2019-2021 cycle

	# Projects	Mean Outcome Results										
		Outcome (a)	Outcome (b)	Outcome (c)	Outcome (d)	Outcome (e)	Outcome (f)	Outcome (g)	Outcome (h)	Outcome (i)	Outcome (j)	Outcome (k)
Summer 2019	8	3.75	5.00	5.00	5.00	3.00	5.00		4.50	4.63	3.38	5.00
Fall 2019	33	3.06	5.00	4.94	4.94	2.00	5.00	3.00	5.00	4.91	3.00	5.00
Spring 2020	39	3.40	5.00	4.60	4.80	2.00	5.00	3.00	5.00	4.80	3.00	5.00
Summer 2020	16	3.20	5.00	5.00	5.00	2.00	5.00	3.00	5.00	5.00	3.00	5.00
Fall 2020	22	3.20	5.00	5.00	5.00	2.00	3.80	3.00	5.00	5.00	3.00	5.00
Spring 2021	20	3.45	5.00	5.00	5.00	2.55	4.10	0.90	5.00	5.00	3.05	5.00
Final Scores	138	3.29	5.00	4.87	4.93	2.14	4.68	2.52	4.97	4.90	3.03	5.00

2019-2021 ACM Report

The Association for Computer Machinery (ACM) at Florida International University (FIU) in Miami, Florida, has the mission to support our students' professional and technical advancement through university studies and beyond. We have been recognized both locally and nationally for our Outstanding Chapter activities by ACM National.

Through our five programs: ACM Build, ACM Learn, ACM Grow, ACM Reach, & ACM Scale, we provide students the opportunity to gain experience at our software and hardware workshops, participate in our professional development sessions, have access to industry professionals, give back to the community, and create a semester-long project in a team-based environment taught by mentors who have gone on to do internships at Google, Facebook, PlayStation, and more!

We welcome students from all majors and skill levels to join our organization and become a part of our university tech community!

Activities from Summer 2019 to Spring 2021

ACM Fall 2019
- GitHub and GitLab Workshop – Sponsored by WiCS – Presented by Fernando Serrano
- CEC Student Organization Leadership Meeting - Led by Julie Vallejos
- 10 ACM E-board Meetings (08/22/2019; 8/28/2019; 09/11/2019; 9/25/2019; 10/03/2019; 10/09/2019; 10/23/2019; 11/06/2019; 11/13/2019; 11/20/2019)
- 2 General Board Meetings (First and Final)
- Robotics Workshop Series (10/10/2019; 10/11/2019; 10/18/2019)
- Build: intro to Python (10/18/2019)

ACM Spring 2020
- Intro to Android Workshop (02/14/2020) – Led by Andrea Vieira
- 7 ACM E-Board Meetings (11/21/2020; 01/27/2020; 02/03/2020; 02/10/2020; 02/17/2020; 03/02/2020; 09/02/2020)
- GitHub Workshop (02/07/2020)
- 1 General Body Meeting (01/31/2020)

ACM Fall 2020
- 1 Emergency meeting (08/23/2020)
- First General Meeting (08/28/2020)

ACM Spring 2021
- General Body Meeting 04/02/2021

Google Developer Student Clubs @ Florida International University
2020 - 2021 Activity Report

Introduction

Google Developer Student Clubs (GDSC), otherwise known as Developer Student Clubs @Florida International University (DSC @ FIU) was founded in Fall 2020 in order to help students meet people with similar interests, learn about a wide range of technology, and apply their new learnings and connections to help the local community. DSC @ FIU is part of Google Developer's GDSC initiative - creating university-based community groups powered by Google for students interested in Google Developer technology.

Our mission statement is to connect the bridge between theory and practice. Students absorb theory from the classroom setting, but have little opportunities to practice the application of such theories within the classroom. Our organization aims to assist students in the practical application of theories taught within academia through the creation of programs integrating both theories and technology commonly used in the workforce today. To achieve this mission, we also seek to introduce Google Developer technology and its capabilities to the student body, though other technology is also discussed.

Starting a GDSC chapter in Florida International University allows students to participate in Google Developer's annual Solution Challenge. This is an international competition taking place from January to August where students around the globe work with Google technology to address a problem statement. Previous statements include solving a problem in the participants' local community or tackling one of the United Nations 17 Sustainable Development Goals. One requirement to participate in this challenge is to be in an active Developer Student Club chapter. By creating a chapter within FIU, the student body can now officially partake in this opportunity to make an impact and improve their own skills.

2020 - 2021 Activities

Upon starting in the Fall 2020 semester, we hosted technical development workshops and lectures. In addition to this, we also hosted social events for our members to socialize and network within the organization. Some examples of events we've hosted are as follows:

- Cloud Hero Workshop
- ShellHacks Intro to Python Workshop
- Game Night

We also began Developer Communities - groups within the organization aimed to introduce members to specific fields and find peers interested in the same field to collaborate and learn with. We initially started with Artificial Intelligence and Machine Learning, Mobile Development, and Competitive Programming. Communities were encouraged to communicate outside of weekly designated meetings to learn a specific aspect about their tech or talk about ongoing projects. Communities met weekly to help beginners get started on topics and applications, but some meetings were also dedicated to a free-talk forum for participants to discuss the technology and their own projects. The following semesters, we added Developer Communities for Web Development and Game Development.

In the following Spring 2021 semester, we shifted gears to help interested members participate in the 2021 Google Solution Challenge. Workshops and Developer Communities were still key components of club activities. Workshops began to shift gears towards project management topics. We also began to host professional development events. Some example of workshops hosted in this time period include the following:

● Resume Roast
● Computer Vision with Deep Learning
● Github Workshop
● Testing your Application Workshop

Our Competitive Programming Developer Community also hosted their first Binary Search Competition. Participants were seeded according to their LeetCode experience and competed against each other in solving 3 LeetCode questions the fastest.

Over the span of Summer 2021, we focused on professional development workshops like *How to Network*. This current semester, Fall 2021, we continued the trend from Spring 2021, mixing together professional and technical development alongside now biweekly Developer Communities. Activities include:

● ShellHacks TensorFlow Workshop
● Tech Internship Panel
● Intro to Python Series ft. AEMB

Throughout these events, our attendance averaged around 10 people, with some events achieving over 50 people.

Future Plans

In the upcoming Spring 2022 semester, we currently have plans to focus on guiding students through the 2022 Google Solution Challenge, starting in January with an official date to be announced later. This will come in the form of workshops primarily focusing on project planning, development, and testing. Some technology workshops will also be present, but the priority will be making sure all participants are pacing themselves to finish a minimum viable product by the deadline, typically late March to early April. Some anticipated topics include the following:

● Google Cloud Hero Workshop ft. Google Developers
● Database Modelling
● API Modelling
● MVP - What is it?
● Agile Methodology

It should be stressed that these are tentative plans and are in the planning phase at the moment. These events are subject to change, but offer a rough idea of how we anticipate our Spring 2022 semester will be structured.

Additionally, we are exploring the possibility of hosting another Programming tournament as we had done last year. Further exploration is required to host the event, including deciding if there is a physical component, and if so, how it will be managed with virtual participants.

FIU's Programming Team

With support from and the organizational support of the Academy for CS Education, the FIU programming team has continued to flourish. The teams have received scholarships, weekly tutorials, training sessions, weekly mock competitions, travel to attend coaching camps and retreats, and master classes by visiting expert coaches. Most programming team member have served an internship at Ultimate Software, Google, Apple, Uber, and more. Many have since become full time employees at their interning companies. Other team members have enrolled in graduate studies.

Programming Team training was paused for the first half of 2020 due to the pandemic. Since Fall 2020, the Google Developers Student Club (DSC) has been assisting with the training of the Programming Team. The DSC organizes 3 meetings every week – one for beginner programmers, one for intermediate programmers, and the last one for advanced algorithmic problem solving. These meetings are now live-streamed over a YouTube Channel and a larger audience is being reached in the process.

During the 2019-20 year, no scholarships were awarded to programming team members. During the 2020-21 year, $11,250 were awarded in scholarships to team members.

Starting from 2017, FIU has been a site for the **ACM Regional Programming Competition**. The competition is organized by the Academy for CS Education with FIU undergraduate and graduate student volunteers. The competition brings about 20-30 teams from across S. Florida to FIU's campus from across the southeastern states. The competition was successfully held in Fall 2019. FIU's teams placed 17, 19 and 25th in Division 1. Due to the pandemic, FIU was not a site in 2020-21. It was held virtually and both Divisions were merged into one large division, making the competition much more fierce than ever before. FIU's teams placed 37, 55, 57 and 64th.

In Spring, the Academy hosts the Annual **FIU High School Programming Competition**, attended by about 40 teams from Florida high schools, the largest competition of its kind in South Florida. The **High School Programming Competitions** as well as the **Robotics Competitions** were canceled for 2019-20 and 2020-21 due to pandemic.

STARS Activities Report: Summer 2019 – Spring 2021

Overview: STARS now focuses all of its resources on being a service organization, offering high quality one-on-one peer tutoring for all CS/IT students. Our goal is to be available to students whenever they need assistance.

2019-2020:

- **Peer tutoring available to all SCIS students covering multiple CS and IT courses**. All tutoring is now fully online, using WhatsApp chat groups for each course. We averaged coverage for 20 different courses. We have tutors online seven days per week, with coverage ranging from 9 Am to midnight on most days.
- **STARS tutors are available in every semester** including summer terms
- **We have excellence retention, with many tutors returning for multiple semesters of service.** Returning tutors assist in the interviewing of new applicants and the hiring decisions each semester.
- **On average, 90 to 150 students per semester register for access to one or more course support chat groups.**

2020-2021:

- **Peer tutoring available to all SCIS students covering multiple CS and IT courses**. All tutoring is now fully online, using WhatsApp chat groups for each course. We averaged coverage for 25 different courses each semester. We have tutors online seven days per week, with coverage ranging from 9 AM to midnight on most days.
- **STARS tutors are available in every semester** including summer terms
- **We have excellence retention, with many tutors returning for multiple semesters of service.** Returning tutors assist in the interviewing of new applicants and the hiring decisions each semester.
- **On average, 90 to 150 students per semester register for access to one or more course support chat groups.**

Upsilon Pi Epsilon (UPE) Report 2019 to 2021

The Florida International University chapter of Upsilon Pi Epsilon (UPE) has had an incredibly successful two years, establishing itself as the premier organization for students majoring in the computing and information disciplines (https://upe.cs.fiu.edu/). UPE currently resides in the Knight Foundation School of Computing and Information Sciences (KFSCIS). As the only honor society in these fields of study, UPE's mission is to provide these students with a community that recognizes their academic achievements and promotes career development. The organization accomplishes this mission by offering various programs and activities through which students can gain knowledge, develop their skills, and kick-start their professional careers.

Under the leadership of Chapter Presidents Matt Taylor (2019-2020) and Adriana Sandino (2020-2021), UPE has remained home to the largest and most active group of students in the KFSCIS. To this end, in the 2019-2021 academic years, UPE had an active membership of over 700+ students and inducted over 140 new members to the national UPE society. In addition, the FIU UPE chapter hosted the UPE National Convention in March 2020 and April 2021 and won the UPE Outstanding National Chapter Award 2020 and the Continuing Excellence national Chapter Award in 2021. UPE members continue to win the FIU Worlds Ahead Award, with members Shelia Alemonay, Alexandria Segovia, Julian Alarcon winning in 2019, and Christopher Rodriquez winning in 2020.

In the past two years, UPE hosted information sessions, technical workshops, social events, and outreach events, among other events. These events were organized by the nine (9) programs coordinated by the chapter. The main objective of each project is listed below, along with some of their signature events.

- **Code**: Teaches software development skills to students. Events - Software Development Workshop, Game Dev Workshop, Coding Cupid, and Python Scripting Workshop.

- **Make**: Teaches hardware development skills to students. Events - Raspberry Pi Workshop and 3D Printing Workshop

- **InfoTech**: Teaches information technology skills to students. Events - Linux Workshop, Google Cloud Platform, Hacking & Cybersecurity Workshop

- **Advance**: Prepare students for a career in the tech industry. Events - Launching Your Tech Career, MITRE Super Day, Mount Sinai Info Session, Advance Interview Prep, REVATURE Info Session, Advance Certifications, and Advance Resume Reviews. This program resulted in students receiving more than 40 internships between 2019 and 2021.

- **CS First (Ignite)**: Promote computer science in the community. Events - Hosted coding sessions at Miami-Dade Schools and assisted with coordinating the Miami Makerfaire and CodeFest Miami events.

- **SparkDev**: Develop meaningful projects in a risk-free environment. Events - SparkDev Game Night, Machine Learning with Google, and SparkDev Demo Day. Various teams participated in the development of projects culminating in the Demo Day presentations. Teams worked in the areas of AI, Robotics, VR Games, Mobile Apps, Web Apps, Cybersecurity, DevOps, IT with FIU, Social Good and Disabilities.

- **MentorFIU**: Help new students transition to college life and provide current students with industry mentors. Events - MentorFIU Game Night, Our Journey Into Tech (Coding Sisters), MentorFIU Professional Panel, MentorFIU Navigating Your College Career, and MentorFIU Virtual Lunch.

- **Hackers**: Get students involved in hackathons. Events - ShellHacks, Global Game Jam, and Hack Night

Through these workshops and events, hundreds of students were exposed to new technologies and used them to develop their projects. These projects served as resume experience for internship and job applications.

The Mu chapter of UPE also hosted professional development activities to help students grow professionally and advance their careers through company information sessions, resume reviews, interview skills workshops,

and more. These events happen every couple of weeks and are hosted by industry, faculty, and senior students. These events have connected our members with many companies, which have extended internships and job opportunities to the students.

UPE joined with the Google IgniteCS program to promote computer science to our community by teaching grade school students about coding. Over the past two years, students in the program visited on average 15 elementary and middle schools in Miami-Dade County every week, teaching about 500 students. Together, they work on a curriculum that includes logic, binary, algorithms, block coding, and more. At the end of the year, all grade school students are invited to attend CodeFest Miami - a hackathon where they can show off the skills they've learned through the program. This program has evolved into CS First and now Ignite, and in 2020 State Farm gave UPE a grant of $25K to continue promoting computer science to elementary and middle schools in Miami-Dade County.

In September 2019 and 2020, UPE hosted ShellHacks, which brought together over 1000 students each year from around Florida and other parts of the world. The ShellHacks events were sponsored by over 50 top companies, including JP Morgan Chase, Microsoft, Amazon, AutoNation, Twitter, Citrix, State Farm, and MITRE. UPE also hosted other signature events such as the Gaming Tournaments, Town Hall Meetings, and Induction Ceremonies in the Fall and Spring semesters. The organization also participated in major campus events such as MangoHacks, Relay for Life, Engineering Expo, and CodeFest Miami.

Using the resources obtained through the ShellHacks sponsorship, UPE acquired its own makerspace (La Villa) on the MMC campus in PG6 Tech Station, room 130A. Having a maker space for UPE on campus is once again is a significant achievement. UPE will use this space to store all the artifacts used for the various workshops and items used for ShellHacks. This space is also shared with other student organizations that collaborate with UPE on various projects. Lastly, in 2019 and 2020, the Mu chapter of UPE won Tech Fee grants to outfit their makerspace with equipment to support the many workshops and activities hosted by UPE. The makerspace and acquired equipment allow UPE to continue its mission to provide all students at FIU with the opportunities they need to grow technically and professionally.

WICS Student Chapter Report

Fall 2015:

Info Sessions:
LaunchCode@Fiu Info Session
State Farm Ice Cream Social, Sept 15, 2015
American Express, September 9, 2015
Lockheed Martin/Tech Talk, September 30, 2015
Hilton Software

Events:
Programming Team Qualifier, Oct 3, 2015 (Programming Team Events)
Ada Lovelace Day, October 13, 2015
MLH Hackday, October 10, 2015
Programming Team Meetings: Mondays, Tuesdays and Thursdays
High Tea
Gym with Geeticka (VP)
Github Lectures with ACM
Game Dev Workshop
Web Dev Workshop
Google Made with Code
CodeFest

Workshops:
Soldering Workshop, Sept 28, 2015
PLUG Arduino Workshop, Oct 1, 2015
Web Dev

Fall 2016:
Movie Night - Sept 16, 2016
Programming Team Tryouts - Sept 9, 2016
Afternoon Tea - Feb 12, 2016

Workshops:
Soldering Workshop, Feb 19, 2016

Socials:
Bowling Night

Fall 2017:
- Fall Kickoff Week
- CSO Club Fair
- First General Body Meeting
- SCIS Week of Welcome
- Microsoft Meet the Company + How to get a job in Tech workshop
- ShellHacks Breaking the Glass Ceiling Challenge
- Second General Body Meeting
- Grace Hopper Celebration Panel
- SCIS x COB Student Presentations and Panel on Entrepreneurship
- Virtual Reality Workshop
- CodeFest Big Sisters Mentorship

- WICS Retreat - Universal Orlando
- Super Smash Bros Gaming Tournament co-hosted with UPE
- Final General Body Meeting

Spring 2018:
- CSO Club Fair
- First General Body Meeting
- WICS Wednesdays: On Wednesday we write code
- MangoHacks Ladies Storm Hackathons
- Hacking with Amazon Alexa workshop
- FIU Engineering Expo
- WICS Game Night
- College of Engineering Club Fair
- Google G-Suite workshop
- Second General Body Meeting
- Soldering workshop
- UPE x FIU Mentorship Program
- Miami Maker Faire
- ASI Study Night
- LinkedIn Workshop
- Microsoft College Code Competition
- Final General Body Meeting + MLH Hack the Tech Interview: Algorithms Practice workshop
- Tech Summer Camp workshop

Summer 2018:
- Girls Who Code Panel
- FIU SCIS TweetChat

Fall 2018:
- Fall Kickoff Week
- CSO Club Fair
- Professional Headshots and Resume Review
- First General Body Meeting
- Intern Networking
- ShellHacks Diversity and Inclusion Challenge
- Second General Body Meeting
- Grace Hopper Celebration Mingle
- CodeFest Big Sisters Mentorship
- Final General Body Meeting

Spring 2019:
- Spring Kickoff Week
- First General Body Meeting
- WICS Crushing Your Interview workshop
- Resume Jam
- FIU Engineering Expo
- Soldering workshop
- Second General Body Meeting
- Miami Maker Faire
- WICSCON: "This is what a programmer looks like" conference
- Final General Body Meeting

Summer 2020, Fall 2020, Spring 2021

Women in CS July 2020 to June 2021 Activities
- WICSCON: Celebrating Women in CS
- Thrive in CS Panels
- Keynote with Microsoft Program Manager
- Landing a Job in Tech
- Overcoming Imposter Syndrome
- Finding Your Voice
- Antonella's Journey in Tech
- Discovering different tech roles: Product Management Edition
- Karol's Journey in Tech
- Finding Your Career Path
- Resume Jam
- 1:1 Industry Professional Sessions with Program Managers and Software Engineers from Microsoft, SnapChat, Visa, Adobe, Bank of America, Disney, AllState, ServiceNow, Deloitte, Geico and JP Morgan Chase.
- Hosted Kaseya internship information session
- Hosted Dell Day
- Roundtable Discussion - Talk with a Technology Professional
- How to be a Technology Rock Star
- Don't UndereSTEMiate your Potential
- Information session
- Hosted Hardware at Facebook: Facebook Reality Labs, Facebook Connectivity and Infrastructure Hardware
- Hosted Facebook Virtual Mock Interviews
- AlumniFIU program launch with alumni from Microsoft, Citrix, Google, Facebook, Apple, Snap and Test.ai to provide mock interviews
- Collaborated with CodePath to bring Android programming course to FIU
- Hosted Tesla Information Session
- Collaborated with Microsoft for Microsoft Mentorship Program to develop individual and collaborative strategies to help navigate challenges that can arise across personal, academic and workspaces.
- Hosted Lockheed Martin RMS Virtual Hiring Event
- Hosted AllState Women in Technology Association
- Hosted MITRE Cybersecurity Futures Program
- Collaborated with Microsoft to promote Microsoft Philanthropies TEALS program
- Hosted Splunk Information Session
- HoppersFIU scholarship and meetings
- Develop meetings
- Internship Networking Panel
- General Body Meetings
- TechPrep weekly sessions
- Google Made with Code mentorship meetings

Appendix-I: Minutes of SCIS Industrial Advisory Board Meetings

INDUSTRY ADVISORY BOARD
Florida International University
School of Computing and Information Sciences

Board Meeting Actions and Summary (DRAFT)

December 6th, 2019
Florida International University
Miami, FL

Board Member Attendance:

- Pete Martinez, IAB Chair, Chairman and CEO, Game Changer Tec, LLC
- Juan Caraballo, Director, Global University Programs IBM Corp. (Retired)
- Chris Fleck, VP Emerging Technologies, Citrix
- Jaime Borras, Chief Technology Officer, GeoToll
- Bert Sylvestre, Vice President Business Development, Pro Logic Systems

FIU Representation:

- Dr. Ram Iyengar, Director and Ryder Professor, FIU SCIS
- Dr. Nagarajan Prabakar, Assoc. Professor, FIU SCIS
- Dr. Alex Afanasyev, Assistant Professor, FIU SCIS
- Steven Luis, Executive Director of Technology and Industry Relations, FIU CEC

Board Meeting Summary

1. Mr. Martinez begins the meeting at 5:12 pm.
2. Mr. Martinez starts the meeting by welcoming Board members.
    a. Mr. Martinez makes his opening remarks. He states this is a hot time for CS talent. AI ML is everywhere and there is not enough talent available. Proper training for jobs in this area is not easy – there are many who claim to be knowledgeable but are not.
    b. He further states that the industry needs professionals with more exposure to application (domain) areas not theoretics. He states there is great opportunity to patent AI technologies in these application areas.
    c. He states that healthcare industry is generating huge amounts of data – CT, MRT and other imaging data are great datasets to use for AI/ML. Other areas like genomics can require 2TB of storage to study just one case.
    d. He also states we will see more AI/ML used in devices via instrumentation. Further, IoT is generating streams of real-time data these instruments must analyze instantly. He closes by stating there is incredible opportunities for our faculty and students in these areas.
3. Dr. Iyengar presents his report to the Board (see materials.)
    a. He thanks board members for attending the meeting. He acknowledges what Mr. Martinez shared, that AI/ML technology is taking over.
    b. Dr. Iyengar shares the schools points of pride, including degree awards to Hispanics, leading the state in graduating computing talent, our degree programs and how our students are finding jobs in both the top companies but also the best companies in South Florida.
    c. He shares examples of some of the ranks the school has achieved from Best Online Schools and Guide to online schools.
    d. He shares numerous awards and recognitions achieved by our faculty and students.
    e. He shares numerous school metrics for both research and instruction. Further noting the challenges of teaching with increased class sizes and improvement made like reducing the course pre-req. length.
    f. Dr. Iyengar noted that the school's faculty to student ratio is above what is offered at top 50 schools.
    g. Board members spend time discussing the implications of the metrics. The improved graduation rate and mitigations are discussed. Dr. Iyengar notes that students sometimes have hard decisions to make when looking at internship employment vs. graduating on time.
    h. Mr. Borras stated that the school should consider an entrepreneurial path in our program. Dr. Iyengar mentioned how some of our students participate in StartUp FIU which provides mentoring and education for entrepreneurship.
    i. Mr. Fleck suggested that the FIU track graduation outcomes closely to better understand local employment trends.
    j. Mr. Caraballo states that offering a good coverage of classes in summer will help some students catch up.
    k. Mr. Caraballo encourages Dr. Iyengar to help faculty with resources to grow patent submissions. This is a great time ramp up IP generation.
    l. Board members discuss the overall growth of the School. Board members question if the resources given to the school are enough to address the challenges.
    m. Mr. Caraballo states that in his opinion the school is already in the top 50 but resources, like instructors are needed to address the metrics. Other board members concur.
    n. Board members feel that further discussion with the Dean about resources is needed and suggests inviting him to the next meeting.
    o. Dr. Iyengar discussed other activities of the school such as the distinguished lecture series, collaborative research, and student innovation like Hackathons. The school's women in computing club has accomplished many outreach activities.

      p. The school conducted a graduate research day and Information Assurance-Artificial Intelligence Workshop.

      q. Mr. Luis explained completed renovations to several CASE 2nd floor research labs.

4. Dr. Afanasyev presents his research activities. (See materials)

      a. He provides an overview of his research into next generation internet solutions.

      b. He speaks about giving network intelligence so that you can ask for what you want.

      c. Providing names for data and enhancing security.

      d. Board members discuss the potential for his research. They point out that companies like Uber will need these technologies along with 5G networks to fully realize capabilities, including self-driving vehicles.

      e. Board members suggest working with UM and the supercomputer capabilities they have added.

5. Senior Project/VIP Highlight Presentations (see vip.fiu.edu)

      a. Students provide details about their projects and receive feedback from board member:

            i. Marcel Riera Cardoso, "Crowd-Sourcing Parking";

            ii. Jorge Luis Euceda, "CREST EnvoScholar";

            iii. Cristina Elizabeth Villarroel, 'Smartphones for Vision Impaired Users".

6. Mr. Martinez asks Board members for their feedback.

      a. Mr. Sylvestre acknowledges the fast pace the school is growing and the shrinking resources. He points out that this is not a bad position, and the school should be able to make its case for more resources.

      b. He further states that the programs are growing well, they will need help to sustain.

      c. Mr. Caraballo says the board is here to help. He further states that there are a lot of cutting-edge activities happening, and students need to be aware of these accomplishments. Dr. Iyengar responded that we will work with the board for assistance.

      d. Mr. Packert stated that he would like to see our graduates stay in Florida. Dr. Iyengar responded that showing examples of our students finding good jobs in Florida is a way to keep them here.

      e. Mr. Borras stated that he is happy to see the research direction and technology being developed at the school. The school is moving in the right direction. However, 70:1 student teacher ratio is not right and needs to be addressed.

      f. Mr. Fleck expressed his interest in Dr. Afanasyev's research and felt is was very relevant. He stated that we need a path to solve the IP problem. He felt the collaboration with Addigy (used worldwide) and the student projects developed with them are great examples to share with students, especially those that have an entrepreneurial interest.

      g. Mr. Caraballo states it was really great to see the depth and breath of what the school has accomplished. He asks how many other depts. have done the same? Board members discuss school accomplishment and compliment Dr. Iyengar.

7. Mr. Luis discusses potential dates with Board members for the next meeting. The tentative date set is Friday, April 17th.

8. Mr. Martinez thanks Board Member for their participation and closes the meeting at 7:27pm.

INDUSTRY ADVISORY BOARD
Florida International University
School of Computing and Information Sciences

Board Meeting Actions and Summary (DRAFT)

September 11th, 2020

Florida International University

Miami, FL

Board Member Attendance:

- Pete Martinez, IAB Chair, CEO, SIVOTEC
- Dr. Roy Gerber, IAB Vice Chair and Chief Technology Officer, Candidate.Guru
- Jaime Borras, Chief Technology Officer, GeoToll
- Juan Caraballo, Director, Global University Programs IBM Corp. (Retired)
- Chris Fleck, Vice President, Emerging Solutions Citrix
- David Martinez, Laboratory Fellow, MIT Lincoln Labs
- Thomas Packert, CTO, Xendoo
- Bert Sylvestre, Vice President Business Development, Pro Logic Systems

FIU Representation:

- Dr. Ram Iyengar, FIU SCIS Director and Ryder Professor
- Steven Luis, Executive Director of Technology, FIU CEC

Board Meeting Summary

1. Mr. Martinez begins the meeting at 5:03 pm via Zoom.
2. Mr. Luis pointed out that the agenda today was reduced due to the special announcement and the showcase is in December, but the Dec. meeting would return to the regular format.
3. Mr. Martinez welcomes the board members and thanks them for joining the special meeting of the Board. He passes the floor to Dr. Iyengar as he has a special announcement to make.
4. Dr. Iyengar presents his report to the Board (see materials.)
   a. Dr. Iyengar welcomed the Board and hoped that all the Board was doing well and their families during the COVID crisis.
   b. Dr. Iyengar begin his remarks by stating that he recently informed the Board that he was stepping down as Director of the school in the coming week and that Dr. Chen would also be stepping down as Assoc. Director.
   c. He stated that the effort to identify an interim director is in process and would be announced by the Dean soon.
   d. He thanked the Board members for their years of support and personal consultations, availability, engagement, and passion for our school.
   e. Dr. Iyengar continued by speaking about how COVID has impacted FIU and School. He noted we had to cancel our April meeting but had hopes that future meetings would happen on campus again.
   f. He spoke about how faculty and students switched to remote teaching very quickly and that modality is being used for Fall classes.
   g. He shared about the many precautions the university made to help student and faculty remain safe during the crisis. FIU Dashboard, P3 App, and communications via townhalls to educate people of precautions.
   h. Our school had gone virtual, said Dr. Iyengar. Our advising team meets students online and our main office has a virtual zoom office. We have setup chat services via website.
   i. FIU has also provided many support services for students like oncampus COVID testing, equipment loaning, and special hardship financial aid.
   j. He shared with the board that the university has been instructed to hold up to 5% of its budget to address potential state revenue shortfalls.
   k. This budget reduction may impact our hiring.
   l. Dr. Iyengar spoke about the school's efforts to pursue the University 2025 strategic goals. This included efforts to increase research funding, expenditures, and student graduate rates.
   m. He shared examples of the school's current rankings and faculty awards and reputation.
   n. He highlighted student achievements.
   o. Dr. Iyengar discusses the schools research metrics with board members.
   p. Dr. Iyengar reviews a list of research grants and patents awarded to the school's faculty.
   q. Dr. Iyengar shares the current enrollment and 4 year graduation success goals of the school.
   r. He reminds the Board that the school launched the BS in cybersecurity program in Fall. He shared stats that show employer demand for graduates and how we are marketing the program.
   s. He provided the board information about the new assistant professor hire: Amni Kharraz.
   t. He informed the board of upcoming events of the School and encouraged them to participate where interested.
   u. Dr. Iyengar thanked the Board for making the time to meet today. He asked their support for the new interim director when that is determined.
5. Mr. Martinez and other board members express their gratitude for Dr. Iyengar's commitment to the school and the accomplishments achieved under his leadership.
6. Mr. Luis suggests a date of for the next tentative Board of Dec. 4th which is the same date of the college wide senior design showcase.

7. Mr. Martinez, thanks Board Member for their participation and closes the meeting at Mr. Luis pointed out that the agenda today was reduced due to the special announcement, but the Dec. meeting would return to the regular format.
8. Mr. Martinez adjourns the meeting at 6:12pm.

INDUSTRY ADVISORY BOARD
Florida International University
School of Computing and Information Sciences

Board Meeting Actions and Summary (DRAFT)

December 4th, 2020

Florida International University
Miami, FL

Board Member Attendance:

- Pete Martinez, IAB Chair, CEO, SIVOTEC
- Juan Caraballo, Director, Global University Programs IBM Corp. (Retired)
- David Martinez, Laboratory Fellow, MIT Lincoln Labs
- Bert Sylvestre, Vice President Business Development, Pro Logic Systems
- Chris Fleck, Vice President, Emerging Solutions Citrix
- Thomas Packert, CTO, Xendoo

FIU Representation:

- Dr. Jason Liu, Interim Director & Eminent Scholar Chaired Professor, FIU KFSCIS
- Steven Luis, Executive Director of Technology, FIU CEC

Board Meeting Summary

1. Mr. Martinez begins the meeting at 5:03 pm via Zoom.
2. Mr. Martinez starts his opening remarks by welcoming and thanking board members for attending the meeting. He states FIU has great positioning in the South Florida community. He states the university has lots of visibility, especially in tech communities. He points out that working on lard grants we can engage many entities on and off campus. He feels that now is a great time for such projects.
3. Dr. Liu presents his report to the Board (see materials).
    a. Dr. Liu thanks Board members for attending the meeting.
    b. He reviews the agenda.
    c. He thanks Dr. Iyengar and Dr. Chen for their leadership and contributions to the school.
    d. He provides Board members with information regarding the ranking process. He covers BOG metrics and those monitored by US News and World report.
    e. He provides evidence of the school's rankings and the improvements made in the last couple of years.
    f. He reviews methods for improving the rankings and points out for CS a lot depends on reputation which does not change quickly.
    g. He shared academic analytics data which covers scholarly pursuits like publications and citations. The school's ranking in this area makes us a leaders in the state and competitive in the nation.
    h. Dr. Liu shares how the university is increasing the visibility of our authors via scholars @FIU. This system leverages many databases to show the impact/reach of a researcher.
    i. Dr. Liu shares the research production of the school in relation to other state universities.
    j. He provides data on awards and lists some of the award highlights.
    k. Dr. Liu shares enrollment info for the school's degree programs, including headcounts.
    l. Dr. Liu discusses the immediate priorities. Faculty hiring, large collaborative funding efforts, PhD production, and increased graduation rate.
    m. He provides several slides of details showing the schools current performance and the 2025 goals established by the university.
    n. He speaks to the Board for their support to help the school reach these goals. He presents the Board charter to affirm the Board members feedback.
    o. Board members discuss the charter and strategic alignment of goals. The areas of discussion are Reputation, Research Funding, Student Employment, Student graduation success, and stewardship.

4. Capstone Presentations
    a. Students provide details about their projects and receive feedback from board member.
5. Mr. Luis presents detailed information regarding Strategic goals of the University and how these goals represent an opportunity for industry engagement.
6. Mr. Martinez asks members of the Board to provide feedback.
    a. Board members discuss approaches to achieve strategic goals.
    b. Mr. Martinez proposes to create Board committees to organize the efforts and work on some of the strategic goals. These committees include:
        i. Membership: Identify executives at companies that hire from FIU who can fulfill initiatives of the board. Mr. Caraballo agreed to lead this effort.
        ii. Broadening Participation Committee: Identify funding programs and develop partnerships to obtain large scale grant awards and philanthropic donations to increase diversity in academic endeavors. Mr. Sylvestre and Borras agreed to participate in this effort.
        iii. Solutions Hub Committee — Develop relationships with large organizations that build a wide range of new tech solutions, and look for opportunities for the school to provide expert consulting and student projects in the area of AI, Cyber, HPC. Mr. Packert volunteered to work in this area.

   iv. Marketing Committee — Work with College to develop strategic direction for marketing campaigns focused on attracting industry engagement with School. Mr. Martinez volunteered to lead this effort.

7. Mr. Luis provides the next date for the Spring Board meeting. He suggests Apr. 16[th] which is the expected date of the senior project showcase.

8. Mr. Martinez thanks the Board members for their participation and time. He closes the meeting at 6:57pm.

Board Meeting Actions and Summary (DRAFT)

April 16th, 2021

Florida International University
Miami, FL

Board Member Attendance:

- Pete Martinez, IAB Chair, CEO, SIVOTEC
- Dr. Roy Gerber, IAB Vice Chair and Chief Technology Officer, Candidate.Guru
- Juan Caraballo, Director, Global University Programs IBM Corp. (Retired)
- Bert Sylvestre, Vice President Business Development, Pro Logic Systems
- Chris Fleck, Vice President, Emerging Solutions Citrix
- Jaime Borras, Chief Technology Officer, GeoToll
- Thomas Packert, CTO, Xendoo
- Joseph Russo, CEO, South Florida Tech Hub (Ex Officio member)

FIU Representation:

- Dr. Jason Liu, Interim Director & Eminent Scholar Chaired Professor, FIU KFSCIS
- Dr. Giri Narasimhan, Professor, FIU KFSCIS
- Dr. Gregory Murad Reis, Asst. Teaching Professor
- Steven Luis, Executive Director of Technology, FIU CEC

Board Meeting Summary

1. Mr. Martinez begins the meeting at 5:05 pm via Zoom.
2. Mr. Martinez welcomes the board members. He notes that the scale of the school has grown significantly over the last few years. That the growth mirrors the transformation happening in many industries like healthcare. He states that the school's grant growth will also increase because there are many opportunities. He acknowledges the hard work of the school. He further states that this is an important time for the Board to become more active in these activities to show the support of industry on grants and other talent development pursuits.
3. Dr. Giri presents his report to the Board (see materials.)
   a. Dr. Giri introduces the AI, DS, ML or ADaM Collaborative.
   b. Vision is to bring all researchers who are working in this area under one umbrella.
   c. He notes that there are already 12 faculty within the school that is applying these research techniques and three times that amount when looking at the College, and in other colleges.
   d. He reports that given this core of faculty they collectively have been awarded 18 grants for a total of $9.4 million.
   e. In addition to bringing visibility to these efforts he notes that these faculty could work on Badges to helps students throughout the university to obtain these skills. Currently there is an AI and data literacy badge available for students to take.
   f. Dr. Giri states he is looking to create an advisory board for the Data Science program. Mr. Caraballo and Borras expressed interest.
   g. Mr. Caraballo stated that this was a great effort.
   h. Mr. Sylvestre and Dr. Giri discuss what are some of the short-term successes the group could pursue.
4. Dr. Reis presents his report to the Board (see materials.)
   a. Dr. Reis discusses his work to improve environmental resilience by collecting data using robotic submarine equipment.
   b. He states that models are being developed to predict when changes will harm the environment.
   c. His effort is part of the underwater IOT. Bots that collect samples of water that are analyzed and geolocated and recorded.
   d. A discussion with board members occurs around the current water problems and fish kills in Biscayne Bay. Board members ask about the robots abilities and the methods to analyze the water samples.
   e. Mr. Borras and Dr. Reis discuss oxygen levels as a predictor of fish kills.
   f. Mr. Russo suggest that Dr. Reis meet with a local entrepreneur who is developing an app to track fish migration.
5. Capstone Presentations
   a. Students provide details about their projects and receive feedback from board member.
   b. Samara Ruiz, Sandoval Aranzol, Capstone II, Mitigating the Impacts of COVID-19.
      i. Mr. Borras states how relevant this project is and ask the student for more details about search algorithms.
   c. Vanessa Rivero-Serret, Capstone II, Pediatric Emergency Medicine APP
      i. Mr. Martinez states that this is a very relevant project. Capturing all data elements can be used for predication later on.
      ii. Dr. Gerber suggests using ML or other classifier to address ontology issues.
      iii. Mr. Caraballo gave suggestions regarding system development best practices.
      iv. Mr. Borras discussed the challenges of using system like React Native, and their use on mobile platforms.
6. Dr. Liu presents his report to the Board (see materials).
   a. Dr. Liu shared with Board members the details of the Knight Foundation $10M gift and the Universities $106M commitment to invest in CS program.
   b. He outlines faculty hires, areas of interest, and student growth.

     c.   Further that the CS program is expected to be ranked in the top 50 of the US news and world report because of these investments.

     d.   Dr. Lui provides an analysis of faculty size and their impact at other ranked university.

     e.   Dr. Liu reviews the expected new faculty hires for Fall 2021.

     f.   Dr. Liu shares the priorities of the school such as student graduation success, PhD enrollment and production, and the need for research collaboration within the university and large center proposals.

     g.   Dr. Liu provides details on our research strengths and awards.

     h.   Dr. Liu provides undergraduate and graduate enrollment information.

     i.   Mr. Luis disucsses Industry Engagement. Support letters from Board members om the NSF S-STEM proposal.

     j.   Mr. Luis discusses engagement with Hackerrank and the student interview workshop they provided.

7. Mr. Martinez asks members of the Board to provide feedback.

     a.   Mr. Caraballo expresses how impressed by the efforts of the school. He feels that hiring cannot be underestimated.

     b.   Dr. Liu and board members discuss challenges with hire new faculty and how industry can help.

     c.   Mr. Sylvestre expressed concern that with the additional staff will the school have enough space. Dr. Liu pointed out the new building being built will provide additional space for the school.

     d.   Board members continue to discuss challenges of the growth in the school.

8. Mr. Luis discusses potential dates with Board members for the next meeting. The next meeting will align with the next College-Wide Senior Design Showcase that is in early Dec. The tentative date is Friday Dec. 3rd.

9. Mr. Martinez, thanks Board Member for their participation and closes the meeting at 7:10pm.

APPENDIX J: Example of Learning Outcomes

COP 4710 Database Management

Course Outcomes
1. Be exposed to information systems
2. Be familiar with database system and database architecture
3. Master the design conceptual schemas
4. Master normalization theory and the mapping of a conceptual schema to a relational schema
5. Master the expression of queries in SQL, relational algebra, and relational calculus
6. Be familiar with physical database design
7. Be familiar with writing application programs that use SQL

Learning Outcomes

1.1   Explain basic information storage and retrieval concepts
1.2   Describe issues of information privacy, integrity, security and preservation

2.1   Describe the goals, components and functions of a database system
2.1   Explain the concept of data independence and its importance in a database system

3.1   Characterize the various data models
3.2   Design the conceptual schema for a database

4.1   Prepare a relational schema from a conceptual model

5.1   Demonstrate queries in relational algebra using union, intersection, difference, and Cartesian product operations
5.2   Demonstrate queries in tuple relational calculus, domain relational calculus, and SQL

6.1   Evaluate functional dependencies between two or more attributes in a relation

7.1   Describe database queries (insert, update, retrieve, and delete) using SQL statements