McWhorter School of Building Science – BSCI Degree Program Assessment & Implementation Plan & Report 2018

Assessment Plan

1. ACCE Accreditation Requirements

From the American Council for Construction Education – Document 103 – STANDARD AND CRITERIA FOR ACCREDITATION OF POSTSECONDARY CONSTRUCTION EDUCATION DEGREE PROGRAMS

9.2.3 Degree Program Assessment Plan

The degree program shall provide evidence of its effectiveness in preparing construction practitioners based on the results of surveys of the graduates, employers of the graduates, industry advisory board, exit interviews, comprehensive exams, capstone projects, or other systematically structured information.

The mission, goals, and objectives shall reflect both short-range and long-range considerations and shall be clear as to the educational and institutional results expected.

At a minimum, the degree program Assessment Plan shall include the following:

a. Mission Statement of the degree program. The mission statement expresses the underlying purposes and values of the degree program.

Degree Program Objectives. The Degree Program Objectives shall be clearly defined and stated in a manner that permits an assessment of achievement.

Program Learning Outcomes. These Program Learning Outcomes shall meet or exceed the ACCE Student Learning Outcomes (section 3.2.2) and be regularly formulated, evaluated, and reviewed with the appropriate participation of faculty, students, industry advisory board, and other pertinent parties.

Assessment tools. These tools shall measure degree program objectives and learning outcomes as stated in B and C above. The frequency for using the tools, and procedures for data collection also shall be stated.

Performance criteria. These criteria shall be used to measure the achievement of the degree program objectives and learning outcomes as stated in B and C above.

Evaluation methodology. This methodology shall be followed for data collection.

Degree programs shall comprehensively describe their assessment plan and document the results for review by the Visiting Team.

2. Mission Statement of Degree Program

The mission of the McWhorter School of Building Science as it relates to the BSCI Degree Program was developed at its Strategic Planning Meeting held from December 8-9, 2011.

Creating stimulating learning experiences by engaging in the discovery of the techniques and management of construction

3. BSCI Program Goals & Objectives

Definitions:

A goal is an overarching principle that guides decision-making. Objectives are specific, measurable steps that can be taken to meet the goal.

3.1 Goal 1: Enhance the quantity & quality of incoming students to PBSCI & BSCI (AU Strategic Goal 2)

- Objective 1.1: Increase the number of high school students accepted to PBSCI
- Objective 1.2: Increase the number of freshmen enrolling in PBSCI
- Objective 1.3: Increase the number of unrepresented students in the McWhorter School of Building Science.
- Objective 1.4: Increase the academic ability of students entering PBSCI & BSCI
- Objective 1.5: Increase the number of students enrolled in PBSCI & BSCI

3.2 Goal 2: The McWhorter School of Building Science will provide an enriching educational experience consistent with the needs of its stakeholders.

- Objective 2.1: Implement and assess a student learning outcomes-based curriculum consistent with the standards of the American Council for Construction Education and the needs of stakeholders

  Objective 2.2: Increase opportunities for students to have an enriching educational experience through involvement in high impact education practices

3.3 Goal 3: The McWhorter School of Building Science will advise, prepare and provide assistance for all students to obtain entry-level positions across diverse sectors of the construction industry. (AU Strategic Priority 1 – Strategic Goal 1G)

- Objective 3.1: Enhance advisement & preparedness for a career in construction management
- Objective 3.2: Enhance assistance to students to obtain entry-level construction management positions within the southeast United States and beyond
- Objective 3.3: Increase placement of graduates in entry-level positions across diverse sectors of the construction industry.

4. BSCI Program Learning Outcomes

4.1 Defining Learning Outcomes

In accordance with ACCE Document 103: Standards and Criteria for Accreditation of Postsecondary Construction Education Degree Programs - 3.2.2.2 Student Learning Outcomes applicable to 4-year degree programs the following Program Learning Outcomes have been assessed.

Note:

In defining the learning outcomes for a 4-year degree programs, the following verbs consistent with Bloom's taxonomy are used:

Remember: The lowest level of the taxonomy requires students to do very little with the information they are learning. They may be asked to recall, list, or name an idea or concept.

Understand: At the next level, students demonstrate that they understand the content by explaining, summarizing, classifying, or translating the given information.

Apply: At this level, students begin to put the information they are learning into context. Here they are able to integrate ideas across multiple situations or utilize the content in a new way.

Analyze: Students begin to develop higher order thinking. They may be asked to compare and contrast or take a concept and break it into parts to explore the relationships present.

Evaluate: At this stage, students are asked to judge an idea. This may involve predicting, experimenting, critiquing, or making an argument from evidence.

Create: At the highest level, students are producing new ideas or products that integrate the knowledge they have gained. When students are involved in creating new artifacts, they are actively engaged in the subject matter.

Upon graduation from an accredited ACCE 4-year degree program, a graduate shall be able to:

1. Create written communications appropriate to the construction discipline.
2. Create oral presentations appropriate to the construction discipline.
3. Create a construction project safety plan.
4. Create construction project cost estimates.
5. Create construction project schedules.
6. Analyze professional decisions based on ethical principles.
7. Analyze construction documents for planning and management of construction processes.
8. Analyze methods, materials, and equipment used to construct projects.
9. Apply construction management skills as a member of a multi-disciplinary team.
10. Apply electronic-based technology to manage the construction process.
11. Apply basic surveying techniques for construction layout and control.
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
13. Understand construction risk management.
14. Understand construction accounting and cost control.
15. Understand construction quality assurance and control.
16. Understand construction project control processes.

17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.
18. Understand the basic principles of sustainable construction.
19. Understand the basic principles of structural behavior.
20. Understand the basic principles of mechanical, electrical and piping systems

4.2 Mapping ACCE Student Learning Outcomes

Section 3.1.5.3 - Determination of Achievement of Student Learning Outcomes of ACCE Document 103 requires all programs at the time of the accreditation visit to "Provide an index, cross-tab, curriculum map, or other form of summary clearly relating Course Learning Outcomes to Program Learning Outcomes and, further, to the Student Learning Outcomes". The curriculum maps in Appendix B, show instruction and assessment mapped between the 20 ACCE SLO's and the Pre-BSCI classes, BSCI 3000 level classes and BSCI 4000 level classes respectively. Instruction with regards to each SLO is identified at 3 levels: I = Introduce; R = Reinforce; M = Master. In addition, the class or classes where program assessment occurs are also identified.

5. Assessment Tools

The following assessment tools, the frequency for using the tools, and procedures for data collection used to measure the Degree Program Objectives and Program Learning Outcomes are set out below:

5.1 Goal 1: Enhance the quantity & quality of incoming students to PBSCI & BSCI

- **Objective 1.1: Increase the number of high school students accepted to PBSCI**
  - Measure: Application #'s & Deposits annually – data collected periodically between October and April by CADC Student Services
    a. Number of Accepted PBSCI Students (Track Numbers at end of each month (October to April))
    b. Number of PBSCI students paying deposits (Track Numbers at end of each month (October to April))
- **Objective 1.2: Increase the number of freshmen enrolling in PBSCI**
  - Measure: Enrollment #'s, yield rate annually – data collected every fall by CADC Student Services
    a. Number of PBSCI students enrolling by end of July
    b. Yield Rate - % of accepted students that enroll
- **Objective 1.3: Increase the number of unrepresented students in the McWhorter School of Building Science.**
  - Measure: #, % of unrepresented groups annually - data collected every fall by CADC Student Services.
    a. Percentage of Female students in PBSCI & BSCI
    b. Percentage of African America, American Indian, Asian and Hispanic students in PBSCI & BSCI
- **Objective 1.4: Increase the academic ability of students entering PBSCI & BSCI**
  - Measure: Incoming ACT, Formula GPA - data collected by CADC Student Services.
    a. Average, Min & Max ACT Scores of incoming PBSCI Freshman – measured each fall
    b. Average, Min & Max Formula GPA for incoming BSCI students – measured each semester
- **Objective 1.5: Increase the number of students enrolled in PBSCI & BSCI**
  - Measure: Enrollment in spring, summer & fall semesters
    a. PBSCI Enrollment each semester
    b. BSCI Enrollment each semester

5.2 Goal 2: The McWhorter School of Building Science will provide an enhanced educational experience consistent with the needs of its stakeholders.

- **Objective 2.1: Implement and assess a student learning outcomes-based curriculum consistent with the standards of the American Council for Construction Education and the needs of stakeholders**

Measure: Evaluation of Student Learning Outcomes; Direct & Indirect – measured every semester

a. Directly measure the students' ability to meet the 20 ACCE Student Learning Outcomes a – data collected by Undergraduate Program Chair and compiled by School Head.

1. Create written communications appropriate to the construction discipline.
   - *Assessed in BSCI 3200 Construction Communication (First Semester, Junior Year)– Written Documents & Case Study (30% of course grade) Writing Rubric - measures performance over 5 specific criteria*
2. Create oral presentations appropriate to the construction discipline.
   - *Assessed in BSCI 3200 Construction Communication. Case Study Presentation accounts for 15% of final grade. Oral Presentation Rubric - measures performance over 5 specific criteria*
3. Create a construction project safety plan.
   - *Assessed in BSCI 4990 – Thesis. Safety Plan accounts for 5% of Thesis grade. Grading Rubric 4 – Safety- measures performance over 8 specific criteria.*
4. Create construction project cost estimates.
   - *Assessed in BSCI 4990 – Thesis. Project Estimate accounts for 15% of Thesis grade. Grading Rubric 1 – Estimate - measures performance over 5 specific criteria.*
5. Create construction project schedules.
   - *Assessed in BSCI 4990 – Thesis. Project Schedule accounts for 10% of Thesis grade. Grading Rubric 5 – Estimate - measures performance over 5 specific criteria.*
6. Analyze professional decisions based on ethical principles.
   - *Assessed in BSCI 3200 – Construction Communication – Students write a business policy on gifts and entertainment accounts for 10% of overall grade.*
7. Analyze construction documents for planning and management of construction processes.
   - *Assessed in BSCI 4990 – Thesis (2nd Semester, Senior Year). Construction* Documents Assessment accounts for 10% of Thesis grade.
8. Analyze methods, materials, and equipment used to construct projects.

- *Assessed in BSCI 4350 - Construction Project Analysis (First Semester, Senior Year). Project Method Statement accounts for 35% of course grade*

9. Apply construction management skills as a member of a multi-disciplinary team.
   - *BSCI 3440, Structure of Buildings II (First Semester, Junior Year) - Team Project – Individual Reflection Statement*
10. Apply electronic-based technology to manage the construction process.
   - *BSCI 4500 - Information and Communication Technology for Construction (CIT) (First Semester, Senior Year). – Four assignments. 1. Clash Detection Coordination 2. 4 D Schedule. 3. Robotic Layout 4. Laser Scanning*
11. Apply basic surveying techniques for construction layout and control.
   - *Assessed in BSCI 3300 – Field Surveying. Final Examination accounts for 10% of final grade. Field Book accounts for 10% of final grade.*
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
   - *Assessed in BSCI 3800 – Contracting Business. A series of quiz questions related to this outcome are included in quiz 4.*
13. Understand construction risk management.
   - *Assessed in BSCI 4850 Construction Law and Risk Management (2nd Semester, Senior Year). – Specific questions on Tests 2 & 3. Tests 2 & 3 account for 50% of course grade*
14. Understand construction accounting and cost control.
   - *BSCI 4610 – Scheduling and Field Operations (First Semester, Senior Year). – Cost Reporting activity on quiz 3 (accounts for 10% of final grade)*
15. Understand construction quality assurance and control.
   - *Assessed in BSCI 4350 Construction Project Analysis (First Semester, Senior Year). Specific Questions on Quiz 3.*
16. Understand construction project control processes.
   - *BSCI 4610 – Scheduling and Field Operations (First Semester, Senior Year). – Schedule of Values and Application for Payment activity on quiz 3 (accounts for 10% of final grade)*
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.

- *BSCI 4850 Construction Law and Risk Management (2nd Semester, Senior Year). – Specific questions on Tests 2 & 3. Tests 2 & 3 account for 50% of course grade*

18. Understand the basic principles of sustainable construction.
    - *Assessed in BSCI 4990 – Thesis. LEED Assessment accounts for 5% of Thesis grade. Grading Rubric 2 – Sustainability - measures performance over 5 specific criteria.*
19. Understand the basic principles of structural behavior.
    - *For Assessed in BSCI 4990 – Thesis. Structural Assessment accounts for 5% of Thesis grade. Grading Rubric 3 – Structural - measures performance over 7 specific criteria.*
20. Understand the basic principles of mechanical, electrical and piping systems
    - *Assessed in BSCI 4700 Mechanical Systems in Buildings & BSCI 4750 Electrical Systems in Buildings*
        - *Mechanical Systems are assessed by the Final Examination in BSCI 4700 using multiple format questions such as matching, multiple choice, true/false, short answer, identification and problem solving*
        - *Electrical Systems are assessed by 3 examinations in BSCI 4750 using multiple choice, short answer, true/false and problem-solving questions.*
        - *Plumbing Systems are assessed by the Mid-term Examination in BSCI 4700 using multiple format questions such as matching, multiple choice, true/false, short answer, identification and problem solving*

b. Indirectly measure the students' perception of their ability to meet the 20 ACCE Student Learning Outcomes using an exit survey that assesses how strongly they agree they have met the 20 outcomes - data collected by Administrative Assistant and compiled by School Head.

c. Indirectly measure the student's level of satisfaction with their education and preparation for their career using an exit survey- data collected by Administrative Assistant and compiled by School Head.

- **Objective 2.2: Increase opportunities for students to have an enriching educational experience through involvement in high impact education practices**
    - Measure: Participation in enriching educational experience through involvement in high impact education practices (AU Strategic Goal #1)
        a. Participation in service-learning projects

1. Student Exit Survey – Participation in service-learning projects - data collected every semester by Administrative Assistant and compiled by School Head.
2. NSSE (National Survey of Student Engagement) Multi-Year Benchmark Indicators – collected by AU Office of Institutional Research & Assessment

b. Participation in study abroad, student exchange programs
1. Student Exit Survey – Participation in study abroad, student exchange programs -data collected every semester by Administrative Assistant and compiled by School Head.
2. NSSE (National Survey of Student Engagement) Multi-Year Benchmark Indicators – collected by AU Office of Institutional Research & Assessment

c. Participation in competition teams
1. Student Exit Survey – Participation in student competitions --data collected every semester by Administrative Assistant and compiled by School Head.

d. Participation in ePortfolio program
1. Student Exit Survey – Participating in ePortfolio program - -data collected every semester by Administrative Assistant and compiled by School Head.

e. Participation in Industry Internship or co-op
1. Student Exit Survey – Participation in Industry Internship or co-op - data collected every semester by Administrative Assistant and compiled by School Head.
2. NSSE (National Survey of Student Engagement) Multi-Year Benchmark Indicators – collected by AU Office of Institutional Research & Assessment

5.3 Goal 3: The McWhorter School of Building Science will advise, prepare and provide assistance for all students to obtain entry-level positions across diverse sectors of the construction industry. (AU Strategic Goal #1)

- **Objective 3.1: Enhance advisement & preparedness for a career in construction management**
  - Measure: Enhance advisement & preparedness for a career in construction management
    a. Number of students seeking advisement through BSCI Career Office
    1. Student Exit Surveys – BSCI Career Office advisement -data collected every semester by Administrative Assistant and compiled by School Head.

2. BSCI Career Office Tracking -data collected every semester by BSCI Career Services Specialist and compiled by School Head.

b. Number of students submitting Resume's to AU Career Development Center
   1. Student Exit Surveys – Resume submission -data collected every semester by Administrative Assistant and compiled by School Head.

c. Number of company presentations to students
   1. Student Exit Surveys – Attended Company Presentation - -data collected every semester by Administrative Assistant and compiled by School Head.
   2. BSCI Career Office Tracking -data collected every semester by BSCI Career Services Specialist and compiled by School Head.

- **Objective 3.2: Enhance assistance to students to obtain entry-level construction management positions within the southeast United States and beyond**
  - Measure: Assistance provided to students to obtain entry-level construction management positions within the southeast United States and beyond -data collected every semester by BSCI Career Services Specialist and compiled by School Head.
    a. Number of companies attending campus interviews
       1. BSCI Career Office Tracking
    b. Number of companies attending career expos
       1. BSCI Career Office Tracking
    c. Number of students attending career expos & interviews
       1. BSCI Career Office Tracking
       2. Student Exit Surveys – attending career expos & interviews -data collected every semester by Administrative Assistant and compiled by School Head.
    d. Diversity of companies recruiting; commercial, residential, infrastructure, industrial etc.
       1. BSCI Career Office Tracking

- **Objective 3.3: Increase placement of graduates in entry-level positions across diverse sectors of the construction industry.**
  - Measure: Placement of graduates in entry-level positions across diverse sectors of the construction industry
    a. Placement rates within 3 months of graduation.
       1. Student Exit Surveys -data collected every semester by Administrative Assistant and compiled by School Head.

2. BSCI Career Office Tracking -data collected every semester by BSCI Career Services Specialist and compiled by School Head.

b. Diversity of companies hiring; Commercial, residential, infrastructure, industrial etc.
   1. Student Exit Surveys -data collected every semester by Administrative Assistant and compiled by School Head.
   2. BSCI Career Office Tracking -data collected every semester by BSCI Career Services Specialist and compiled by School Head.

c. Diversity of initial hiring position; Pre-construction, project management, field operations etc.
   1. Student Exit Surveys - -data collected every semester by Administrative Assistant and compiled by School Head.
   2. BSCI Career Office Tracking - -data collected every semester by BSCI Career Services Specialist and compiled by School Head.

6. Performance Criteria

The school collected assessment data through Spring 2017 and met at the annual Quality Improvement Meeting on May 9, 2017 to set specific performance criteria for the 2017/18 academic year and beyond.

6.1 Goal 1: Enhance the quantity & quality of incoming students to PBSCI & BSCI (AU Strategic Goal 2)

- **Objective 1.1: Increase the number of high school students accepted to PBSCI**
  - Performance Criteria:
    a. Target 120 Fall Freshman Accepted into PBSCI by 2022
- **Objective 1.2: Increase the number of freshmen enrolling in PBSCI**
  - Performance Criteria:
    a. Target 80 Fall Freshman Enrolled into PBSCI by 2022
- **Objective 1.3: Increase the number of unrepresented students in the McWhorter School of Building Science.**
  - Performance Criteria:
    a. Increase Percentage of overall Female, African America, American Indian, Asian and Hispanic students in PBSCI & BSCI by 2% by 2022
- **Objective 1.4: Increase the academic ability of students entering PBSCI & BSCI**
  - Performance Criteria:
    a. Increase Average ACT Scores of incoming PBSCI Fall Freshman to within 0.5 of the AU averages.
    b. All students entering the professional program will meet the minimum 2.60 Formula GPA requirement
- **Objective 1.5: Increase the number of students enrolled in PBSCI & BSCI**

- Performance Criteria:
    a. Increase PBSCI Enrollment
        - Spring – 360
        - Summer – 0
        - Fall - 360
    b. Increase BSCI Enrollment
        - Spring – 210
        - Summer – 60
        - Fall - 210

6.2 Goal 2: The McWhorter School of Building Science will provide an enriching educational experience consistent with the needs of its stakeholders.

- **Objective 2.1: Implement and assess a student learning outcomes-based curriculum consistent with the standards of the American Council for Construction Education and the needs of stakeholders**

Performance Criteria

a. Direct Assessment of Student Learning Outcomes
    1. For each of the assessment measures used to evaluate the student learning outcomes, 70% of the students will achieve an overall score of 70% or above. Any student learning outcome that falls below this threshold for 4 consecutive semesters will be evaluated by a faculty review.

b. Indirect Assessment of Student Learning Outcomes
    1. 80% of graduating students should agree they have met the learning outcomes. Any student learning outcome that falls below this threshold for 4 consecutive semesters will be evaluated by a faculty review.

    2. No more than 10% of graduating students should disagree that they have met the learning outcomes. Any student learning outcome that falls below this threshold for 4 consecutive semesters will be evaluated by a faculty review.

c. Indirectly measure the student's level of satisfaction with their education and preparation for their career
    1. Graduating students should on average be at least *very satisfied* (4 out of 5 on a Likert scale) with their education
    2. Graduating students should on average *feel quite a bit prepared* (4 out of 5 on a Likert scale) for their career.

- **Objective 2.2: Increase opportunities for students to have an enriching educational experience through involvement in high impact education practices**
    - Performance Criteria
        a. Participation in service-learning projects
            1. 100% of graduating students participating in one or more service-learning projects. Not meeting this target for 4 consecutive semesters will result in a faculty review.
            2. BSCI mean participation rate is higher than AU over multi-year period.
        b. Participation in study abroad, student exchange programs
            1. 20% of graduating students participating in study abroad, student exchange programs. Not meeting this target for 4 consecutive semesters will result in a faculty review.
            2. BSCI mean participation rate is higher than AU over multi-year period.
        c. Participation in competition teams
            1. 30% of graduating students participating in competition teams. Not meeting this target for 4 consecutive semesters will result in a faculty review.
        d. Participation in ePortfolio Program
            1. 80% of graduating students creating ePortfolio. Not meeting this target for 4 consecutive semesters will result in a faculty review.
        e. Participation in Industry Internship or co-op
            1. 80% of graduating students participating in Industry Internship or co-op. Not meeting this target for 4 consecutive semesters will result in a faculty review.
            2. BSCI mean participation rate is higher than AU over multi-year period.

6.3 Goal 3: The McWhorter School of Building Science will advise, prepare and provide assistance for all students to obtain entry-level positions across diverse sectors of the construction industry. (AU Strategic Priority 1 – Strategic Goal 1G)

- **Objective 3.1: Enhance advisement & preparedness for a career in construction management**
    - Performance Criteria
        a. Number of students seeking advisement through BSCI Career Office
            1. 50% of BSCI graduates sought advisement through BSCI Career Office
        b. Number of students submitting Resume's to AU Career Development Center
            1. 50% of BSCI graduates submitted Resume's to AU Career Development Office
        c. Number of company presentations to students

1. 70% of graduating students attended at least one company presentation
2. At least 15 companies make presentations during the academic year

- **Objective 3.2: Enhance assistance to students to obtain entry-level construction management positions within the southeast United States and beyond**
  - Performance Criteria
    a. Number of companies attending campus interviews
       1. At least 15 companies attending campus interviews per year
    b. Number of companies attending career expos
       1. At least 70 companies attending the spring and summer career expos.
    c. Number of students attending career expos & interviews
       1. At least 30% of total PBSCI & BSCI enrollment attend career expo per semester
       2. At least 20% of BSCI students attend campus interviews per semester
    d. Diversity of companies recruiting; commercial, residential, infrastructure, industrial etc.
       1. At least 15% of companies attending career expo are from outside the commercial construction sector

- **Objective 3.3: Increase placement of graduates in entry-level positions across diverse sectors of the construction industry.**
  - Performance Criteria
    a. Placement rates within 3 months of graduation.
       1. 90% of students obtain employment or attend graduate school
    b. Diversity of companies hiring; Commercial, residential, Infrastructure, industrial etc.
       1. 15% of students obtain employment outside of the commercial sector
    c. Diversity of initial hiring position: Pre-construction, project management, field operations etc.
       1. At least 10% of students obtain employment in each of the hiring positions

7. Evaluation Methodology

7.1 Data Collection

1. Data on students accepted into PBSCI & Deposits paid collected October through April – Action – School Head
2. Data on students entering PBSCI and calculation of yield rate collected at start of fall semester – Action - School Head
3. Data on diversity of PBSCI & BSCI students collected early in fall semester - Action – School Head
4. Data on ACT scores of incoming PBSCI students collected each fall semester. Data on incoming formula GPA of BSCI students collected at start of each semester – Action – School Head
5. Data on student enrollment collected each semester – Action OIRA & School Head
6. Data from direct measures for student learning outcomes collected at the end of each semester using grading rubric – Action – Faculty member assessing outcome & Undergraduate Chair
7. Data from undergraduate student surveys collected at the end of each semester – Action – Administrative Assistant & School Head
8. Data from undergraduate student surveys collected at the end of each semester – Action – Administrative Assistant & School Head
9. Data from NSSE (National Survey of Student Engagement) Multi-Year Benchmark Indicators Survey collected each semester by Office of Institutional Research & Assessment – OIRA & School Head
10. Data from undergraduate student surveys collected at the end of each semester – Action – Administrative Assistant & School Head
11. Data on students seeking advisement and companies interviewing students collected continuously and collated each semester – Action – BSCI Career Services Specialist & School Head
12. Data from undergraduate student surveys collected at the end of each semester – Action – Administrative Assistant & School Head
13. Data on students and companies attending interviews and career expo collected continuously and collated each semester – Action – BSCI Career Services Specialist & School Head
14. Data from undergraduate student surveys collected at the end of each semester – Action – Administrative Assistant & School Head
15. Data on student job placement and diversity of companies hiring students collected each semester – Action – BSCI Career Services Specialist & School Head

7.2 Analysis of Data

The data collected above is collated by the School Head and compiled into a comprehensive report for the preceding calendar year at the end of each spring semester. An annual quality improvement meeting is held in May of every year to review this report and make recommendations for improving the program. Any proposed changes made to the program are developed through the summer and discussed further at the August Retreat. The annual AU Assessment report is submitted to the college in June and the university in July.

8. Data for 2018 Calendar year and previous year's data.

8.1 Goal 1: Enhance the quantity & quality of incoming students to PBSCI & BSCI

8.1.1 Objective 1.1: Increase the number of high school students accepted to PBSCI

8.1.1.1 Measure: Application #'s

a. Number of Accepted PBSCI Students (Track Numbers at end of each month (October to April))

b. Number of PBSCI students paying deposits (Track Numbers at end of each month (November to April))

Year		October	November	January	February	March	April
2013/14	Accepted	28	44	59	73	74	74
	Deposited	12	23	34	38	45	47
2014/15	Accepted	35	51	69	75	77	84
	Deposited	16	26	41	48	54	58
2015/16	Accepted	26	64	80	94	96	96
	Deposited	9	10	38	55	62	63
2016/17	Accepted	37	85	103	104	107	114
	Deposited	13	17	63	67	75	81
2017/18	Accepted	66	99	102	N/A	N/A	N/A
	Deposited	20	44	46	59	N/A	73
University stopped providing this information on a monthly basis during Spring 2018							

8.1.1.2 Performance Criteria:

a. Target 120 Fall Freshman Accepted into PBSCI by 2022 – April 2017 114 Students Accepted. April 2019 121 Accepted.

8.1.2 Objective 1.2: Increase the number of freshmen enrolling in PBSCI

8.1.2.1 Measure: Enrollment #'s, yield rate.

a. Number of PBSCI students enrolling by end of July

b. Yield Rate - % of accepted students that enroll

Year	No. Accepted	No. Enrolled	Yield Rate
Fall 2014	86	59 (37 from 86)	43%
Fall 2015	82	76 (76 from 82)	92.6%
Fall 2016	106	69	65%

Fall 2017	114	81	71%
Fall 2018	123	82	67%

8.1.2.2 Performance Criteria:

a. Target 80 Fall Freshman Enrolled into PBSCI by 2022 – 82 Enrolled in Fall 2018.

8.1.3 Objective 1.3: Increase the number of unrepresented students in the McWhorter School of Building Science.

8.1.3.1 Measure: #, % of unrepresented groups

a. Percentage of Female students in PBSCI & BSCI

b. Percentage of African America, American Indian, Asian and Hispanic students in PBSCI & BSCI

	Number & Percentage of unrepresented groups in undergraduate program									
Year	Females		African American		American Indian		Asian		Hispanic	
Fall 2014	25	6%	10	2%	5	1%	1	0%	5	1%
Fall 2015	26	6%	9	2%	3	1%	3	1%	8	2%
Fall 2016	32	6%	9	2%	4	1%	6	1%	20	4%
Fall 2017	34	6%	8	1%	4	1%	7	1%	22	4%
Fall 2018	35	6%	6	1%	2	<1%	2	<1%	16	3%

8.1.3.2 Performance Criteria:

a. Increase Percentage of overall Female, African America, American Indian, Asian and Hispanic students in PBSCI & BSCI by 2% by 2022 – Target not met.

8.1.4 Objective 1.4: Increase the academic ability of students entering PBSCI & BSCI

8.1.4.1 Measure: Incoming ACT, Formula GPA

a. Average, Min & Max ACT Scores of incoming PBSCI Freshman

b. Average, Min & Max Formula GPA for incoming BSCI students

	ACT Scores of Incoming Freshman			
Year	Average	Min.	Max.	AU Average
Fall 2014	24.60	18	33	27.0
Fall 2015	24.96	19	33	27.3

Fall 2016	26.33	21	32	27.4
Fall 2017	25.7	18	34	27.3
Fall 2018	26.42	19	33	27.6

	Formula GPA for incoming BSCI students			
Semester	No. of Applicants	Average	Min.	Max.
Spring 2014		2.92	2.31	3.82
Summer 2014		3.08	2.22	3.76
Fall 2014		3.38	3.06	4.00
Spring 2015		2.98	2.30	3.94
Summer 2015		2.97	2.20	3.72
Fall 2015		3.36	2.50	3.94
Spring 2016	59	3.13	2.38	4.00
Summer 2016	17	3.11	2.22	4.00
Fall 2016	42	3.53	3.12	3.94
Spring 2017	88	3.35	2.94	4.00
Summer 2017	51	3.11	2.84	3.88
Fall 2017	53	3.66	3.36	4.00
Spring 2018	94	3.46	3.14	3.96
Summer 2018*- Coop	98	3.21	2.94	3.94
Summer 2018 - Intern		3.11	2.98	3.44
Fall 2018		3.71	3.54	4.00
Spring 2019	64	3.41	2.86	4.00

* Summer 2018 enrollment increased to 52 students

8.1.4.2 Performance Criteria:

a. Increase Average ACT Scores of incoming PBSCI Fall Freshman to within 0.5 of the AU averages. – Not achieved.
b. All students entering the professional program will meet the minimum 2.60 Formula GPA requirement – Minimum 2.60 Formula GPA required since Fall 2016.

8.1.5 Objective 1.5: Increase the number of students enrolled in PBSCI & BSCI

8.1.5.1 Measure Student Enrollment

	Student Enrollment		
Semester	PBSCI	BSCI	Total
Spring 2014	183	164	357
Summer 2014	60	133	193
Fall 2014	239	161	400
Spring 2015	219	188	407
Summer 2015	45	144	199
Fall 2015	300	173	473
Spring 2016	279	196	475
Summer 2016	60	146	206
Fall 2016	353	186	539
Spring 2017	309	213	522
Summer 2017	40	165	205
Fall 2017	332	226	558
Spring 2018	278	232	510
Summer 2018	12	209	221
Fall 2018	310	255	565
Spring 2019	292	218	510

8.1.5.2 Performance Criteria:

a. Increase PBSCI Enrollment

- Spring – 360 – Spring 2017 = 309
- Summer – 0 – Summer 2017 = 40
- Fall - 360 – Fall = 332

b. Increase BSCI Enrollment

- Spring – 210 - Spring 2017 = 213 – Target Met
- Summer – 60 - Summer 2017 = 165
- Fall - 210 - Fall 2017 = 226 – Target Met

8.2 Goal 2: The McWhorter School of Building Science will provide an enhanced educational experience consistent with the needs of its stakeholders.

8.2.1 Objective 2.1: Implement a student learning outcomes-based curriculum consistent with the standards of the American Council for Construction Education and the needs of stakeholders. Full implementation prior by Spring 2020.

8.2.1.1 Measure: Evaluation of Student Learning Outcomes; Direct & Indirect

a. Directly measure the students' ability to meet the 20 ACCE Student Learning Outcomes.

See Appendix A – Data for Assessment of Student Learning Outcomes Reported to Auburn University Director of Academic Assessment

b. Indirectly measure the students' perception of their ability to meet the 20 ACCE Student Learning Outcomes using an exit survey that assesses how strongly they agree they have met the 20 outcomes.

See Appendix A – Data for Assessment of Student Learning Outcomes Reported to Auburn University Director of Academic Assessment

c. Indirectly measure the student's level of satisfaction with their education and preparation for their career using an exit survey. *Using the rating scale shown below, please answer the following question.*

Performance Criteria: Indirectly measure the student's level of satisfaction with their education and preparation for their career

i. Graduating students should on average be at least *very satisfied* (4 out of 5 on a Likert scale) with their education

ii. Graduating students should on average *feel quite a bit prepared* (4 out of 5 on a Likert scale) for their career.

Fall 2014 (8 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average
What is your overall satisfaction with the education you received in the Building Science program?	0	0	0	5	3	4.38
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average
How well did your education in Building Science prepare you for your future career?	0	0	1	2	5	4.50

Spring 2015 (28 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average
What is your overall satisfaction with the education you received in the Building Science program?	0	0	0	10	18	4.64
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average
How well did your education in Building Science prepare you for your future career?	0	0	1	8	19	4.64

Summer 2015 (21 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average
What is your overall satisfaction with the education you received in the Building Science program?	0	0	2	8	11	4.43
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average
How well did your education in Building Science prepare you for your future career?	0	0	1	6	14	4.62

Fall 2015 (20 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average
What is your overall satisfaction with the education you received in the Building Science program?	0	1	2	8	9	4.25
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average
How well did your education in Building Science prepare you for your future career?	0	1	3	8	8	4.15

Spring 2016 (21 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average

What is your overall satisfaction with the education you received in the Building Science program?	0	0	2	12	7	4.24
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average
How well did your education in Building Science prepare you for your future career?	0	2	1	9	9	4.19

Summer 2016 (24 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average
What is your overall satisfaction with the education you received in the Building Science program?	0	2	2	11	9	4.13
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average
How well did your education in Building Science prepare you for your future career?	0	1	4	12	7	4.04

Fall 2016 (27 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average
What is your overall satisfaction with the education you received in the Building Science program?	0	0	0	12	14	4.48
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average
How well did your education in Building Science prepare you for your future career?	0	0	3	9	15	4.44

Spring 2017 (14 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average
What is your overall satisfaction with the education you received in the Building Science program?	0	0	0	5	9	4.64
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average

How well did your education in Building Science prepare you for your future career?	0	0	3	5	9	4.64

Summer 2017 (10 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average
What is your overall satisfaction with the education you received in the Building Science program?	0	0	0	3	7	4.70
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average
How well did your education in Building Science prepare you for your future career?	0	0	0	4	6	4.60

Fall 2017 (42 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average	Average >4.0?
What is your overall satisfaction with the education you received in the Building Science program?	0	0	1	19	22	4.50	Yes
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average	Average >4.0?
How well did your education in Building Science prepare you for your future career?	0	0	3	23	16	4.31	Yes

Spring 2018 (28 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average	Average >4.0?
What is your overall satisfaction with the education you received in the Building Science program?	0	0	2	8	16	4.54	Yes
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average	Average >4.0?
How well did your education in Building Science prepare you for your future career?	0	0	2	9	15	4.50	Yes

Summer 2018 (18 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average	Average >4.0?

What is your overall satisfaction with the education you received in the Building Science program?	0	0	2	7	9	4.39	Yes
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average	Average >4.0?
How well did your education in Building Science prepare you for your future career?	0	0	1	10	7	4.33	Yes

Fall 2018 (20 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average	Average >4.0?
What is your overall satisfaction with the education you received in the Building Science program?	0	0	0	13	7	4.35	Yes
	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average	Average >4.0?
How well did your education in Building Science prepare you for your future career?	0	1	0	12	7	4.25	Yes

Semester	Percentage of Students			
	Very satisfied	*Slightly satisfied*	*Quite a bit prepared*	*Little bit prepared*
Fall 2014	100%	0%	88%	0%
Spring 2015	100%	0%	96%	0%
Summer 2015	90%	0%	95%	0%
Fall 2015	85%	0%	80%	5%
Spring 2016	90%	0%	86%	10%
Summer 2016	83%	8%	79%	4%
Fall 2016	100%	0%	89%	0%
Spring 2017	100%	0%	100%	0%
Summer 2017	100%	0%	100%	0%
Fall 2017	98%	0%	93%	0%
Spring 2018	93%	0%	93%	0%
Summer 2018	89%	0%	94%	0%
Fall 2018	100%	0%	95%	5%

8.1.2 Objective 2.2: Increase opportunities for students to have an enriching educational experience through involvement in high impact education practices (AU Strategic Goal #1)

8.1.2.1 Measure: Participation in enriching educational experience through involvement in high impact education practices

a. Participation in service-learning projects

1. Student Exit Survey – Participation in service-learning projects - *The McWhorter School strives to provide an Enriching Educational Experience for Building Science students by providing a number of opportunities for students outside of the classroom. The following questions inquire about your participation in Enriching Educational Experiences.*

Did you participate in a service-learning experience as part of a BSCI class?	Yes	No	% Participation	Met Performance Criteria?
Fall 2014	8	0	100%	Yes
Spring 2015	25	3	89%	No
Summer 2015	20	1	95%	No
Fall 2015	20	0	100%	Yes
Spring 2016	19	2	90%	No
Summer 2016	23	1	96%	No
Fall 2016	26	1	96%	No
Spring 2017	14	0	100%	Yes
Summer 2017	9	1	90%	No
Fall 2017	39	3	93%	No
Spring 2018	25	1	96%	No
Summer 2018	18	0	100%	Yes
Fall 2018	20	0	100%	Yes

2. NSSE (National Survey of Student Engagement) Multi-Year Benchmark Indicators - *In your experience at your institution during the current school year, about how often have you done each of the following? 1=Never, 2=Sometimes, 3=Often, 4=Very often*

		Mean Response			BSCI >
	Year	BSCI	CADC	AU	

					AU?
Participated in a community-based project (e.g. service learning) as part of a regular course	2013/FY	1.88	1.71	1.60	Yes
	2013/SY	2.31	2.13	1.79	Yes
	2015/FY	1.75	1.47	1.46	Yes
	2015/SY	2.12	1.96	1.67	Yes
	2016/FY	1.50	1.47	1.43	Yes
	2016/SY	2.11	1.94	1.66	Yes
About how many of your courses at this institution have included a community-based project (service-learning)	2017/FY	1.64	1.50	1.46	Yes
	2017/SY	2.16	1.97	1.65	Yes
	2018/FY	1.58	1.47	1.50	Yes
	2018/SY	2.14	1.95	1.65	Yes

b. Participation in study abroad, student exchange programs

1. Student Exit Survey – Participation in study abroad, student exchange programs - *The McWhorter School strives to provide an Enriching Educational Experience for Building Science students by providing a number of opportunities for students outside of the classroom. The following questions inquire about your participation in Enriching Educational Experiences.*

-

Did you participate in a study abroad program or another international experience as part of the Building Science Program?	Yes	No	% Participation	Met Performance Criteria >20%
Fall 2014	3	5	37.5%	Yes
Spring 2015	3	25	11%	No
Summer 2015	7	14	33%	Yes
Fall 2015	3	17	15%	No
Spring 2016	6	15	29%	Yes
Summer 2016	7	17	29%	Yes
Fall 2016	5	22	19%	No
Spring 2017	8	6	57%	Yes
Summer 2017	7	3	70%	Yes

Fall 2017	20	32	24%	Yes
Spring 2018	5	21	19%	No
Summer 2018	6	12	33%	Yes
Fall 2018	11	9	55%	Yes

2. NSSE (National Survey of Student Engagement) Multi-Year Benchmark Indicators - *Which of the following have you done, or do you plan to do before you graduate from your institution? (Recoded: 0=Have not decided, Do not plan to do, Plan to do; 1=Done. Thus, the mean is the proportion responding "Done" among all valid respondents.)*

		Mean Response			BSCI >AU?
	Year	BSCI	CADC	AU	
Study Abroad Program	2013/FY	0.02	0.01	0.01	Yes
	2013/SY	0.09	0.28	0.13	No
	2015/FY	50%	62%	28%	Yes
	2015/SY	52%	59%	39%	Yes
	2016/FY	38%	68%	45%	Nos
	2016/SY	52%	63%	28%	Yes
	2017/FY	36%	66%	46%	No
	2017/SY	52%	62%	27%	Yes
	2018/FY	42%	67%	47%	No
	2018/SY	45%	62%	27%	Yes

c. Participation in competition teams

1. Student Exit Survey – Participation in student competitions - *The McWhorter School strives to provide an Enriching Educational Experience for Building Science students by providing a number of opportunities for students outside of the classroom. The following questions inquire about your participation in Enriching Educational Experiences.*

Did you participate in a student competition while you were in the Building Science Program?	Yes	No	% Participation	Met Performance Criteria > 30%?
Fall 2014	5	3	62.5%	Yes

Spring 2015	17	11	61%	Yes
Summer 2015	10	11	48%	Yes
Fall 2015	6	14	30%	Yes
Spring 2016	8	13	38%	Yes
Summer 2016	7	17	29%	No
Fall 2016	9	18	33%	Yes
Spring 2017	6	8	43%	Yes
Summer 2017	2	8	20%	No
Fall 2017	17	25	40%	Yes
Spring 2018	11	14	44%	Yes
Summer 2018	7	11	39%	Yes
Fall 2108	5	15	25%	No

d. Participation in ePortfolio program

1. Student Exit Survey – Participating in ePortfolio program - *The McWhorter School strives to provide an Enriching Educational Experience for Building Science students by providing a number of opportunities for students outside of the classroom. The following questions inquire about your participation in Enriching Educational Experiences.*

Did you create an ePortfolio while you were in the Building Science Program?	Yes	No	% Participation	Met Performance Criteria >80%
Fall 2014	8	0	100%	Yes
Spring 2015	28	0	100%	Yes
Summer 2015	17	4	81%	Yes
Fall 2015	20	0	100%	Yes
Spring 2016	21	0	100%	Yes
Summer 2016	18	6	75%	No
Fall 2016	24	3	89%	Yes
Spring 2017	13	1	93%	Yes
Summer 2017	10	0	100%	Yes
Fall 2017	40	2	95%	Yes

Spring 2018	18	8	69%	No
Summer 2018	7	11	39%	No
Fall 2018	18	2	90%	Yes

e. Participation in Industry Internship or Co-op

1. Student Exit Survey – Participation in Industry Internship or co-op - *The McWhorter School strives to provide an Enriching Educational Experience for Building Science students by providing a number of opportunities for students outside of the classroom. The following questions inquire about your participation in Enriching Educational Experiences.*

Did you participate in an industry internship or co-op while you were in the Building Science Program?	Yes	No	% Participation	Met Performance Criteria >80%
Fall 2014	8	0	100%	Yes
Spring 2015	25	3	89%	Yes
Summer 2015	18	3	86%	Yes
Fall 2015	19	1	95%	Yes
Spring 2016	17	4	81%	Yes
Summer 2016	21	3	88%	Yes
Fall 2016	25	2	93%	Yes
Spring 2017	12	1	86%	Yes
Summer 2017	10	0	100%	Yes
Fall 2017	35	7	83%	Yes
Spring 2018	26	0	100%	Yes
Summer 2018	18	0	100%	Yes
Fall 2018	17	3	85%	Yes

2. NSSE (National Survey of Student Engagement) Multi-Year Benchmark Indicators - *Which of the following have you done, or do you plan to do before you graduate from your institution? (Recoded: 0=Have not decided, Do not plan to do, Plan to do; 1=Done. Thus, the mean is the proportion responding "Done" among all valid respondents.)*

		Mean Response			BSCI > AU?
	Year	BSCI	CADC	AU	
Practicum, internship, field experience, co-op experience, or clinical assignment	2013/FY	0.10	0.05	0.04	Yes
	2013/SY	0.76	0.60	0.51	Yes
	2015/FY	75%	84%	87%	Yes
	2015/SY	93%	87%	77%	Yes
	2016/FY	88%	86%	87%	Yes
	2016/SY	93%	85%	77%	Yes
	2017/FY	91%	88%	87%	Yes
	2017/SY	94%	87%	78%	Yes
	2018/FY	92%	88%	86%	Yes
	2018/SY	95%	88%	78%	Yes

8.3 Goal 3: The McWhorter School of Building Science will advise, prepare and provide assistance for all students to obtain entry-level positions across diverse sectors of the construction industry. (AU Strategic Priority 1 – Strategic Goal 1G)

8.3.1 Objective 3.1: Enhance advisement & preparedness for a career in construction management

8.3.1 Measure: Enhance advisement & preparedness for a career in construction management

a. Number of students seeking advisement through BSCI Career Office

1. Student Exit Surveys – BSCI Career Office advisement

Did you seek advisement through BSCI Career Office?	Yes	No	% Participation	Met Performance Criteria >50%
Fall 2014	7	1	87.5%	Yes
Spring 2015	20	8	71.4%	Yes
Summer 2015	13	8	62%	Yes
Fall 2015	10	10	50%	Yes
Spring 2016	15	6	71%	Yes
Summer 2016	6	18	25%	No
Fall 2016	22	5	81%	Yes
Spring 2017	5	9	36%	No
Summer 2017	6	4	60%	Yes
Fall 2017	23	19	55%	Yes
Spring 2018	16	10	62%	Yes
Summer 2018	11	7	61%	Yes
Fall 2018	13	7	65%	Yes

2. BSCI Career Office Tracking

Semester	No. of students advised per. semester			
	PBSCI	BSCI	GRAD	OTHER
Spring 2015	13	11	4	0
Summer 2015	0	1	1	0
Fall 2015	34	19	7	4
Spring 2016	15	16	1	4
Summer 2016	2	0	2	1
Fall 2016	15	14	13	1
Spring 2017	9	29	1	3

Summer 2017	0	3	3	0
Fall 2017	25	14	3	1
Spring 2018	Data Not Collected			
Summer 2018				
Fall 2018				

b. Number of students submitting Resume's to AU Career Development Center
   1. Student Exit Surveys – Resume submission

Did you submit a Resume to AU Career Development Center?	Yes	No	% Participation	Met Performance Criteria >50%
Fall 2014	5	3	62.5%	Yes
Spring 2015	14	14	50%	Yes
Summer 2015	12	9	57%	Yes
Fall 2015	13	7	65%	Yes
Spring 2016	13	8	62%	Yes
Summer 2016	12	12	50%	Yes
Fall 2016	9	18	33%	No
Spring 2017	0	14	0%	No
Summer 2017	5	5	50%	Yes
Fall 2017	13	29	31%	No
Spring 2018	7	19	27%	No
Summer 2018	4	14	22%	No
Fall 2018	11	9	55%	Yes

c. Number of company presentations to students
   1. Student Exit Surveys – Attended Company Presentation

Did you attend a company presentation in Gorrie prior to attending an on-campus interview?	Yes	No	% Participation	Met Performance Criteria >70%
Fall 2014	8	0	100%	Yes
Spring 2015	24	4	86%	Yes
Summer 2015	14	7	67%	No
Fall 2015	18	2	90%	Yes

Spring 2016	17	4	81%	Yes
Summer 2016	17	7	71%	Yes
Fall 2016	20	7	74%	Yes
Spring 2017	10	4	72%	Yes
Summer 2017	8	2	80%	Yes
Fall 2017	25	17	60%	No
Spring 2018	20	6	77%	Yes
Summer 2018	17	1	94%	Yes
Fall 2018	17	3	85%	Yes

2. BSCI Career Office Tracking

Semester	Number each semester		
	Companies presenting	Students attending	Met Performance Criteria 15 per Year?
Fall 2014	14	144	
Spring 2015	11	133	Yes
Summer 2015	0	0	
Fall 2015	8	64	
Spring 2016	7	92	Yes
Summer 2016	0	0	
Fall 2016	10	88	
Spring 2017	8	77	No
Summer 2017	0	0	
Fall 2017	5	55	
Spring 2018	No Data Collected		N/A
Summer 2018			
Fall 2018			

8.3.1 Objective 3.2: Enhance assistance to students to obtain entry-level construction management positions within the southeast United States and beyond

8.3.2.1 Measure: Assistance provided to students to obtain entry-level construction management positions within the southeast United States and beyond

a. Number of companies attending campus interviews

1. BSCI Career Office Tracking

Semester	Number of companies attending campus interviews (not inc. expo)	Met Performance Criteria >15 Companies per Year?

Fall 2014	14	
Spring 2015	11	Yes
Summer 2015	1	
Fall 2015	7	
Spring 2016	6	Yes
Fall 2016	11	
Spring 2017	9	No
Fall 2017	5	
Spring 2018	No Data Collected	N/A
Summer 2018		
Fall 2018		

b. Number of companies attending career expos
   1. BSCI Career Office Tracking

Semester	Number of companies attending BSCI Career Expo	Met Performance Criteria >70 (Spring & Fall)
Fall 2014	62	No
Spring 2015	60	No
Summer 2015	22	
Fall 2015	77	Yes
Spring 2016	72	Yes
Summer 2016	21	
Fall 2016	85	Yes
Spring 2017	77	Yes
Summer 2017	19	
Fall 2017	90	Yes
Spring 2018	70	Yes
Summer 2018	15	
Fall 2018	100	Yes

c. Number of students attending career expos & campus interviews
   1. BSCI Career Office Tracking

Semester	Number of students attending BSCI Career Expo				
	PBSCI	BSCI	MBC/MIDC	Other	Total
Fall 2014	147	103	17	57	324
Spring 2015	47	78	17	68	210
Summer 2015		64		2	66

Fall 2015	171	101	17	61	350
Spring 2016	94	104	7	65	270
Summer 2016					37
Fall 2016	161	86	15	67	326
Spring 2017					286
Summer 2017		82	16	0	98
Fall 2017	183	122	11	95	411
Spring 2018	82	78	6	75	241
Summer 2018					76
Fall 2018	169	156	12	125	462

Semester	Number of students attending campus interviews (not inc. expo)				
	PBSCI	BSCI	MBC/MIDC	Other	Total
Fall 2014					144
Spring 2015					125
Summer 2015		2		2	4
Fall 2015					48
Spring 2016					80
Summer 2016					
Fall 2016					85
Spring 2017					62
Summer 2017					
Fall 2017	8	36	5	1	50
Spring 2018					20
Summer 2018					0
Fall 2018	Data not collected				

2. Student Exit Surveys – attending career expos & interviews

Fall 2014	Yes	No	% Participation
Did you attend a company interview in Gorrie?	8	0	100%
Did you attend a BSCI Career Expo?	7	0	100%

Spring 2015	Yes	No	% Participation
Did you attend a company interview in Gorrie?	24	4	86%
Did you attend a BSCI Career Expo?	27	1	96%

Summer 2015	Yes	No	% Participation

Did you attend a company interview in Gorrie?	12	9	57%
Did you attend a BSCI Career Expo?	20	1	95%

Fall 2015	Yes	No	% Participation
Did you attend a company interview in Gorrie?	15	5	75%
Did you attend a BSCI Career Expo?	20	0	100%

Spring 2016	Yes	No	% Participation
Did you attend a company interview in Gorrie?	14	7	67%
Did you attend a BSCI Career Expo?	21	0	100%

Summer 2016	Yes	No	% Participation
Did you attend a company interview in Gorrie?	14	10	58%
Did you attend a BSCI Career Expo?	24	0	100%

Fall 2016	Yes	No	% Participation
Did you attend a company interview in Gorrie?	19	8	70%
Did you attend a BSCI Career Expo?	25	2	93%

Spring 2017	Yes	No	% Participation
Did you attend a company interview in Gorrie?	9	5	65%
Did you attend a BSCI Career Expo?	13	1	93%

Summer 2017	Yes	No	% Participation
Did you attend a company interview in Gorrie?	6	4	60%
Did you attend a BSCI Career Expo?	10	0	100%

Fall 2017	Yes	No	% Participation
Did you attend a company interview in Gorrie?	20	22	48%

Did you attend a BSCI Career Expo?	41	1	98%

Spring 2018	Yes	No	% Participation
Did you attend a company interview in Gorrie?	17	9	65%
Did you attend a BSCI Career Expo?	25	1	96%

Summer 2018	Yes	No	% Participation
Did you attend a company interview in Gorrie?	8	10	44%
Did you attend a BSCI Career Expo?	17	1	94%

Fall 2018	Yes	No	% Participation
Did you attend a company interview in Gorrie?	11	9	55%
Did you attend a BSCI Career Expo?	20	0	100%

d. Diversity of companies recruiting; commercial, residential, infrastructure, industrial etc.
   1. BSCI Career Office Tracking

Semester	Sector of industry –recruiting on campus					Met Perform. Criteria?
	Commercial	Residential	Infrastructure	Industrial	Other	
Fall 2014	66%	3%	6%	9%	16%	Yes
Spring 2015	66%	2%	11%	9%	12%	Yes
Summer 2015	83%	4%	4%	0%	9%	Yes
Fall 2015	72%	9%	6%	3%	10%	Yes
Spring 2016	69%	8%	3%	3%	17%	Yes
Summer 2016	80%	10%	0%	0%	10%	Yes
Fall 2016	71%	7%	4%	4%	14%	Yes

Spring 2017	67%	14%	12%	4%	9%	Yes
Summer 2017	74%	5%	5%	0%	16%	Yes
Fall 2017	51%	8%	16%	11%	13%	Yes
Spring 2018	64%	10%	7%	0%	19%	Yes
Summer 2018	73%	7%	7%	0%	13%	Yes
Fall 2018	69%	9%	6%	3%	13%	Yes

8.3.3 Objective 3.3: Increase placement of graduates in entry-level positions across diverse sectors of the construction industry.

8.3.3.1 Measure: Placement of graduates in entry-level positions across diverse sectors of the construction industry

a. Placement rates within 3 months after graduation.

1. Student Exit Surveys (Prior to Graduation)

Have you formally accepted a job offer or plan to go to graduate school?	Yes	No	% Participation	Met Performance Criteria >90%
Fall 2014	8	0	100%	Yes
Spring 2015	27	1	96%	Yes
Summer 2015*	19	2	90%	Yes
Fall 2015	18	2	90%	Yes
Spring 2016* (3 graduate school)	17	4	81%	No
Summer 2016* (1 graduate school)	20	4	83%	No
Fall 2016*(1 graduate school)	23	4	85%	No
Spring 2017	11	3	78%	No
Summer 2017	7	3	70%	No
Fall 2017* (5 graduate school)	39	3	93%	Yes
Spring 2018	24	2	92%	Yes
Summer 2018 (2 graduate school)	18	0	100%	Yes
Fall 2018	17	3	85%	No

	No. of Formal Job Offers		
Year	Average	Min.	Max.
Fall 2014	1.75	1	3
Spring 2015	2.04	1	4
Summer 2015	1.67	0	5
Fall 2015	2.10	1	6
Spring 2016	2.29	0	6
Summer 2016	2.09	0	5
Fall 2016	1.41	0	3
Spring 2017	2.07	0	5
Summer 2017	1.50	0	3
Fall 2017	1.95	0	7
Spring 2018	1.92	0	6
Summer 2018	1.94	0	5
Fall 2018	2.15	0	6

2. BSCI Career Office Tracking (3 months after graduation)

Semester	Students Interviewed	Job offer or grad school	Placement	Met Performance Criteria >90%
Fall 2014	19	19	100%	Yes
Spring 2015	29	29	100%	Yes
Summer 2015	24	24	100%	Yes
Fall 2015	26	26	100%	Yes
Spring 2016	30	30	100%	Yes
Summer 2016	29	29	100%	Yes
Fall 2016	41	41	100%	Yes
Spring 2017	31	27	90%	Yes
Summer 2017	22	16	77%	No
Fall 2017	49	44	90%	Yes
Spring 2018	31	29	94%	Yes
Summer 2018	28	27	96%	Yes
Fall 2018	50	46	92%	Yes

b. Diversity of companies hiring; Commercial, residential, infrastructure, industrial etc.

1. Student Exit Surveys

	Sector of industry					Met Performance Criteria?
Year	Commercial	Residential	Infrastructure	Industrial	Other	
Fall 2014	87.5%	0%	0%	12.5%		No
Spring 2015	92.9%	3.6%	0%	3.6%		No
Summer 2015	81.0%	14.3%	0%	4.8%		Yes
Fall 2015	95%	5%	0%	0%		No
Spring 2016	81%	5%	10%	5%		Yes
Summer 2016	88%	8%	4%	0%		No
Fall 2016	75%	4%	4%	4%%	12%	Yes
Spring 2017	86%	7%	0%	7%	0%	No
Summer 2017	90%	0%	0%	0%	0%	No
Fall 2017	83%	5%	5%	7%	0%	Yes
Spring 2018	92%	4%	0%	4%	0%	No
Summer 2018	100%	0%	0%	0%	0%	No
Fall 2018	67%	12%	4%	0%	17%	Yes

2. BSCI Career Office Tracking

	Sector of industry					Met Performance Criteria?
Year	Commercial	Residential	Infrastructure	Industrial	Other	

Fall 2014	94.5%	0%	0%	5.5%		No
Spring 2015	93%	3.5%	3.5%	0%		No
Summer 2015	90%	10%	0%	0%		No
Fall 2015	88%	4%	4%	4%		No
Spring 2016	96%	0%	0%	4%		No
Summer 2016	85%	5%	5%	5%		No
Fall 2016	64%	20%	0%	0%	16%	Yes
Spring 2017	73%	4%	4%	0%	19%	Yes
Summer 2017	86%	7%	0%	0%	7%	No
Fall 2017	80%	2%	2%	0%	16%	Yes
Spring 2018	96%	0%	0%	4%	0%	No
Summer 2018	92%	4%	0%	0%	4%	No
Fall 2018	80%	2%	7%	0%	11%	Yes

c. Diversity of initial hiring position; Pre-construction, project management, field operations etc.

1. Student Exit Surveys

	Initial Hiring Position			Met Performance Criteria?
Year	Pre-construction	Project Management	Field Operations	
Fall 2014	25%	62.5%	12.5%	Yes
Spring 2015	14.3%	67.9%	17.9%	Yes
Summer 2015	19.0%	47.6%	33.3%	Yes

Fall 2015	5%	45%	50%	No
Spring 2016	14%	48%	38%	Yes
Summer 2016	8%	58%	33%	No
Fall 2016	11%	70%	19%	Yes
Spring 2017	0%	50%	50%	No
Summer 2017	10%	50%	40%	Yes
Fall 2017	12%	67%	21%	Yes
Spring 2018	8%	67%	25%	No
Summer 2018	17%	39%	44%	Yes
Fall 2018	15%	45%	40%	Yes

2. BSCI Career Office Tracking

	Initial Hiring Position				Met Performance Criteria?
Year	Pre-construction	Project Management	Field Operations	Unknown	
Fall 2014	17%	66%	17%	0%	Yes
Spring 2015	7%	84%	7%	0%	No
Summer 2015	10%	41%	18%	31%	Yes
Fall 2015	4%	23%	54%	31%	No
Spring 2016	4%	57%	35%	4%	No
Summer 2016	5%	46%	29%	20%	No
Fall 2016	7%	22%	39%	29%	No
Spring 2017	0%	19%	55%	26%	No
Summer 2017	7%	40%	53%	0%	No
Fall 2017	10%	41%	21%	28%	Yes
Spring 2018	7%	41%	14%	38%	No
Summer 2018	24%	24%	36%	16%	Yes
Fall 2018	9%	46%	30%	15%	No

9. Annual Quality Improvement Meeting – May 3, 2019

The Minutes from the May 3, 2019 Quality Improvement Meeting are attached to this document as Appendix C.

10. Update on Previous Quality Improvement Initiatives

Three updates on previous quality improvement initiatives are presented in Appendix D, E & F. These were discussed at the annual quality improvement meeting on May 3, 2019 and show up as the 2nd item in the minutes in Appendix C.

Appendix A – Data for Assessment of Student Learning Outcomes Reported to the Auburn University Director of Academic Assessment – July 2019

BS in Building Science (BSCI)

Student Learning Outcomes

The Building Science (BSCI) program is accredited by the American Council for Construction Education (ACCE). The program has been continuously accredited since 1980 and was last reaccredited in 2014. The program will be re-accredited in 2020. The ACCE is implementing a new learning outcomes-based standard that will become affective for all programs being accredited from Fall 2016 onwards. The McWhorter School of Building Science has recently completed a curriculum review and the new curriculum will be effective to PBSCI students entering the professional BSCI program from summer 2017 onward and for freshman entering the PBSCI program from Fall 2017 onward.

1. <u>Specificity of Outcomes</u>

Please provide a list of program level student learning outcomes. Student learning outcomes articulate the knowledge, skills, and abilities that students are expected to achieve as a result of completing the academic degree program.

In accordance with ACCE Document 103: *Standards and Criteria for Accreditation of Postsecondary Construction Education Degree Programs - 3.2.2.2 Student Learning Outcomes applicable to 4-year degree programs*, the following 20 Student Learning Outcomes are applicable to the Building Science Program:
Note: In defining the learning outcomes for a 4-year degree programs, the following verbs consistent with Bloom's taxonomy are used:
Remember: The lowest level of the taxonomy requires students to do very little with the information they are learning. They may be asked to recall, list, or name an idea or concept.
Understand: At the next level, students demonstrate that they understand the content by explaining, summarizing, classifying, or translating the given information.
Apply: At this level, students begin to put the information they are learning into context. Here they are able to integrate ideas across multiple situations or utilize the content in a new way.

Analyze: Students begin to develop higher order thinking. They may be asked to compare and contrast or take a concept and break it into parts to explore the relationships present.
Evaluate: At this stage, students are asked to judge an idea. This may involve predicting, experimenting, critiquing, or making an argument from evidence.
Create: At the highest level, students are producing new ideas or products that integrate the knowledge they have gained. When students are involved in creating new artifacts, they are actively engaged in the subject matter.

Upon graduation from an accredited ACCE 4-year degree program, a graduate shall be able to:

1. Create written communications appropriate to the construction discipline.
2. Create oral presentations appropriate to the construction discipline.
3. Create a construction project safety plan.
4. Create construction project cost estimates.
5. Create construction project schedules.
6. Analyze professional decisions based on ethical principles.
7. Analyze construction documents for planning and management of construction processes.
8. Analyze methods, materials, and equipment used to construct projects.
9. Apply construction management skills as a member of a multi-disciplinary team.
10. Apply electronic-based technology to manage the construction process.
11. Apply basic surveying techniques for construction layout and control.
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
13. Understand construction risk management.
14. Understand construction accounting and cost control.
15. Understand construction quality assurance and control.
16. Understand construction project control processes.
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.
18. Understand the basic principles of sustainable construction.
19. Understand the basic principles of structural behavior.
20. Understand the basic principles of mechanical, electrical and piping systems

2. <u>Comprehensive Outcomes</u>

Please provide a brief narrative stating whether or not the list of student learning outcomes is comprehensive (i.e., the student learning outcomes accurately reflect

the current scope of the program). Consider also providing a rationale for the degree/nature of comprehensiveness (e.g., student learning outcomes are aligned with disciplinary standards).

The current list of student learning outcomes is comprehensive and accurately reflects the current scope of the program and are aligned with disciplinary standards.

3. Communicating Outcomes

Please provide a brief statement describing if and how the list of student learning outcomes is shared with others (e.g., paper copies are shared with program faculty at a meeting, the outcomes are posted to the departmental website at: http://cadc.auburn.edu/construction/construction-degrees-programs/accreditation).

The Student Learning outcomes are communicated to stakeholders in the following manner:

i. Students.

The Student Learning Outcomes, together with the Goals and Objectives for the program are set out in the Accreditation section of the school's website at http://cadc.auburn.edu/construction/construction-degrees-programs/accreditation. are distributed to all students attending Camp War Eagle as freshmen and/or when they meet with their advisor for the first time as transfer students. Students are also informed of the student learning outcomes during the Pre-Building Science Convocation which is held during their first semester of study and during the Professional Program Convocation that is held during the first semester of their junior year.

ii. Faculty.

An introduction to assessment, accreditation and student learning outcomes is provided to all new BSCI faculty as part of the new faculty orientation process. Existing faculty are informed of the student learning outcomes during faculty meetings and via email correspondence. All faculty are involved in the curriculum review process and documents detailing the student learning outcomes play a central part in this process. All faculty are required to evaluate and grade the Building Science Thesis which is currently used to evaluate five of the 20 student learning outcomes.

iii. Industry Advisory Council Members.

To satisfy the ACCE requirements, the school is required to have an Industry Advisory Council which consists of approximately 25 members consisting of senior level managers drawn from construction companies across the region and beyond. Members of the IAC are made aware of the student learning outcomes in two ways. First, members of the IAC were involved in two curriculum review workshops held in July 2015 where they

were presented with the list of SLO's and asked to review for completeness and the need for any additional SLO's. Secondly, IAC members are given an abridged version of our annual assessment report at their spring and fall meeting which also contains details of the SLO's. See attachment Overall_Assessment_Data_Spring_2019_IAC_Final.pdf

Curriculum Map

4. Curriculum Map:

Please provide a curriculum map that visually represents the alignment between student learning outcomes and required courses/experiences.

See Appendix A.

Measurement

5. Outcome-Measure Alignment

Please provide a description of the assessment measures, noting how they were chosen/developed to align with the student learning outcomes.

The assessment of the 20 American Council for Construction Education (ACCE) Student Learning Outcomes is one of the measures used to evaluate Objective 2.1: *Implement and assess a student learning outcomes-based curriculum consistent with the standards of the American Council for Construction Education and the needs of stakeholders.* The outcomes are evaluated using both direct and indirect measures as set out below. Faculty with subject matter expertise develop the assessment measures and accompanying grading rubrics and these are reviewed by the chair of the undergraduate program and the school head.

The table below sets out how each of the outcomes are directly assessed currently and how we plan to assess them after the introduction of the new curriculum:

Student Learning Outcome	Where & How Assessed	Implementation Date
1. Create written communications appropriate to the construction discipline.	BSCI 3200 Construction Communication (First Semester, Junior Year)– Written Documents & Case Study (30% of course grade)	Summer 2017

2. Create oral presentations appropriate to the construction discipline.	BSCI 3200 Construction Communication (First Semester, Junior Year)– Oral Presentations (15% of course grade)	Fall 2016
3. Create a construction project safety plan.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Safety Plan accounts for 5% of Thesis grade.	Fall 2014
4. Create construction project cost estimates.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Project Estimate accounts for 15% of Thesis grade	Fall 2014
5. Create construction project schedules.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Scheduling Assessment accounts for 10% of Thesis grade.	Fall 2015
6. Analyze professional decisions based on ethical principles.	BSCI 3200 – Construction Communication (First Semester, Junior Year)- Written Company Ethics Policy on Gifts and Entertainment – 5% of course grade	Fall 2017
7. Analyze construction documents for planning and management of construction processes.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Construction Documents Assessment accounts for 10% of Thesis grade.	Spring 2019
8. Analyze methods, materials, and equipment used to construct projects.	BSCI 4350 - Construction Project Analysis (First Semester, Senior Year). Project Method Statement accounts for 35% of course grade	Fall 2018
9. Apply construction management skills as a member of a multi-disciplinary team.	BSCI 4610 – Scheduling and Field Operations (First Semester, Senior Year). Collaborative Project accounts for 15% of course grade	Spring 2018

	New curriculum - BSCI 3440, Structure of Buildings (First Semester, Junior Year) – II. Team Project - Individual Reflection Statement	Fall 2018
10. Apply electronic-based technology to manage the construction process.	BSCI 4500 - Information and Communication Technology for Construction (CIT) (First Semester, Senior Year). – Four assignments. 1. Clash Detection Coordination 2. 4 D Schedule. 3. Robotic Layout 4. Laser Scanning	Spring 2019
11. Apply basic surveying techniques for construction layout and control.	BSCI 3300 – Field Surveying. Final Examination (First Semester, Junior Year) accounts for 10% of final grade. Field Book accounts for 10% of final grade	Summer 2016
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	BSCI 3800 (2nd Semester, Junior Year) – Contracting Business. Test 4 accounts for 24% of course grade.	Spring 2018
13. Understand construction risk management.	BSCI 4850 Construction Law and Risk Management (2nd Semester, Senior Year). – Specific questions on Tests 2 & 3. Tests 2 & 3 account for 50% of course grade	Fall 2018
14. Understand construction accounting and cost control.	BSCI 4610 – Scheduling and Field Operations (First Semester, Senior Year). – Cost Reporting activity on quiz 3 (accounts for 10% of final grade)	Spring 2019

15. Understand construction quality assurance and control.	BSCI 4350 Construction Project Analysis (First Semester, Senior Year). Quiz 2 accounts for 30% of course grade.	Fall 2018
16. Understand construction project control processes.	BSCI 4610 – Scheduling and Field Operations (First Semester, Senior Year). – Schedule of Values and Application for Payment activity on quiz 3 (accounts for 10% of final grade)	Spring 2019
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.	BSCI 4850 Construction Law and Risk Management (2nd Semester, Senior Year). – Specific questions on Tests 2 & 3. Tests 2 & 3 account for 50% of course grade	Fall 2018
18. Understand the basic principles of sustainable construction.	BSCI 4990 – Thesis (2nd Semester, Senior Year). LEED Assessment accounts for 5% of Thesis grade	Fall 2014
19. Understand the basic principles of structural behavior.	Current Curriculum - BSCI 4990 – Thesis (2nd Semester, Senior Year). Structural Assessment accounts for 5% of Thesis grade	Fall 2014
20. Understand the basic principles of mechanical, electrical and piping systems	BSCI 4700 Mechanical Systems in Buildings (2nd Semester, Junior Year). Mid-term and final examination accounts for 40% of course grade. BSCI 4750 Electrical Systems (2nd Semester, Junior Year) in Buildings. Three examinations accounts for 90% of course grade.	Fall 2016

6. Direct Measures

Please consider indicating which assessments are direct measures of student learning (e.g., exams, rubric scores).

Following the ACCE's development of the 20 Student Learn Outcomes, Auburn's BSCI program has worked to develop and adopt appropriate direct measures. The first work was assessed in Spring 2016, and development is continuing through Fall 2018. The following identifies the time specific measures were assessed along with the detail of those measures.

2016

For the spring semester of 2016 the following ACCE Student Learning Outcomes were assessed using direct measures (Numbering system reflects ACCE Student Learning Outcomes):

No. 3 Create a construction project safety plan

No. 4 Create construction project cost estimates

No. 5 Create construction project schedules

No. 18 Understand the basic principles of sustainable construction

No. 19 Understand the basic principles of structural behavior

All of the above outcomes are assessed as part of BSCI 4990 – Thesis. All graduating seniors are required to take this class. Grading rubrics are used to assess each outcome. The accompanying document *BSCI 4990 Rules & Regulations 2016.docx* sets out the assessment requirements for the 5 outcomes assessed in BSCI 4990 and also contains the 5 grading rubrics used.

In summer 2016 the following ACCE Student Learning Outcome was assessed in BSCI 3300 Field Surveying for the first time:

No. 11 Apply basic surveying techniques for construction layout and control.

This outcome is assessed in BSCI 3300 – Field Surveying. Two measures are reported, individual student performance in the comprehensive final examination which accounts for 10% of final grade. The comprehensive final examination consists of a mixture short true/false and multiple-choice questions, together with a number of short and longer calculation problems that evaluate basic surveying techniques for construction layout and control. The second measure is the student's individual grade for the completion of their surveying field book which also accounts for 10% of final grade

In addition to the five outcomes assessed in the spring, the following two ACCE Student Learning Outcome was assessed for the first time during the fall 2016 semester.:

In BSCI 4700 Mechanical Systems in Buildings & BSCI 4750 Electrical Systems in Buildings:

No. 20 Understand the basic principles of mechanical, electrical and piping systems

This outcome is assessed in BSCI 4700 Mechanical Systems in Buildings & BSCI 4750 Electrical Systems in Buildings

Mechanical Systems are assessed by the Final Examination in BSCI 4700 using multiple format questions such as matching, multiple choice, true/false, short answer, identification and problem solving

Electrical Systems are assessed by 3 examinations in BSCI 4750 using multiple choice, short answer, true/false and problem solving questions.

Plumbing Systems are assessed by the Mid-term Examination in BSCI 4700 using multiple format questions such as matching, multiple choice, true/false, short answer, identification and problem solving

In BSCI 3200 Construction Communication

No. 2. Create oral presentations appropriate to the construction discipline

This outcome is assessed in BSCI 3200 Construction Communication. A case study presentation accounts for 15% of final grade. Oral Presentation Rubric (*Oral Communication Rubric.pdf*) measures performance over 5 specific criteria

2017

With the new curricula starting in Summer 2017, we continue to roll out direct measures of all 20 learning outcomes. During the Summer and Fall 2017 semesters we added the following direct measures:

In BSCI 3200 Construction Communication

No. 1. Create written communications appropriate to the construction discipline.

This outcome is assessed in BSCI 3200 Construction Communication (First Semester, Junior Year)– Written Documents & Case Study (30% of course grade) Writing Rubric (*Written Communication Rubric.pdf*) - measures performance over 5 specific criteria.

No. 6 Analyze professional decisions based on ethical principles.

This outcome is assessed in BSCI 3200 – Construction Communication – Students write a business policy on gifts and entertainment accounts for 10 % of overall grade.

2018

The following direct measure was introduced during the spring 2018 semester:

In BSCI 3800 Contracting Business

No. 12 Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process

This outcome is assessed by a series of questions in quiz No. 4.

The following direct measure was introduced during the fall 2018 semester:

In BSCI 4350 - Construction Project Analysis

No. 8 Analyze methods, materials, and equipment used to construct projects.

Students create a Project Method Statement, accounts for 35% of course grade.

In BSCI 3440, Structure of Buildings– II

No. 9. Apply construction management skills as a member of a multi-disciplinary team.

Students participate in a Team Project with an Individual Reflection Statement.

In BSCI 4850 Construction Law and Risk Management.

#13. Understand construction risk management

#17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.

For both outcomes there are specific questions on Tests 2 & 3. Tests 2 & 3 account for 50% of course grade.

6a. **Indirect Measures**

An exit survey administered to all graduating seniors indirectly measure the students' perception of their ability to meet the 20 ACCE Student Learning Outcomes. The exit survey assesses how strongly they agree they have met the 20 outcomes.

7. Data Collection

Please provide a description of the assessment data collection process (i.e., information on how data were collected, who provided data, and the pertinent methodological details such as rating/scoring design).

Data for both direct and indirect measures are collected each semester. Grading rubrics for each of the SLO's directly assessed in BSCI 4990 are completed by the

faculty grading each student thesis individually. Completed rubrics are collated by the school head into a spreadsheet and this is used to compile the results set out below. Grading rubrics for data collected in BSCI 3200, BSCI 3300, BSCI 4700 & BSCI 4750 is collected by the faculty teaching the course and passed to the school head for compilation. The exit survey is administered to all graduating seniors each semester approximately 3 weeks before graduation and they are sent reminders to complete the survey.

Results

8. Reporting Results

Please provide assessment results aligned with the student learning outcomes. If historical assessment data is available, consider providing this data to reveal any student learning trends.

The results from both direct and indirect assessment for semesters Fall 2014 through Fall 2017 are set out below.

Performance Criteria for student learning outcomes were established by the BSCI Faculty at the BSCI Quality Improvement Meeting held on May 9, 2017. For direct assessment of Student Learning Outcomes: For each of the assessment measures used to evaluate the student learning outcomes, 70% of the students will achieve an overall score of 70% or above. Any student learning outcome that falls below this threshold for 4 consecutive semesters will be evaluated by a faculty review. From Fall 2017 any assessment measure not meeting this criterion will be highlighted in **RED.**

a. ACCE SLO #1 - Create written communications appropriate to the construction discipline.

In Summer 2017 assessed in BSCI 3200 Construction Communication. Two dedicated writing assignments (30% of course grade). Writing Rubric - measures performance over 5 specific criteria.

Summer 2017 (New Curriculum)	**Grading Scale**												**Average**	
	5		**4**		**3**		**2**		**1**		**0**			
Context	31	10	2	22	0	0	0	0	0	0	0	0	**4.95**	**4.58**
Content	21	0	8	32	3	0	1	0	0	0	0	0	**4.55**	**4.42**
Conventions	20	5	9	27	4	0	0	0	0	0	0	0	**4.56**	**4.33**
Sources	22	5	11	27	0	0	0	0	0	0	0	0	**4.68**	**4.41**
Syntax	20	5	10	27	3	0	0	0	0	0	0	0	**4.62**	**4.29**
												Total (94.24%, 88.08%)	**23.56**	**22.02**

Fall 2017 (New Curriculum)	**Grading Scale**												**Average**	
	5		**4**		**3**		**2**		**1**		**0**			
Context	15	21	14	9	1	0	0	0	0	0	0	0	**4.48**	**4.75**
Content	17	10	11	10	2	8	0	2	0	0	0	0	**4.50**	**4.02**
Conventions	14	15	14	10	2	5	0	0	0	0	0	0	**4.42**	**4.39**
Clarity	10	19	13	10	7	1	0	0	0	0	0	0	**4.20**	**4.63**
Syntax	23	30	6	0	0	0	0	0	0	0	0	0	**4.82**	**5.00**
												Total	**22.42**	**22.79**

Spring 2018	**Grading Scale**												**Average**	
	5		**4**		**3**		**2**		**1**		**0**			
Context	41	41	10	13	9	0	0	0	0	0	0	0	4.53	4.76
Content	43	29	11	14	2	10	0	0	0	0	0	0	4.73	4.36
Conventions	36	33	14	15	9	6	0	0	0	0	0	0	4.46	4.50
Clarity	40	42	20	15	8	1	0	0	0	0	0	0	4.47	4.71
Syntax	54	47	7	2	0	1	0	0	0	0	0	0	4.89	4.92
												Total	**23.08**	**23.24**

Summer 2018	**Grading Scale**												**Average**	
	5		**4**		**3**		**2**		**1**		**0**			
Context	13	15	32	33	3	4	4	0	0	0	0	0	4.24	4.34
Content	2	5	26	30	22	16	2	1	0	0	0	0	3.78	3.00
Conventions	49	45	3	6	0	1	0	0	0	0	0	0	4.94	4.86
Clarity	5	5	40	45	7	3	0	0	0	0	0	0	4.13	4.21
Syntax	2	9	43	41	7	2	0	0	0	0	0	0	4.11	4.26
												Total	**21.21**	**21.57**

Fall 2018	**Grading Scale**												**Average**	
	5		**4**		**3**		**2**		**1**		**0**			
Context	26	21	4	10	1	1	0	0	0	0	0	0	**4.81**	**4.59**
Content	21	16	6	15	4	3	0	1	0	0	0	0	**4.60**	**4.33**
Conventions	19	17	12	14	0	1	0	0	0	0	0	0	**4.63**	**4.50**
Clarity	7	24	14	8	9	0	1	0	0	0	0	0	**4.02**	**4.72**

Syntax	23	30	4	2	3	0	0	0	0	0	~~0~~	~~0~~	**4.58**	**4.91**
												Total	**22.63**	**23.05**

Percentage of students scoring above	**60%**	**70%**	**80%**	**90%**
Summer 2017	100%	100%	94%	28%
Fall 2017	100%	97%	93%	84%
Spring 2018	100%	98.0%	96.70%	71.7%
Summer 2018	100%	100%	90%	35%
Fall 2018	100%	100%	100%	59.4%

Semester	**Lowest ranked criteria**
Summer 2017	*Content*
Fall 2017	*Content*
Spring 2018	*Content*
Summer 2018	*Content*
Fall 2018	*Content*

b. ACCE SLO #2 - Create oral presentations appropriate to the construction discipline.

In Fall 2016 assessed in BSCI 3200 Construction Communication. Case Study Presentation accounts for 15% of final grade. Oral Presentation Rubric - measures performance over 5 specific criteria. From summer 2017 assessed in BSCI 3200 Construction Communication. Since Fall 2017, one oral presentation account for 15% of final grade. Oral Presentation Rubric - measures performance over 5 specific criteria.

Fall 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Central Message	14	10	1	0	0	0	**4.41**
Organization	16	9	0	0	0	0	**4.43**
Delivery	13	10	2	0	0	0	**4.29**

Content	20	5	0	0	0	0	**4.61**
Language	21	4	0	0	0	3	**4.78**
					Total (90.09%)		**22.52**

Spring 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Central Message	5	4	1	0	0	0	**4.4**
Organization	3	6	1	0	0	0	**4.2**
Delivery	3	4	3	0	0	0	**4.0**
Content	6	4	0	0	0	0	**4.6**
Language	8	2	0	0	0	0	**4.8**
					Total (88%)		**22**

Summer 2017 (New Curriculum) Presentations 1 & 2	**Grading Scale**												**Average**	
	5		**4**		**3**		**2**		**1**		**0**			
Central Message	18	33	12	0	3	0	0	0	0	0	1	0	**4.33**	**5.00**
Organization	20	16	12	17	1	0	0	0	0	0	1	0	**4.44**	**4.60**
Delivery	11	11	17	5	4	17	0	0	0	0	1	0	**4.10**	**4.14**
Content	20	11	12	22	1	0	0	0	0	0	1	0	**4.44**	**4.33**
Language	17	27	15	6	1	0	0	0	0	0	1	0	**4.36**	**4.82**
												Total (86.68%,91.56%)	**21.67**	**22.89**

Fall 2017 (New Curriculum) Presentation 1	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Central Message	27	3	0	0	0	0	**4.92**
Organization	18	11	1	0	0	0	**4.58**
Delivery	4	12	12	2	0	0	**3.73**
Content	13	15	1	1	0	0	**4.40**

Language	28	1	1	0	0	0	**4.90**
					Total (88%)		**22.53**

Spring 2018 Presentation 1	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Central Message	49	10	0	0	0	0	**4.83**
Organization	52	8	2	0	0	0	**4.81**
Delivery	8	28	22	3	0	0	**3.67**
Content	32	21	6	2	0	0	**4.36**
Language	52	6	1	0	0	0	**4.86**
					Total (88%)		**22.53**

Summer 2018 Presentation 1	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Central Message	24	23	4	1	0	0	**4.52**
Organization	15	32	2	3	0	0	**4.29**
Delivery	13	25	12	2	0	0	**4.10**
Content	13	36	1	2	0	0	**4.32**
Language	32	18	1	1	0	0	**4.65**
					Total	**87.52%**	**21.88**

Fall 2018 Presentation 1	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Central Message	24	8	0	0	0	0	**4.75**
Organization	24	8	0	0	0	0	**4.75**
Delivery	20	10	2	0	0	0	**4.56**
Content	15	16	1	0	0	0	**4.44**
Language	19	13	0	0	0	0	**4.59**

Total (92.36%)		**23.09**

Percentage of students scoring above	**60%**	**70%**	**80%**	**90%**
Fall 2016	100%	100%	88%	56%
Spring 2017	100%	100%	100%	40%
Summer 2017	100%	100%	100%	63%
Fall 2017	100%	97%	97%	77%
Spring 2018	100%	100%	97%	82%
Summer 2018	98%	94%	87%	52%
Fall 2018	100%	100%	100%	63%

Semester	**Lowest ranked criteria**
Fall 2016	*Delivery*
Spring 2017	*Delivery*
Summer 2017	*Delivery*
Fall 2017	*Delivery*
Spring 2018	*Delivery*
Summer 2018	*Delivery*
Fall 2018	*Content*

c. ACCE SLO #3 - Create a construction project safety plan.

- *Assessed in BSCI 4990 – Thesis. Safety Plan accounts for 5% of Thesis grade. Grading Rubric 4 – Safety – initial rubric measured performance over 8 specific criteria. Revised rubric introduced in Fall 2016 measures across 5 criteria.*

Fall 2014	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Specifics of the Project	11	0	1	5	1	0	**3.83**
Emergency Contacts	11	6	1	0	0	0	**4.56**
Safety Manager	10	3	3	1	1	0	**4.11**

First Aid	11	3	1	2	1	0	**4.17**
Emergency Plan	10	4	1	2	1	0	**4.11**
Regulations Governing Project	9	5	0	3	1	0	**4.00**
	25	**20**	**15**	**10**	**5**	0	
Analyze Hazards	3	6	4	4	1	0	**16.67**
Create a Safety Plan	5	6	4	2	1	0	**18.33**
Create Plan for Compliance	5	6	2	3	0	0	**16.11**
						Total (72.27%)	**75.89**

Spring 2015	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Specifics of the Project	21	3	3	0	0	0	**4.67**
Emergency Contacts	21	6	0	0	0	0	**4.78**
Safety Manager	17	7	1	2	0	0	**4.44**
First Aid	16	9	0	1	1	0	**4.41**
Emergency Plan	18	3	3	2	1	0	**4.30**
Regulations Governing Project	19	5	1	2	0	0	**4.52**
	25	**20**	**15**	**10**	**5**	**0**	
Analyze Hazards	6	11	8	1	1	0	**18.70**
Create a Safety Plan	3	15	7	2	0	0	**18.51**
Create Plan for Compliance	4	13	7	3	0	0	**18.33**
						Total	**72.28%**

Summer 2015	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Specifics of the Project	18	2	2	0	0	0	**4.73**
Emergency Contacts	17	4	0	1	0	0	**4.68**
Safety Manager	12	3	5	1	1	0	**4.09**
First Aid	14	3	3	1	1	0	**4.27**
Emergency Plan	15	2	2	2	1	0	**4.27**
Regulations Governing Project	11	2	7	1	0	1	**3.91**

	25	20	15	10	5	0	
Analyze Hazards	6	8	3	5	0	0	**18.41**
Create a Safety Plan	6	6	6	4	0	0	**18.18**
Create Plan for Compliance	8	4	7	2	1	0	**18.63**
						Total	**76.86%**

Fall 2015*	**Grading Scale**						**Average**
Changes to Rubric	**5**	**4**	**3**	**2**	**1**	**0**	
Specifics of the Project	12	6	6	0	0	1	**4.08**
Safety Manager	9	8	5	1	2	0	**3.84**
First Aid	13	4	3	1	2	2	**3.76**
Emergency Contacts	12	6	4	1	1	1	**3.96**
Accident Plan	11	8	3	1	1	1	**3.96**
Training	8	10	3	1	2	1	**3.72**
	35	**28**	**21**	**14**	**7**	**0**	
Analyze Hazards	7	7	9	1	1	0	**26.04**
Create a Safety Plan for compliance	8	10	5	0	1	1	**26.88**
						Total	**76.24%**

Spring 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Specifics of the Project	16	11	2	0	1	0	**4.37**
Safety Manager	19	4	6	0	1	0	**4.33**
First Aid	19	5	4	0	2	0	**4.30**
Emergency Contacts	13	6	6	4	0	1	**3.83**
Accident Plan	17	5	3	1	1	3	**3.90**
Training	15	7	3	1	0	4	**3.80**
	35	**28**	**21**	**14**	**7**	**0**	
Analyze Hazards	13	11	3	1	1	1	**28.23**
Create a Safety Plan for compliance	9	12	7	1	0	1	**27.07**

	Total	**79.83%**

Summer 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Specifics of the Project	12	4	3	0	1	0	**4.30**
Safety Manager	9	8	1	2	0	0	**4.20**
First Aid	12	4	3	0	1	0	**4.30**
Emergency Contacts	14	4	1	0	1	0	**4.50**
Accident Plan	12	2	5	1	0	3	**4.25**
Training	11	6	0	1	2	0	**4.15**
	35	**28**	**21**	**14**	**7**	**0**	
Analyze Hazards	11	6	2	1	0	0	**30.45**
Create a Safety Plan for compliance	11	7	1	0	1	0	**30.45**
						Total	**86.60%**

Fall 2016 (Revised Rubric)	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	12	8	4	0	0	0	**4.33**
Site Specific Safety Plan	7	15	2	0	0	0	**4..21**
Job Hazard Analysis	9	7	6	2	0	0	**3.96**
Hazardous Materials	9	10	4	1	0	0	**4.13**
Injury/Accident Plan	7	12	5	0	0	3	**4.108**
						Total	**81.58%**

Spring 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	15	3	2	0	0	0	**4.65**
Site Specific Safety Plan	12	6	1	1	0	0	**4.45**
Job Hazard Analysis	14	4	2	0	0	0	**4.59**
Hazardous Materials	15	4	1	0	0	0	**4.70**

Injury/Accident Plan	13	6	0	1	0	3	**4.55**
						Total	**91.90%**

Summer 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	11	3	0	0	0	0	**4.79**
Site Specific Safety Plan	7	7	0	0	0	0	**4.50**
Job Hazard Analysis	10	3	1	0	0	0	**4.61**
Hazardous Materials	11	1	2	0	0	0	**4.64**
Injury/Accident Plan	9	4	1	0	0	0	**4.54**
						Total	**88.2*%**

Fall 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	26	17	5	1	0	0	**4.39**
Site Specific Safety Plan	21	17	10	1	0	0	**4.18**
Job Hazard Analysis	20	17	9	2	0	0	**4.05**
Hazardous Materials	25	20	3	0	1	0	**4.39**
Injury/Accident Plan	19	18	10	2	0	0	**4.09**
						Total	**83.47%**

Spring 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	17	12	1	0	1	0	**4.42**
Site Specific Safety Plan	15	11	2	1	1	1	**4.13**
Job Hazard Analysis	11	12	6	0	1	1	**3.92**
Hazardous Materials	16	11	3	1	0	0	**4.34**
Injury/Accident Plan	13	12	2	2	1	1	**3.98**
						Total	**81.74%**

Summer 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	19	8	0	1	0	0	**4.61**

Site Specific Safety Plan	13	10	4	0	0	1	**4.16**
Job Hazard Analysis	14	6	4	0	3	1	**3.89**
Hazardous Materials	14	10	1	0	2	1	**4.07**
Injury/Accident Plan	13	10	1	3	0	1	**4.05**
						Total	**83.14%**

Fall 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	34	14	0	0	0	1	**4.60**
Site Specific Safety Plan	26	19	1	1	0	2	**4.27**
Job Hazard Analysis	33	14	1	0	0	1	**4.54**
Hazardous Materials	34	13	1	0	0	1	**4.56**
Injury/Accident Plan	28	20	0	0	0	1	**4.47**
						Total	**89.76%**

Percentage of students scoring above	**60%**	**70%**	**80%**	**90%**
Fall 2014	67%	50%	39%	22%
Spring 2015	85%	70%	44%	11%
Summer 2015	67%	52%	33%	22%
Fall 2015	80%	68%	32%	28%
Spring 2016	87%	77%	60%	30%
Summer 2016	80%	80%	70%	50%
Fall 2016	79%	67%	42%	17%
Spring 2017	100%	100%	85%	60%
Summer 2017	100%	100%	86%	50%
Fall 2017	94%	82%	55%	41%
Spring 2018	94%	81%	55%	35%
Summer 2018	86%	82%	64%	50%
Fall 2018	98%	98%	84%	61%

Semester	**Lowest ranked criteria**

Fall 2014	*Create Plan for Compliance*
Spring 2015	*Create Plan for Compliance*
Summer 2015	*Create a Safety Plan*
Fall 2015	*Analyze Hazards*
Spring 2016	*Emergency Contacts*
Summer 2016	*Safety Manager*
Fall 2016	*Job Hazard Analysis*
Spring 2017	*Site Specific Safety Plan*
Summer 2017	*Site Specific Safety Plan*
Fall 2017	*Job Hazard Analysis*
Spring 2018	*Job Hazard Analysis*
Summer 2018	*Job Hazard Analysis*
Fall 2018	*Site Specific Safety Plan*

d. ACCE SLO #4 Create construction project cost estimates.

- *Assessed in BSCI 4990 – Thesis. Project Estimate accounts for 15% of Thesis grade. Grading Rubric 1 – Estimate - measures performance over 5 specific criteria.*

Fall 2014	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	8	5	4	1	0	0	**4.11**
Calculate Building Quantities	6	7	3	1	1	0	**3.89**
Choose Appropriate Technology for Creating Estimate	7	6	4	0	1	0	**4.00**
BIM Model	13	3	2	0	0	0	**4.61**
Create an Estimate	6	8	4	0	0	0	**4.11**
					Total (82.89%)		**20.72**

Spring 2015	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	15	9	3	2	2	0	**4.06**

Calculate Building Quantities	9	17	2	0	3	0	**3.94**
Choose Appropriate Technology for Creating Estimate	12	12	4	1	1	1	**3.97**
BIM Model	19	5	4	0	2	1	**4.16**
Create an Estimate	4	20	4	1	2	0	**3.74**
					Total (79.48%)		**19.87**

Summer 2015	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	10	8	4	0	0	0	**4.27**
Calculate Building Quantities	7	11	4	0	0	0	**4.14**
Choose Appropriate Technology for Creating Estimate	10	11	1	0	0	0	**4.41**
BIM Model	10	10	1	1	0	0	**4.32**
Create an Estimate	5	16	1	0	0	0	**4.18**
					Total (85.27%)		**21.32**

Fall 2015	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	13	8	3	1	0	0	**4.32**
Calculate Building Quantities	6	13	4	1	0	0	**3.88**
Choose Appropriate Technology for Creating Estimate	10	12	2	1	0	0	**4.24**
BIM Model	15	8	1	0	1	0	**4.44**
Create an Estimate	4	14	6	0	1	0	**3.80**
					Total (82.72%)		**20.7**

Spring 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	14	7	5	2	1	0	**4.07**
Calculate Building Quantities	11	9	5	3	1	0	**3.90**

Choose Appropriate Technology for Creating Estimate	23	4	2	0	0	0	**4.72**
BIM Model	15	13	1	0	0	0	**4.48**
Create an Estimate	11	7	4	3	4	0	**3.62**
					Total (83.17%)		**20.8**

Summer 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	12	6	1	1	0	0	**4.45**
Calculate Building Quantities	8	6	6	0	0	0	**4.10**
Choose Appropriate Technology for Creating Estimate	12	6	2	0	0	0	**4.50**
BIM Model	11	6	3	0	0	0	**4.40**
Create an Estimate	6	8	4	0	1	0	**3.93**
					Total (85.50%)		**21.4**

Fall 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	15	16	1	2	2	0	**4.10**
Calculate Building Quantities	9	14	7	4	2	0	**3.63**
Choose Appropriate Technology for Creating Estimate	15	15	6	0	0	0	**4.24**
BIM Model	18	12	3	3	0	0	**4.25**
Create an Estimate	3	20	7	1	4	0	**3.44**
					Total (78.63%)		**19.7**

Spring 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	

Classify Materials and Methods by Trades	11	11	1	0	0	0	**4.43**
Calculate Building Quantities	12	5	1	3	2	0	**3.96**
Choose Appropriate Technology for Creating Estimate	11	9	1	0	2	0	**4.17**
BIM Model	14	9	0	0	0	0	**4.61**
Create an Estimate	5	11	4	2	1	0	**3.73**
					Total (83.58%)		**20.9**

Summer 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	9	3	3	1	0	0	**4.25**
Calculate Building Quantities	6	7	1	1	1	0	**4.00**
Choose Appropriate Technology for Creating Estimate	10	4	2	0	0	0	**4.50**
BIM Model	12	3	0	1	0	0	**4.63**
Create an Estimate	4	5	2	4	1	0	**3.44**
					Total (83.25%)		**20.8**

Fall 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	19	20	5	2	3	0	**3.99**
Calculate Building Quantities	11	21	10	5	2	0	**3.65**
Choose Appropriate Technology for Creating Estimate	29	11	7	1	1	0	**4.34**

BIM Model	32	15	2	0	0	0	**4.61**
Create an Estimate	3	23	15	5	3	0	**3.36**
					Total (79.8%)		**19.9**

Spring 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	18	12	1	0	0	0	**4.50**
Calculate Building Quantities	10	14	3	3	1	0	**3.90**
Choose Appropriate Technology for Creating Estimate	17	8	2	3	1	0	**4.18**
BIM Model	22	7	1	1	0	0	**4.59**
Create an Estimate	3	15	6	4	3	0	**3.31**
					Total (81.94%)		**20.5**

Summer 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Classify Materials and Methods by Trades	14	10	2	2	0	0	**4.23**
Calculate Building Quantities	10	11	1	0	1	1	**3.88**
Choose Appropriate Technology for Creating Estimate	13	11	4	0	0	0	**4.32**
BIM Model	14	11	2	0	1	0	**4.32**
Create an Estimate	4	16	6	0	2	0	**3.68**
					Total (81.71%)		**20.4**

Fall 2018	**Grading Scale**	**Average**

	5	4	3	2	1	0	
Classify Materials and Methods by Trades	27	19	3	0	0	0	**4.47**
Calculate Building Quantities	14	26	3	4	2	0	**3.89**
Choose Appropriate Technology for Creating Estimate	25	18	4	2	0	0	**4.34**
BIM Model	28	15	4	1	0	1	**4.35**
Create an Estimate	9	29	7	4	0	0	**3.84**
					Total (83.53%)		**20.90**

Percentage of students scoring above	**60%**	**70%**	**80%**	**90%**
Fall 2014	94%	83%	56%	39%
Spring 2015	81%	77%	58%	23%
Summer 2015	71%	68%	48%	23%
Fall 2015	88%	84%	64%	28%
Spring 2016	90%	83%	62%	45%
Summer 2016	85%	80%	60%	35%
Fall 2016	69%	61%	36%	6%
Spring 2017	91%	91%	61%	35%
Summer 2017	88%	88%	69%	38%
Fall 2017	88%	82%	59%	29%
Spring 2018	90%	87%	58%	35%
Summer 2018	93%	82%	57%	32%
Fall 2018	94%	90%	63%	33%

Semester	**Lowest ranked criteria**
Fall 2014	*Calculate Building Quantities*
Spring 2015	*Create an Estimate*

Summer 2015	*Calculate Building Quantities*
Fall 2015	*Create an Estimate*
Spring 2016	*Create an Estimate*
Summer 2016	*Create an Estimate*
Fall 2016	*Create an Estimate*
Spring 2017	*Create an Estimate*
Summer 2017	*Create an Estimate*
Fall 2017	*Create an Estimate*
Spring 2018	*Create an Estimate*
Summer 2018	*Create an Estimate*
Fall 2018	*Create an Estimate*

e. ACCE SLO # 5 Create construction project schedules.

- *Assessed in BSCI 4990 – Thesis. Scheduling Assessment accounts for 10% of Thesis grade. Grading Rubric 5 – Scheduling - measures performance over 5 specific criteria*

Fall 2015	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Develop work breakdown structure	11	11	2	0	0	0	**4.38**
Calculate and apply durations	10	11	2	1	0	0	**4.25**
Assign relationships and constraints	8	11	4	1	0	0	**4.08**
Leverage the software platform	12	8	3	1	0	0	**4.29**
Create a project schedule	7	13	3	1	0	0	**4.08**
					Total (84.33%)		**21.08**

Spring 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Develop work breakdown structure	12	11	4	3	0	0	**4.07**
Calculate and apply durations	18	5	4	3	0	0	**4.27**

Assign relationships and constraints	7	14	8	1	0	0	**3.90**
Leverage the software platform	14	13	2	1	0	0	**4.33**
Create a project schedule	7	16	2	5	0	0	**3.83**
					Total (81.60%)		**20.40**

Summer 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Develop work breakdown structure	12	6	1	1	0	0	**4.45**
Calculate and apply durations	10	5	4	1	0	0	**4.20**
Assign relationships and constraints	5	8	5	2	0	0	**3.80**
Leverage the software platform	9	7	4	0	0	0	**4.25**
Create a project schedule	9	3	7	1	0	0	**4.00**
					Total (82.80%)		**20.70**

Fall 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Develop work breakdown structure	20	11	3	1	0	0	**4.41**
Calculate and apply durations	15	11	4	4	1	0	**3.97**
Assign relationships and constraints	13	10	9	2	1	0	**3.96**
Leverage the software platform	16	13	4	1	1	0	**4.21**
Create a project schedule	12	14	4	4	1	0	**3.91**
					Total (81.83%)		**20.46**

Spring 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Develop work breakdown structure	11	6	4	2	0	0	**4.13**
Calculate and apply durations	10	7	4	2	0	0	**4.09**
Assign relationships and constraints	7	8	6	2	0	0	**3.87**

Leverage the software platform	13	8	2	0	0	0	**4.48**
Create a project schedule	7	9	4	3	0	0	**3.87**
					Total (81.74%)		**20.43**

Summer 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Develop work breakdown structure	10	4	2	0	0	0	**4.50**
Calculate and apply durations	5	7	2	2	0	0	**3.94**
Assign relationships and constraints	4	9	1	2	0	0	**3.94**
Leverage the software platform	11	4	0	1	0	0	**4.56**
Create a project schedule	7	3	3	2	1	0	**3.81**
					Total (83.00%)		**20.75**

Fall 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Develop work breakdown structure	21	21	4	3	0	0	**4.21**
Calculate and apply durations	14	24	5	4	2	0	**3.89**
Assign relationships and constraints	12	19	10	5	3	0	**3.64**
Leverage the software platform	20	24	2	1	2	0	**4.20**
Create a project schedule	11	23	4	11	0	0	**3.68**
					Total (78.53%)		**19.63**

Spring 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Develop work breakdown structure	19	8	3	1	0	0	**4.42**
Calculate and apply durations	14	10	3	3	1	0	**4.05**
Assign relationships and constraints	14	9	7	1	0	0	**4.15**
Leverage the software platform	23	7	1	0	0	0	**4.68**
Create a project schedule	6	17	7	1	0	0	**3.90**

Total (84.80%)		**21.20**

Summer 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Develop work breakdown structure	12	11	5	0	0	0	**4.23**
Calculate and apply durations	12	13	2	1	0	0	**4.26**
Assign relationships and constraints	9	12	5	1	0	1	**3.91**
Leverage the software platform	16	10	1	1	0	0	**4.46**
Create a project schedule	6	15	6	0	0	1	**3.80**
					Total (82.69%)		**20.67**

Fall 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Develop work breakdown structure	26	14	9	0	0	0	**4.32**
Calculate and apply durations	24	16	7	2	0	0	**4.22**
Assign relationships and constraints	19	17	10	3	0	0	**4.05**
Leverage the software platform	27	16	6	0	0	0	**4.42**
Create a project schedule	15	20	10	4	0	0	**3.90**
					Total (83.61%)		**20.90**

Percentage of students scoring above	**60%**	**70%**	**80%**	**90%**
Fall 2015	96%	88%	67%	38%
Spring 2016	83%	73%	67%	43%
Summer 2016	75%	65%	50%	50%
Fall 2016	71%	66%	46%	31%
Spring 2017	87%	74%	52%	35%
Summer 2017	88%	81%	56%	50%
Fall 2017	84%	80%	49%	14%
Spring 2018	97%	94%	65%	35%

Summer 2018	93%	86%	64%	29%
Fall 2018	92%	84%	59%	39%

Semester	**Lowest ranked criteria**
Fall 2015	*Assign relationships and constraints/create a project schedule*
Spring 2016	*Create a project schedule*
Summer 2016	*Assign relationships and constraints*
Fall 2016	*Create a project schedule*
Spring 2017	*Assign relationships and constraints* *Create a project schedule*
Summer 2017	*Create a project schedule*
Fall 2017	*Assign relationships and constraints*
Spring 2018	*Create a project schedule*
Summer 2018	*Create a project schedule*
Fall 2018	*Create a project schedule*

f. ACCE SLO #6 Analyze professional decisions based on ethical principles.

- *Assessed in BSCI 3200 – Construction Communication – Students write a business policy on gifts and entertainment accounts for 10% of overall grade.*

Fall 2017	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Write a business policy on gifts and entertainment	0	0	1	5	25	95%

Spring 2018	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	

Write a business policy on gifts and entertainment	1	0	3	15	41	91.25%

Summer 2018	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Write a business policy on gifts and entertainment	0	1	8	31	12	84.35%

Fall 2018	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Write a business policy on gifts and entertainment	0	0	1	0	31	98.3%

g. ACCE SLO #8 Analyze methods, materials, and equipment used to construct projects.

- *Assessed in BSCI 4350 - Construction Project Analysis (First Semester, Senior Year). Project Method Statement accounts for 35% of course grade*

Fall 2018	**Grading Scale**								**Average**
	5	**4.5**	**4**	**3.5**	**3**	**2**	**1**	**0**	
Select Crane/Hoisting Equipment	46	0	7	0	3	1	2	5	**4.23**
Major Equipment Selection	50	0	7	0	0	2	0	5	**4.41**
Method for Performing Earthwork	40	1	8	0	6	0	1	8	**3.99**
Site Utilization	23	11	14	5	7	2	0	2	**4.12**
								Total	**16.75**
								Total %	**83.75**

h. ACCE SLO #9 Apply construction management skills as a member of a multi-disciplinary team.

- *Assessed in BSCI 3440, Structure of Buildings II (First Semester, Junior Year) - Team Project - Individual Reflection Statement*

Fall 2018	No. of students					Average
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Organization	2	3	4	6	16	82.30%
Professionalism	0	3	5	7	16	82.90%
Reflection	0	0	2	5	24	88.70%
					Total	84.62%

i. ACCE SLO #11 Apply basic surveying techniques for construction layout and control.

- *Assessed in BSCI 3300 – Field Surveying. Final Examination accounts for 10% of final grade. Field Book accounts for 10% of final grade.*

Summer 2016	No. of students					Average
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Final Examination	0	1	8	31	57	90.30
Field Book	0	0	3	3	91	97.46

Summer 2017	No. of students					Average
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Final Examination	0	2	24	46	54	87.05
Field Book	0	0	0	4	122	98.39

Summer 2018	No. of students					Average
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Final Examination	0	2	18	55	67	88.40
Field Book	0	0	8	21	113	93.67

j. ACCE SLO #12 Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process

- *Assessed in BSCI 3800 – Contracting Business. A series of questions relating to this outcome in quiz 4 measure this outcome.*

Spring 2018	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
6 Questions on Quiz 4	10	28	0	14	13	69.23%
Worst performing question topic	Guaranteed Maximum Price as it Relates to Project Delivery					

Fall 2018	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
6 Questions on Quiz 4	4	24	0	21	1	67.67%
Worst performing question topic	CM@R Typically Requiring Two Separate Contracts					

k. ACCE SLO#13. Understand construction risk management.

Assessed in BSCI 4850 Construction Law and Risk Management (2nd Semester, Senior Year). – Specific questions on Tests 2 or 3. Tests 2 & 3 account for 50% of course grade

Fall 2018	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Section 1: assessed with Quiz 2 consisting of 34 questions – 25 students. Section 2: assessed with Quiz 3 consisting of 25 questions – 23 students	1	13	4	17	13	80.04%

Worst performing question topic	Section 1: Insurance Exclusions Section 2: All-Risk Builder's Risk Insurance

l. ACCE SLO#15. Understand construction quality assurance and control.

Assessed in BSCI 4350 Construction Project Analysis (First Semester, Senior Year). 15 Questions on Quiz 3.

Fall 2018	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
15 Questions on Quiz 3	5	3	13	23	20	82.23%

Percentage of students scoring above	**60%**	**70%**	**80%**	**90%**
Fall 2018	97%	92%	72%	33%

m. ACCE SLO#17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.

Assessed in BSCI 4850 Construction Law and Risk Management (2nd Semester, Senior Year). – Specific questions on quizzes throughout the semester.

Fall 2018	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Section 1: assessed with Quizzes 1 and 3 consisting of 61 questions – 25 students. Section 2: assessed with Quiz 1, 2 and 4 consisting of 39 questions – 23 students	1	2	28	7	10	79.96%
Worst performing question topic	Section 1: Project Delivery Section 2: Lien rights on bonded projects					

n. ACCE SLO #18 Understand the basic principles of sustainable construction.

- *Assessed in BSCI 4990 – Thesis. LEED Assessment accounts for 5% of Thesis grade. Grading Rubric 2 – Sustainability - measures performance over 5 specific criteria.*

Fall 2014	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the appropriate LEED rating system for your project	12	2	2	1	0	0	**4.47**
Identify a material that has recycled content and provide documentation showing source of information	13	2	2	0	0	0	**4.65**
Calculate the % of the recycled material based on value.	8	1	3	5	0	0	**3.71**
Provide Map of Locally Resourced Material	13	1	3	0	0	0	**4.59**
Provide Table of Locally Resourced Material	10	3	3	0	1	0	**4.24**
Calculate the $ amount that would be required to achieve 2 LEED points	9	1	6	0	0	1	**3.94**
Identify recycling service provider and services provided	9	1	4	3	0	0	**3.94**
					Total (84.37%)		**29.53**

Spring 2015	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the appropriate LEED rating system for your project	20	2	1	0	1	1	**4.48**
Identify a material that has recycled content and provide documentation showing source of information	21	1	3	0	0	0	**4.72**
Calculate the % of the recycled material based on value.	20	1	4	0	0	0	**4.64**

Provide Map of Locally Resourced Material	18	3	1	0	2	1	**4.28**
Provide Table of Locally Resourced Material	20	3	2	0	0	0	**4.72**
Calculate the $ amount that would be required to achieve 2 LEED points	17	6	1	0	0	1	**4.48**
Identify recycling service provider and services provided	17	5	0	0	1	2	**4.24**
					Total (90.17%)		**31.56**

Summer 2015	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the appropriate LEED rating system for your project	16	1	3	1	0	1	**4.32**
Identify a material that has recycled content and provide documentation showing source of information	11	2	4	0	5	0	**3.64**
Calculate the % of the recycled material based on value.	9	9	1	1	1	1	**3.95**
Provide Map of Locally Resourced Material	5	4	4	0	0	9	**2.41**
Provide Table of Locally Resourced Material	9	8	3	1	0	1	**4.00**
Calculate the $ amount that would be required to achieve 2 LEED points	13	3	1	2	0	3	**3.82**
Identify recycling service provider and services provided	8	7	3	2	0	2	**3.68**
					Total (70.13%)		**25.82**

Fall 2015*	**Grading Scale**						**Average**
Changes to rubric	**5**	**4**	**3**	**2**	**1**	**0**	
Environmental impacts of construction on site	13	12	0	0	0	0	**4.52**
Fundamental commissioning and verification	9	11	5	0	0	0	**4.16**
Environmentally preferable products	11	6	6	2	0	0	**4.04**

Reduce construction waste	11	11	2	1	0	0	**4.28**
IAQ management plan	9	6	8	2	0	0	**3.88**
					Total (83.52%)		**20.90**

Spring 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Environmental impacts of construction on site	18	10	1	0	1	0	**4.47**
Fundamental commissioning and verification	16	6	7	0	1	0	**4.20**
Environmentally preferable products	19	3	5	1	2	0	**4.20**
Reduce construction waste	18	10	1	0	1	0	**4.47**
IAQ management plan	16	4	8	0	2	0	**4.07**
					Total (85.60%)		**21.40**

Summer 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Environmental impacts of construction on site	17	1	2	0	1	0	**4.75**
Fundamental commissioning and verification	10	8	2	0	1	0	**4.40**
Environmentally preferable products	13	4	2	0	0	1	**4.35**
Reduce construction waste	11	4	3	0	1	1	**4.05**
IAQ management plan	12	4	2	2	0	0	**4.30**
					Total (87.40%)		**21.90**

Fall 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Environmental impacts of construction on site	23	7	4	0	0	0	**4.57**
Fundamental commissioning and verification	14	10	6	2	0	2	**3.88**

Environmentally preferable products	18	9	5	0	0	2	**4.16**
Reduce construction waste	18	9	5	1	1	0	**4.20**
IAQ management plan	15	11	4	3	0	1	**4.03**
					Total (83.32%)		**20.8**

Spring 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Environmental impacts of construction on site	14	9	0	0	0	0	**4.59**
Fundamental commissioning and verification	9	11	3	0	0	0	**4.25**
Environmentally preferable products	18	3	0	1	0	1	**4.52**
Reduce construction waste	16	6	1	0	0	0	**4.58**
IAQ management plan	14	3	4	1	0	1	**4.17**
					Total (88.80%)		**22.1**

Summer 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Environmental impacts of construction on site	9	5	2	0	0	0	**4.44**
Fundamental commissioning and verification	9	5	0	2	0	0	**4.31**
Environmentally preferable products	12	4	0	0	0	0	**4.75**
Reduce construction waste	11	2	3	0	0	0	**4.50**
IAQ management plan	10	4	2	0	0	0	**4.50**
					Total (90.00%)		**22.5**

Fall 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Environmental impacts of construction on site	29	16	1	2	0	1	**4.39**

Fundamental commissioning and verification	23	19	3	1	2	1	**4.14**
Environmentally preferable products	18	17	3	7	1	3	**3.70**
Reduce construction waste	22	19	4	2	1	1	**4.10**
IAQ management plan	22	9	15	2	0	1	**3.95**
					Total (81.12%)		**20.30**

Spring 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Environmental impacts of construction on site	21	8	2	0	0	0	**4.60**
Fundamental commissioning and verification	14	7	6	2	1	1	**3.85**
Environmentally preferable products	18	4	4	4	0	1	**4.05**
Reduce construction waste	19	8	0	3	0	1	**4.27**
IAQ management plan	18	7	3	1	0	2	**4.15**
					Total (83.68%)		**20.90**

Summer 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Environmental impacts of construction on site	17	7	2	1	0	1	**4.30**
Fundamental commissioning and verification	12	8	6	1	0	1	**3.96**
Environmentally preferable products	10	8	7	1	0	2	**3.71**
Reduce construction waste	12	8	1	6	0	1	**3.82**
IAQ management plan	11	8	6	3	0	0	**3.96**
					Total (79.07%)		**19.80**

Fall 2018	**Grading Scale**	**Average**

	5	4	3	2	1	0	
Environmental impacts of construction on site	33	7	3	0	1	5	**4.08**
Fundamental commissioning and verification	27	10	6	2	0	4	**3.95**
Environmentally preferable products	26	11	2	2	2	6	**3.74**
Reduce construction waste	24	15	6	1	0	3	**4.05**
IAQ management plan	29	10	8	0	0	2	**4.23**
					Total (80.44%)		**20.10**

Percentage of students scoring above	**60%**	**70%**	**80%**	**90%**
Fall 2014	94%	76%	59%	47%
Spring 2015	92%	88%	76%	64%
Summer 2015	64%	52%	36%	24%
Fall 2015	88%	88%	56%	28%
Spring 2016	97%	83%	63%	57%
Summer 2016	90%	85%	65%	55%
Fall 2016	71%	65%	38%	24%
Spring 2017	91%	83%	74%	61%
Summer 2017	100%	100%	81%	56%
Fall 2017	90%	86%	59%	33%
Spring 2018	81%	77%	68%	52%
Summer 2018	79%	75%	54%	29%
Fall 2018	82%	76%	69%	39%

Semester	**Lowest ranked criteria**
Fall 2014	*Calculate the % of the recycled material based on value.*
Spring 2015	*Identify recycling service provider and services provided*

Summer 2015	*Provide Map of Locally Resourced Material*
Fall 2015	*IAQ management plan*
Spring 2016	*IAQ management plan*
Summer 2016	*Reduce construction waste*
Fall 2016	*Fundamental commissioning and verification*
Spring 2017	*IAQ management plan*
Summer 2017	*Fundamental commissioning and verification*
Fall 2017	*Environmentally preferable products*
Spring 2018	*Fundamental commissioning and verification*
Summer 2018	*Environmentally preferable products*
Fall 2018	*Environmentally preferable products*

o. ACCE SLO # 19 Understand the basic principles of structural behavior.

- *Assessed in BSCI 4990 – Thesis. Structural Assessment accounts for 5% of Thesis grade. Grading Rubric 3 – Structural - measures performance over 7 specific criteria.*

Fall 2014	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	8	9	1	0	0	**0**	**4.39**
Identify common methods of stabilizing structural frames	8	6	4	0	0	**0**	**4.22**
Classify Loads on Buildings	9	6	3	0	0	**0**	**4.33**
Trace the path of vertical and lateral loads through structural components of a post and beam building	10	6	2	0	0	**0**	**4.44**
Design and Construct strong, stiff, & stable temporary structures and formwork	10	4	1	0	3	**0**	**4.00**
Calculate internal member forces in structural elements of buildings	10	1	4	1	2	**0**	**3.89**
Determine internal stresses on structural bending elements	10	1	4	1	2	**0**	**3.89**
					Total (83.33%)		**29.17**

Spring 2015	Grading Scale						Average
	5	4	3	2	1	0	
Identify the structural components of a building	13	12	2	1	0	1	**4.17**
Identify common methods of stabilizing structural frames	14	10	3	1	0	1	**4.17**
Classify Loads on Buildings	18	7	2	0	2	0	**4.34**
Trace the path of vertical and lateral loads through structural components of a post and beam building	16	10	1	0	2	0	**4.31**
Design and Construct strong, stiff, & stable temporary structures and formwork	18	8	4	3	0	0	**4.14**
Calculate internal member forces in structural elements of buildings	15	3	4	2	4	1	**3.69**
Determine internal stresses on structural bending elements	16	4	4	1	4	0	**3.93**
					Total (82.17%)		**28.76**

Summer 2015	Grading Scale						Average
	5	4	3	2	1	0	
Identify the structural components of a building	9	9	3	1	0	0	**4.18**
Identify common methods of stabilizing structural frames	8	10	3	0	0	1	**4.05**
Classify Loads on Buildings	8	13	0	0	1	0	**4.23**
Trace the path of vertical and lateral loads through structural components of a post and beam building	6	12	3	0	0	1	**3.95**
Design and Construct strong, stiff, & stable temporary structures and formwork	8	4	3	4	2	1	**3.41**
Calculate internal member forces in structural elements of buildings	7	2	7	1	4	1	**3.18**
Determine internal stresses on structural bending elements	4	5	4	4	4	1	**2.91**
					Total (74.03%)		**25.91**

Fall 2015	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	13	11	1	0	0	0	**4.48**
Identify common methods of stabilizing structural frames	9	12	2	2	0	0	**4.12**
Classify Loads on Buildings	13	8	3	0	1	0	**4.28**
Trace the path of vertical and lateral loads through structural components of a post and beam building	16	6	3	0	1	1	**4.52**
Design and Construct strong, stiff, & stable temporary structures and formwork	9	9	5	0	1	1	**3.88**
Calculate internal member forces in structural elements of buildings	11	8	4	1	0	1	**4.04**
Determine internal stresses on structural bending elements	13	3	4	1	0	4	**3.64**
					Total (74.03%)		**25.91**

Spring 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	20	8	1	1	0	0	**4.57**
Identify common methods of stabilizing structural frames	17	8	4	1	0	0	**4.37**
Classify Loads on Buildings	17	11	1	0	1	0	**4.43**
Trace the path of vertical and lateral loads through structural components of a post and beam building	19	7	2	0	2	0	**4.37**
Design and Construct strong, stiff, & stable temporary structures and formwork	21	2	3	3	1	0	**4.30**
Calculate internal member forces in structural elements of buildings	19	6	2	1	0	0	**4.30**
Determine internal stresses on structural bending elements	16	8	3	1	2	4	**4.17**

Total (87.14%)		**30.50**

Summer 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	17	13	3	1	1	0	**4.24**
Identify common methods of stabilizing structural frames	15	10	5	2	3	0	**3.89**
Classify Loads on Buildings	21	9	2	0	2	1	**4.26**
Trace the path of vertical and lateral loads through structural components of a post and beam building	19	11	3	1	1	0	**4.31**
Design and Construct strong, stiff, & stable temporary structures and formwork	18	7	5	2	2	1	**3.94**
Calculate internal member forces in structural elements of buildings	20	8	2	1	3	1	**4.31**
Determine internal stresses on structural bending elements	20	6	4	1	3	1	**3.94**
					Total (82.55%)		**28.89**

Fall 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	15	3	1	1	0	0	**4.60**
Identify common methods of stabilizing structural frames	8	8	2	0	2	0	**4.00**
Classify Loads on Buildings	17	11	1	0	1	0	**4.43**
Trace the path of vertical and lateral loads through structural components of a post and beam building	12	5	2	0	1	0	**4.35**
Design and Construct strong, stiff, & stable temporary structures and formwork	8	6	2	3	1	0	**3.85**
Calculate internal member forces in structural elements of buildings	11	2	4	0	3	0	**3.90**

Determine internal stresses on structural bending elements	12	1	5	0	2	0	**4.05**
					Total (83.57%)		**29.25**

Spring 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	18	3	0	1	1	0	**4.57**
Identify common methods of stabilizing structural frames	18	3	1	0	1	0	**4.61**
Classify Loads on Buildings	16	4	2	0	1	0	**4.48**
Trace the path of vertical and lateral loads through structural components of a post and beam building	17	2	3	0	1	0	**4.48**
Design and Construct strong, stiff, & stable temporary structures and formwork	18	3	1	0	1	0	**4.61**
Calculate internal member forces in structural elements of buildings	18	2	1	1	1	0	**4.52**
Determine internal stresses on structural bending elements	19	1	1	1	1	0	**4.57**
					Total (90.93%)		**31.83**

Summer 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	10	5	1	0	0	0	**4.56**
Identify common methods of stabilizing structural frames	8	4	4	0	0	0	**4.25**
Classify Loads on Buildings	9	4	2	1	0	0	**4.31**
Trace the path of vertical and lateral loads through structural components of a post and beam building	11	2	3	0	0	0	**4.49**
Design and Construct strong, stiff, & stable temporary structures and formwork	12	1	3	0	0	0	**4.56**

Calculate internal member forces in structural elements of buildings	11	2	2	0	1	0	**4.38**
Determine internal stresses on structural bending elements	12	1	2	0	1	0	**4.44**
					Total (88.54%)		**30.99**

Fall 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	27	17	4	1	0	0	**4.42**
Identify common methods of stabilizing structural frames	20	14	12	3	0	0	**4.04**
Classify Loads on Buildings	26	18	3	2	0	0	**4.39**
Trace the path of vertical and lateral loads through structural components of a post and beam building	26	13	7	2	1	0	**4.24**
Design and Construct strong, stiff, & stable temporary structures and formwork	24	15	4	2	2	2	**4.04**
Calculate internal member forces in structural elements of buildings	28	9	5	4	0	3	**4.06**
Determine internal stresses on structural bending elements	27	11	4	4	1	2	**4.08**
					Total (83.64%)		**29.28**

Spring 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	17	11	2	1	0	0	**4.42**
Identify common methods of stabilizing structural frames	19	9	2	2	1	0	**4.26**
Classify Loads on Buildings	19	9	1	1	1	0	**4.42**
Trace the path of vertical and lateral loads through structural components of a post and beam building	17	7	4	2	1	0	**4.19**

Design and Construct strong, stiff, & stable temporary structures and formwork	15	9	2	2	3	0	**4.00**
Calculate internal member forces in structural elements of buildings	19	5	2	3	2	0	**4.36**
Determine internal stresses on structural bending elements	22	6	0	0	3	0	**4.42**
					Total (85.35%)		**29.87**

Summer 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	25	2	1	0	0	0	**4.83**
Identify common methods of stabilizing structural frames	13	12	2	0	1	0	**4.25**
Classify Loads on Buildings	16	9	2	0	0	1	**4.36**
Trace the path of vertical and lateral loads through structural components of a post and beam building	20	5	2	1	0	0	**4.55**
Design and Construct strong, stiff, & stable temporary structures and formwork	11	10	2	4	0	1	**3.88**
Calculate internal member forces in structural elements of buildings	14	8	0	1	2	3	**3.77**
Determine internal stresses on structural bending elements	15	5	2	3	0	3	**3.82**
					Total (84.16%)		**29.46**

Fall 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Identify the structural components of a building	28	17	2	0	0	2	**4.36**
Identify common methods of stabilizing structural frames	25	17	3	0	2	2	**4.15**
Classify Loads on Buildings	21	19	5	2	0	2	**4.08**
Trace the path of vertical and lateral loads through structural	26	13	6	2	0	2	**4.14**

components of a post and beam building							
Design and Construct strong, stiff, & stable temporary structures and formwork	18	20	7	1	0	3	**3.89**
Calculate internal member forces in structural elements of buildings	22	17	5	0	2	3	**3.96**
Determine internal stresses on structural bending elements	18	21	4	1	2	3	**3.86**
					Total (81.24%)		**28.43**

Percentage of students scoring above	**60%**	**70%**	**80%**	**90%**
Fall 2014	89%	83%	56%	39%
Spring 2015	79%	72%	59%	38%
Summer 2015	55%	52%	31%	17%
Fall 2015	84%	80%	64%	48%
Spring 2016	93%	90%	77%	53%
Summer 2016	80%	65%	50%	45%
Fall 2016	69%	60%	43%	31%
Spring 2017	91%	91%	87%	70%
Summer 2017	100%	94%	63%	50%
Fall 2017	88%	88%	71%	45%
Spring 2018	94%	87%	71%	45%
Summer 2018	89%	86%	68%	46%
Fall 2018	90%	86%	61%	35%

Semester	**Lowest ranked criteria**
Fall 2014	*Calculate internal member forces in structural elements of buildings.* *Determine internal stresses on structural bending elements.*
Spring 2015	*Calculate internal member forces in structural elements of buildings.*

Summer 2015	*Determine internal stresses on structural bending elements.*
Fall 2015	*Determine internal stresses on structural bending elements.*
Spring 2016	*Determine internal stresses on structural bending elements*
Summer 2016	*Design and Construct strong, stiff, & stable temporary structures and formwork*
Fall 2016	*Design and Construct strong, stiff, & stable temporary structures and formwork*
Spring 2017	*Classify Loads on Buildings* *Trace the path of vertical and lateral loads through structural components of a post and beam building*
Summer 2017	*Identify common methods of stabilizing structural frames*
Fall 2017	*Design and Construct strong, stiff, & stable temporary structures and formwork*
Spring 2018	*Design and Construct strong, stiff, & stable temporary structures and formwork*
Summer 2018	*Calculate internal member forces in structural elements of buildings*
Fall 2018	*Determine internal stresses on structural bending elements*

p. ACCE SLO #20 Understand the basic principles of mechanical, electrical and piping systems.

a. Assessed in examinations in BSCI 4700 Mechanical Systems in Buildings & BSCI 4750 Electrical Systems in Buildings:

Fall 2016	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Final Examination BSCI 4700 (Mechanical portion)	0	1	14	30	14	85%
Mid Term Examination BSCI 4700 (Plumbing portion)	1	1	14	32	12	84%
3 Examinations in BSCI 4750 (Electrical)	3	1	9	40	67	88%

Spring 2017	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Final Examination BSCI 4700 (Mechanical portion)	0	3	11	23	12	84%
Mid Term Examination BSCI 4700 (Plumbing portion)	0	0	11	29	9	84%
3 Examinations in BSCI 4750 (Electrical)	0	0	4	36	18	87 %

Fall 2017	**No. of students**					**Average**
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Final Examination BSCI 4700 (Mechanical portion)	3	6	15	24	18	82.79%
Mid Term Examination BSCI 4700 (Plumbing portion)	0	1	6	23	36	88.97%
3 Examinations in BSCI 4750 (Electrical)	11	0	5	25	20	88.00%

Spring 2018	No. of students					Average
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Final Examination BSCI 4700 (Mechanical portion)	0	0	11	32	20	88.22%
Mid Term Examination BSCI 4700 (Plumbing portion)	0	5	11	34	13	82.86%
3 Examinations in BSCI 4750 (Electrical)	0	2	9	51	1	88.00%

Fall 2018	No. of students					Average
Assessment	**<60**	**60-69**	**70-79**	**80-89**	**90+**	
Final Examination BSCI 4700 (Mechanical portion)	0	3	18	36	27	84.73%
Mid Term Examination BSCI 4700 (Plumbing portion)	0	4	18	53	9	82.86%
3 Examinations in BSCI 4750 (Electrical)	0	0	11	15	6	83.69%

Percentage of students scoring above	60%	70%	80%	90%
Mechanical Fall 2016	100%	98%	75%	23%
Electrical Fall 2016	100%	98%	75%	20%
Plumbing Fall 2016	99%	97%	89%	56%
Mechanical Spring 2017	100%	94%	71%	24%
Electrical Spring 2017	100%	100%	93%	31%
Plumbing Spring 2017	100%	100%	78%	18%
Mechanical Fall 2017	95%	86%	63%	27%
Electrical Fall 2017	100%	100%	90%	40%
Plumbing Fall 2017	100%	98%	89%	55%
Mechanical Spring 2018	100%	100%	83%	32%
Electrical Spring 2018	100%	97%	83%	2%
Plumbing Spring 2018	100%	92%	75%	21%
Mechanical Fall 2018	100%	96%	75%	32%
Electrical Fall 2018				
Plumbing Fall 2018	100%	95%	73%	11%

8a. Indirect Measure

Indirectly measure the students' perception of their ability to meet the 20 ACCE Student Learning Outcomes using an exit survey that assesses how strongly they agree they have met the 20 outcomes.

Performance Criteria for student learning outcomes were established by the BSCI Faculty at the BSCI Quality Improvement Meeting held on May 9, 2017. For indirect assessment of Student Learning Outcomes: 80% of graduating students should agree they have met the learning outcomes. Any student learning outcome that falls below this threshold for 4 consecutive semesters will be evaluated by a faculty review. From Fall 2017 any assessment measure not meeting this criteria will be highlighted in **RED.**

Our accreditation agency, The American Council for Construction Education, has established learning outcomes that set out what you should be able to do upon graduation. On a scale of 1 to 5, rate how strongly you agree or disagree that you have achieved the following outcomes:

a. Individual responses and average response

i. Create written communications appropriate to the construction discipline

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	4	4	4.50
Spring 2015 (28 Reporting)	0	0	0	9	19	4.68
Summer 2015 (21 Reporting)	0	0	0	4	17	4.81
Fall 2015 (20 Reporting)	0	0	4	9	7	4.15
Spring 2016 (21 Reporting)	0	0	1	7	13	4.57
Summer 2016 (21 Reporting)	0	0	2	11	11	4.38
Fall 2016 (27 Reporting)	0	0	0	12	15	4.56
Spring 2017 (14 Reporting)	0	0	0	6	8	4.57
Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	0	0	3	16	23	4.48
Spring 2018 (26 Reporting)	0	0	0	8	18	4.69
Summer 2018 (18 Reporting)	0	1	1	6	10	4.39
Fall 2018 (20 reporting)	0	0	0	6	14	4.70

ii. Create oral presentations appropriate to the construction discipline

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	1	3	4	4.38
Spring 2015 (28 Reporting)	0	0	1	8	19	4.64
Summer 2015 (21 Reporting)	0	0	1	11	9	4.38
Fall 2015 (20 Reporting)	0	0	4	10	6	4.10
Spring 2016 (21 Reporting)	0	0	1	8	12	4.52
Summer 2016 (24 Reporting)	0	1	1	13	9	4.25
Fall 2016 (27 Reporting)	0	0	1	10	16	4.56
Spring 2017 (14 Reporting)	0	0	0	5	9	4.64
Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	0	0	1	19	22	4.50
Spring 2018 (26 Reporting)	0	0	1	12	13	4.46
Summer 2018 (18 Reporting)	0	1	1	8	8	4.28
Fall 2018 (20 reporting)	0	0	0	8	12	4.60

iii. Create a construction project safety plan.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	5	3	4.38
Spring 2015 (28 Reporting)	0	0	1	11	16	4.54
Summer 2015 (21 Reporting)	0	0	2	9	10	4.38
Fall 2015 (20 Reporting)	0	1	3	8	8	4.15
Spring 2016 (21 Reporting)	0	0	0	7	14	4.67
Summer 2016 (24 Reporting)	0	1	3	10	10	4.21
Fall 2016 (27 Reporting)	0	0	1	13	13	4.44
Spring 2017 (14 Reporting)	0	0	0	3	11	4.79
Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	0	1	2	20	19	4.36
Spring 2018 (26 Reporting)	0	1	0	14	11	4.35
Summer 2018 (18 Reporting)	0	1	1	10	6	4.17
Fall 2018 (20 reporting)	0	0	0	3	17	4.85

iv. Create construction project cost estimates.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	3	5	4.63
Spring 2015 (28 Reporting)	0	0	0	3	25	4.89
Summer 2015 (21 Reporting)	0	0	1	5	15	4.67
Fall 2015 (20 Reporting)	1	0	2	6	11	4..30
Spring 2016 (21 Reporting)	0	0	1	4	16	4.71
Summer 2016 (24 Reporting)	0	0	1	9	14	4.54
Fall 2016 (27 Reporting)	0	0	1	8	18	4.63
Spring 2017 (14 Reporting)	0	0	0	3	11	4.79
Summer 2017 (10 Reporting)	0	0	0	1	9	4.90
Fall 2017 (42 Reporting)	0	0	2	16	24	4.52
Spring 2018 (26 Reporting)	0	0	1	6	19	4.69
Summer 2018 (18 Reporting)	0	0	1	6	11	4.56
Fall 2018 (20 reporting)	0	0	0	4	16	4.80

v. Create construction project schedules

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	2	6	4.75
Spring 2015 (28 Reporting)	0	0	0	5	23	4.82
Summer 2015 (21 Reporting)	0	0	0	11	10	4.48
Fall 2015 (20 Reporting)	0	1	2	6	11	4.35
Spring 2016 (21 Reporting)	0	0	1	7	13	4.57
Summer 2016 (24 Reporting)	0	0	2	9	13	4.56
Fall 2016 (27 Reporting)	0	0	0	8	19	4.70
Spring 2017 (14 Reporting)	0	0	0	4	10	4.71
Summer 2017 (10 Reporting)	0	0	0	1	9	4.90
Fall 2017 (42 Reporting)	0	0	3	14	25	4.52
Spring 2018 (26 Reporting)	0	0	3	7	16	4.50
Summer 2018 (18 Reporting)	0	0	1	8	9	4.44

Fall 2018 (20 reporting)	0	0	0	6	14	4.70

vi. Analyze professional decisions based on ethical principles

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	1	2	5	4.50
Spring 2015 (28 Reporting)	0	0	2	11	15	4.46
Summer 2015 (21 Reporting)	0	0	2	9	10	4.38
Fall 2015 (20 Reporting)	0	0	2	11	7	4.25
Spring 2016 (21 Reporting)	0	0	4	4	14	4.48
Summer 2016 (24 Reporting)	0	0	3	9	12	4.38
Fall 2016 (27 Reporting)	0	1	1	7	18	4.56
Spring 2017 (14 Reporting)	0	0	0	5	9	4.64
Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	0	0	1	24	17	4.38
Spring 2018 (26 Reporting)	0	1	1	14	10	4.27
Summer 2018 (18 Reporting)	0	0	2	6	10	4.44
Fall 2018 (20 reporting)	0	0	2	7	11	4.45

vii. Analyze construction documents for planning and management of construction processes

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	1	2	5	4.50
Spring 2015 (28 Reporting)	0	0	1	7	20	4.68
Summer 2015 (21 Reporting)	0	0	1	8	12	4.52
Fall 2015 (20 Reporting)	0	0	3	8	9	4..30
Spring 2016 (21 Reporting)	0	1	0	5	15	4.62
Summer 2016 (24 Reporting)	0	0	4	8	12	4.33
Fall 2016 (27 Reporting)	0	0	0	10	17	4.63
Spring 2017 (14 Reporting)	0	0	0	7	7	4.50
Summer 2017 (10 Reporting)	0	0	0	2	8	4.80
Fall 2017 (42 Reporting)	0	1	1	`7	23	4.48

Spring 2018 (26 Reporting)	0	0	1	7	18	4.65
Summer 2018 (18 Reporting)	0	1	0	8	9	4.39
Fall 2018 (20 reporting)	0	1	1	6	12	4.45

viii. Analyze methods, materials, and equipment used to construct projects.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	4	4	4.50
Spring 2015 (28 Reporting)	0	0	1	11	16	4.54
Summer 2015 (21 Reporting)	0	0	1	9	11	4.48
Fall 2015 (20 Reporting)	0	0	4	8	8	4.20
Spring 2016 (21 Reporting)	0	0	2	6	13	4.52
Summer 2016 (24 Reporting)	0	2	2	10	10	4.17
Fall 2016 (27 Reporting)	0	0	1	12	14	4.48
Spring 2017 (14 Reporting)	0	0	1	5	8	4.50
Summer 2017 (10 Reporting)	0	0	0	2	8	4.80
Fall 2017 (42 Reporting)	0	1	2	17	22	4.43
Spring 2018 (26 Reporting)	0	1	0	10	15	4.50
Summer 2018 (18 Reporting)	0	0	2	6	10	4.44
Fall 2018 (20 reporting)	0	0	1	8	11	4.50

ix. Apply construction management skills as a member of a multidisciplinary team.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	4	4	4.50
Spring 2015 (28 Reporting)	0	1	1	6	20	4.61
Summer 2015 (21 Reporting)	0	0	1	6	14	4.62
Fall 2015 (20 Reporting)	0	0	4	8	8	4.20
Spring 2016 (21 Reporting)	0	0	0	6	15	4.71
Summer 2016 (24 Reporting)	0	2	3	8	11	4.17
Fall 2016 (27 Reporting)	0	0	1	13	13	4.44
Spring 2017 (14 Reporting)	0	0	0	6	8	4.57

Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	1	0	1	17	23	4.45
Spring 2018 (26 Reporting)	0	1	2	10	13	4.35
Summer 2018 (18 Reporting)	0	1	0	7	10	4.44
Fall 2018 (20 reporting)	1	0	1	6	12	4.40

x. Apply electronic-based technology to manage the construction process.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	1	3	4	4.38
Spring 2015 (28 Reporting)	0	0	0	11	17	4.61
Summer 2015 (21 Reporting)	0	0	2	8	11	4.43
Fall 2015 (20 Reporting)	0	0	3	10	7	4.20
Spring 2016 (21 Reporting)	0	0	0	6	15	4.71
Summer 2016 (24 Reporting)	0	2	0	10	12	4.33
Fall 2016 (27 Reporting)	0	0	1	13	13	4.44
Spring 2017 (14 Reporting)	1	0	0	3	10	4.50
Summer 2017 (10 Reporting)	0	0	1	2	7	4.60
Fall 2017 (42 Reporting)	0	0	1	19	22	4.50
Spring 2018 (26 Reporting)	0	0	1	10	15	4.54
Summer 2018 (18 Reporting)	0	1	0	8	9	4.39
Fall 2018 (20 reporting)	0	0	1	7	12	4.55

xi. Apply basic surveying techniques for construction layout and control.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	5	3	4.38
Spring 2015 (28 Reporting)	0	0	1	10	17	4.57
Summer 2015 (21 Reporting)	0	2	2	7	10	4.19
Fall 2015 (20 Reporting)	1	0	4	8	7	4.00
Spring 2016 (21 Reporting)	0	0	2	5	14	4.57
Summer 2016 (24 Reporting)	0	1	0	15	8	4.25

Fall 2016 (27 Reporting)	0	1	3	11	12	4.26
Spring 2017 (14 Reporting)	0	0	0	4	10	4.71
Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	0	1	2	24	15	4.26
Spring 2018 (26 Reporting)	0	0	2	9	15	4.50
Summer 2018 (18 Reporting)	0	1	0	6	11	4.50
Fall 2018 (20 reporting)	0	1	2	7	10	4.30

xii. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	3	5	4.63
Spring 2015 (28 Reporting)	0	0	0	13	15	4.54
Summer 2015 (21 Reporting)	0	0	0	12	9	4.43
Fall 2015 (20 Reporting)	0	0	5	4	11	4.30
Spring 2016 (21 Reporting)	0	0	2	5	14	4.57
Summer 2016 (24 Reporting)	0	1	1	10	12	4.38
Fall 2016 (27 Reporting)	0	0	2	10	15	4.48
Spring 2017 (14 Reporting)	0	0	0	6	8	4.57
Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	1	0	1	22	18	4.33
Spring 2018 (26 Reporting)	0	0	0	14	12	4.46
Summer 2018 (18 Reporting)	0	0	0	7	11	4.61
Fall 2018 (20 reporting)	0	0	0	9	10	4.53

xiii. Understand construction risk management.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	5	3	4.38
Spring 2015 (28 Reporting)	0	0	1	15	12	4.39
Summer 2015 (21 Reporting)	0	0	2	10	9	4.33

Fall 2015 (20 Reporting)	0	0	2	9	9	4.35
Spring 2016 (21 Reporting)	0	0	3	6	12	4.43
Summer 2016 (24 Reporting)	0	0	2	11	11	4.38
Fall 2016 (27 Reporting)	0	0	2	17	8	4.22
Spring 2017 (14 Reporting)	0	0	0	5	9	4.64
Summer 2017 (10 Reporting)	0	0	0	5	5	4.50
Fall 2017 (42 Reporting)	0	0	3	18	21	4.43
Spring 2018 (26 Reporting)	0	0	1	13	12	4.42
Summer 2018 (18 Reporting)	0	0	3	5	10	4.39
Fall 2018 (20 reporting)	0	1	1	8	9	4.32

xiv. Understand construction accounting and cost control.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	1	4	3	4.25
Spring 2015 (28 Reporting)	0	0	3	12	13	4.36
Summer 2015 (21 Reporting)	0	0	2	11	8	4.29
Fall 2015 (20 Reporting)	0	1	3	9	7	4.10
Spring 2016 (21 Reporting)	0	2	1	5	13	4.38
Summer 2016 (24 Reporting)	0	2	4	11	7	3.96
Fall 2016 (27 Reporting)	0	2	3	16	6	3.96
Spring 2017 (14 Reporting)	0	0	1	8	5	4.29
Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	0	1	5	22	14	4.17
Spring 2018 (26 Reporting)	0	0	3	15	8	4.19
Summer 2018 (18 Reporting)	0	1	3	8	6	4.06
Fall 2018 (20 reporting)	0	0	2	11	7	4.25

xv. Understand construction quality assurance and control.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	1	4	3	4.25

Spring 2015 (28 Reporting)	0	0	2	10	16	4.50
Summer 2015 (21 Reporting)	0	0	2	12	7	4.24
Fall 2015 (20 Reporting)	0	0	5	9	6	4.05
Spring 2016 (21 Reporting)	0	1	3	5	12	4.33
Summer 2016 (24 Reporting)	0	3	5	7	9	3.92
Fall 2016 (27 Reporting)	0	1	4	10	12	4.22
Spring 2017 (14 Reporting)	0	0	1	6	7	4.43
Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	0	1	2	22	17	4.31
Spring 2018 (26 Reporting)	0	1	3	13	9	4.15
Summer 2018 (18 Reporting)	0	1	3	6	8	4.17
Fall 2018 (20 reporting)	0	0	1	9	9	4.42

xvi. Understand construction project control processes.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	3	5	4.63
Spring 2015 (28 Reporting)	0	0	2	10	16	4.50
Summer 2015 (21 Reporting)	0	0	2	8	11	4.43
Fall 2015 (20 Reporting)	0	0	4	9	7	4.15
Spring 2016 (21 Reporting)	0	0	2	6	13	4.52
Summer 2016 (24 Reporting)	0	2	3	10	9	4.08
Fall 2016 (27 Reporting)	0	0	2	10	15	4.48
Spring 2017 (14 Reporting)	0	0	1	6	7	4.43
Summer 2017 (10 Reporting)	0	0	0	2	8	4.80
Fall 2017 (42 Reporting)	0	0	2	22	17	4.31
Spring 2018 (26 Reporting)	0	0	0	15	11	4.42
Summer 2018 (18 Reporting)	0	0	2	7	9	4.39
Fall 2018 (20 reporting)	0	0	0	9	10	4.53

xvii. Understand the legal implications of contract, common, and regulatory law to manage a construction project.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	4	4	4.50
Spring 2015 (28 Reporting)	0	0	2	11	15	4.46
Summer 2015 (21 Reporting)	0	0	2	12	7	4.24
Fall 2015 (20 Reporting)	0	0	6	8	6	4.00
Spring 2016 (21 Reporting)	0	0	1	7	13	4.57
Summer 2016 (24 Reporting)	0	1	5	8	10	4.13
Fall 2016 (27 Reporting)	0	1	1	12	13	4.37
Spring 2017 (14 Reporting)	0	0	1	8	5	4.29
Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	0	1	4	20	17	4.45
Spring 2018 (26 Reporting)	0	0	0	14	12	4.46
Summer 2018 (18 Reporting)	0	0	0	8	10	4.56
Fall 2018 (20 reporting)	0	0	2	10	7	4.26

xviii. Understand the basic principles of sustainable construction.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	2	2	4	4.25
Spring 2015 (28 Reporting)	0	1	2	13	12	4.29
Summer 2015 (21 Reporting)	0	0	4	12	4	4.00
Fall 2015 (20 Reporting)	1	1	5	8	5	3.75
Spring 2016 (21 Reporting)	1	0	2	8	10	4.24
Summer 2016 (24 Reporting)	1	0	8	6	9	3.92
Fall 2016 (27 Reporting)	0	0	3	16	8	4.19
Spring 2017 (14 Reporting)	0	0	0	10	4	4.29
Summer 2017 (10 Reporting)	0	0	1	3	6	4.50
Fall 2017 (42 Reporting)	0	4	10	16	12	3.86
Spring 2018 (26 Reporting)	0	2	2	12	10	4.15
Summer 2018 (18 Reporting)	0	0	0	12	6	4.33
Fall 2018 (20 reporting)	1	2	4	4	9	3.90

xix. Understand the basic principles of structural behavior.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	0	5	3	4.38
Spring 2015 (28 Reporting)	0	0	1	8	19	4.64
Summer 2015 (21 Reporting)	0	0	2	13	6	4.19
Fall 2015 (20 Reporting)	0	0	4	10	6	4.10
Spring 2016 (21 Reporting)	0	0	1	7	13	4.57
Summer 2016 (24 Reporting)	0	1	2	11	10	4.25
Fall 2016 (27 Reporting)	0	1	2	13	11	4.26
Spring 2017 (14 Reporting)	0	0	0	8	6	4.43
Summer 2017 (10 Reporting)	0	0	0	3	7	4.70
Fall 2017 (42 Reporting)	0	1	3	25	13	4.19
Spring 2018 (26 Reporting)	0	0	2	14	10	4.31
Summer 2018 (18 Reporting)	0	0	0	9	9	4.50
Fall 2018 (20 reporting)	0	0	1	6	13	4.60

xx. Understand the basic principles of mechanical, electrical and piping systems.

Semester	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Fall 2014 (8 Reporting)	0	0	1	4	3	4.25
Spring 2015 (28 Reporting)	0	0	5	11	12	4.25
Summer 2015 (21 Reporting)	0	0	4	13	4	4.00
Fall 2015 (20 Reporting)	1	1	4	8	5	3.79
Spring 2016 (21 Reporting)	0	1	4	6	10	4.19
Summer 2016 (24 Reporting)	3	0	1	13	7	3.88
Fall 2016 (27 Reporting)	0	1	3	11	12	4.26
Spring 2017 (14 Reporting)	0	0	3	6	5	4.14
Summer 2017 (10 Reporting)	0	0	0	4	6	4.60
Fall 2017 (42 Reporting)	1	0	5	26	10	4.05
Spring 2018 (26 Reporting)	0	2	2	14	8	4.08
Summer 2018 (18 Reporting)	0	0	3	11	4	4.06

Fall 2018 (20 reporting)	1	2	4	7	6	3.75

b. Percentage of graduating students that agree they have met the learning outcome (responded either "agree" or "strongly agree")

i. Create written communications appropriate to the construction discipline.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	100%
Summer 2015 (21 Reporting)	0%	100%
Fall 2015 (20 Reporting)	0%	80%
Spring 2016 (21 Reporting)	0%	95%
Summer 2016 (24 Reporting)	0%	92%
Fall 2016 (27 Reporting)	0%	100%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	0%	93%
Spring 2018	0%	100%
Summer 2018	6%	89%
Fall 2018	0%	100%

ii. Create oral presentations appropriate to the construction discipline.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	88%
Spring 2015 (28 Reporting)	0%	96%
Summer 2015 (21 Reporting)	0%	95%
Fall 2015 (20 Reporting)	0%	80%
Spring 2016 (21 Reporting)	0%	95%
Summer 2016 (24 Reporting)	4%	92%
Fall 2016 (27 Reporting)	0%	96%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%

Fall 2017 (42 Reporting)	0%	98%
Spring 2018 (26 Reporting)	0%	96%
Summer 2018 (18 Reporting)	6%	89%
Fall 2018	0%	100%

iii. Create a construction project safety plan.

Semester	**Percentage of graduating students that agree they have met the learning outcome**	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	96%
Summer 2015 (21 Reporting)	0%	90%
Fall 2015 (20 Reporting)	5%	80%
Spring 2016 (21 Reporting)	0%	100%
Summer 2016 (24 Reporting)	4%	83%
Fall 2016 (27 Reporting)	0%	96%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	93%
Spring 2018 (26 Reporting)	4%	96%
Summer 2018 (18 Reporting)	6%	89%
Fall 2018	0%	100%

iv. Create construction project cost estimates.

Semester	**Percentage of graduating students that agree they have met the learning outcome**	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	100%
Summer 2015 (21 Reporting)	0%	95%
Fall 2015 (20 Reporting)	5%	85%
Spring 2016 (21 Reporting)	0%	95%
Summer 2016 (24 Reporting)	0%	96%
Fall 2016 (27 Reporting)	0%	96%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	0%	95%
Spring 2018 (26 Reporting)	0%	96%
Summer 2018 (18 Reporting)	0%	94%
Fall 2018	0%	100%

v. Create construction project schedules.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	Agree
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	100%
Summer 2015 (21 Reporting)	0%	100%
Fall 2015 (20 Reporting)	5%	85%
Spring 2016 (21 Reporting)	0%	95%
Summer 2016 (24 Reporting)	0%	92%
Fall 2016 (27 Reporting)	0%	100%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	0%	93%
Spring 2018 (26 Reporting)	0%	88%
Summer 2018 (18 Reporting)	0%	94%
Fall 2018	0%	100%

vi. Analyze professional decisions based on ethical principles.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	Agree
Fall 2014 (8 Reporting)	0%	88%
Spring 2015 (28 Reporting)	0%	93%
Summer 2015 (21 Reporting)	0%	90%
Fall 2015 (20 Reporting)	0%	90%
Spring 2016 (21 Reporting)	0%	81%
Summer 2016 (24 Reporting)	0%	88%
Fall 2016 (27 Reporting)	4%	93%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	0%	98%
Spring 2018 (26 Reporting)	4%	92%
Summer 2018 (18 Reporting)	0%	89%
Fall 2018	0%	90%

vii. Analyze construction documents for planning and management of construction processes.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	Agree
Fall 2014 (8 Reporting)	0%	88%
Spring 2015 (28 Reporting)	0%	96%
Summer 2015 (21 Reporting)	0%	95%
Fall 2015 (20 Reporting)	0%	85%
Spring 2016 (21 Reporting)	5%	95%
Summer 2016 (24 Reporting)	0%	83%
Fall 2016 (27 Reporting)	0%	100%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	95%
Spring 2018 (26 Reporting)	0%	96%
Summer 2018 (18 Reporting)	6%	94%
Fall 2018	5%	90%

viii. Analyze methods, materials, and equipment used to construct projects.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	Agree
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	96%
Summer 2015 (21 Reporting)	0%	95%
Fall 2015 (20 Reporting)	0%	80%
Spring 2016 (21 Reporting)	0%	90%
Summer 2016 (24 Reporting)	8%	83%
Fall 2016 (27 Reporting)	0%	96%
Spring 2017 (14 Reporting)	0%	93%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	93%
Spring 2018 (26 Reporting)	4%	96%
Summer 2018 (18 Reporting)	0%	89%
Fall 2018	0%	95%

ix. Apply construction management skills as a member of a multidisciplinary team.

Semester	Percentage of graduating students that agree they have met the learning outcome

	Disagree	Agree
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	4%	93%
Summer 2015 (21 Reporting)	0%	95%
Fall 2015 (20 Reporting)	0%	80%
Spring 2016 (21 Reporting)	0%	100%
Summer 2016 (24 Reporting)	8%	79%
Fall 2016 (27 Reporting)	0%	96%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	95%
Spring 2018 (26 Reporting)	4%	88%
Summer 2018 (18 Reporting)	6%	94%
Fall 2018	5%	95%

x. Apply electronic-based technology to manage the construction process.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	Agree
Fall 2014 (8 Reporting)	0%	88%
Spring 2015 (28 Reporting)	0%	100%
Summer 2015 (21 Reporting)	0%	90%
Fall 2015 (20 Reporting)	0%	85%
Spring 2016 (21 Reporting)	0%	100%
Summer 2016 (24 Reporting)	8%	92%
Fall 2016 (27 Reporting)	0%	96%
Spring 2017 (14 Reporting)	7%	93%
Summer 2017 (10 Reporting)	0%	90%
Fall 2017 (42 Reporting)	0%	98%
Spring 2018 (26 Reporting)	0%	96%
Summer 2018 (18 Reporting)	6%	94%
Fall 2018	0%	95%

xi. Apply basic surveying techniques for construction layout and control.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	Agree
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	96%

Summer 2015 (21 Reporting)	10%	81%
Fall 2015 (20 Reporting)	5%	75%
Spring 2016 (21 Reporting)	0%	90%
Summer 2016 (24 Reporting)	4%	96%
Fall 2016 (27 Reporting)	4%	85%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	93%
Spring 2018 (26 Reporting)	0%	92%
Summer 2018 (18 Reporting)	6%	94%
Fall 2018	5%	85%

xii. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.

Semester	**Percentage of graduating students that agree they have met the learning outcome**	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	100%
Summer 2015 (21 Reporting)	0%	100%
Fall 2015 (20 Reporting)	0%	75%
Spring 2016 (21 Reporting)	0%	90%
Summer 2016 (24 Reporting)	4%	92%
Fall 2016 (27 Reporting)	0%	93%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	95%
Spring 2018 (26 Reporting)	0%	100%
Summer 2018 (18 Reporting)	0%	100%
Fall 2018	0%	100%

xiii. Understand construction risk management.

Semester	**Percentage of graduating students that agree they have met the learning outcome**	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	96%
Summer 2015 (21 Reporting)	0%	90%
Fall 2015 (20 Reporting)	0%	90%
Spring 2016 (21 Reporting)	0%	86%

Summer 2016 (24 Reporting)	0%	92%
Fall 2016 (27 Reporting)	0%	93%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	0%	93%
Spring 2018 (26 Reporting)	0%	96%
Summer 2018 (18 Reporting)	0%	83%
Fall 2018	5%	85%

xiv. Understand construction accounting and cost control.

Semester	**Percentage of graduating students that agree they have met the learning outcome**	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	88%
Spring 2015 (28 Reporting)	0%	89%
Summer 2015 (21 Reporting)	0%	90%
Fall 2015 (20 Reporting)	5%	80%
Spring 2016 (21 Reporting)	10%	86%
Summer 2016 (24 Reporting)	8%	75%
Fall 2016 (27 Reporting)	7%	81%
Spring 2017 (14 Reporting)	0%	93%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	86%
Spring 2018 (26 Reporting)	0%	88%
Summer 2018 (18 Reporting)	6%	77%
Fall 2018	0%	90%

xv. Understand construction quality assurance and control.

Semester	**Percentage of graduating students that agree they have met the learning outcome**	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	88%
Spring 2015 (28 Reporting)	0%	93%
Summer 2015 (21 Reporting)	0%	90%
Fall 2015 (20 Reporting)	0%	75%
Spring 2016 (21 Reporting)	5%	81%
Summer 2016 (24 Reporting)	13%	67%
Fall 2016 (27 Reporting)	4%	81%
Spring 2017 (14 Reporting)	0%	93%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	93%

Spring 2018 (26 Reporting)	4%	85%
Summer 2018 (18 Reporting)	6%	77%
Fall 2018	0%	90%

xvi. Understand construction project control processes.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	Agree
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	93%
Summer 2015 (21 Reporting)	0%	90%
Fall 2015 (20 Reporting)	0%	80%
Spring 2016 (21 Reporting)	0%	90%
Summer 2016 (24 Reporting)	8%	79%
Fall 2016 (27 Reporting)	0%	93%
Spring 2017 (14 Reporting)	0%	93%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	0%	93%
Spring 2018 (26 Reporting)	0%	100%
Summer 2018 (18 Reporting)	0%	89%
Fall 2018	0%	95%

xvii. Understand the legal implications of contract, common, and regulatory law to manage a construction project.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	Agree
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	93%
Summer 2015 (21 Reporting)	0%	90%
Fall 2015 (20 Reporting)	0%	70%
Spring 2016 (21 Reporting)	0%	95%
Summer 2016 (24 Reporting)	4%	75%
Fall 2016 (27 Reporting)	4%	93%
Spring 2017 (14 Reporting)	0%	93%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	88%
Spring 2018 (26 Reporting)	0%	100%
Summer 2018 (18 Reporting)	0%	100%
Fall 2018	0%	85%

xviii. Understand the basic principles of sustainable construction.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	75%
Spring 2015 (28 Reporting)	4%	89%
Summer 2015 (21 Reporting)	0%	76%
Fall 2015 (20 Reporting)	10%	65%
Spring 2016 (21 Reporting)	5%	86%
Summer 2016 (24 Reporting)	4%	63%
Fall 2016 (27 Reporting)	0%	89%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	90%
Fall 2017 (42 Reporting)	10%	67%
Spring 2018	0%	92%
Summer 2018	0%	100%
Fall 2018	15%	65%

xix. Understand the basic principles of structural behavior.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	100%
Spring 2015 (28 Reporting)	0%	96%
Summer 2015 (21 Reporting)	0%	90%
Fall 2015 (20 Reporting)	0%	80%
Spring 2016 (21 Reporting)	0%	95%
Summer 2016 (24 Reporting)	4%	83%
Fall 2016 (27 Reporting)	4%	89%
Spring 2017 (14 Reporting)	0%	100%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	90%
Spring 2018	0%	92%
Summer 2018	0%	100%
Fall 2018	0%	95%

xx. Understand the basic principles of mechanical, electrical and piping systems.

Semester	Percentage of graduating students that agree they have met the learning outcome	
	Disagree	**Agree**
Fall 2014 (8 Reporting)	0%	88%
Spring 2015 (28 Reporting)	0%	82%
Summer 2015 (21 Reporting)	0%	81%
Fall 2015 (20 Reporting)	10%	70%
Spring 2016 (21 Reporting)	5%	76%
Summer 2016 (24 Reporting)	13%	83%
Fall 2016 (27 Reporting)	4%	85%
Spring 2017 (14 Reporting)	0%	79%
Summer 2017 (10 Reporting)	0%	100%
Fall 2017 (42 Reporting)	2%	86%
Spring 2018	8%	84%
Summer 2018	0%	83%
Fall 2018	15%	65%

9. Interpreting Results

Please provide an interpretation of the results aligned with the student learning outcomes. The interpretation should reflect consideration of factors (e.g., capabilities of a particular cohort, innovative curricular change) that may have affected the results.

The discussion and resulting actions are set out in the Minutes of Annual Quality Improvement Meeting – see Appendix C.

10. Communicating Results

Please provide a very brief narrative describing with whom the results are shared (e.g., all program faculty).

A copy of the draft BSCI Degree Program Assessment Plan and Report for 2018 and copies of the summary of student exit interviews for calendar year 2018 were provided to all program faculty in electronic format several days before the annual quality improvement meeting held on May 3, 2019. These documents were used to stimulate discussion and encourage recommendations for quality improvement. All

program faculty received an electronic copy of the minutes of the quality improvement meeting and were given the opportunity to make changes prior to them being included in this document as Appendix C.

Use of Results

11. Purposeful Reflection and Action Plan

Please provide a narrative describing the process in which faculty engage to discuss assessment results and create actionable plans in an effort to improve student learning.

The discussion and resulting actions are set out in the Minutes of Annual Quality Improvement Meeting – see Appendix C.

Appendix B – Curriculum Mapping

Pre-Building Science (PBSCI) Curriculum Mapping

ACCE Student Learning Outcome	BSCI 1100				BSCI 2200				BSCI 2300				BSCI 2400			
	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A
1. Create written communications appropriate to the construction discipline.					■				■							
2. Create oral presentations appropriate to the construction discipline.					■											
3. Create a construction project safety plan.																
4. Create construction project cost estimates.																
5. Create construction project schedules.																
6. Analyze professional decisions based on ethical principles.																
7. Analyze construction documents for planning and management of construction processes.					■	■										
8. Analyze methods, materials, and equipment used to construct projects.	■				■	■			■	■			■	■		
9. Apply construction management skills as a member of a multidisciplinary team.					■											
10. Apply electronic-based technology to manage the construction process.					■											
11. Apply basic surveying techniques for construction layout and control.																
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	■															
13. Understand construction risk management.																
14. Understand construction accounting and cost control.																
15. Understand construction quality assurance and control.																
16. Understand construction project control processes.																
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.																
18. Understand the basic principles of sustainable construction.	■								■							
19. Understand the basic principles of structural behavior.													■	■	■	
20. Understand the basic principles of mechanical, electrical and piping systems.																

I = Introduce, R = Reinforce, M = Master, A = Assess

Building Science (BSCI) 3000 Level Classes Curriculum Mapping

ACCE Student Learning Outcome	BSCI 3300				BSCI 3200				BSCI 3440				BSCI 3500				BSCI 3600				BSCI 3660				BSCI 3700				BSCI 3800			
	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A
1. Create written communications appropriate to the construction discipline.																																
2. Create oral presentations appropriate to the construction discipline.																																
3. Create a construction project safety plan.																																
4. Create construction project cost estimates.																																
5. Create construction project schedules.																																
6. Analyze professional decisions based on ethical principles.																																
7. Analyze construction documents for planning and management of construction processes.																																
8. Analyze methods, materials, and equipment used to construct projects.																																
9. Apply construction management skills as a member of a multidisciplinary team.																																
10. Apply electronic-based technology to manage the construction process.																																
11. Apply basic surveying techniques for construction layout and control.																																
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.																																
13. Understand construction risk management.																																
14. Understand construction accounting and cost control.																																
15. Understand construction quality assurance and control.																																
16. Understand construction project control processes.																																
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.																																
18. Understand the basic principles of sustainable construction.																																
19. Understand the basic principles of structural behavior.																																
20. Understand the basic principles of mechanical, electrical and piping systems.																																

I = Introduce, R = Reinforce, M = Master, A = Assess

Building Science (BSCI) 4000 Level Classes Curriculum Mapping

ACCE Student Learning Outcome	BSCI 4350				BSCI 4360				BSCI 4500				BSCI 4610				BSCI 4700				BSCI 4750				BSCI 4850				BSCI 4990			
	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A	I	R	M	A
1. Create written communications appropriate to the construction discipline.																																
2. Create oral presentations appropriate to the construction discipline.																																
3. Create a construction project safety plan.																																
4. Create construction project cost estimates.																																
5. Create construction project schedules.																																
6. Analyze professional decisions based on ethical principles.																																
7. Analyze construction documents for planning and management of construction processes.																																
8. Analyze methods, materials, and equipment used to construct projects.																																
9. Apply construction management skills as a member of a multidisciplinary team.																																
10. Apply electronic-based technology to manage the construction process.																																
11. Apply basic surveying techniques for construction layout and control.																																
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and																																
13. Understand construction risk management.																																
14. Understand construction accounting and cost control.																																
15. Understand construction quality assurance and control.																																
16. Understand construction project control processes.																																
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.																																
18. Understand the basic principles of sustainable construction.																																
19. Understand the basic principles of structural behavior.																																
20. Understand the basic principles of mechanical, electrical and piping systems.																																

I = Introduce, R = Reinforce, M = Master, A = Assess

Appendix C – McWhorter School of Building Science - Minutes of BSCI Quality Improvement Meeting – May 3, 2019

Attending: Junshan Liu, Brandon Clarke, Richard Burt, Keith Rahn, Ben Farrow, Lauren Redden, Mike Hosey, Anoop Sattineni, Eric Wetzel, Salman Azhar, Mark Tatum, Tom Leathem, Jeff Kim, Mark Taylor, Wes Collins, Les Carter, Darren Olsen.

1) AU & ACCE Assessment Requirements – Richard Burt
    - Review schedule of implementing assessment of ACCE Student Learning Outcomes. See Section 5 **Outcome-Measure Alignment** of *Appendix B – Data for Assessment of Student Learning Outcomes Reported to the Auburn University Director of Academic Assessment.* The text is highlighted yellow.

Richard Burt gave an overview of the assessment process for both Auburn University and the American Council for Construction Education (ACCE). Copies of the current SLO implementation plan were shared with the faculty and a discussion followed. The process for collecting materials for the upcoming re-accreditation visit in Spring 2020 was also discussed. The following plan for collecting materials for each of the 20 ACCE SLO's was distributed:

Student Learning Outcome	Where & How Assessed	Items Needed	Faculty Member
1. Create written communications appropriate to the construction discipline.	BSCI 3200 Construction Communication (First Semester, Junior Year)– Written Documents & Case Study (30% of course grade)	BSCI 3200 Syllabi 2 Writing Assignments Student Scores for Assignments Examples of graded student work	Alan Bugg Roger Rice
2. Create oral presentations appropriate to the construction discipline.	BSCI 3200 Construction Communication (First Semester, Junior Year)– Oral Presentations (15% of course grade)	BSCI 3200 Syllabi Oral Presentation Assignment Student Scores for Assignment Examples of graded student work	Alan Bugg Roger Rice
3. Create a construction project safety plan.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Safety Plan accounts for 5% of Thesis grade.	BSCI 3700 Syllabi BSCI 4990 Syllabi Thesis Rules & Regulations Student Scores from Safety Rubric Example of student work from thesis	Mike Hosey Alan Bugg Mark Taylor Richard Burt
4. Create construction project cost estimates.	BSCI 4990 – Thesis (2nd Semester, Senior Year).	BSCI 3600 Syllabi BSCI 4990 Syllabi	Tom Leathem Mark Taylor

	Project Estimate accounts for 15% of Thesis grade	Thesis Rules & Regulations Student Scores from Estimating Rubric Example of student work from thesis	Richard Burt
5. Create construction project schedules.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Scheduling Assessment accounts for 10% of Thesis grade.	BSCI 4610 Syllabi BSCI 4990 Syllabi Thesis Rules & Regulations Student Scores from Scheduling Rubric Example of student work from thesis	Eric Wetzel Mark Taylor Richard Burt
6. Analyze professional decisions based on ethical principles.	BSCI 3200 – Construction Communication (First Semester, Junior Year)- Written Company Ethics Policy on Gifts and Entertainment – 5% of course grade	BSCI 3200 Syllabi Ethics Assignment Student Scores for Assignment Examples of graded student work	Alan Bugg Roger Rice
7. Analyze construction documents for planning and management of construction processes.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Construction Documents Assessment accounts for 10% of Thesis grade.	BSCI 4990 Syllabi Thesis Rules & Regulations Student Scores from 5 Thesis Rubrics Example of student work from thesis	Mark Taylor Richard Burt
8. Analyze methods, materials, and equipment used to construct projects.	BSCI 4350 - Construction Project Analysis (First Semester, Senior Year). Project Method Statement accounts for 35% of course grade	BSCI 4350 Syllabi Method Statement Project Brief Student Scores Grading Rubric Example of student work	Alan Bugg
9. Apply construction management skills as a member of a multi-disciplinary team.	BSCI 4610 – Scheduling and Field Operations (First Semester, Senior Year). Collaborative Project accounts for 15% of course grade		
	New curriculum - BSCI 3440, Structure of Buildings (First Semester, Junior Year) – II. Team Project - Individual Reflection Statement	BSCI 3440 Syllabi Team Project Brief Student Scores from Reflection Statement Rubric	Will collect materials from Spring 2019 or Fall 2019 Salman Azhar

		Example of student work	Amna Salman
10. Apply electronic-based technology to manage the construction process.	BSCI 4500 - Information and Communication Technology for Construction (CIT) (First Semester, Senior Year). – 2. Final Project accounts for 20% of course grade	BSCI 4500 Syllabi Final Project Brief Student scores from Final Project Examples of student work	Darren Olsen
11. Apply basic surveying techniques for construction layout and control.	BSCI 3300 – Field Surveying. Final Examination (First Semester, Junior Year) accounts for 10% of final grade. Field Book accounts for 10% of final grade	BSCI 3300 Syllabi Final Examination Field Book Student Scores from Final Examination & Field Book Example of student work	Paul Holley
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	BSCI 3800 (2nd Semester, Junior Year) – Contracting Business. Test 4 accounts for 24% of course grade.	BSCI 3800 Syllabi Quiz 4 Student Scores from Quiz 4 Example of student work	Will collect materials from Spring 2019 or Fall 2019 Mark Taylor Paul Holley
13. Understand construction risk management.	BSCI 4850 Construction Law and Risk Management (2nd Semester, Senior Year). – Specific questions on Tests 2 & 3. Tests 2 & 3 account for 50% of course grade	BSCI 4850 Tests 2 & 3 Student Scores from Tests 2& 3 Example of student work	Mark Taylor
14. Understand construction accounting and cost control.	BSCI 4610 – Scheduling and Field Operations (First Semester, Senior Year). – Cost Reporting activity on quiz 3 (accounts for 10% of final grade)	BSCI 4610 Quiz 3 Student Scores from Forecasting Question Example of student work	Eric Wetzel
15. Understand construction quality assurance and control.	BSCI 4350 Construction Project Analysis (First Semester, Senior Year). Quiz 2 accounts for 30% of course grade.	BSCI 4350 Syllabi Quiz 3 Student Scores from questions on Quiz 3 Example of student work	Alan Bugg
16. Understand construction project control processes.	BSCI 4610 – Scheduling and Field Operations (First	BSCI 4610 Quiz 3	Eric Wetzel

	Semester, Senior Year). – Schedule of Values and Application for Payment activity on quiz 3 (accounts for 10% of final grade)	Student Scores from Change Order & Pay Application Questions Example of student work	
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.	BSCI 4850 Construction Law and Risk Management (2nd Semester, Senior Year). – Specific questions on Tests 2 & 3. Tests 2 & 3 account for 50% of course grade	BSCI 4850 Quizzes 1-4 Student Scores from Specific Questions pm Quizzes 1-4 Example of student work	Mark Taylor
18. Understand the basic principles of sustainable construction.	BSCI 4990 – Thesis (2nd Semester, Senior Year). LEED Assessment accounts for 5% of Thesis grade	BSCI 4990 Syllabi Thesis Rules & Regulations Student Scores from LEED Assessment Rubric Example of student work from thesis	Mark Taylor Richard Burt
19. Understand the basic principles of structural behavior.	Current Curriculum - BSCI 4990 – Thesis (2nd Semester, Senior Year). Structural Assessment accounts for 5% of Thesis grade	BSCI 4990 Syllabi Thesis Rules & Regulations Student Scores from Structural Assessment Rubric Example of student work from thesis	Mark Taylor Richard Burt
20. Understand the basic principles of mechanical, electrical and piping systems	BSCI 4700 Mechanical Systems in Buildings (2nd Semester, Junior Year). Mid-term and final examination accounts for 40% of course grade. BSCI 4750 Electrical Systems (2nd Semester, Junior Year) in Buildings. Three examinations accounts for 90% of course grade.	BSCI 4700 Syllabi BSCI 4750 Syllabi BSCI 4700 Mid Term (Plumbing) BSCI 4700 Final (Mechanical) BSCI 4750 3 Examinations Example of student work	Will collect materials from Spring 2019 or Fall 2019 Keith Rahn Allen Conradi Mark Tatum

2) Actions Taken to address previous quality improvement issues
    a) Mapping Changes of Student Evaluation of BSCI 1100 – Introduction to Construction (Appendix D - Mapping Changes of Student Evaluation of BSCI 1100 – Introduction to Construction)

The results of the student evaluations for this class were discussed and it was agreed this issue had been resolved and there was no longer a need to monitor this issue going forward.

b) Mapping Changes of Student Evaluation of SLO - *Organize LEED Green Building activities/ Understand the basic principles of sustainable construction.* (Appendix E - Mapping Changes of Student Evaluation of SLO - *Organize LEED Green Building activities/ Understand the basic principles of sustainable construction.)*

The results of the student evaluations for this outcome were discussed and it was agreed this issue would continue to be monitored due to the elimination of BSCI 2100 *Introduction to Sustainable Construction* from the curriculum. The faculty wanted to see if there was an effect on student evaluations for this outcome due to sustainable construction topics being integrated across the curriculum instead of in a single class. With the upcoming changes proposed to BSCI 4990, it was agreed to review all sustainability content in the curriculum and make recommendations on how assessment for this outcome could be accommodated in BSCI 4350. ACTION Burt/Bugg

c) Improvement to teaching and assessment of ACCE Learning Outcome *Create a construction project safety plan* (Appendix F - Mapping Changes of Assessment of SLO - *Create a construction project safety plan.*

The results of the student evaluations for this outcome were discussed and it was agreed this issue had been resolved and there was no longer a need to monitor this going forward.

3) Actions taken from Spring 2018 Quality Improvement Meeting (Quality_Improvement_Spring_2018_Minutes)

a) Review and revision of current grading rubrics used in thesis.

SLO #3. Create a construction project safety plan.
SLO #4. Create construction project cost estimates.
SLO #5. Create construction project schedules.
Will be reviewed by the Thesis Review Committee with a view to pilot testing any revised rubrics during the fall 2018 semester.

The revised draft thesis instructions have been prepared and pilot tests were conducted during the Fall 2018 & Spring 2019 semesters. Additional pilot tests are planned for Summer & Fall 2019 with a view to full implementation during the spring 2020 semester. Grading rubrics have been revised for additional SLO's and the current draft shows the following outcomes that could be assessed in BSCI 4990 from Spring 2020 onward (in red):

Student Learning Outcome	Where & How Assessed	Implementation Date
1. Create written communications appropriate to the construction discipline.	BSCI 3200 Construction Communication (First Semester, Junior Year)– Written Documents & Case Study (30% of course grade)	Summer 2017

2. Create oral presentations appropriate to the construction discipline.	BSCI 3200 Construction Communication (First Semester, Junior Year)– Oral Presentations (15% of course grade)	Fall 2016
3. Create a construction project safety plan.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Safety Plan accounts for 5% of Thesis grade.	Fall 2014
	BSCI 4990 – Thesis (2nd Semester Senior Year). Safety accounts for 5% of final thesis grade. Assessed across 4 different criteria.	Spring 2020
4. Create construction project cost estimates.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Project Estimate accounts for 15% of Thesis grade	Fall 2014
	BSCI 4990 – Thesis (2nd Semester Senior Year). Estimate accounts for 15% of final thesis grade. Assessed across 6 different criteria.	Spring 2020
5. Create construction project schedules.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Scheduling Assessment accounts for 10% of Thesis grade.	Fall 2015
	BSCI 4990 – Thesis (2nd Semester Senior Year). Schedule accounts for 10% of final thesis grade. Assessed across 6 different criteria.	Spring 2020
6. Analyze professional decisions based on ethical principles.	BSCI 3200 – Construction Communication (First Semester, Junior Year)- Written Company Ethics Policy on Gifts and Entertainment – 5% of course grade	Fall 2017
7. Analyze construction documents for planning and management of construction processes.	BSCI 4990 – Thesis (2nd Semester, Senior Year). Construction Documents Assessment accounts for 10% of Thesis grade.	Spring 2019
	BSCI 4990 – Thesis (2nd Semester Senior Year). Project Documents accounts for 7% of final thesis grade. Assessed across 6 different criteria.	Spring 2020
8. Analyze methods, materials, and equipment used to construct projects.	BSCI 4350 - Construction Project Analysis (First Semester, Senior Year). Project Method Statement accounts for 35% of course grade	Fall 2018

	BSCI 4990 – Thesis (2nd Semester Senior Year). Project Brief accounts for 10% of final thesis grade. Assessed across 7 different criteria.	Spring 2020
9. Apply construction management skills as a member of a multi-disciplinary team.	BSCI 4610 – Scheduling and Field Operations (First Semester, Senior Year). Collaborative Project accounts for 15% of course grade	Spring 2018
	New curriculum - BSCI 3440, Structure of Buildings (First Semester, Junior Year) – II. Team Project - Individual Reflection Statement	Fall 2018
10. Apply electronic-based technology to manage the construction process.	BSCI 4500 - Information and Communication Technology for Construction (CIT) (First Semester, Senior Year). – Four assignments. 1. Clash Detection Coordination 2. 4 D Schedule. 3. Robotic Layout 4. Laser Scanning	Spring 2019
	BSCI 4990 – Thesis (2nd Semester Senior Year). Parametric Building Information Modeling accounts for 15% of final thesis grade. Assessed across 7 different criteria.	Spring 2020
11. Apply basic surveying techniques for construction layout and control.	BSCI 3300 – Field Surveying. Final Examination (First Semester, Junior Year) accounts for 10% of final grade. Field Book accounts for 10% of final grade	Summer 2016
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	BSCI 3800 (2nd Semester, Junior Year) – Contracting Business. Test 4 accounts for 24% of course grade.	Spring 2018
13. Understand construction risk management.	BSCI 4850 Construction Law and Risk Management (2nd Semester, Senior Year). – Specific questions on Tests 2 & 3. Tests 2 & 3 account for 50% of course grade	Fall 2018
14. Understand construction accounting and cost control.	BSCI 4610 – Scheduling and Field Operations (First Semester, Senior	Spring 2019

	Year). – Cost Reporting activity on quiz 3 (accounts for 10% of final grade)	
	BSCI 4990 – Thesis (2nd Semester Senior Year). Financial Analysis accounts for 8% of final thesis grade. Assessed across 3 different criteria.	Spring 2020
15. Understand construction quality assurance and control.	BSCI 4350 Construction Project Analysis (First Semester, Senior Year). Quiz 2 accounts for 30% of course grade.	Fall 2018
16. Understand construction project control processes.	BSCI 4610 – Scheduling and Field Operations (First Semester, Senior Year). – Schedule of Values and Application for Payment activity on quiz 3 (accounts for 10% of final grade)	Spring 2019
	BSCI 4990 – Thesis (2nd Semester Senior Year). Pay Application and Cash Flow accounts for 10% of final thesis grade. Assessed across 5 different criteria.	Spring 2020
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.	BSCI 4850 Construction Law and Risk Management (2nd Semester, Senior Year). – Specific questions on Tests 2 & 3. Tests 2 & 3 account for 50% of course grade	Fall 2018
18. Understand the basic principles of sustainable construction.	BSCI 4990 – Thesis (2nd Semester, Senior Year). LEED Assessment accounts for 5% of Thesis grade	Fall 2014
	BSCI 4350 – TBD	Spring 2020
19. Understand the basic principles of structural behavior.	Current Curriculum - BSCI 4990 – Thesis (2nd Semester, Senior Year). Structural Assessment accounts for 5% of Thesis grade	Fall 2014
	BSCI 4990 – Thesis (2nd Semester Senior Year). Structural Analysis accounts for 5% of final thesis grade. Assessed across 5 different criteria.	Spring 2020
20. Understand the basic principles of mechanical, electrical and piping systems	BSCI 4700 Mechanical Systems in Buildings (2nd Semester, Junior Year). Mid-term and final examination accounts for 40% of course grade. BSCI 4750 Electrical Systems (2nd Semester,	Fall 2016

	Junior Year) in Buildings. Three examinations accounts for 90% of course grade.	

b) New rubric to evaluate ACCE SLO #7 - Analyze construction documents for planning and management of construction processes

Will be developed by the Thesis Review Committee with a view to pilot testing during the fall 2018 semester.

A new rubric for this outcome was developed and used for the first time during the Spring 2019 semester.

c) Hold two thesis grading workshops for faculty during the fall semester.

Two thesis grading workshops were held.

- **September 10, 2018 – Financial Documents – Paul Holley**
- **October 8, 2018 – Estimating – Wes Collins**

4) Review of Data for 2018 Calendar Year - BSCI Degree Program Assessment Plan and Report_2018_QIM_May_3_2019.docx, Overall_Assessment_Data_Spring_2019_IAC_Final.pdf & Exit Interview Notes

a) Goal 1: Enhance the quantity & quality of incoming students to PBSCI & BSCI
b) Goal 2: The McWhorter School of Building Science will provide an enriching educational experience consistent with the needs of its stakeholders.
c) Goal 3: The McWhorter School of Building Science will advise, prepare and provide assistance for all students to obtain entry-level positions across diverse sectors of the construction industry.

Data for Assessment of Student Learning Outcomes Reported to the Auburn University Director of Academic Assessment:

1. Create written communications appropriate to the construction discipline.

Les Carter gave an overview of the assessment of this outcome and SLO #2 in BSCI 3200 Construction Communications. There was no quality improve action required based on these results. There was some discussion on the assessment rubrics which are modified from those produced by the Association of American Colleges & Universities (AACU). It was suggested that these rubrics could be used by faculty having writing or presentation requirements in other classes. These rubrics will be shared with all BSCI faculty. ACTION Carter

2. Create oral presentations appropriate to the construction discipline.

See Above.

3. Create a construction project safety plan.

Richard Burt gave an overview of how this outcome is assessed in BSCI 4990 Thesis. The faculty reviewed the results and at this time no quality improvement action is required.

4. Create construction project cost estimates.

Richard Burt gave an overview of how this outcome is assessed in BSCI 4990 Thesis. The faculty reviewed the results and at this time no quality improvement action is required.

5. Create construction project schedules.

Richard Burt gave an overview of how this outcome is assessed in BSCI 4990 Thesis. The faculty reviewed the results and at this time no quality improvement action is required.

6. Analyze professional decisions based on ethical principles.

Les Carter gave an overview of how this outcome is assessed in BSCI 3200 Construction Communication. The faculty reviewed the results and at this time no quality improvement action is required.

7. Analyze construction documents for planning and management of construction processes.

This outcome was assessed for the first time during the Spring 2019 semester and will be reported for the first time at next year's Quality Improvement Meeting.

8. Analyze methods, materials, and equipment used to construct projects.

Richard Burt gave an overview of how this outcome is assessed in BSCI 4350 Construction Project Analysis. The faculty reviewed the results and as there is only data from one semester available, no quality improvement action is required.

9. Apply construction management skills as a member of a multi-disciplinary team.

Richard Burt gave an overview of how this outcome is assessed in BSCI 3440 Structure of Buildings II. The faculty reviewed the results and as there is only data from one semester available, no quality improvement action is required. There was some discussion on how to address the teaching of communication across disciplines, particularly in BSCI 1100 & BSCI 2200. This will be reviewed during the Fall 2019 semester – ACTION Bugg/Rice/Redden

10. Apply electronic-based technology to manage the construction process.

This outcome was assessed for the first time during the Spring 2019 semester and will be reported for the first time at next year's Quality Improvement Meeting.

11. Apply basic surveying techniques for construction layout and control.

Richard Burt gave an overview of how this outcome is assessed in BSCI 3300 Field Surveying. The faculty reviewed the results and at this time no quality improvement action is required.

12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.

Mark Taylor gave an overview of how this outcome is assessed in BSCI 3800 Contracting Business. The faculty discussed the low scores from the two semesters of data collected. The subject matter covered in the questions used for assessment are covered in both BSCI 3800 & BSCI 3660. The faculty will review the compatibility of the topical content taught in these classes and the questions used for assessment during the Fall 2019 semester. ACTION Taylor/Wetzel

13. Understand construction risk management.

Mark Taylor gave an overview of how this outcome is assessed in BSCI 4850 Construction Law and Risk Management. The faculty reviewed the results and as there is only data from one semester available, no quality improvement action is required.

14. Understand construction accounting and cost control.

This outcome was assessed for the first time during the Spring 2019 semester and will be reported for the first time at next year's Quality Improvement Meeting.

15. Understand construction quality assurance and control.

Richard Burt gave an overview of how this outcome is assessed in BSCI 4350 Construction Project Analysis. The faculty reviewed the results and as there is only data from one semester available, no quality improvement action is required.

16. Understand construction project control processes.

This outcome was assessed for the first time during the Spring 2019 semester and will be reported for the first time at next year's Quality Improvement Meeting.

17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.

Mark Taylor gave an overview of how this outcome is assessed in BSCI 4850 Construction Law and Risk Management. The faculty reviewed the results and as there is only data from one semester available, no quality improvement action is required.

18. Understand the basic principles of sustainable construction.

Richard Burt gave an overview of how this outcome is assessed in BSCI 4990 Thesis. The faculty reviewed the results and at this time no quality improvement action is required. Ben Farrow suggested looking at the possibility of including SUST 2000 Introduction to Sustainability into the BSCI curriculum. ACTION Burt/Taylor/Farrow

19. Understand the basic principles of structural behavior.

Richard Burt gave an overview of how this outcome is assessed in BSCI 4990 Thesis. The faculty reviewed the results and at this time no quality improvement action is required.

20. Understand the basic principles of mechanical, electrical and piping systems

Richard Burt gave an overview of how this outcome is assessed in BSCI 4700 Mechanical Systems & BSCI 4750 Electrical Systems. The faculty reviewed the results and at this time no quality improvement action is required.

5) Additional Recommendations for Quality Improvements 2019/20
   a) From Review of Data for 2018 Calendar Year
   b) Faculty/Student suggestions

   i. **In response to some of the student concerns regarding the covering of Submittals and Submittal Reviews. The faculty teaching BSCI 3660 & BSCI 4700 will review the content of this subject matter in their classes.**
   ii. **Tom Leathem & Jeff Kim demonstrated a camera that can obtain high resolution still and moving images. Data capture of construction activities on campus is planned during the summer and subsequent semesters and this data will be made available for faculty to use in their classes.**
   iii. **Faculty requested electronic room reservation tablets on all rooms in Gorrie.**

Appendix D - Mapping Changes of Student Evaluation of BSCI 1100 – Introduction to Construction

McWhorter School of Building Science – Mapping Changes of Student Evaluation of BSCI 1100 – Introduction to Construction

Quality Improvement Meeting – May 3, 2012

Students' comments about content of material included in BSCI 1100 History & Intro. to Construction (exit interviews and surveys)

This class has consistently received the lowest evaluations of any BSCI class when students complete their exit surveys. The course was partially revised last academic year when Professor Zabel taught the class. During the 2012/13 academic year the class will be taught by Darren Olsen who has revised the content further. We will submit a proposal to the AU curriculum committee for course revision and renaming to Introduction to Construction during the fall semester.

March 8, 2013 – Name change to "Introduction to Construction" and changes to course content approved by University Curriculum Committee.

Fall 2013 – Revised class offered for first time.

Responses to Exit Survey Question on Value of BSCI 1100

Below are specific and general subject areas that you took while enrolled in the BSCI program, please rate the value of each area to your educational experience:

1 Not Valuable at all
2 Seldom Valuable
3 Somewhat Valuable
4 Valuable
5 Highly Valuable

N/A

	2009			2010			2011			2012		
	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Mean Response	2.74		2.56	2.85	2.91	2.46	2.23	2.36	2.47	2.64	2.68	2.60

	2013			2014			2015			2016		
	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Mean Response	2.17	2.57	2.76	2.83	2.73	3.63	3.50	3.62	3.70	3.71	3.25	3.52

	2017			2018			2019			2020		
	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Mean Response	3.86	4.10	3.81	3.35	4.17	3.65						

Appendix E - Mapping Changes of Student Evaluation of SLO - *Organize LEED Green Building activities/ Understand the basic principles of sustainable construction.*

McWhorter School of Building Science – Mapping Changes of Student Evaluation of SLO - *Organize LEED Green Building activities/ Understand the basic principles of sustainable construction.*
Assessment Report for Building Science, BS, 2010

The learning outcome "Organize LEED Green Building activities" had a mean response of 2.54. Resolved during curriculum review by identifying a series of sustainable construction topics taught throughout the revised curriculum and a dedicated introduction to sustainable construction class.
March 8, 2013 – BSCI 2100 Introduction to Sustainable Construction course approved by AU Undergraduate Curriculum Committee

Fall 2013 – – BSCI 2100 Introduction to Sustainable Construction offered for first time
Responses to Exit Survey Question on meeting SLO 1.17 *Organize LEED Green Building activities.*
BSCI has an approved set of learning outcomes that set out what you should be able to do upon graduation. On a scale of 1 to 5, rate how strongly you agree or disagree that you are able to do the following:
1 Strongly Disagree
2 Disagree
3 Neutral
4 Agree
5 Strongly Agree

Summer/Fall 2016 Students entering BSCI program no longer required to take BSCI 2100. Sustainable Construction content taught across curriculum. First students graduate from new curriculum in Spring 2019.
N/A

	2009			2010			2011			2012		
	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Mean Response			2.54	3.23	2.98	2.89	2.58	3.03	2.79	3.08	3.54	4.00

	2013			2014		
	Spring	Summer	Fall	Spring	Summer	Fall
Mean Response	3.00	3.43	3.69	3.57	3.20	

From Fall 2014 Responses to Exit Survey Question on meeting ACCE SLO 18. ***Understand the basic principles of sustainable construction.***

	2014			2015			2016			2017			2018		
	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Mean Response			4.25	4.29	4.00	3.75	4.24	3.92	4.19	4.29	4.50	3.86	4.15	4.33	3.90

Appendix F - Mapping Changes of Assessment of SLO - *Create a construction project safety plan.*

McWhorter School of Building Science – Mapping Changes of Assessment of SLO *Create a construction project safety plan.*

Quality Improvement Meeting Report May 6, 2015

6) Recommendations for quality improvements 2015/16
   a) From Review of Data for 2014-15 Academic Year – Improvement to teaching and assessment of ACCE Learning Outcome *Create a construction project safety plan.*
      i. Since Fall 2014 there has been a requirement to develop project specific safety plans for all field labs and service-learning projects in BSCI 3420 & 3430.
      ii. Re-write Thesis Guidelines and grading rubric for Safety for Fall 2015. **– Action – Mike Hosey & Richard Burt.**

Fall 2015 New Thesis Guidelines for Site Specific Safety Plan introduced. Existing grading rubric retained. Fall 2016 new grading rubric introduced.

Fall 2015*	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Specifics of the Project	12	6	6	0	0	1	**4.08**
Safety Manager	9	8	5	1	2	0	**3.84**
First Aid	13	4	3	1	2	2	**3.76**
Emergency Contacts	12	6	4	1	1	1	**3.96**
Accident Plan	11	8	3	1	1	1	**3.96**
Training	8	10	3	1	2	1	**3.72**
	35	**28**	**21**	**14**	**7**	**0**	
Analyze Hazards	7	7	9	1	1	0	**26.04**
Create a Safety Plan for compliance	8	10	5	0	1	1	**26.88**
					Total		**76.24**

Spring 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Specifics of the Project	16	11	2	0	1	0	**4.37**
Safety Manager	19	4	6	0	1	0	**4.33**
First Aid	19	5	4	0	2	0	**4.30**
Emergency Contacts	13	6	6	4	0	1	**3.83**
Accident Plan	17	5	3	1	1	3	**3.90**
Training	15	7	3	1	0	4	**3.80**
	35	**28**	**21**	**14**	**7**	**0**	
Analyze Hazards	13	11	3	1	1	1	**28.23**

Create a Safety Plan for compliance	9	12	7	1	0	1	**27.07**
					Total		**79.83**

Summer 2016	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Specifics of the Project	12	4	3	0	1	0	**4.30**
Safety Manager	9	8	1	2	0	0	**4.20**
First Aid	12	4	3	0	1	0	**4.30**
Emergency Contacts	14	4	1	0	1	0	**4.50**
Accident Plan	12	2	5	1	0	3	**4.25**
Training	11	6	0	1	2	0	**4.15**
	35	**28**	**21**	**14**	**7**	**0**	
Analyze Hazards	11	6	2	1	0	0	**30.45**
Create a Safety Plan for compliance	11	7	1	0	1	0	**30.45**
					Total		**86.60**

Fall 2016 (Revised Rubric)	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	12	8	4	0	0	0	**4.33**
Site Specific Safety Plan	7	15	2	0	0	0	**4..21**
Job Hazard Analysis	9	7	6	2	0	0	**3.96**
Hazardous Materials	9	10	4	1	0	0	**4.13**
Injury/Accident Plan	7	12	5	0	0	3	**4.11**
Total							**81.58**

Spring 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	15	3	2	0	0	0	**4.65**
Site Specific Safety Plan	12	6	1	1	0	0	**4.45**
Job Hazard Analysis	14	4	2	0	0	0	**4.59**

Hazardous Materials	15	4	1	0	0	0	**4.70**
Injury/Accident Plan	13	6	0	1	0	3	**4.55**
						Total	**91.90%**

Summer 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	11	3	0	0	0	0	**4.79**
Site Specific Safety Plan	7	7	0	0	0	0	**4.50**
Job Hazard Analysis	10	3	1	0	0	0	**4.61**
Hazardous Materials	11	1	2	0	0	0	**4.64**
Injury/Accident Plan	9	4	1	0	0	0	**4.54**
						Total	**88.2*%**

Fall 2017	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	26	17	5	1	0	0	**4.39**
Site Specific Safety Plan	21	17	10	1	0	0	**4.18**
Job Hazard Analysis	20	17	9	2	0	0	**4.05**
Hazardous Materials	25	20	3	0	1	0	**4.39**
Injury/Accident Plan	19	18	10	2	0	0	**4.09**
						Total	**83.47%**

Spring 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	17	12	1	0	1	0	**4.42**
Site Specific Safety Plan	15	11	2	1	1	1	**4.13**
Job Hazard Analysis	11	12	6	0	1	1	**3.92**
Hazardous Materials	16	11	3	1	0	0	**4.34**
Injury/Accident Plan	13	12	2	2	1	1	**3.98**
						Total	**81.74%**

Summer 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	19	8	0	1	0	0	**4.61**
Site Specific Safety Plan	13	10	4	0	0	1	**4.16**
Job Hazard Analysis	14	6	4	0	3	1	**3.89**

Hazardous Materials	14	10	1	0	2	1	**4.07**
Injury/Accident Plan	13	10	1	3	0	1	**4.05**
						Total	**83.14%**

Fall 2018	**Grading Scale**						**Average**
	5	**4**	**3**	**2**	**1**	**0**	
Company Safety Policy	34	14	0	0	0	1	**4.60**
Site Specific Safety Plan	26	19	1	1	0	2	**4.27**
Job Hazard Analysis	33	14	1	0	0	1	**4.54**
Hazardous Materials	34	13	1	0	0	1	**4.56**
Injury/Accident Plan	28	20	0	0	0	1	**4.47**
						Total	**89.76%**

Goal 1: Enhance the quantity quality of incoming students to PBSCI BSCI

Freshmen Admissions

Year	No. Accepted	No. Enrolled	Yield Rate
Fall 2014	86	59 (37 from 86)	43%
Fall 2015	82	76 (76 from 82)	93%
Fall 2016	106	69	65%
Fall 2017	114	81	71%
Fall 2018	123	82	67%

Number & Percentage of unrepresented groups in undergraduate program

Year	Females		African American		American Indian		Asian		Hispanic	
Fall 2014	25	6%	10	2%	5	1%	1	0%	5	1%
Fall 2015	26	6%	9	2%	3	1%	3	1%	8	2%
Fall 2016	32	6%	9	2%	4	1%	6	1%	20	4%
Fall 2017	34	6%	8	1%	4	1%	7	1%	22	4%
Fall 2018	35	6%	6	1%	2	<1%	2	<1%	16	3%

ACT Scores of Incoming Freshman

Year	Average	Min.	Max.	AU Average
Fall 2014	24.60	18	33	27.0
Fall 2015	24.96	19	33	27.3
Fall 2016	26.33	21	32	27.4
Fall 2017	25.70	18	34	27.3
Fall 2018	26.42	19	33	27.6

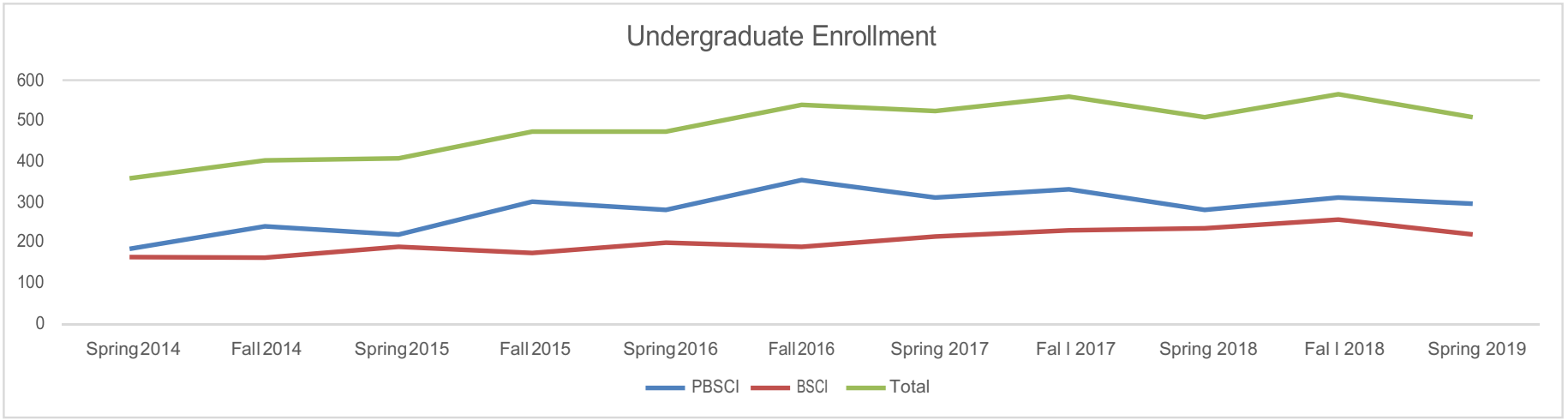
Goal 1: Enhance the quantity quality of incoming students to PBSCI BSCI

Formula GPA for incoming BSCI students

Semester	Average	Min.	Max.
Spring 2014	2.92	2.31	3.82
Summer 2014	3.08	2.22	3.76
Fall 2014	3.38	3.06	4.00
Spring 2015	2.98	2.3	3.94
Summer 2015	2.97	2.2	3.72
Fall 2015	3.36	2.5	3.94
Spring 2016	3.13	2.38	4.00
Summer 2016	3.11	2.22	4.00
Fall 2016	3.53	3.12	3.94
Spring 2017	3.35	2.94	4.00
Summer 2017	3.11	2.84	3.88
Fall 2017	3.66	3.36	4.00
Spring 2018	3.46	3.14	3.96
Summer 2018 Coop	3.21	2.94	3.94
Summer 2018 Internship	3.11	2.98	3.44
Fall 2018	3.71	3.54	4.00
Spring 2019	3.41	2.86	4.00

Student Enrollment

Semester	PBSCI	BSCI	Total
Spring 2014	183	164	357
Summer 2014	60	133	193
Fall 2014	239	161	400
Spring 2015	219	188	407
Summer 2015	45	144	199
Fall 2015	300	173	473
Spring 2016	279	196	475
Summer 2016	60	146	206
Fall 2016	353	186	539
Spring 2017	309	213	522
Summer 2017	40	165	205
Fall 2017	332	226	558
Spring 2018	278	232	510
Summer 2018	12	209	221
Fall 2018	310	255	565
Spring 2019	292	218	510



Goal 2: The McWhorter School of Building Science will provide an enriching educational experience consistent with the needs of its stakeholders

What is your overall satisfaction with the education you received in the Building Science program?

Semester	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average
Fall 2014	0	0	0	5	3	4.38
Spring 2015	0	0	0	10	18	4.64
Summer 2015	0	0	2	8	11	4.43
Fall 2015	0	1	2	8	9	4.25
Spring 2016	0	0	2	12	7	4.24
Summer 2016	0	2	2	11	9	4.13
Fall 2016	0	0	0	12	14	4.48
Spring 2017	0	0	0	5	9	4.64
Summer 2017	0	0	0	3	7	4.70
Fall 2017	0	0	1	19	22	4.50
Spring 2018	0	0	2	8	16	4.54
Summer 2018	0	0	2	7	9	4.39
Fall 2018	0	0	0	13	7	4.35

Did you participate in a service learning experience as part of a BSCI class?

	Yes	No	% Participation
Fall 2014	8	0	100%
Spring 2015	25	3	89%
Summer 2015	20	1	95%
Fall 2015	20	0	100%
Spring 2016	19	2	90%
Summer 2016	23	1	96%
Fall 2016	26	1	96%
Spring 2017	14	0	100%
Summer 2017	9	1	90%
Fall 2017	39	3	93%
Spring 2018	25	1	96%
Summer 2018	18	0	100%
Fall 2018	20	0	100%

Semester	Not at all prepared	A little prepared	Somewhat prepared	Quite a bit prepared	Very much prepared	Average
Fall 2014	0	0	1	2	5	4.50
Spring 2015	0	0	1	8	19	4.64
Summer 2015	0	0	1	6	14	4.62
Fall 2015	0	1	3	8	8	4.15
Spring 2016	0	2	1	9	9	4.19
Summer 2016	0	1	4	12	7	4.04
Fall 2016	0	0	3	9	15	4.44
Spring 2017	0	0	3	5	9	4.64
Summer 2017	0	0	0	4	6	4.60
Fall 2017	0	0	3	23	16	4.31
Spring 2018	0	0	2	9	15	4.5
Summer 2018	0	0	1	10	7	4.33
Fall 2018	0	1	0	12	7	4.25

Did you participate in a study abroad program or another international experience as part of the Building Science Program?

	Yes	No	% Participation
Fall 2014	3	5	38%
Spring 2015	3	25	11%
Summer 2015	7	14	33%
Fall 2015	3	17	15%
Spring 2016	6	15	29%
Summer 2016	7	17	29%
Fall 2016	5	22	19%
Spring 2017	8	6	57%
Summer 2017	7	3	70%
Fall 2017	20	32	24%
Spring 2018	5	21	19%
Summer 2018	6	12	33%
Fall 2018	11	9	55%

Goal 2: The McWhorter School of Building Science will provide an enriching educational experience consistent with the needs of its stakeholders

Did you participate in an industry internship or co-op while you were in the Building Science Program?

	Yes	No	% Participation
Fall 2014	8	0	100%
Spring 2015	25	3	89%
Summer 2015	18	3	86%
Fall 2015	19	1	95%
Spring 2016	17	4	81%
Summer 2016	21	3	88%
Fall 2016	25	2	93%
Spring 2017	12	1	86%
Summer 2017	10	0	100%
Fall 2017	35	7	83%
Spring 2018	26	0	100%
Summer 2018	18	0	100%
Fall 2018	17	3	85%

Did you participate in a student competition while you were in the Building Science Program?

	Yes	No	% Participation
Fall 2014	5	3	63%
Spring 2015	17	11	61%
Summer 2015	10	11	48%
Fall 2015	6	14	30%
Spring 2016	8	13	38%
Summer 2016	7	17	29%
Fall 2016	9	18	33%
Spring 2017	6	8	43%
Summer 2017	2	8	20%
Fall 2017	17	25	40%
Spring 2018	11	14	44%
Summer 2018	7	11	39%
Fall 2018	5	15	25%

Did you create an ePortfolio while you were in the Building Science Program?

	Yes	No	% Participation
Fall 2014	8	0	100%
Spring 2015	28	0	100%
Summer 2015	17	4	81%
Fall 2015	20	0	100%
Spring 2016	21	0	100%
Summer 2016	18	6	75%
Fall 2016	24	3	89%
Spring 2017	13	1	93%
Summer 2017	10	0	100%
Fall 2017	40	2	95%
Spring 2018	18	8	69%
Summer 2018	7	11	39%
Fall 2018	18	2	90%

Goal 3: The McWhorter School of Building Science will advise, prepare and provide assistance for all students to obtain entry-level positions across diverse sectors of the construction industry.

Semester	Did you seek advisement through BSCI Career Office? Yes	No	% Participation
Fall 2014	7	1	88%
Spring 2015	20	8	71%
Summer 2015	13	8	62%
Fall 2015	10	10	50%
Spring 2016	15	6	71%
Summer 2016	6	18	25%
Fall 2016	22	5	81%
Spring 2017	5	9	36%
Summer 2017	6	4	60%
Fall 2017	23	19	55%
Spring 2018	16	10	62%
Summer 2018	11	7	61%
Fall 2018	13	7	65%

Semester	No. of students advised per. semester PBSCI	BSCI	GRAD	OTHER
Spring 2015	13	11	4	0
Summer 2015	0	1	1	0
Fall 2015	34	19	7	4
Spring 2016	15	16	1	4
Summer 2016	2	0	2	1
Fall 2016	15	14	13	1
Spring 2017	9	29	1	3
Summer 2017	0	3	3	0
Fall 2017	25	14	3	1
Spring 2018				
Summer 2018	Data notcollected			
Fall 2018				

Semester	Did you submit a Resume to AU Career Development Center? Yes	No	% Participation
Fall 2014	5	3	63%
Spring 2015	14	14	50%
Summer 2015	12	9	57%
Fall 2015	13	7	65%
Spring 2016	13	8	62%
Summer 2016	12	12	50%
Fall 2016	9	18	33%
Spring 2017	0	14	0%
Summer 2017	5	5	50%
Fall 2017	13	29	31%
Spring 2018	7	19	27%
Summer 2018	4	14	22%
Fall 2018	11	9	55%

Semester	Number of Company Presentations per semester Companies presenting	Students attending
Fall 2014	14	144
Spring 2015	11	133
Summer 2015	0	0
Fall 2015	8	64
Spring 2016	7	92
Summer 2016	0	0
Fall 2016	10	88
Spring 2017	8	77
Summer 2017	0	0
Fall 2017	5	55
Spring 2018		
Summer 2018	Data not collected	
Fall 2018		

Goal 3: The McWhorter School of Building Science will advise, prepare and provide assistance for all students to obtain entry-level positions across diverse sectors of the construction industry.

Semester	Did you attend a company presentation in Gorrie prior to attending an on campus interview? Yes	No	% Participation
Fall 2014	8	0	100%
Spring 2015	24	4	86%
Summer 2015	14	7	67%
Fall 2015	18	2	90%
Spring 2016	17	4	81%
Summer 2016	17	7	71%
Fall 2016	20	7	74%
Spring 2017	10	4	72%
Summer 2017	8	2	80%
Fall 2017	25	17	60%
Spring 2018	20	6	77%
Summer 2018	17	1	94%
Fall 2018	17	3	85%

Semester	Number of companies attending campus interviews (not inc. expo)	Number of companies attending BSCI Career Expo
Fall 2014	14	62
Spring 2015	11	60
Summer 2015	1	22
Fall 2015	7	77
Spring 2016	6	72
Summer 2016	0	21
Fall 2016	11	85
Spring 2017	9	77
Summer 2017	0	19
Fall 2017	5	90
Spring 2018		70
Summer 2018	Data not collected	15
Fall 2018		100

Semester	Did you attend a company interview in Gorrie? Yes	No	% Participation
Fall 2014	8	0	100%
Spring 2015	24	4	86%
Summer 2015	12	9	57%
Fall 2015	15	5	75%
Spring 2016	17	7	67%
Summer 2016	14	10	58%
Fall 2016	19	8	70%
Spring 2017	9	5	65%
Summer 2017	6	4	60%
Fall 2017	20	22	48%
Spring 2018	17	9	65%
Summer 2018	8	10	44%
Fall 2018	11	9	55%

Semester	Number of students attending BSCI Career Expo PBSCI	BSCI	MBC/MIDC	Other	Total
Fall 2014	147	103	17	57	324
Spring 2015	47	78	17	68	210
Summer 2015		64		2	66
Fall 2015	171	101	17	61	350
Spring 2016	94	104	7	65	270
Summer 2016		37			37
Fall 2016	161	86	15	67	326
Spring 2017					286
Summer 2017		82	16	0	98
Fall 2017	183	122	11	95	411
Spring 2018	82	78	6	75	241
Summer 2018					76
Fall 2018	169	156	12	125	462

Goal 3: The McWhorter School of Building Science will advise, prepare and provide assistance for all students to obtain entry-level positions across diverse sectors of the construction industry.

	Did you attend a BSCI Career Expo?				Sector of industry –recruiting on campus				
Semester	**Yes**	**No**	**% Participation**	**Semester**	**Commercial**	**Residential**	**Infrastructure**	**Industrial**	**Other**
Fall 2014	7	0	100%	Fall 2014	66%	3%	6%	9%	16%
Spring 2015	27	1	96%	Spring 2015	66%	2%	11%	9%	12%
Summer 2015	20	1	95%	Summer 2015	83%	4%	4%	0%	9%
Fall 2015	20	0	100%	Fall 2015	72%	9%	6%	3%	10%
Spring 2016	21	0	100%	Spring 2016	69%	8%	3%	3%	17%
Summer 2016	24	0	100%	Summer 2016	80%	10%	0%	0%	10%
Fall 2016	25	2	93%	Fall 2016	71%	7%	4%	4%	14%
Spring 2017	13	1	93%	Spring 2017	67%	14%	12%	4%	9%
Summer 2017	10	0	100%	Summer 2017	74%	5%	5%	0%	16%
Fall 2017	41	1	98%	Fall 2017	51%	8%	16%	11%	13%
Spring 2018	25	1	96%	Spring 2018	64%	10%	7%	0%	19%
Summer 2018	17	1	94%	Summer 2018	73%	7%	7%	0%	13%
Fall 2018	20	0	100%	Fall 2018	69%	9%	6%	3%	13%

Goal 3: The McWhorter School of Building Science will advise, prepare and provide assistance for all students to obtain entry-level positions across diverse sectors of the construction industry.

Student Exit Surveys

Have you formally accepted a job offer?	Yes	No	Placement %
Fall 2014	8	0	100%
Spring 2015	27	1	96%
Summer 2015*	19	2	90%
Fall 2015	18	2	90%
Spring 2016* (3 graduate school)	17	4	81%
Summer 2016* (1 graduate school)	20	4	83%
Spring 2017	11	3	78%
Summer 2017	7	3	70%
Fall 2017	39	3	93%
Spring 2018	24	2	92%
Summer 2018 (2 graduate school)	18	0	100%
Fall 2018	17	3	85%

BSCI Career Office Tracking

Semester	Students Interviewed	Job offer or grad school	Placement %
Fall 2014	19	19	100%
Spring 2015	29	29	100%
Summer 2015	24	24	100%
Fall 2015	26	26	100%
Spring 2016	30	30	100%
Summer 2016	29	29	100%
Spring 2017	31	27	90%
Summer 2017	22	16	77%
Fall 2017	49	44	90%
Spring 2018	31	29	94%
Summer 2018	28	27	96%
Fall 2018	50	46	92%

Student Exit Surveys

	No. of Formal Job Offers		
Year	Average	Min.	Max.
Fall 2014	1.75	1	3
Spring 2015	2.04	1	4
Summer 2015	1.67	0	5
Fall 2015	2.1	1	6
Spring 2016	2.29	0	6
Summer 2016	2.09	0	5
Fall 2016	1.41	0	3
Spring 2017	2.07	0	5
Summer 2017	1.5	0	3
Fall 2017	1.95	0	7
Spring 2018	1.92	0	6
Summer 2018	1.94	0	5
Fall 2018	2.15	0	6

AU Graduating Senior Exit Survey

Have you located employment that you will begin or continue upon graduation?

Year	BSCI	AU Average	AU Rank	Next Ranked	%
2013/14	70.30%	33.20%	1	Industrial & Systems Engineering	64.70%
2014/15	91.70%	37.00%	1	Forestry	81.80%
2015/16	93.00%	41.60%	1	Electrical Engineering - Computer	78.60%
2016/17	92.50%	42.20%	1	Professional Flight Management	70.00%
2017/18	81.00%	42.80%	3	Forestry	83.00%
2013-2018	85.60%	39.50%	1	Forestry	68.60%

Goal 3: The McWhorter School of Building Science will advise, prepare and provide assistance for all students to obtain entry-level positions across diverse sectors of the construction industry.

Student Exit Surveys
Sector of industry

Year	Commercial	Residential	Infrastructure	Industrial	Other
Fall 2014	88%	0%	0%	13%	
Spring 2015	93%	4%	0%	4%	
Summer 2015	81%	14%	0%	5%	
Fall 2015	95%	5%	0%	0%	
Spring 2016	81%	5%	10%	5%	
Summer 2016	88%	8%	4%	0%	
Fall 2016	75%	4%	4%	4%	
Spring 2017	86%	7%	0%	7%	
Summer 2017	90%	0%	0%	0%	
Fall 2017	83%	5%	5%	7%	
Spring 2018	92%	4%	0%	4%	0%
Summer 2018	100%	0%	0%	0%	0%
Fall 2018	67%	12%	4%	0%	17%

Student Exit Surveys
Initial Hiring Position

Year	Pre-construction	Project Management	Field Operations
Fall 2014	25%	63%	13%
Spring 2015	14%	68%	18%
Summer 2015	19%	48%	33%
Fall 2015	5%	45%	50%
Spring 2016	14%	48%	38%
Summer 2016	8%	58%	33%
Fall 2016	11%	70%	19%
Spring 2017	0%	50%	50%
Summer 2017	10%	50%	40%
Fall 2017	12%	67%	21%
Spring 2018	8%	67%	25%
Summer 2018	17%	39%	44%
Fall 2018	15%	45%	40%

BSCI Career Office Tracking
Sector of industry

Year	Commercial	Residential	Infrastructure	Industrial	Other
Fall 2014	95%	0%	0%	6%	
Spring 2015	93%	4%	4%	0%	
Summer 2015	90%	10%	0%	0%	
Fall 2015	88%	4%	4%	4%	
Spring 2016	96%	0%	0%	4%	
Summer 2016	85%	5%	5%	5%	
Fall 2016	64%	20%	0%	0%	16%
Spring 2017	73%	4%	4%	0%	19%
Summer 2017	86%	7%	0%	0%	7%
Fall 2017	80%	2%	2%	0%	16%
Spring 2018	96%	0%	0%	4%	0%
Summer 2018	92%	4%	0%	0%	4%
Fall 2018	80%	2%	7%	0%	11%

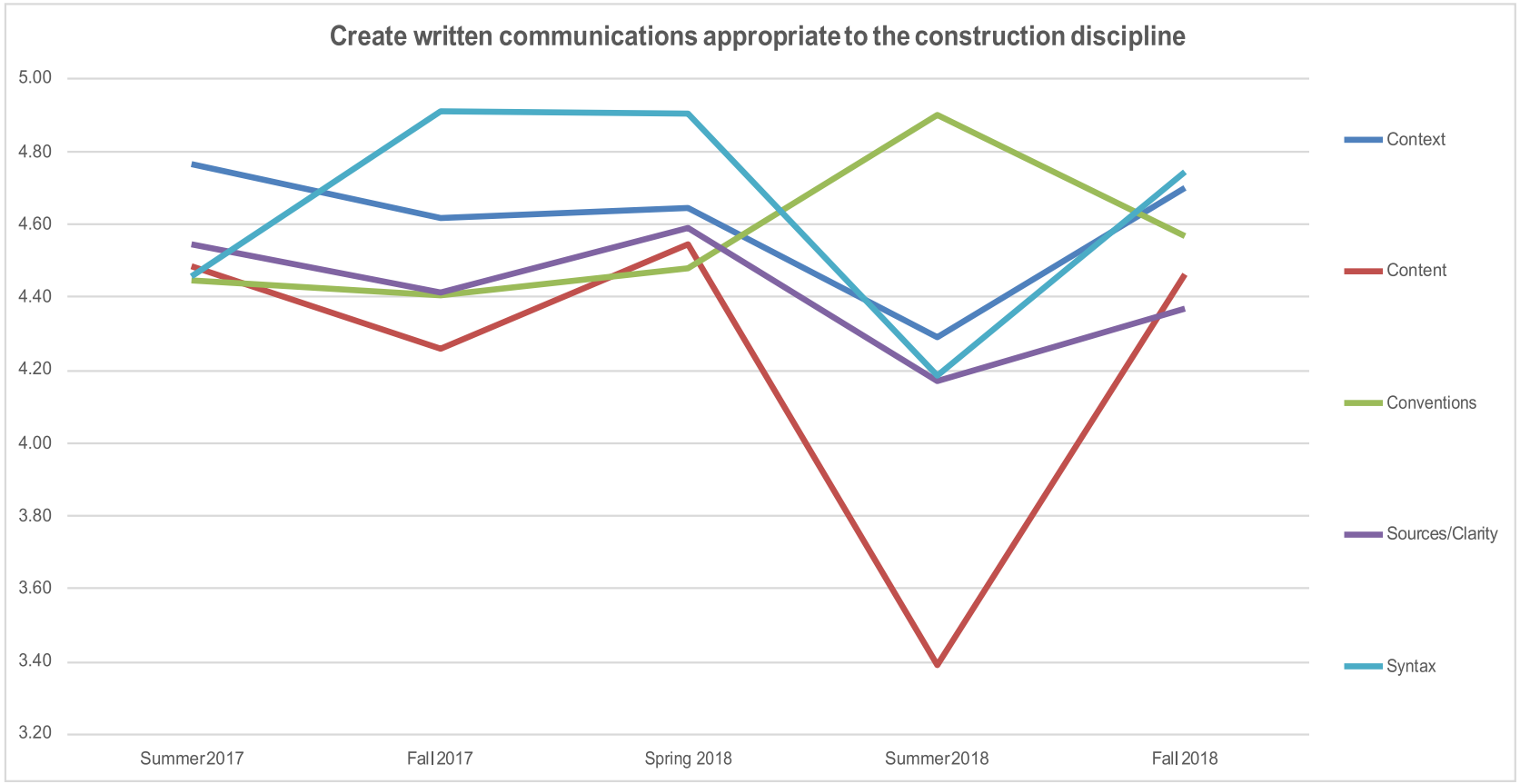
BSCI Career Office Tracking
Initial Hiring Position

Year	Pre-construction	Project Management	Field Operations	Unknown
Fall 2014	17%	66%	17%	0%
Spring 2015	7%	84%	7%	0%
Summer 2015	10%	41%	18%	31%
Fall 2015	4%	23%	54%	31%
Spring 2016	4%	57%	35%	4%
Summer 2016	5%	46%	29%	20%
Fall 2016	7%	22%	39%	29%
Spring 2017	0%	19%	55%	26%
Summer 2017	7%	40%	53%	0%
Fall 2017	10%	41%	21%	28%
Spring 2018	7%	41%	14%	38%
Summer 2018	24%	24%	36%	16%
Fall 2018	9%	46%	30%	15%

Summary of Student Learning Outcomes Assessment

ACCE SLO#1 Create written communications appropriate to the construction discipline

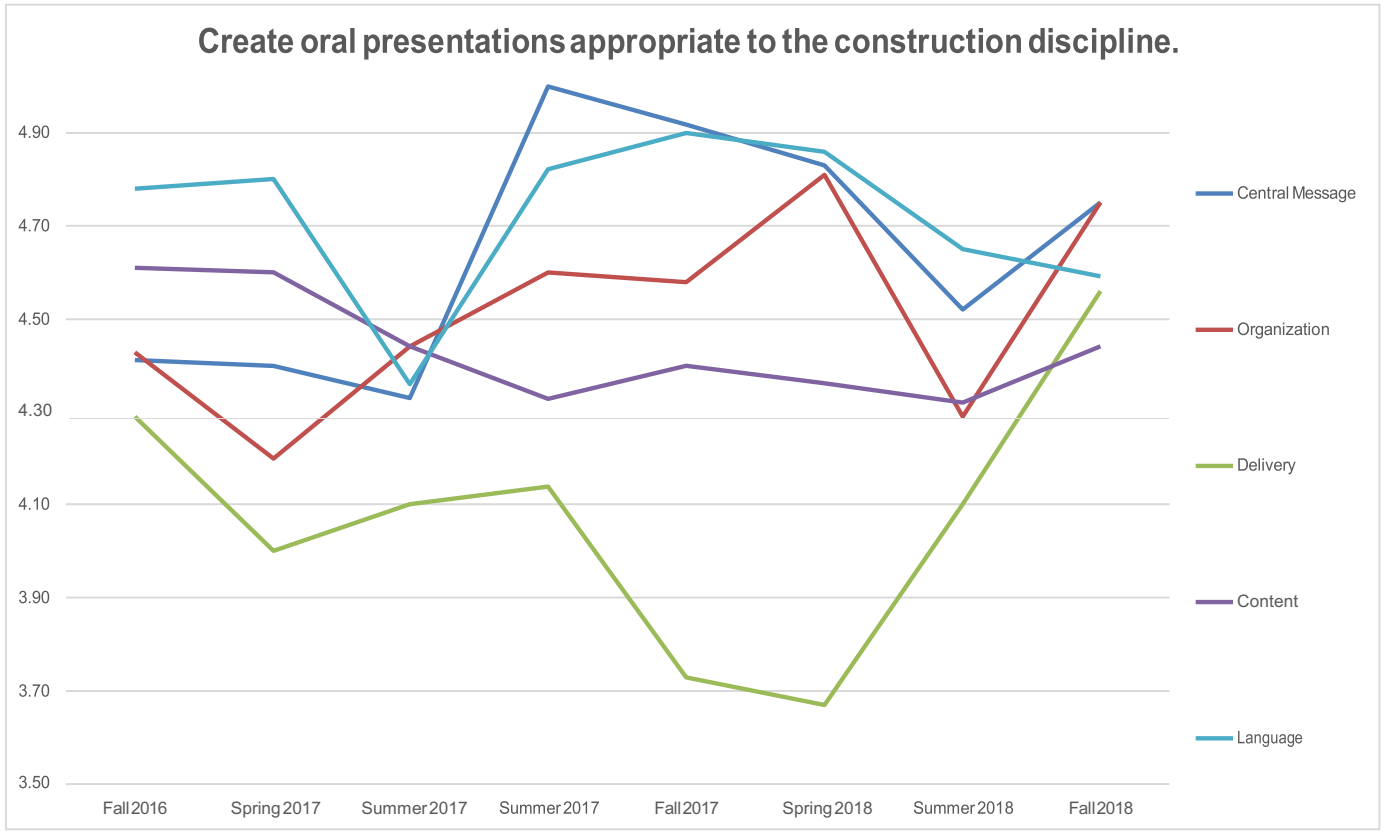
	Context	Content	Conventions	Sources/Clarity	Syntax
Summer 2017	4.77	4.49	4.45	4.55	4.46
Fall 2017	4.62	4.26	4.41	4.42	4.91
Spring 2018	4.65	4.55	4.48	4.59	4.91
Summer 2018	4.29	3.39	4.90	4.17	4.19
Fall 2018	4.70	4.47	4.57	4.37	4.75



Summary of Student Learning Outcomes Assessment

ACCE SLO#2 Create oral presentations appropriate to the construction discipline.

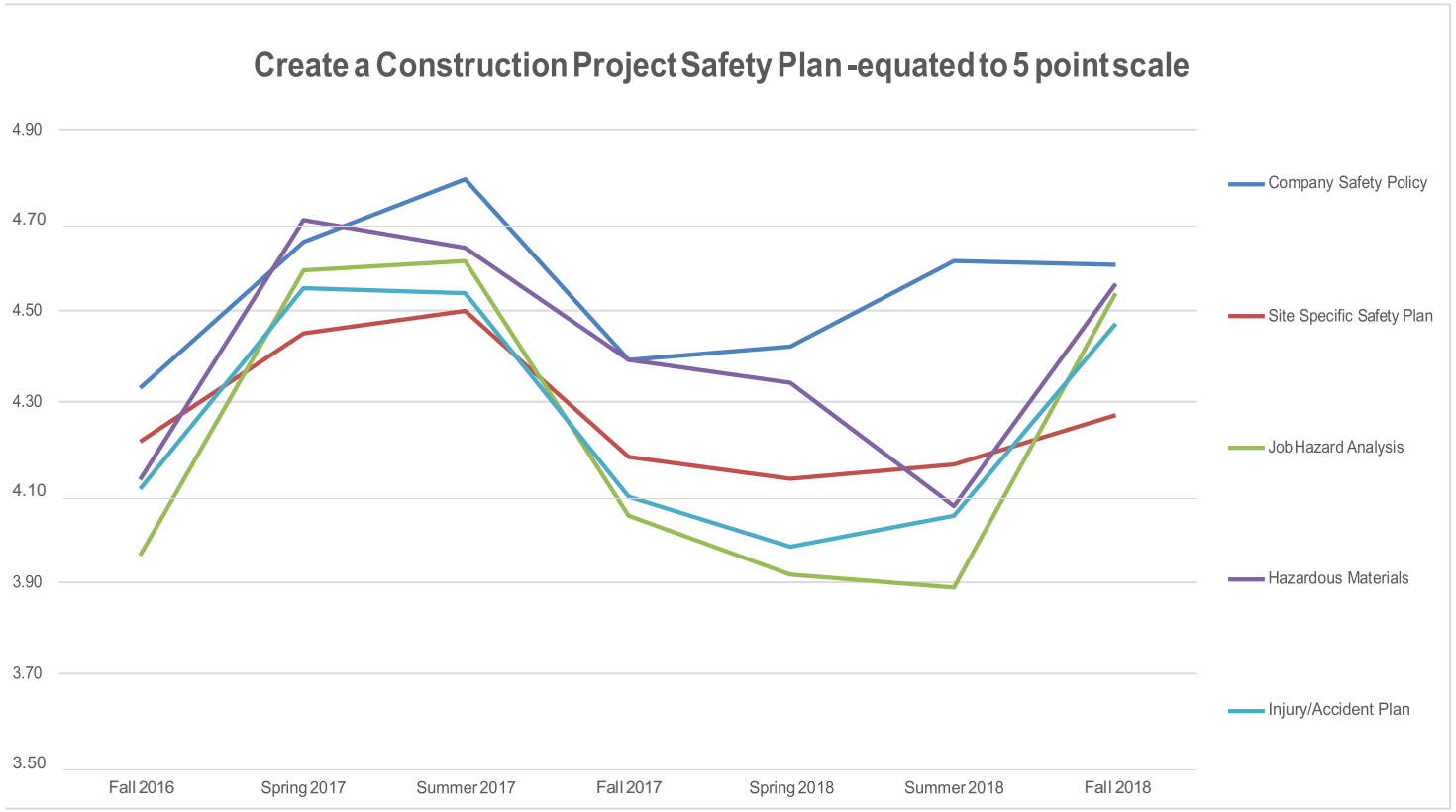
	Central Message	Organization	Delivery	Content	Language
Fall 2016	4.41	4.43	4.29	4.61	4.78
Spring 2017	4.40	4.20	4.00	4.60	4.80
Summer 2017	4.33	4.44	4.10	4.44	4.36
Summer 2017	5.00	4.60	4.14	4.33	4.82
Fall 2017	4.92	4.58	3.73	4.40	4.90
Spring 2018	4.83	4.81	3.67	4.36	4.86
Summer 2018	4.52	4.29	4.10	4.32	4.65
Fall 2018	4.75	4.75	4.56	4.44	4.59



Summary of Student Learning Outcomes Assessment

ACCE SLO#3 - Create a construction project safety plan -equated to 5 point scale

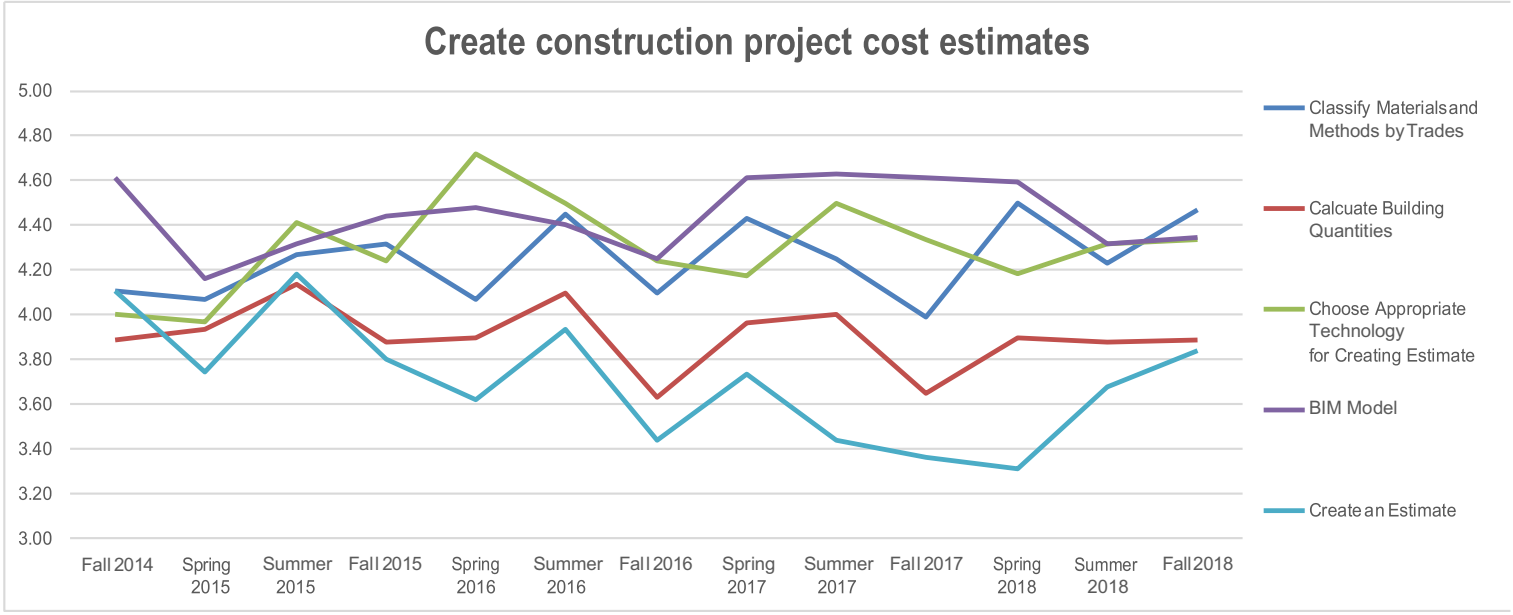
	Company Safety Policy	Site Specific Safety Plan	Job Hazard Analysis	Hazardous Materials	Injury/Accident Plan
Fall 2016	4.33	4.21	3.96	4.13	4.11
Spring 2017	4.65	4.45	4.59	4.7	4.55
Summer 2017	4.79	4.5	4.61	4.64	4.54
Fall 2017	4.39	4.18	4.05	4.39	4.09
Spring 2018	4.42	4.13	3.92	4.34	3.98
Summer 2018	4.61	4.16	3.89	4.07	4.05
Fall 2018	4.6	4.27	4.54	4.56	4.47



Summary of Student Learning Outcomes Assessment

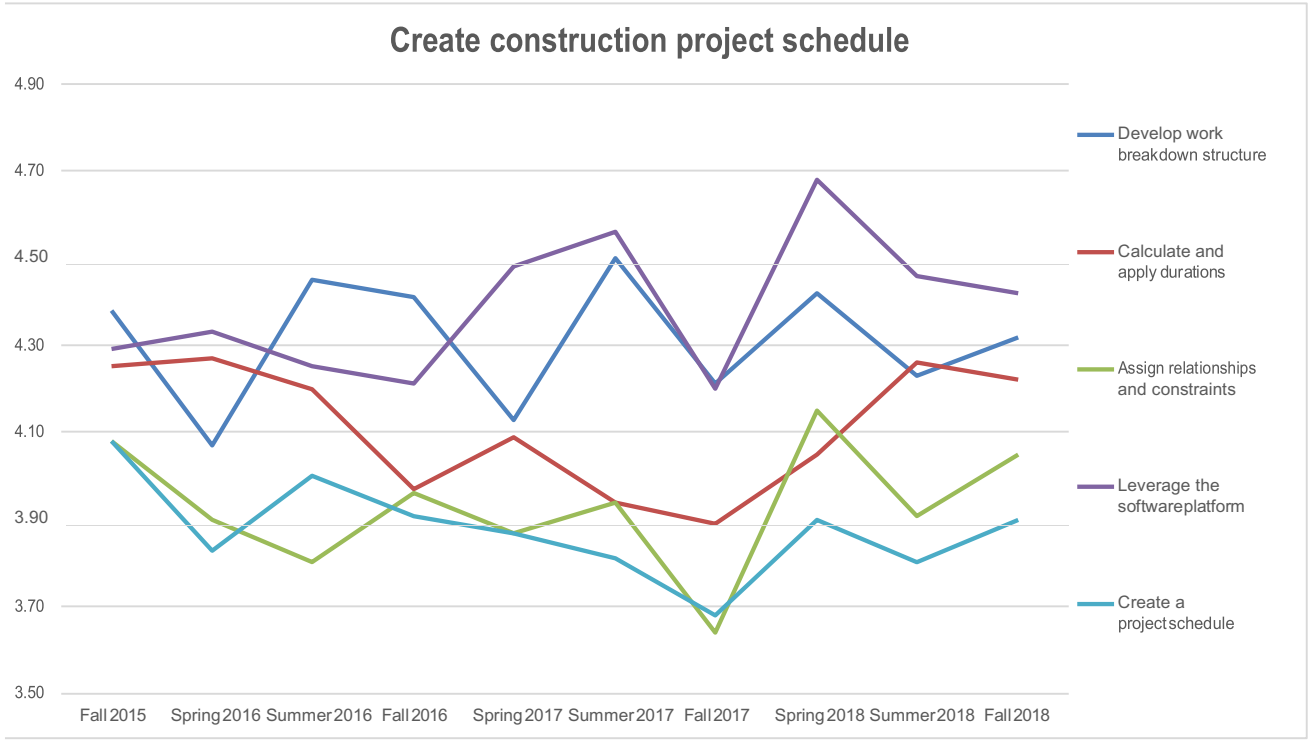
ACCE SLO#4 Create construction project cost estimates

	Classify Materials and Methods by Trades	Calcuate Building Quantities	Choose Appropriate Technology forCreatingEstimate	BIM Model	Create an Estimate
Fall 2014	4.11	3.89	4.00	4.61	4.11
Spring 2015	4.06	3.94	3.97	4.16	3.74
Summer 2015	4.27	4.14	4.41	4.32	4.18
Fall 2015	4.32	3.88	4.24	4.44	3.80
Spring 2016	4.07	3.90	4.72	4.48	3.62
Summer 2016	4.45	4.10	4.50	4.40	3.93
Fall 2016	4.10	3.63	4.24	4.25	3.44
Spring 2017	4.43	3.96	4.17	4.61	3.73
Summer 2017	4.25	4.00	4.50	4.63	3.44
Fall 2017	3.99	3.65	4.34	4.61	3.36
Spring 2018	4.50	3.90	4.18	4.59	3.31
Summer 2018	4.23	3.88	4.32	4.32	3.68
Fall 2018	4.47	3.89	4.34	4.35	3.84



ACCE SLO#5 Create construction project schedule- Average Points

	Develop work breakdown structure	Calculate and apply durations	Assign relationships and constraints	Leverage the software platform	Create a project schedule
Fall 2015	4.38	4.25	4.08	4.29	4.08
Spring 2016	4.07	4.27	3.90	4.33	3.83
Summer 2016	4.45	4.20	3.80	4.25	4.00
Fall 2016	4.41	3.97	3.96	4.21	3.91
Spring 2017	4.13	4.09	3.87	4.48	3.87
Summer 2017	4.50	3.94	3.94	4.56	3.81
Fall 2017	4.21	3.89	3.64	4.20	3.68
Spring 2018	4.42	4.05	4.15	4.68	3.90
Summer 2018	4.23	4.26	3.91	4.46	3.80
Fall 2018	4.32	4.22	4.05	4.42	3.90



ACCE SLO #6 Analyze professional decisions based on ethical principles

	Number of Students					
Write a business policy on gifts and entertainment	**<60%**	**60-69%**	**70-79%**	**80-89%**	**90+%**	**Average**
Fall 2017	0	0	1	5	25	95.00%
Spring 2018	1	0	3	15	41	91.25%
Summer 2018	0	1	8	31	12	84.35%
Fall 2018	0	0	1	0	31	98.30%

ACCE SLO #8 Analyze methods, materials, and equipment used to construct projects.

Fall 2018	Grading Scale								
Project Method Statement	**5**	**4.5**	**4**	**3.5**	**3**	**2**	**1**	**0**	
Select Crane/Hoisting Equipment	46	0	7	0	3	1	2	5	4.23
Major Equipment Selection	50	0	7	0	0	2	0	5	4.41
Method for Performing Earthwork	40	1	8	0	6	0	1	8	3.99
Site Utilization	23	11	14	5	7	2	0	2	4.12
Total									16.75
Total %									83.75%

ACCE SLO #9 Apply construction management skills as a member of a multi-disciplinary team

Fall 2018	No. of students					
individual Reflection Statement	**<60%**	**60-69%**	**70-79%**	**80-89%**	**90+%**	**Average**
Organization	2	3	4	6	16	82.30%
Professionalism	0	3	5	7	16	82.90%
Reflection	0	0	2	5	24	88.70%
Total						84.62%

ACCE SLO #11 Apply basic surveying techniques for construction layout and control.

	Number of Students					
	<60%	**60-69%**	**70-79%**	**80-89%**	**90+%**	**Average**
Summer 2016 - Final Examination	0	1	8	31	57	90.30%
Summer 2016 -Field Book	0	0	3	3	91	97.46%
Summer 2017 - Final Examination	0	2	24	46	54	87.05%
Summer 2017 -Field Book	0	0	0	4	122	98.39%
Summer 2018 - Final Examination	0	2	18	55	67	88.40%
Summer 2018-Field Book	0	0	8	21	113	93.67%

ACCE SLO #12 Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process

	Number of Students					
6 Questions on Quiz 4	**<60%**	**60-69%**	**70-79%**	**80-89%**	**90+%**	**Average**
Spring 2018	10	28	0	14	13	69.23%
Fall 2018	4	24	0	21	1	67.67%

ACCE SLO#13. Understand construction risk management

Fall 2018	Number of Students					
	<60%	**60-69%**	**70-79%**	**80-89%**	**90+%**	**Average**
Section 1: assessed with Quiz 2 consisting of 34 questions – 25 students.Section 2: assessed with Quiz 3 consisting of 25 questions – 23 students	1	13	4	17	13	80.04%

Worst performing question topic: Section 1: Insurance Exclusions
Section 2: All-Risk Builder's Risk Insurance

ACCE SLO#15. Understand construction quality assurance and control

	Number of Students					
15 Questions on Quiz 3	**<60%**	**60-69%**	**70-79%**	**80-89%**	**90+%**	**Average**
Fall 2018	5	3	13	23	20	82.23%

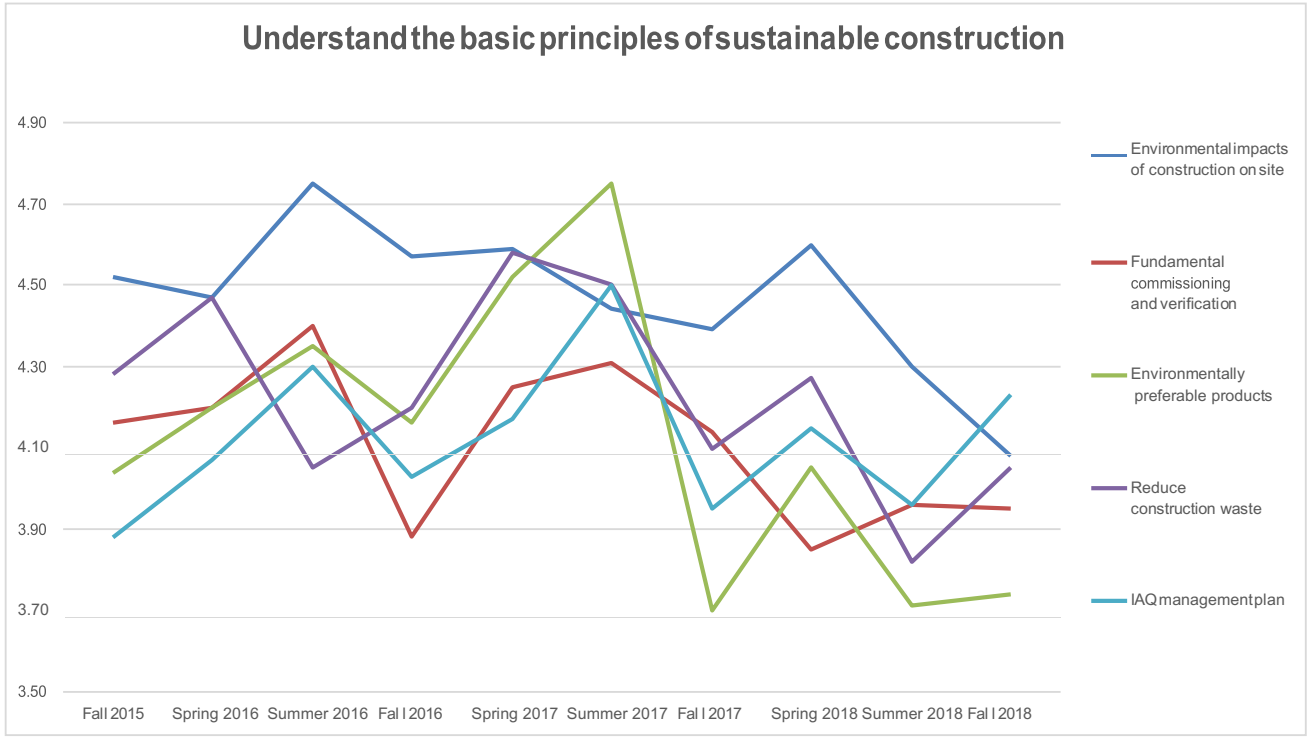
ACCE SLO#17. Understand the legal implications of contract, common, and regulatory law to manage a construction project

Fall 2018	Number of Students					
Assessment	**<60%**	**60-69%**	**70-79%**	**80-89%**	**90+%**	**Average**
Section 1: assessed with Quizzes 1 and 3 consisting of 61 questions – 25 students. Section 2: assessed with Quiz 1, 2 and 4 consisting of 39 questions – 23 students	1	2	28	7	10	79.96%

Worst performing question topic: Section 1: Project Delivery
Section 2: Lien rights on bonded projects

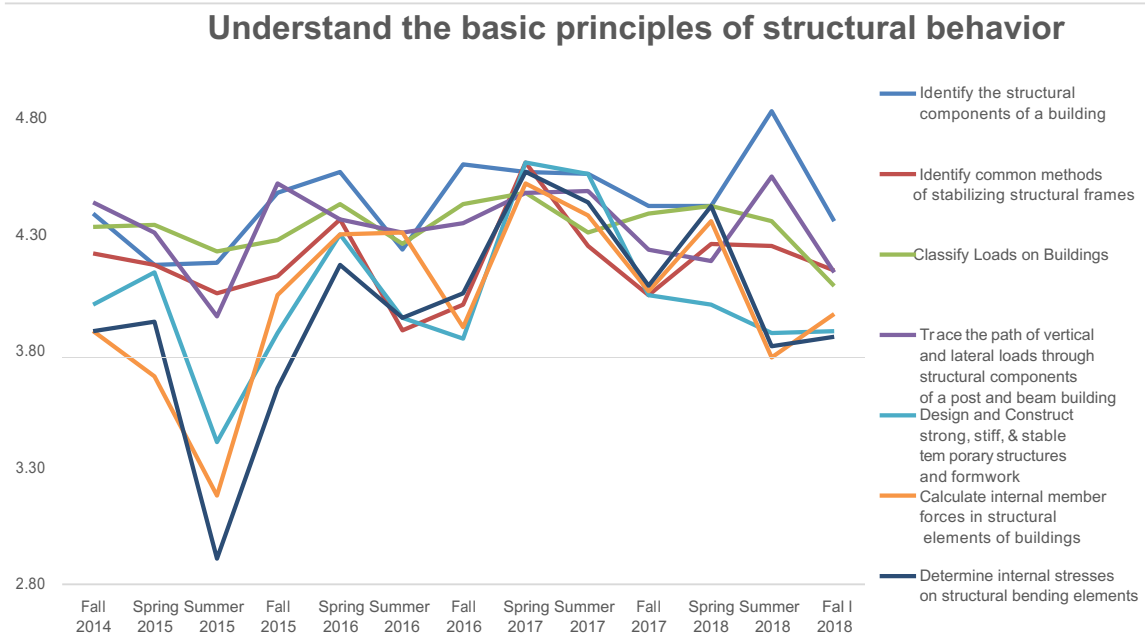
ACCE SLO #18 Understand the basic principles of sustainable construction

	Environmental impacts of construction on site	Fundamental commissioning and verification	Environmentally preferable products	Reduce construction waste	IAQ management plan
Fall 2015	4.52	4.16	4.04	4.28	3.88
Spring 2016	4.47	4.20	4.20	4.47	4.07
Summer 2016	4.75	4.40	4.35	4.05	4.30
Fall 2016	4.57	3.88	4.16	4.20	4.03
Spring 2017	4.59	4.25	4.52	4.58	4.17
Summer 2017	4.44	4.31	4.75	4.50	4.50
Fall 2017	4.39	4.14	3.70	4.10	3.95
Spring 2018	4.60	3.85	4.05	4.27	4.15
Summer 2018	4.30	3.96	3.71	3.82	3.96
Fall 2018	4.08	3.95	3.74	4.05	4.23



ACCE SLO #19 Understand the basic principles of structural behavior

	Identify the structural components of a building	Identify common methods of stabilizing structural frames	Classify Loads on Buildings	Trace the path of vertical and lateral loads through structural components of a post and beam	Design and Construct strong, stiff, & stable temporary structures and formwork	Calculate internal member forces in structural elements of	Determine internal stresses on structural bending elements
Fall 2014	4.39	4.22	4.33	4.44	4.00	3.89	3.89
Spring 2015	4.17	4.17	4.34	4.31	4.14	3.69	3.93
Summer 2015	4.18	4.05	4.23	3.95	3.41	3.18	2.91
Fall 2015	4.48	4.12	4.28	4.52	3.88	4.04	3.64
Spring 2016	4.57	4.37	4.43	4.37	4.30	4.30	4.17
Summer 2016	4.24	3.89	4.26	4.31	3.94	4.31	3.94
Fall 2016	4.60	4.00	4.43	4.35	3.85	3.90	4.05
Spring 2017	4.57	4.61	4.48	4.48	4.61	4.52	4.57
Summer 2017	4.56	4.25	4.31	4.49	4.56	4.38	4.44
Fall 2017	4.42	4.04	4.39	4.24	4.04	4.06	4.08
Spring 2018	4.42	4.26	4.42	4.19	4	4.36	4.42
Summer 2018	4.83	4.25	4.36	4.55	3.88	3.77	3.82
Fall 2018	4.36	4.15	4.08	4.14	3.89	3.96	3.86



Summary of Student Learning Outcomes Assessment

ACCE SLO #20 Understand the basic principles of mechanical, electrical and piping systems.

	Number of Students					
	<60%	**60-69%**	**70-79%**	**80-89%**	**90+%**	**Average**
Fall 2016-Final Examination BSCI 4700 (Mechanical portion)	0	1	14	30	14	85%
Spring 2017-Final Examination BSCI 4700 (Mechanical portion)	0	3	11	23	12	84%
Fall 2017-Final Examination BSCI 4700 (Mechanical portion)	3	6	15	24	18	83%
Spring 2018 - Final Examination BSCI 4700 (Mechanical portion)	0	0	11	32	20	88%
Fall 2018 - Final Examination BSCI 4700 (Mechanical portion)	0	3	18	36	27	85%
Fall 2016-Mid Term Examination BSCI 4700 (Plumbing portion)	1	1	14	32	12	84%
Spring 2017-Mid Term Examination BSCI 4700 (Plumbing portion)	0	0	11	29	9	84%
Fall 2017-Mid Term Examination BSCI 4700 (Plumbing portion)	0	1	6	23	36	89%
Spring 2018 - Mid Term Examination BSCI 4700 (Plumbing portion)	0	5	11	34	13	83%
Fall 2018 - Mid Term Examination BSCI 4700 (Plumbing portion)	0	4	18	53	9	83%
Fall 2016-3 Examinations in BSCI 4750 (Electrical Portion)	3	1	9	40	67	88%
Spring 2017-3 Examinations in BSCI 4750 (Electrical Portion)	0	0	4	36	18	87%
Fall 2017-3 Examinations in BSCI 4750 (Electrical Portion)	0	0	5	25	20	88%
Spring 2018 - 3 Examinations in BSCI 4750 (Electrical Portion)	0	2	9	51	1	88%
Fall 2018 - 3 Examinations in BSCI 4750 (Electrical)	0	0	11	15	6	84%