

McWhorter School of Building Science – BSCI Degree Program Assessment Plan & Report 2014-15

Assessment Plan

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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 freshman 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

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 A, 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 freshman 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.
 2. Create oral presentations appropriate to the construction discipline.
 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.
 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.
 - *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.
 - *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
- 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**
 - Measure: Participation in enriching educational experiences
 - a. Participation in service learning projects (AU Strategic Goal 7B)
 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 (AU Strategic Goal – 3C)
 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 Priority 1 – Strategic Goal 1G)

- **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 will collect data through Spring 2017 before setting 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. ???% year on year growth in Accepted PBSCI students over 5-year period (2017-2022)
- **Objective 1.2: Increase the number of freshman enrolling in PBSCI**
 - Performance Criteria:
 - a. ???% year on year growth in PBSCI Freshman enrollment over 5-year period (2017-2022)
 - b. Improve yield rate of PBSCI Freshman admits over a 5-year period (2017-2022) by ?%
- **Objective 1.3: Increase the number of unrepresented students in the McWhorter School of Building Science.**
 - Performance Criteria:
 - a. Increase Percentage of Female students in PBSCI & BSCI to ?% by 2022 (2009-2014 Average = 5.71%)
 - b. Increase Percentage of African America, American Indian, Asian and Hispanic students in PBSCI & BSCI to ?% by 2022 (2009-2014 Average = 4.68%)
- **Objective 1.4: Increase the academic ability of students entering PBSCI & BSCI**
 - Performance Criteria:
 - a. Increase Average, Min & Max ACT Scores of incoming PBSCI Freshman to the Performance Criteria below by 2022:
 - Min = ??
 - Max = ??

- Average = Within ?? of AU Average (Fall 2014 = 2.4)
 - b. Increase Average, Min & Max Formula GPA for incoming BSCI students to the Performance Criteria below by 2022: (Set Performance Criteria after BSCI enrollment exceeds 240)
 - Fall Min =
 - Fall Max =
 - Fall Average =
 - Spring Min =
 - Spring Max =
 - Spring Average =
 - Summer (Co-op) Min =
 - Summer (Co-op) Max =
 - Summer (Co-op) Average =
- **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 grading rubrics used to evaluate the student learning outcomes, ??% of the students will achieve an overall score of ??% or above.
 2. Any criteria used in a grading rubric that scores below ??% will trigger a formal review of the teaching and assessment of the material
- b. Indirect Assessment of Student Learning Outcomes

1. ??% of graduating students should agree they have met the learning outcomes.
 2. No more than ??% of graduating students should disagree that they have met the learning outcomes
 - c. Indirectly measure the student's level of satisfaction with their education and preparation for their career
 1. ??% of graduating students should be *very satisfied* (4 out of 5 on a likert scale) with their education
 2. No more than ??% of graduating students should be *slightly satisfied* (2 out of 5 on a likert scale) with their education
 3. ??% of graduating students should *feel quite a bit prepared* (4 out of 5 on a likert scale) for their career.
 4. No more than ??% of graduating students should feel a little bit prepared (2 out of 5 on a likert scale) for their career.
- **Objective 2.2: Increase opportunities for students to have an enriching educational experience**
 - Performance Criteria
 - a. Participation in service learning projects
 1. ??% of graduating students participating in one or more service learning projects.
 2. BSCI mean participation rate is higher than AU over multi-year period.
 - b. Participation in study abroad, student exchange programs
 1. ??% of graduating students participating in study abroad, student exchange programs.
 2. BSCI mean participation rate is higher than AU over multi-year period.
 - c. Participation in competition teams
 1. ??% of graduating students participating in competition teams
 - d. Participation in ePortfolio Program
 1. ??% of graduating students creating ePortfolio
 - e. Participation in Industry Internship or co-op
 1. ??% of graduating students participating in Industry Internship or co-op.
 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. ??% of BSCI students seek advisement through BSCI Career Office
 - b. Number of students submitting Resume's to AU Career Development Center
 - 1. ??% of BSCI students submit Resume's to AU Career Development Office
 - c. Number of company presentations to students
 - 1. ??% of graduating students attend at least one company presentation
 - 2. At least ?? companies make presentations each spring and fall semesters

- **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 ?? companies attending campus interviews per year
 - b. Number of companies attending career expos
 - 1. At least ?? companies attending career expos per year
 - c. Number of students attending career expos & interviews
 - 1. At least ??% of total PBSCI & BSCI enrollment attend career expo per semester
 - 2. At least ??% of BSCI students attend campus interviews per semester
 - d. Diversity of companies recruiting; commercial, residential, infrastructure, industrial etc.
 - 1. At least ??% of companies attending career expo are from outside the commercial construction sector
 - 2. At least ??% of companies attending campus interviews 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. ??% of students obtain employment or attend graduate school

- b. Diversity of companies hiring; Commercial, residential, Infrastructure, industrial etc.
 - 1. ??% 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 ??% 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 university in July.

8. Data for 2014-15 Academic Year

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

8.1.2 Objective 1.2: Increase the number of freshman 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%

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%

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
Fall 2015	24.96	19	33	27.3

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	2.30	3.94

Summer 2015	2.97	2.20	3.72
Fall 2015	3.36	2.5	3.94
Spring 2016	3.13	2.38	4.00

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

8.1.5.1 Measure Student Enrollment

Semester	Student Enrollment		
	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

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 B – Data for Assessment of Student Learning Outcomes

- 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 B – Data for Assessment of Student Learning Outcomes

- 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.*

Fall 2014 (8 Reporting)	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied	Average
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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

	prepared				prepared	
How well did your education in Building Science prepare you for your future career?	0	1	3	8	8	4.15

Semester	Percentage of Students			
	<i>Very satisfied</i>	<i>Slightly satisfied</i>	<i>Quite a bit prepared</i>	<i>Little bit prepared</i>
Fall 2014	100%	0%	88%	0%
Spring 2015	100%	0%	96%	0%
Summer 2015	90%	0%	95%	0%
Fall 2016	85%	0%	80%	5%

8.1.2 Objective 2.2: Increase opportunities for students to have an enriching educational experience

8.1.2.1 Measure: Participation in enriching educational experiences

d. Participation in service learning projects (AU Strategic Goal 7B)

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.*

a. 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%

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
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	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

d. 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.*

b. 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	37.5%
Spring 2015	3	25	11%
Summer 2015	7	14	33%
Fall 2015	3	17	15%

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? (Recorded: 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.)*

	Year	Mean Response			BSCI > AU?
		BSCI	CADC	AU	
Study Abroad	2013/FY	0.02	0.01	0.01	Yes
	2013/SY	0.09	0.28	0.13	No

d. 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.*

c. Did you participate in a student competition while you were in the Building Science Program?	Yes	No	% Participation
Fall 2014	5	3	62.5%
Spring 2015	17	11	61%
Summer 2015	10	11	48%
Fall 2015	6	14	30%

d. Participation in ePortfolio program (AU Strategic Goal – 3C)

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.*

d. 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%

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.*

e. Did you participate in an industry internship or co-	Yes	No	%
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op while you were in the Building Science Program?			Participation
Fall 2014	8	0	100%
Spring 2015	25	3	89%
Summer 2015	18	3	86%
Fall 2015	19	1	95%

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? (Recorded: 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

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

8.3.1.1 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
Fall 2014	7	1	87.5%
Spring 2015	20	8	71.4%
Summer 2015	13	8	62%

Fall 2015	10	10	50%
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2. BSCI Career Office Tracking

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

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
Fall 2014	5	3	62.5%
Spring 2015	14	14	50%
Summer 2015	12	9	57%
Fall 2015	13	7	65%

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
Fall 2014	8	0	100%
Spring 2015	24	4	86%
Summer 2015	14	7	67%
Fall 2015	18	2	90%

2. BSCI Career Office Tracking

Semester	Number each 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

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)
Fall 2014	14
Spring 2015	11
Summer 2015	1
Fall 2015	7
Spring 2016	6

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

Semester	Number of companies attending BSCI Career Expo
Fall 2014	62
Spring 2015	60
Summer 2015	22
Fall 2015	77
Spring 2016	72

- 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

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

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%

d. Diversity of companies recruiting; commercial, residential, infrastructure, industrial etc.

1. BSCI Career Office Tracking

Semester	Sector of industry –recruiting on campus				
	Commercial	Residential	Infrastructure	Industrial	Other
Fall 2014	66%	3%	6%	9%	16%
Spring 2015	66%	2%	11%	9%	12%
Summer 2015	83%	4%	4%	0%	9%
Fall 2015	72%	9%	6%	3%	10%
Spring 2016	69%	8%	3%	3%	17%

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 of graduation.
 1. Student Exit Surveys

Have you formally accepted a job offer?	Yes	No	% Participation
Fall 2014	8	0	100%
Spring 2015	27	1	96%
Summer 2015*	19	2	90%
Fall 2015	18	2	90%

Year	No. of Formal Job Offers		
	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

2. 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%

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

1. Student Exit Surveys

Year	Sector of industry			
	Commercial	Residential	Infrastructure	Industrial
Fall 2014	87.5%	0%	0%	12.5%
Spring 2015	92.9%	3.6%	0%	3.6%
Summer 2015	81.0%	14.3%	0%	4.8%
Fall 2015	95%	5%	0%	0%

2. BSCI Career Office Tracking

Year	Sector of industry			
	Commercial	Residential	Infrastructure	Industrial
Fall 2014	94.5%	0%	0%	5.5%
Spring 2015	93%	3.5%	3.5%	0%
Summer 2015	90%	10%	0%	0%
Fall 2015				

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

1. Student Exit Surveys

Year	Initial Hiring Position		
	Pre-construction	Project Management	Field Operations
Fall 2014	25%	62.5%	12.5%
Spring 2015	14.3%	67.9%	17.9%
Summer 2015	19.0%	47.6%	33.3%
Fall 2015	5%	45%	50%

2. 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%

9. Annual Quality Improvement Meeting – May 5, 2016

The Minutes from the May 5, 2015 Quality Improvement Meeting are attached to this document as Appendix C.

10. Update on Previous Quality Improvement Initiatives

Two updates on previous quality improvement initiatives are presented in Appendix D & E. These were discussed at the annual quality improvement meeting on May 5, 2016 and show up as the 2nd item in the minutes in Appendix C.

Appendix A – Curriculum Mapping

Pre-Building Science (PBSCI) Curriculum Mapping

ACCE Student Learning Outcome	BSCI 1100				BSCI 2100				BSCI 2200				BSCI 2300				BSCI 2400			
	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																				
2. Create oral presentations appropriate to the construction																				
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																				
9. Apply construction management skills as a member of a																				
10. Apply electronic-based technology to manage the construction																				
11. Apply basic surveying techniques for construction layout and																				
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																				
I = Introduce; R = Reinforce; M = Master; A = Assess																				

Building Science (BSCI) 3000 Level Classes Curriculum Mapping

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

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 program is currently conducting a curriculum review with a target implementation date of Fall 2017.

1. Specificity of Outcomes

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. Comprehensive Outcomes

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).

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>. 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 fall meeting which also contains details of the SLO's.

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.

6. Direct Measures

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

For the 2014/15 academic year 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. 18 Understand the basic principles of sustainable construction
- No. 19 Understand the basic principles of structural behavior

For the 2015/16 academic year the following outcome was added:

- No. 5 Create construction project schedules

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 2015.pdf* sets out the assessment requirements for the 5 outcomes assessed in BSCI 499 and also contains the 5 grading rubrics used. The plan is to directly assess between 3 and 4 additional outcomes each academic year so that all 20 outcomes are assessed during the 2019/20 academic year.

6a. **Indirect Measures**

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.

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. 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 2015 are set out below.

a. **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 - measures performance over 8 specific 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* Changes to Rubric	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

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%

Semester	Lowest ranked criteria
Fall 2014	<i>Create Plan for Compliance</i>
Spring 2015	<i>Create Plan for Compliance</i>
Summer 2015	<i>Create a Safety Plan</i>
Fall 2015	<i>Analyze Hazards</i>

b. 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

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%

Semester	Lowest ranked criteria
Fall 2014	<i>Calculate Building Quantities</i>
Spring 2015	<i>Create an Estimate</i>
Summer 2015	<i>Calculate Building Quantities</i>
Fall 2015	<i>Create an Estimate</i>

c. 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

Percentage of students scoring above	60%	70%	80%	90%
Fall 2015	96%	88%	67%	38%

Semester	Lowest ranked criteria
Fall 2015	<i>Assign relationships and constraints/create a project schedule</i>

d. 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
	5	4	3	2	1	0	
Changes to rubric							
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

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%

Semester	Lowest ranked criteria
Fall 2014	<i>Calculate the % of the recycled material based on value.</i>
Spring 2015	<i>Identify recycling service provider and services provided</i>
Summer 2015	<i>Provide Map of Locally Resourced Material</i>
Fall 2015	<i>IAQ management plan</i>

d. 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

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%

Semester	Lowest ranked criteria
Fall 2014	<i>Calculate internal member forces in structural elements of buildings.</i> <i>Determine internal stresses on structural bending elements.</i>
Spring 2015	<i>Calculate internal member forces in structural elements of buildings.</i>
Summer 2015	<i>Determine internal stresses on structural bending elements.</i>
Fall 2015	<i>Determine internal stresses on structural bending elements.</i>

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.

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

- 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

- 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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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%

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%

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%

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%

- 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%

- 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%

- 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%

- 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%

- 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%

- 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%

- 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%

- 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%

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%

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%

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%

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%

- 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%

- 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%

- 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%

- 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%

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 2014/15 and copies of the summary of student exit interviews for calendar year 2015 were provided to all program faculty in electronic format several days before the annual quality improvement meeting held on May 5, 2016. 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 C – McWhorter School of Building Science - Minutes of BSCI Quality Improvement Meeting – May 5, 2016

McWhorter School of Building Science

Minutes of BSCI Quality Improvement Meeting – May 5, 2016

1) AU & ACCE Assessment Requirements – Richard Burt

Dr. Burt outlined the annual requirements for assessment for Auburn University were changing this year following the appointment of Dr. Megan Good as Director of Academic Assessment last July. Annual Assessment reports will be due July 1, 2016 and the BSCI Degree Program Assessment Plan & Report 2014-15 will cover the period from Summer 2014 to Fall 2015. Following the July 1 submission, twenty-two faculty raters from across the university will evaluate assessment reports. The feedback generated during this experience will be compiled into Assessment Feedback Reports that are disseminated to each academic degree program in the Fall semester.

Assessment reports for the American Council for Construction Education (ACCE) would be reviewed as part of the evaluation of the self study and the accompanying site visit in spring 2020. At the moment we are evaluating only 5 of the 20 ACCE Student Learning Outcomes, with a plan to assess between 3-5 additional outcomes each year, so that all 20 outcomes are evaluated by the fall of 2019. The intent is to use the “Data for Assessment of Student Learning Outcomes Reported to Auburn University Director of Academic Assessment” as an appendix to the “BSCI Degree Program Assessment Plan” which is required under standard 9.2.3. This will hopefully reduce the need to develop two separate assessment reports.

2) Actions Taken to address previous quality improvement issues:

- a) Mapping Changes of Student Evaluation of BSCI 1100 – Introduction to Construction
(Quality_Improvement_Cycle_BSCI_1100.docx)

Faculty were provided with copies of the results of data collected from student exit surveys. Students began taking the revised BSCI 1100 class during fall 2013 and would have graduated from the program from approximately Spring 2015 onwards. Results suggest a significant improvement in the perceived value of this class over the last 4 semesters evaluated.

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

Faculty were provided with copies of the results of data collected from student exit surveys. Students began taking BSCI 2100 - Introduction to Sustainable Construction class during fall 2013 and would have graduated from the program from approximately Spring 2015 onwards. Results suggest a significant improvement in the perception that students have met the student learning outcome “Understand the basic principles of sustainable construction” during the last 4 semesters evaluated.

3) Actions taken from Spring 2015 Quality Improvement Meeting
(Quality_Improvement_Meeting_Report_5_7_15.docx)

- a) Improvement to teaching and assessment of ACCE Learning Outcome *Create a construction project safety plan*.
- i. Re-write Thesis Guidelines and grading rubric for Safety for Fall 2015. – **Action – Mike Hosey & Richard Burt.**

The revised thesis guidelines and grading rubric were introduced to BSCI 4990 during fall 2015. It was agreed the results from the grading rubrics for calendar year 2016 will be reported under item 2. above in next years' report.

- ii. Deliver lecture on expectations for safety component in thesis starting Fall 2015 – **Action Mike Hosey**

Lectures on the expectations for safety component in thesis were introduced during the fall 2015 semester.

- b) Student suggestions during exit interviews to include “spec takeoff” in the requirements for the “project brief” that is submitted during the first three weeks of the semester. – **Action – Ben Farrow will revise thesis instructions for the Fall 2015 semester.**

The “spec takeoff” was added to the requirements for the “project brief” in BSCI 4990 during the fall 2015 semester.

- c) Faculty suggestion to review all technology taught within the BSCI program, with a view to incorporating mobile technologies into the curriculum. **Action – Salman Azhar will compile a comprehensive list of all technology taught in the curriculum and work with the Education Technology Committee to make recommendations.**

The comprehensive list of all technology taught in the curriculum was compiled and was shared with the faculty. Recommendations will be incorporated as part of the ongoing curriculum review.

- d) The Field Lab Manager expressed concerns that changes in class assignments had reduced faculty involvement at the field lab. He believes a strong connection between the classroom and the field lab is the best educational environment for the students. Without strong involvement of faculty, the value of the field lab may be diminished. – **Action – Darren Olsen, Salman Azhar, Mike Hosey and Ben Farrow will meet to develop a formal policy for faculty supervisory expectations at the field lab during service learning projects and to review the number of projects in BSCI 3420 & 3430.**

A formal policy was developed and implemented during fall 2015 that required the professor responsible for delivering the lecture component of the class was required to be present during the lab period of the class for at least one hour per week. It was agreed that course summative evaluations for these classes compared to previous years will be reported under item 2. above in next years' report.

- 4) Review of Data for 2015 Calendar Year - BSCI Degree Program Assessment Plan and Report May 2016.docx & 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.

A copy of the draft BSCI Degree Program Assessment Plan and Report and copies of the summary of student exit interviews were provided to the faculty in electronic format several days before the meeting and were used to stimulate discussion and encourage recommendations for quality improvement. These recommendations are set out below.

- 5) Recommendations for quality improvements 2016/17
- a) From Review of Data for 2015 Calendar Year:

- i. Response to student request during exit interviews for common drawings between classes.

*It was decided that a trial would be instigated during the 2016/17 academic year to have a common set of drawings between BSCI 3600 – Project Controls I and BSCI 3650 – Project Controls II & possibly the MEP & Electrical classes. A set of plans would be found over the summer break and reviewed by the faculty at the August retreat. **ACTION – Darren Olsen, Wes Collins & Eric Wetzel.***

- ii. Consistent positive perception of value of ‘hands-on’ learning and use of BSCI Field Laboratory during classes.

It was decided that as part of the ongoing curriculum review we would seek to maintain the “hands-on” learning experience. In the short term it was decided that we would integrate field lab activities into the following classes during the 2016/17 academic year:

- a. BSCI 3600 – Wall Form Activity – **ACTION – Wes Collins & Lauren Redden**
 - b. BSCI 3650 – Construction Waste Management Plan – **ACTION – Darren Olsen**
 - c. BSCI 4600 – Site Logistics – **ACTION – Eric Wetzel**
 - d. BSCI 4860 – Advanced CIT – Site Survey/High Bay Building @ Field Lab – **ACTION – Darren Olsen**

- b) Faculty/Student suggestions:

- i. Improvements to takeoff and estimate forms used in BSCI 3600/3650/4600/4990

Professors Collins & Redden made a presentation on an excel spreadsheet for use in the project controls classes and thesis. The forms were used for the first time in BSCI 3600 during the spring 2016

semester and it was decided that these will continue to be used for project controls classes, competition teams and BSCI 4990 starting fall 2017. ACTION – Wes Collins & Lauren Redden.

- ii. Making students in BSCI 4990 aware of instructional videos housed in the McWhorter Academy.

Professor Olsen proposed resurrecting the McWhorter Academy as a resource for thesis students. It was decided to review the current state of the McWhorter Academy, with a view to making it more accessible to thesis students. ACTION - Darren Olsen & David Royer.

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			

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

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		
	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Mean Response			4.25	4.29	4.00	3.75						