Program Outcomes Assessment
# Table of Contents

**General Information** 1

**Standing Requirements** 2
- Mission Statement 2
- Outcomes Library 2
- Curriculum Map 4
- Communication of Outcomes 4

**Archive** 5
- Archive 5

**2014-2015 Assessment Cycle** 6
- Assessment Plan 6
- Assessment Findings 7
- Action Plan 8
- Status Report 8

**2015-2016 Assessment Cycle** 9
- Assessment Plan 9
- Assessment Findings 12
- Action Plan 16
- Status Report 16

**2016-2017 Assessment Cycle** 17
- Assessment Plan 17
- Assessment Findings 19

**2017-2018 Assessment Cycle** 23
- Assessment Plan 23
- Assessment Findings 23

**2018-2019 Assessment Cycle** 26
- Assessment Plan 26
- Assessment Findings 27

**2019-2020 Assessment Cycle** 30
- Assessment Plan 30
General Information (Program Outcomes Assessment)
Standing Requirements

Mission Statement

The mission of the Architectural Engineering Technology program is to produce graduates that have mastered the combination of philosophy of building design and technology of construction systems and materials. The ArET program will provide skills relating to Building Information Modeling (BIM) which is a growing initiative in the industry that enhances the entire lifecycle of buildings from design to construction to post-occupancy.

Outcomes Library

BS in Architectural Engineering Technology Outcome Set

1: Students will employ concepts of architectural theory and design in a design environment.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Students will synthesize information and generate concepts and/or responses&lt;br&gt;Students will synthesize information and generate multiple concepts and/or multiple design responses to programmatic requirements.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>1.2 Students will demonstrate creative thinking and originality&lt;br&gt;Students will demonstrate creative thinking and originality through presentation of a variety of ideas, approaches, and concepts.</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>

2: Students will utilize instruments, methods, software, and techniques that are appropriate to produce A/E documents and presentations

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Students will produce competent contract documents&lt;br&gt;Students will produce competent contract documents including coordinated drawings, schedules, and specifications appropriate to project size and scope, and sufficiently extensive to show how design solutions and interior construction are related.</td>
<td>Foundational Studies: 10. Express themselves effectively, professionally, and persuasively both orally and in writing.</td>
</tr>
<tr>
<td>2.2 Students will deliver presentations concerning project delivery&lt;br&gt;Students will deliver effective presentations concerning complete project delivery.</td>
<td>Foundational Studies: 10. Express themselves effectively, professionally, and persuasively both orally and in writing.</td>
</tr>
<tr>
<td>2.3 Students will write technical business letters and reports&lt;br&gt;Students will write technical business letters and reports using professional English.</td>
<td>Foundational Studies: 10. Express themselves effectively, professionally, and persuasively both orally and in writing.</td>
</tr>
<tr>
<td>2.4 Students will identify detail hierarchies, scale, and content.</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>
### 3: Students will utilize measuring methods that are appropriate for field, office, or laboratory

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Students will effectively apply the elements and principles of design to two-dimensional design solutions.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>3.2 Students will effectively apply the elements and principles of design to three-dimensional design solutions.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>3.3 Students will demonstrate layout and alignment control using surveying equipment.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>3.4 Students will use surveying skills to organize and develop a site.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>3.5 Students will analyze static forces in structures.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>3.6 Students will apply soil mechanics to excavations and foundations.</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>

### 4: Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines

Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to architectural engineering

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Students will analyze heat flow through wall assemblies.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>4.2 Students will solve problems using trigonometry as it relates to surveying.</td>
<td>Foundational Studies: 2. Critically evaluate the ideas of others.</td>
</tr>
</tbody>
</table>

### 5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Students will create quantity takeoffs for residential and commercial projects.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>5.2 Students will identify and apply labor and equipment productivity factors.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>5.3 Students will identify and estimate direct and indirect job costs.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>5.4 Students will use estimating software applications to prepare and submit construction bids.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>5.5 Students will explain capital equipment depreciation and how this is used by construction companies.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>5.6 Students will estimate project cash flow and identify payment processes and the affects of time value of money.</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>

### 6: Students will select appropriate materials and practices for building construction

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Students will demonstrate typical fabrication and installation methods</td>
<td>No Mapping</td>
</tr>
<tr>
<td>6.2 Students will demonstrate basic principles of civil</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>
engineering in CAD.

6.3 Students will apply the NEC for proper installations of electrical systems.

6.4 Students will demonstrate how the LEED rating system is applied to buildings.

6.5 Students will compare the composition and properties of building materials.

6.6 Students will understand terms, units of measurement, material grade stamps, sizes of materials, and define tolerances.

6.7 Students will apply conformance references established by testing laboratories to building construction practices.

6.8 Students will apply the IBC and IRC building code manuals and standards.

7: Students will apply principles of building codes, regulations, and ethics in architectural practice

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1 Students will apply appropriate federal, state/provincial, and local codes.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>7.2 Students will apply appropriate standards and accessibility guidelines.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>7.3 Students will explain why bid shopping is unethical.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>7.4 Students will explain why front-end loading is unethical.</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>

Curriculum Map

Active Curriculum Maps

BS in Architectural Engineering Technology Curriculum Map (See appendix)

Alignment Set: BS in Architectural Engineering Technology Outcome Set

Created: 03/26/2014 9:18:40 am CST
Last Modified: 03/27/2014 11:17:16 am CST

Communication of Outcomes

All pertinent information regarding assessment objectives and outcomes measurement will be disseminated via the department of Built Environment program website.
Archive (This area is to be used for archiving pre-TaskStream assessment data and for current documents.)
# Assessment Plan

## Outcomes and Measures

### BS in Architectural Engineering Technology Outcome Set

#### 3: Students will utilize measuring methods that are appropriate for field, office, or laboratory

3.4 Students will use surveying skills to organize and develop a site.

**Measure:** HW  
**Details/Description:** CNST 480  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** S2015, S2019  
**Responsible Individual(s):** McNabb

#### 4: Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines

Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to architectural engineering.

4.2 Students will solve problems using trigonometry as it relates to surveying.

**Measure:** HW  
**Details/Description:** CNST 420  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2014, F2018  
**Responsible Individual(s):** Eckerle

#### 5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems

5.4 Students will use estimating software applications to prepare and submit construction bids.

**Measure:** HW  
**Details/Description:** CNST 450  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2014, F2018  
**Responsible Individual(s):** McNabb

#### 6: Students will select appropriate materials and practices for building construction
### 6.4 Students will demonstrate how the LEED rating system is applied to buildings.

**Measure:** HW  
**Direct - Student Artifact**

**Details/Description:** CNST 306  
**Target:** First round of data will be the baseline  
**Implementation Plan (timeline):** S2015, S2019  
**Responsible Individual(s):** Ellingson

### Assessment Findings

#### Finding per Measure

#### BS in Architectural Engineering Technology Outcome Set

**3: Students will utilize measuring methods that are appropriate for field, office, or laboratory**

**3.4 Students will use surveying skills to organize and develop a site.**

**Measure:** HW  
**Direct - Student Artifact**

**Details/Description:** CNST 480  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** S2015, S2019  
**Responsible Individual(s):** McNabb

**Findings for HW**  
No Findings Added

#### 4: Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines

Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to architectural engineering

**4.2 Students will solve problems using trigonometry as it relates to surveying.**

**Measure:** HW  
**Direct - Student Artifact**

**Details/Description:** CNST 420  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2014, F2018  
**Responsible Individual(s):** Eckerle

**Findings for HW**  
No Findings Added

#### 5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems
5.4 Students will use estimating software applications to prepare and submit construction bids.

**Measure:** HW  
Direct - Student Artifact

**Details/Description:** CNST 450  
Target: First round of data will be the baseline.  
Implementation Plan (timeline): F2014, F2018  
Responsible Individual(s): McNabb

**Findings** for HW  
No Findings Added

6: Students will select appropriate materials and practices for building construction

**6.4 Students will demonstrate how the LEED rating system is applied to buildings.**

**Measure:** HW  
Direct - Student Artifact

**Details/Description:** CNST 306  
Target: First round of data will be the baseline  
Implementation Plan (timeline): S2015, S2019  
Responsible Individual(s): Ellingson

**Findings** for HW  
No Findings Added

**Overall Recommendations**  
No text specified

**Overall Reflection**  
No text specified

**Action Plan**

**Status Report**
## Assessment Plan

### Outcomes and Measures

### BS in Architectural Engineering Technology Outcome Set

1: Students will employ concepts of architectural theory and design in a design environment.

| 1.1 Students will synthesize information and generate concepts and/or responses | Measure: Final Project  
Direct - Student Artifact |
|---|---|
| Students will synthesize information and generate multiple concepts and/or multiple design responses to programmatic requirements. | Details/Description: IAD 152  
Target: First round of data will be the baseline.  
Implementation Plan (timeline): F2015  
Responsible Individual(s): Arrington-Bey |

| 1.2 Students will demonstrate creative thinking and originality | Measure: Final Project  
Direct - Student Artifact |
|---|---|
| Students will demonstrate creative thinking and originality through presentation of a variety of ideas, approaches, and concepts. | Details/Description: IAD 152  
Target: First round of data will be the baseline.  
Implementation Plan (timeline): F2015  
Responsible Individual(s): Arrington-Bey |

2: Students will utilize instruments, methods, software, and techniques that are appropriate to produce A/E documents and presentations

| 2.2 Students will deliver presentations concerning project delivery | Measure: Presentations, Final Project  
Direct - Student Artifact |
|---|---|
| Students will deliver effective presentations concerning complete project delivery. | Details/Description: CNST 480  
Target: First round of data will be the baseline.  
Implementation Plan (timeline): S2016  
Responsible Individual(s): McNabb |

| 2.4 Students will identify detail hierarchies, scale, and content. | Measure: Exam  
Direct - Exam |
|---|---|
| | Details/Description: CNST 214  
Target: First round of data will be the baseline.  
Responsible Individual(s): McNabb |
3: Students will utilize measuring methods that are appropriate for field, office, or laboratory

| 3.1 Students will effectively apply the elements and principles of design to two-dimensional design solutions. | Measure: HW  
Direct - Student Artifact |
|---|---|
| Details/Description: IAD 310  
Target: First round of data will be the baseline.  
Implementation Plan (timeline): F2015  
Responsible Individual(s): Sterling |

| 3.2 Students will effectively apply the elements and principles of design to three-dimensional design solutions. | Measure: HW  
Direct - Student Artifact |
|---|---|
| Details/Description: IAD 310  
Target: First round of data will be the baseline.  
Implementation Plan (timeline): F2015  
Responsible Individual(s): Sterling |

| 3.5 Students will analyze static forces in structures. | Measure: HW, Exam  
Direct - Student Artifact |
|---|---|
| Details/Description: CNST 318  
Target: First round of data will be the baseline.  
Implementation Plan (timeline): F2015, F2019  
Responsible Individual(s): Eckerle |

5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems

| 5.1 Students will create quantity takeoffs for residential and commercial projects. | Measure: HW  
Direct - Student Artifact |
|---|---|
| Details/Description: CNST 314  
Target: First round of data will be the baseline.  
Implementation Plan (timeline): S2016  
Responsible Individual(s): McNabb |

| 5.5 Students will explain capital equipment depreciation and how this is used by construction companies. | Measure: HW, Test  
Direct - Exam |
|---|---|
| Details/Description: CNST 111  
Target: First round of data will be the baseline.  
Implementation Plan (timeline): S2016  
Responsible Individual(s): Ellingson |
6: Students will select appropriate materials and practices for building construction

6.1 Students will demonstrate typical fabrication and installation methods

**Measure**: Final Project
**Direct**: Student Artifact

**Details/Description**: IAD 310

**Target**: First round of data will be the baseline.

**Implementation Plan (timeline)**: F2015

**Responsible Individual(s)**: Sterling

6.5 Students will compare the composition and properties of building materials.

**Measure**: HW
**Direct**: Student Artifact

**Details/Description**: CNST 306

**Target**: First round of data will be the baseline.

**Implementation Plan (timeline)**: F2015, F2019

**Responsible Individual(s)**: Ellingson

6.6 Students will understand terms, units of measurement, material grade stamps, sizes of materials, and define tolerances

**Measure**: HW, Exam
**Direct**: Exam

**Details/Description**: CNST 306

**Target**: First round of data will be the baseline.

**Implementation Plan (timeline)**: S2016

**Responsible Individual(s)**: Eckerle

6.8 Students will apply the IBC and IRC building code manuals and standards.

**Measure**: Exam, Final Project
**Direct**: Student Artifact

**Details/Description**: CNST 306, IAD 310

**Target**: First round of data will be the baseline.

**Implementation Plan (timeline)**: F2015, F2019

**Responsible Individual(s)**: Ellingson, Sterling

7: Students will apply principles of building codes, regulations, and ethics in architectural practice

7.1 Students will apply appropriate federal, state/provincial, and local codes.

**Measure**: Final project
**Direct**: Student Artifact

**Details/Description**: IAD 310

**Target**: First round of data will be the baseline.

**Implementation Plan (timeline)**: F2015

**Responsible Individual(s)**: Sterling
7.2 Students will apply appropriate standards and accessibility guidelines.

**Measure:** Final project
Direct - Student Artifact

- **Details/Description:** IAD 310
- **Target:** First round of data will be the baseline.
- **Implementation Plan (timeline):** F2015
- **Responsible Individual(s):** Sterling

---

**Assessment Findings**

**Finding per Measure**

### BS in Architectural Engineering Technology Outcome Set

#### 1: Students will employ concepts of architectural theory and design in a design environment.

##### 1.1 Students will synthesize information and generate concepts and/or responses

Students will synthesize information and generate multiple concepts and/or multiple design responses to programmatic requirements.

- **Measure:** Final Project
Direct - Student Artifact

- **Details/Description:** IAD 152
- **Target:** First round of data will be the baseline.
- **Implementation Plan (timeline):** F2015
- **Responsible Individual(s):** Arrington-Bey

- **Findings for Final Project**

  No Findings Added

---

##### 1.2 Students will demonstrate creative thinking and originality

Students will demonstrate creative thinking and originality through presentation of a variety of ideas, approaches, and concepts.

- **Measure:** Final Project
Direct - Student Artifact

- **Details/Description:** IAD 152
- **Target:** First round of data will be the baseline.
- **Implementation Plan (timeline):** F2015
- **Responsible Individual(s):** Arrington-Bey

- **Findings for Final Project**

  No Findings Added

---

#### 2: Students will utilize instruments, methods, software, and techniques that are appropriate to produce A/E documents and presentations

##### 2.2 Students will deliver presentations concerning project delivery

- **Measure:** Presentations, Final Project
Direct - Student Artifact
### Program Outcomes Assessment

**BS in Architectural Engineering Technology**

**1. Students will deliver effective presentations concerning complete project delivery.**

<table>
<thead>
<tr>
<th>Details/Description:</th>
<th>CNST 480</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target:</strong></td>
<td>First round of data will be the baseline.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong></td>
<td>S2016</td>
</tr>
<tr>
<td><strong>Responsible Individual(s):</strong></td>
<td>McNabb</td>
</tr>
</tbody>
</table>

**Findings for Presentations, Final Project**

No Findings Added

---

**2. Students will identify detail hierarchies, scale, and content.**

#### 2.4 Measure: Exam

<table>
<thead>
<tr>
<th>Details/Description:</th>
<th>CNST 214</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target:</strong></td>
<td>First round of data will be the baseline.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong></td>
<td>S2017, F2015</td>
</tr>
<tr>
<td><strong>Responsible Individual(s):</strong></td>
<td>McNabb</td>
</tr>
</tbody>
</table>

**Findings for Exam**

No Findings Added

---

**3: Students will utilize measuring methods that are appropriate for field, office, or laboratory**

#### 3.1 Measure: HW

<table>
<thead>
<tr>
<th>Details/Description:</th>
<th>IAD 310</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target:</strong></td>
<td>First round of data will be the baseline.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong></td>
<td>F2015</td>
</tr>
<tr>
<td><strong>Responsible Individual(s):</strong></td>
<td>Sterling</td>
</tr>
</tbody>
</table>

**Findings for HW**

No Findings Added

---

#### 3.2 Measure: HW

<table>
<thead>
<tr>
<th>Details/Description:</th>
<th>IAD 310</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target:</strong></td>
<td>First round of data will be the baseline.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong></td>
<td>F2015</td>
</tr>
<tr>
<td><strong>Responsible Individual(s):</strong></td>
<td>Sterling</td>
</tr>
</tbody>
</table>

**Findings for HW**

No Findings Added
### 3.5 Students will analyze static forces in structures.

**Measure:** HW, Exam  
Direct - Student Artifact

**Details/Description:** CNST 318  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2015, F2019  
**Responsible Individual(s):** Eckerle

**Findings** for HW, Exam

No Findings Added

### 5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems

#### 5.1 Students will create quantity takeoffs for residential and commercial projects.

**Measure:** HW  
Direct - Student Artifact

**Details/Description:** CNST 314  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** S2016  
**Responsible Individual(s):** McNabb

**Findings** for HW

No Findings Added

#### 5.5 Students will explain capital equipment depreciation and how this is used by construction companies.

**Measure:** HW, Test  
Direct - Exam

**Details/Description:** CNST 111  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** S2016  
**Responsible Individual(s):** Ellingson

**Findings** for HW, Test

No Findings Added

### 6: Students will select appropriate materials and practices for building construction

#### 6.1 Students will demonstrate typical fabrication and installation methods

**Measure:** Final Project  
Direct - Student Artifact

**Details/Description:** IAD 310  
**Target:** First round of data will be the baseline.
<table>
<thead>
<tr>
<th>6.5 Students will compare the composition and properties of building materials.</th>
</tr>
</thead>
</table>
| **Measure:** HW  
**Direct - Student Artifact** |
| **Details/Description:** CNST 306  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2015, F2019  
**Responsible Individual(s):** Ellingson |
| **Findings for HW** |
| No Findings Added |

<table>
<thead>
<tr>
<th>6.6 Students will understand terms, units of measurement, material grade stamps, sizes of materials, and define tolerances</th>
</tr>
</thead>
</table>
| **Measure:** HW, Exam  
**Direct - Exam** |
| **Details/Description:** CNST 306  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** S2016  
**Responsible Individual(s):** Eckerle |
| **Findings for HW, Exam** |
| No Findings Added |

<table>
<thead>
<tr>
<th>6.8 Students will apply the IBC and IRC building code manuals and standards.</th>
</tr>
</thead>
</table>
| **Measure:** Exam, Final Project  
**Direct - Student Artifact** |
| **Details/Description:** CNST 306, IAD 310  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2015, F2019  
**Responsible Individual(s):** Ellingson, Sterling |
| **Findings for Exam, Final Project** |
| No Findings Added |

7: Students will apply principles of building codes, regulations, and ethics in architectural practice
| 7.1 Students will apply appropriate federal, state/provincial, and local codes. | **Measure:** Final project  
Direct - Student Artifact |
|---|---|
| **Details/Description:** IAD 310  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2015  
**Responsible Individual(s):** Sterling |
| **Findings** for Final project |
| *No Findings Added* |

| 7.2 Students will apply appropriate standards and accessibility guidelines. | **Measure:** Final project  
Direct - Student Artifact |
|---|---|
| **Details/Description:** IAD 310  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2015  
**Responsible Individual(s):** Sterling |
| **Findings** for Final project |
| *No Findings Added* |

**Overall Recommendations**
*No text specified*

**Overall Reflection**
*No text specified*
## Assessment Plan

<table>
<thead>
<tr>
<th>Outcomes and Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BS in Architectural Engineering Technology Outcome Set</strong></td>
</tr>
</tbody>
</table>

### 2: Students will utilize instruments, methods, software, and techniques that are appropriate to produce A/E documents and presentations

1. **2.1 Students will produce competent contract documents**

   - **Measure:** Final Project
     - Direct - Student Artifact

   - **Details/Description:** IAD 310
   - **Target:** First round of data will be the baseline.
   - **Implementation Plan (timeline):** S2017
   - **Responsible Individual(s):** Sterling

2. **2.3 Students will write technical business letters and reports**

   - **Measure:** HW, Final Report
     - Direct - Student Artifact

   - **Details/Description:** CNST 351
   - **Target:** First round of data will be the baseline.
   - **Implementation Plan (timeline):** F2016
   - **Responsible Individual(s):** McNabb

3. **2.4 Students will identify detail hierarchies, scale, and content.**

   - **Measure:** Exam
     - Direct - Exam

   - **Details/Description:** CNST 214
   - **Target:** First round of data will be the baseline.
   - **Implementation Plan (timeline):** S2017, F2015
   - **Responsible Individual(s):** McNabb

### 3: Students will utilize measuring methods that are appropriate for field, office, or laboratory

1. **3.6 Students will apply soil mechanics to excavations and foundations.**

   - **Measure:** HW
     - Direct - Student Artifact

   - **Details/Description:** CNST 318
   - **Target:** First round of data will be the baseline.
   - **Implementation Plan (timeline):** F2016
### 5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems

<table>
<thead>
<tr>
<th>Measure: Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details/Description: CNST 314</td>
</tr>
<tr>
<td>Target: First round of data will be the baseline.</td>
</tr>
<tr>
<td>Implementation Plan (timeline): F2016</td>
</tr>
<tr>
<td>Responsible Individual(s): McNabb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure: HW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details/Description: CNST 330</td>
</tr>
<tr>
<td>Target: First round of data will be the baseline</td>
</tr>
<tr>
<td>Implementation Plan (timeline): F2016</td>
</tr>
<tr>
<td>Responsible Individual(s): Ellingson</td>
</tr>
</tbody>
</table>

### 6: Students will select appropriate materials and practices for building construction

<table>
<thead>
<tr>
<th>Measure: HW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details/Description: CVET 410</td>
</tr>
<tr>
<td>Target: First round of data will be the baseline.</td>
</tr>
<tr>
<td>Implementation Plan (timeline): S2017</td>
</tr>
<tr>
<td>Responsible Individual(s): Badar</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure: HW</th>
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</thead>
<tbody>
<tr>
<td>Details/Description: CNST 306</td>
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<tr>
<td>Target: First round of data will be the baseline.</td>
</tr>
<tr>
<td>Implementation Plan (timeline): S2017</td>
</tr>
<tr>
<td>Responsible Individual(s): Ellingson</td>
</tr>
</tbody>
</table>

### 7: Students will apply principles of building codes, regulations, and ethics in architectural practice

<table>
<thead>
<tr>
<th>Measure: Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details/Description: CNST 201</td>
</tr>
</tbody>
</table>
### 7.4 Students will explain why front-end loading is unethical.

<table>
<thead>
<tr>
<th>Measure: HW, Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct - Exam</td>
</tr>
</tbody>
</table>

**Details/Description:** CNST 201
**Target:** First round of data will be the baseline.
**Implementation Plan (timeline):** S2017
**Responsible Individual(s):** Ellingson

### Assessment Findings

#### Finding per Measure

**BS in Architectural Engineering Technology Outcome Set**

#### 2: Students will utilize instruments, methods, software, and techniques that are appropriate to produce A/E documents and presentations

##### 2.1 Students will produce competent contract documents

Students will produce competent contract documents including coordinated drawings, schedules, and specifications appropriate to project size and scope, and sufficiently extensive to show how design solutions and interior construction are related.

<table>
<thead>
<tr>
<th>Measure: Final Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct - Student Artifact</td>
</tr>
</tbody>
</table>

**Details/Description:** IAD 310
**Target:** First round of data will be the baseline.
**Implementation Plan (timeline):** S2017
**Responsible Individual(s):** Sterling

**Findings** for Final Project

No Findings Added

##### 2.3 Students will write technical business letters and reports

Students will write technical business letters and reports using professional English.

<table>
<thead>
<tr>
<th>Measure: HW, Final Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct - Student Artifact</td>
</tr>
</tbody>
</table>

**Details/Description:** CNST 351
**Target:** First round of data will be the baseline.
**Implementation Plan (timeline):** F2016
**Responsible Individual(s):** McNabb

**Findings** for HW, Final Report

No Findings Added
2.4 Students will identify detail hierarchies, scale, and content.

<table>
<thead>
<tr>
<th>Measure: Exam</th>
<th>Direct - Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details/Description: CNST 214</td>
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</tr>
<tr>
<td>Implementation Plan (timeline): S2017, F2015</td>
<td>Responsible Individual(s): McNabb</td>
</tr>
<tr>
<td><strong>Findings</strong> for Exam</td>
<td>No Findings Added</td>
</tr>
</tbody>
</table>

3: Students will utilize measuring methods that are appropriate for field, office, or laboratory

3.6 Students will apply soil mechanics to excavations and foundations.

<table>
<thead>
<tr>
<th>Measure: HW</th>
<th>Direct - Student Artifact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details/Description: CNST 318</td>
<td>Target: First round of data will be the baseline.</td>
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<tr>
<td>Implementation Plan (timeline): F2016</td>
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</tr>
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<td><strong>Findings</strong> for HW</td>
<td>No Findings Added</td>
</tr>
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</table>

5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems

5.2 Students will identify and apply labor and equipment productivity factors.

<table>
<thead>
<tr>
<th>Measure: Exam</th>
<th>Direct - Exam</th>
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</thead>
<tbody>
<tr>
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<tr>
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<td>Responsible Individual(s): McNabb</td>
</tr>
<tr>
<td><strong>Findings</strong> for Exam</td>
<td>No Findings Added</td>
</tr>
</tbody>
</table>

5.6 Students will estimate project cash flow and identify payment processes and the affects of time value of money.

<table>
<thead>
<tr>
<th>Measure: HW</th>
<th>Direct - Student Artifact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details/Description: CNST 330</td>
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</tr>
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<td>Implementation Plan (timeline): F2016</td>
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</table>
## Program Outcomes Assessment
### BS in Architectural Engineering Technology

<table>
<thead>
<tr>
<th>Responsible Individual(s):</th>
<th>Ellingson</th>
</tr>
</thead>
</table>

### Findings for HW

**No Findings Added**

### 6: Students will select appropriate materials and practices for building construction

#### 6.2 Students will demonstrate basic principles of civil engineering in CAD.

<table>
<thead>
<tr>
<th>Measure:</th>
<th>HW Direct - Student Artifact</th>
</tr>
</thead>
</table>

**Details/Description:** CVET 410
**Target:** First round of data will be the baseline.
**Implementation Plan (timeline):** S2017

<table>
<thead>
<tr>
<th>Responsible Individual(s):</th>
<th>Badar</th>
</tr>
</thead>
</table>

**Findings for HW**

**No Findings Added**

#### 6.7 Students will apply conformance references established by testing laboratories to building construction practices.

<table>
<thead>
<tr>
<th>Measure:</th>
<th>HW Direct - Student Artifact</th>
</tr>
</thead>
</table>

**Details/Description:** CNST 306
**Target:** First round of data will be the baseline.
**Implementation Plan (timeline):** S2017

<table>
<thead>
<tr>
<th>Responsible Individual(s):</th>
<th>Ellingson</th>
</tr>
</thead>
</table>

**Findings for HW**

**No Findings Added**

### 7: Students will apply principles of building codes, regulations, and ethics in architectural practice

#### 7.3 Students will explain why bid shopping is unethical.

<table>
<thead>
<tr>
<th>Measure:</th>
<th>Exam Direct - Exam</th>
</tr>
</thead>
</table>

**Details/Description:** CNST 201
**Target:** First round of data will be the baseline.
**Implementation Plan (timeline):** S2017

<table>
<thead>
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</tr>
</thead>
</table>

**Findings for Exam**

**No Findings Added**
### 7.4 Students will explain why front-end loading is unethical.

<table>
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</table>

**Details/Description:** CNST 201  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** S2017  
**Responsible Individual(s):** Ellingson

---

**Findings for HW, Exam**

*No Findings Added*

### Overall Recommendations

*No text specified*

### Overall Reflection

*No text specified*
## Assessment Plan

### Outcomes and Measures

**BS in Architectural Engineering Technology Outcome Set**

### 4: Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines

**Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to architectural engineering**

| 4.1 Students will analyze heat flow through wall assemblies. | **Measure:** HW, Exam  
Direct - Exam |
|---|---|
| **Details/Description:** CNST 213  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** S2018  
**Responsible Individual(s):** Ellingson |

### 5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems

| 5.3 Students will identify and estimate direct and indirect job costs. | **Measure:** Final Project  
Direct - Student Artifact |
|---|---|
| **Details/Description:** CNST 480  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2017  
**Responsible Individual(s):** McNabb |

### 6: Students will select appropriate materials and practices for building construction

| 6.3 Students will apply the NEC for proper installations of electrical systems. | **Measure:** HW, Exam  
Direct - Exam |
|---|---|
| **Details/Description:** ECT 369  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2017  
**Responsible Individual(s):** Malooley |

### Assessment Findings

**Finding per Measure**
### BS in Architectural Engineering Technology Outcome Set

**4: Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines**

Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to architectural engineering

| 4.1 Students will analyze heat flow through wall assemblies. | **Measure:** HW, Exam  
Direct - Exam |
|---|---|
| **Details/Description:** CNST 213  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** S2018  
**Responsible Individual(s):** Ellingson |

**Findings for HW, Exam**

*No Findings Added*

### 5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems

| 5.3 Students will identify and estimate direct and indirect job costs. | **Measure:** Final Project  
Direct - Student Artifact |
|---|---|
| **Details/Description:** CNST 480  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2017  
**Responsible Individual(s):** McNabb |

**Findings for Final Project**

*No Findings Added*

### 6: Students will select appropriate materials and practices for building construction

| 6.3 Students will apply the NEC for proper installations of electrical systems. | **Measure:** HW, Exam  
Direct - Exam |
|---|---|
| **Details/Description:** ECT 369  
**Target:** First round of data will be the baseline.  
**Implementation Plan (timeline):** F2017  
**Responsible Individual(s):** Malooley |

**Findings for HW, Exam**

*No Findings Added*

---

**Overall Recommendations**
Overall Reflection

No text specified
### Assessment Plan

#### Outcomes and Measures

**BS in Architectural Engineering Technology Outcome Set**

#### 3: Students will utilize measuring methods that are appropriate for field, office, or laboratory

<table>
<thead>
<tr>
<th>3.3 Students will demonstrate layout and alignment control using surveying equipment.</th>
</tr>
</thead>
</table>
| **Measure:** HW  
  Direct - Student Artifact |
| **Details/Description:** CNST 420  
  **Target:** First round of data will be the baseline.  
  **Implementation Plan (timeline):** F2018  
  **Responsible Individual(s):** Eckerle |

<table>
<thead>
<tr>
<th>3.4 Students will use surveying skills to organize and develop a site.</th>
</tr>
</thead>
</table>
| **Measure:** HW  
  Direct - Student Artifact |
| **Details/Description:** CNST 480  
  **Target:** First round of data will be the baseline.  
  **Implementation Plan (timeline):** S2015, S2019  
  **Responsible Individual(s):** McNabb |

#### 4: Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines

Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to architectural engineering

<table>
<thead>
<tr>
<th>4.2 Students will solve problems using trigonometry as it relates to surveying.</th>
</tr>
</thead>
</table>
| **Measure:** HW  
  Direct - Student Artifact |
| **Details/Description:** CNST 420  
  **Target:** First round of data will be the baseline.  
  **Implementation Plan (timeline):** F2014, F2018  
  **Responsible Individual(s):** Eckerle |

#### 5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems

<table>
<thead>
<tr>
<th>5.4 Students will use estimating software applications to prepare and submit</th>
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| **Measure:** HW  
  Direct - Student Artifact |
### 6: Students will select appropriate materials and practices for building construction

<table>
<thead>
<tr>
<th>Details/Description: CNST 450</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target:</strong> First round of data will be the baseline.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong> F2014, F2018</td>
</tr>
<tr>
<td><strong>Responsible Individual(s):</strong> McNabb</td>
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</tbody>
</table>

### 6.4 Students will demonstrate how the LEED rating system is applied to buildings.

<table>
<thead>
<tr>
<th>Measure: HW</th>
</tr>
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<tr>
<td>Direct - Student Artifact</td>
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<table>
<thead>
<tr>
<th>Details/Description: CNST 306</th>
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<tbody>
<tr>
<td><strong>Target:</strong> First round of data will be the baseline.</td>
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<tr>
<td><strong>Implementation Plan (timeline):</strong> S2015, S2019</td>
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<tr>
<td><strong>Responsible Individual(s):</strong> Ellingson</td>
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### Assessment Findings

**Finding per Measure**

### BS in Architectural Engineering Technology Outcome Set

#### 3: Students will utilize measuring methods that are appropriate for field, office, or laboratory

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**Findings for HW**

*No Findings Added*

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**Findings for HW**

*No Findings Added*
### 4: Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines

Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to architectural engineering

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<th>4.2 Students will solve problems using trigonometry as it relates to surveying.</th>
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</thead>
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Direct - Student Artifact |
| **Details/Description**: CNST 420  
**Target**: First round of data will be the baseline.  
**Implementation Plan (timeline)**: F2014, F2018  
**Responsible Individual(s)**: Eckerle |
| **Findings** for HW |
| No Findings Added |

### 5: Students will perform economic analyses and cost estimates related to design, construction, and maintenance of building systems

<table>
<thead>
<tr>
<th>5.4 Students will use estimating software applications to prepare and submit construction bids.</th>
</tr>
</thead>
</table>
| **Measure**: HW  
Direct - Student Artifact |
| **Details/Description**: CNST 450  
**Target**: First round of data will be the baseline.  
**Implementation Plan (timeline)**: F2014, F2018  
**Responsible Individual(s)**: McNabb |
| **Findings** for HW |
| No Findings Added |

### 6: Students will select appropriate materials and practices for building construction

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| **Measure**: HW  
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**Implementation Plan (timeline)**: S2015, S2019  
**Responsible Individual(s)**: Ellingson |
| **Findings** for HW |
| No Findings Added |

**Overall Recommendations**
Program Outcomes Assessment
BS in Architectural Engineering Technology

No text specified

Overall Reflection

No text specified
2019-2020 Assessment Cycle

Assessment Plan

Outcomes and Measures

BS in Architectural Engineering Technology Outcome Set

3: Students will utilize measuring methods that are appropriate for field, office, or laboratory

3.5 Students will analyze static forces in structures.

<table>
<thead>
<tr>
<th>Measure: HW, Exam</th>
<th>Details/Description: CNST 318</th>
<th>Target: First round of data will be the baseline.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct - Exam</td>
<td>Implementation Plan (timeline): F2015, F2019</td>
<td></td>
</tr>
<tr>
<td>Responsible Individual(s): Eckerle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6: Students will select appropriate materials and practices for building construction

6.5 Students will compare the composition and properties of building materials.

<table>
<thead>
<tr>
<th>Measure: HW</th>
<th>Details/Description: CNST 306</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct - Student Artifact</td>
<td>Target: First round of data will be the baseline.</td>
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<td>Implementation Plan (timeline): F2015, F2019</td>
<td></td>
</tr>
<tr>
<td>Responsible Individual(s): Ellingson</td>
<td></td>
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</table>

6.8 Students will apply the IBC and IRC building code manuals and standards.

<table>
<thead>
<tr>
<th>Measure: Exam, Final Project</th>
<th>Details/Description: CNST 306</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct - Exam</td>
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</tr>
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<td>IAD 310</td>
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<td>Responsible Individual(s): Ellingson, Sterling</td>
<td></td>
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</tbody>
</table>

Assessment Findings

Finding per Measure

BS in Architectural Engineering Technology Outcome Set

3: Students will utilize measuring methods that are appropriate for field, office, or laboratory
<table>
<thead>
<tr>
<th>Program Outcomes Assessment</th>
<th>BS in Architectural Engineering Technology</th>
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### 3.5 Students will analyze static forces in structures.

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</table>

#### Findings for HW, Exam

No Findings Added

### 6: Students will select appropriate materials and practices for building construction

#### 6.5 Students will compare the composition and properties of building materials.

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#### Findings for HW

No Findings Added

#### 6.8 Students will apply the IBC and IRC building code manuals and standards.

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<td>CNST 306 IAD 310</td>
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<tr>
<td>Responsible Individual(s):</td>
<td>Ellingson, Sterling</td>
</tr>
</tbody>
</table>

#### Findings for Exam, Final Project

No Findings Added

### Overall Recommendations

No text specified

### Overall Reflection

No text specified
Appendix

A. BS in Architectural Engineering Technology Curriculum Map
   (Curriculum Map)