Creating an Assessment Handbook to Aid Faculty Data Collection

By Laura Lucas, Lecturer Indiana University Purdue University at Indianapolis

Abstract — As part of the overall accreditation process, our school and each department has increased efforts to assess student work as part of an assessment plan of continuous improvement. Our department like many other departments needed the involvement of the faculty to do this, but most of the faculty didn't understand the overall process or their role in it. In order to increase participation by faculty and in consideration of the large number of part-time faculty teaching classes for our department, an Assessment Handbook was developed to educate and guide faculty in fulfilling their mission of assessing student learning. This 8 page handbook includes TAC-ABET Criteria, an implementation schedule, an overview of the process, Frequently Asked Questions, Course by Course Learning Objectives and Departmental Resources, but most importantly it contains the Checklist for collecting the data from each instructor. The Checklist is turned in at the end of the semester along with the course grades and serves as the collection device for assessment data that is later summarized and analyzed. Departmental goals of increased participation in the process and more thorough data collection have been better achieved after the use of this Handbook and Checklist. Data collected includes type of work item assessed, teaching method used, learning objective measured, grading/scoring data and course improvements. Once this data is collected it is summarized per course and per TAC-ABET criteria and matched up with the outcome targets to determine strengths and weaknesses in terms of teaching of and student learning of the TAC-ABET criteria. As a department we have been able to better recognize learning outcomes and courses as they relate to specific criteria and have made the necessary continual improvements to achieve the appropriate balance and yet attain full coverage of all student learning outcomes in terms of TAC-ABET accreditation.

Lesson #1; Getting teachers involved in assessment is much like getting students involved in their own learning. This handbook serves much like the course syllabus as outlined below:

Step #1: Quantify -Tell them what you expect from them.

ABET and PUL Criteria
Course by Course Learning Objectives
Implementation Schedule for the Semester

Step #2: Justify- Explain why they need to do it.

A FAQ section,
An Overview of the Process
Departmental Resources

Step #3: Simplify- Make it easy for them to comply.

Course Assessment Checklist

Lesson #2; Good assessment analysis for the department starts with good information from your faculty.

What you would see if you attended the poster session is that the Handbook is printed on letter sized paper, double sided and folded vertically to appear as a narrow pamphlet and not the typical handout. To achieve the finished product, the pages are created two columns per page and must be printed double sided and assembled by page number to read correctly. This non-typical publishing creates a unigue guide that is easily identifiable to faculty.

Create your own version of our handbook as distributed at the conference by printing out these pages using the page numbers to get the front and back sides matched up correctly. The Checklist is included as the center page because that page is copied for each course and turned in (with supporting examples as noted) with the final grades of each course.

These guides were intended for part-time faculty new to our process but also serve as reference guides to all faculty. For more information, comments or questions Contact Laura Lucas, Lecturer, Room 314G, Department of Construction Technology, School of Engineering and Technology, IUPUI- Indiana University-Purdue University at Indianapolis , Indianapolis, IN 46202 Or by Email to LaLucas@iupui.edu

DEPARTMENTAL RESOURCES

The Department of Construction Technology has a diverse group of full and associate (part-time) faculty who teach cooperatively. Sharing of assignments and ideas by faculty across sections is encouraged and supported. The following list can be used to contact full-time faculty according to teaching expertise. Each semester, faculty for specific courses can be found by contacting the Dept. Secretary.

For all email use ***name*** @iupui.edu

CNT Department Chairman
Erdogan Sener, 274-8720: *esener*

CNT Curriculum Coordinator
Gail Sheil, 278-4975: *gsheil*

CNT Department Secretaries
Diane Patton, 274-2413: *dilpatto*
Carolyn Conrad, 278-6475: *caroconr*

Architectural Technology- ART
Jan Cowen, 278-3611*: jancowa*
Laura Lucas, 274-8708: *lalucas*

Civil Engineering Technology-CET
Brian Kinsey, 274-0823: *bkinsey*

Interior Design- INTR
Liz Coles, 274-1938: *ecoles*
Emily McLaughlin, 8-8648: *emmclaug*

Construction Technology- CNT
Daphene Cyr, 274-8909: *dcyr*
Chul Kim, 274-5541: *cskim*

Assessment Committee Member
Laura Lucas, 274-8708: *lalucas*

Departmental web page is
www.engr.iupui.edu/cnt/

Oncourse & individual course pages and information can be found at
http//oncourse.iu.edu

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- Prior to start of classes**-** expectations
- Wk 1 & 2 - explaining
- Wk 3 - 14 - including in coursework
- Wk 15 & 16 - documenting activities
- Summarizing - improvements

3.Overview of the Assessment Process
- The role of the Dept., faculty and students
- Teach, Practice, Test and Improve
- Collecting Samples, Refining Measurement
- Incorporating Improvements and Feedback

5. Checklist (centerfold)
- Copy and turn in for each course taught

7.FAQ? What is Assessment ?
- What is ABET and why are we doing this?
- What are PULs and how do they affect me?
- How do the University, School, Department & Assessment Committee help me in the classroom ?
- Classroom instructors role…?
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9. LEARNING OBJECTIVES (Appendix L)
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- **CET (ABET) & ART (ABET)**-

11. DEPARTMENT RESOURCES
- Faculty names & contact numbers
- Staff names & contact numbers

Supplemental Information available from the Department:
- Departmental Annual Assessment Report
- Courses and Assessment Activities per Program
- Dept. Efforts per ABET a-k and Measurable Outcomes
- ABET/PUL cross reference Matrix

INTRODUCTION

Why are the associate faculty involved?
As an instructor for the Department of Construction Technology (CNT) your participation in assessment activities is of great value and is needed for the department to maintain its accreditation. In fact, you, the classroom instructor, are the most important part of this process to improve student learning because you have the most impact on the students as you spend time with them in the classrooms.

Assessment is a methodology and process that documents the teaching you are already doing and provides the department, the school and eventually the University with data that will lead to and quantify improvements in student learning. Associate (Part-time) instructors teach some of our most important courses, and our departmental assessment efforts would be incomplete and inconclusive without your involvement!

This guide will clearly explain what your role is in the overall Assessment Process and provide simple instructions to lead you through the activities you will be doing as you teach.

How to use this quick reference guide:
With this handbook you can acquaint yourself with the overall aspects of assessment at IUPUI or just concentrate on your specific responsibilities for your specific courses.

The **Implementation Schedule** will help you determine what to do as the semester progresses, depending upon where you are in the semester. Along with the checklist, it will allow you to find clarifications of each step of the implementation process.

The **Appendix** will provide the additional information needed to easily complete your activities. Appendix L- Learning Objectives for each course matches up the course you will teach to expectations of and indication of the data you will be collecting. Further explanation of Accreditation Criteria are listed on the inside front (Appendix A- ABET) and back (Appendix P- PULs) covers.

The **Supplemental Reports** provide in-depth information in tracking the progress of all courses and the progress of the department in terms of meeting the departmental goals for appropriate learning of all the accreditation criteria. They are available from the Department.

APPENDIX L

CET (ABET) LEARNING OBJECTIVES

CET 104	c)	Improve Process
	f)	Solve tech problems
	g)	Communicate Effectively
	k)	Qual, Timeliness, Imprmnt
CET 160	a)	Mastery of Discipline
	c)	Improve Process
	f)	Solve tech problems
	k)	Qual, Timeliness, Imprmnt
CET 231	a)	Mastery of Discipline
	c)	Improve Process
	g)	Communicate Effectively
CET 260	f)	Solve tech problems
	g)	Communicate Effectively
	k)	Qual, Timeliness, Imprmnt
CET 267	c)	Improve Process
	d)	Apply Creativity
	f)	Solve tech problems
	g)	Communicate Effectively
	k)	Qual, Timeliness, Imprmnt
CET 312	c)	Improve Process
	f)	Solve tech problems
	g)	Communicate Effectively
CET 350	f)	Solve tech problems
	k)	Qual, Timeliness, Imprmnt
CET 452	c)	Improve Process
	f)	Solve tech problems

ART (ABET) LEARNING OBJECTIVES

ART 117	f)	Solve tech problems
	g)	Communicate Effectively
ART 120	a)	Mastery of Discipline
	k)	Qual, Timeliness, Imprmnt
ART 155	d)	Apply Creativity
	l)	Responsibilities
	k)	Qual, Timeliness, Imprmnt
ART 165	a)	Mastery of Discipline
	e)	Team member
	g)	Communicate Effectively
	k)	Qual, Timeliness, Imprmnt
ART 210	g)	Communicate Effectively
	l)	Responsibilities
	j)	Be Cognizant
ART 222	a)	Mastery of Discipline
	d)	Apply Creativity
	e)	Team member
ART 284	a)	Mastery of Discipline
	b)	Apply knowledge
	f)	Solve tech problems
ART 285	a)	Mastery of Discipline

FAQ's:
WHAT IS ASSESSMENT ?

1. **What is ABET and why are we doing this**?

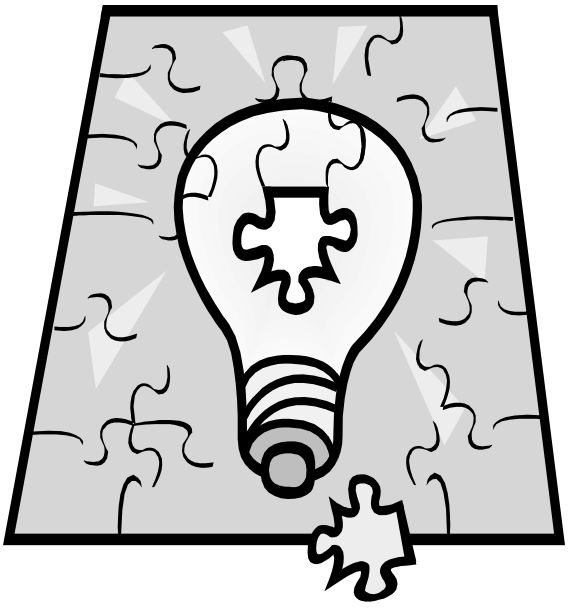
The Department of Construction Technology as part of the Purdue School of Engineering and Technology is accredited by the Accreditation Board for Engineering and Technology (ABET). They set certain standards and expectations that we must meet to get and maintain our accredited status. Accreditation is the assurance to students, parents and taxpayers that our professional school, and our degrees meet standards of quality. Thus, we as a department and as a school must do what it takes to satisfy the ABET criteria. (see Appendix A inside front cover)

2.What are PULs and how do they affect me?

The university as a whole is accredited by the North Central Association of Colleges and Schools., IUPUI has adopted performance criteria called Principles of Undergraduate Learning (PULs). By meeting ABET criteria a-k, we can meet the PULs since they are very compatible and interchangeable. See supplemental reports for complete cross listing matrix. (see Appendix P inside back cover)

Collecting Data, Samples and Refining Measurement Activities is a cooperative effort between the faculty and the department. As data is collected for each course, (and gathered to document the overall effort), the ideas from faculty for improvements in each course should result in refinement of measurement activities for all courses. As a baseline, this department measured course grades, then as a refinement measure we have begun to identify specific work for assessment activity so as to better pinpoint and target improvements to instructional objectives and scoring rubrics.

Developing and Incorporating Improvements in the classroom is the ultimate goal of collecting data from student work and the part most crucial to improving student learning. Improving student learning is a continual looping process of incorporating feedback for the faculty and the department. Perhaps another work item would better indicate the student learning for the chosen objective, or maybe this work item would better measure a different objective. The department and instructor will work together for the continual improvement of process and work products to improve student learning.



CNT (ABET) LEARNING OBJECTIVES

CNT 105	g)	Communicate Effectively
	h)	Pursue Lifelong Learning
	j)	Be Cognizant
CNT 280	a)	Mastery of Discipline
	f)	Solve tech problems
CNT 302	k)	Qual, Timeliness, Imprmnt
CNT 330	a)	Mastery of Discipline
	e)	Team member
	f)	Solve tech problems
	k)	Qual, Timeliness, Imprmnt
CNT 341	f)	Solve tech problems
	k)	Qual, Timeliness, Imprmnt
CNT 342	b)	Apply knowledge
	g)	Communicate Effectively
	k)	Qual, Timeliness, Imprmnt
CNT 347	g)	Communicate Effectively
CNT 390	g)	Communicate Effectively
CNT 447	a)	Mastery of Discipline
	e)	Team member
	h)	Pursue Lifelong Learning
	l)	Responsibilities
CNT 470	a)	Mastery of Discipline
	e)	Team member
	f)	Solve tech problems
CNT 494	a)	Mastery of Discipline
	b)	Apply knowledge
	f)	Solve tech problems
	g)	Communicate Effectively

INTR (PUL) LEARNING OBJECTIVES

INTR 103	1a,c,e	Communication
INTR 124	1a,	Communication
	2a	Critical thinking
INTR 125	1a	Communication
INTR 151	1b,e	Communication
INTR 202	1a,d,e	Communication
INTR 204	1b	Communication
	2e	Critical thinking
INTR 224	1c	Communication
	2e	Critical thinking
	4c	Intellectual depth
INTR 225	1c	Communication
	2c	Critical thinking
	4c	Intellectual depth
INTR 226	1c	Communication
	2a,c	Critical thinking
	4c	Intellectual depth
INTR 228	2a	Critical thinking
	3	integration
	4a,b,c	Intellectual depth
	5	society
INTR 252	1b,d,e	Communication
	2d	Critical thinking
INTR 253	1a,b	Communication

IMPLEMENTATION SCHEDULE

for the classroom instructor

Review and Understand Assessment Expectations

Prior to starting classes-

- Handbook distributed to PT faculty
- Determine ABET/PUL learning objectives for each class and include on syllabus
- Review and understand ABET objectives
- Determine work item/s used to measure the objective
- Review checklist (see pg 5 & 6)

Include Assessment Concepts into Coursework

Weeks 1 & 2 .

- Discuss with students the ABET objectives a-k as listed on syllabus
- Explain assessment process to students

Weeks 3-14

- Develop Instructional Objectives and scoring rubric for work item/s
- Assign and collect work items and data for each objective
- Revise and improve student learning based on data collected

Document Assessment Activities

Weeks 15 & 16

- Record data collected on checklist pg 5&6 (to be turned in with final grades)
- Save instructional materials (i.e. assignment sheets and grading criteria) that demonstrate assessment process for this work item
- Save work items that demonstrate assessment activities

Improvements to Student Learning

Entire course

- Develop improvement strategies based on assessment information

Appendix A
Learning Objectives

ABET CRITERIA

a) Demonstrate an appropriate **mastery** of the knowledge, techniques, skills and modern tools of their discipline

b) **Apply current knowledge** and adapt to emerging applications in mathematics, science, engineering and technology

c) **Conduct, analyze and interpret experiments** and apply experimental results to improve processes

d) **Apply creativity** in the design of system, components or processes appropriate to program objectives

e) Function effectively on **teams**

f) Identify, analyze and **solve technical problems**

g) **Communicate effectively**

h) Recognize the need for and possess the ability to pursue **lifelong learning**

i) Understand professional, ethical and **societal responsibilities**

j) Recognize contemporary professional**, societal and global issue**s and be aware of and respect diversity

k) Have a commitment to **quality, timeliness** and continuous **improvement**

See Supplemental Information for more details about TAC-ABET Criteria

Inside of front cover

Appendix P
Learning Objectives

PUL CRITERIA

1. **Core Communications and Quantitative Skills**. The ability of student to write, read, speak, and listen; perform quantitative analysis; and use information resources and technology.

2. **Critical Thinking**. The ability to analyze complex issues and make informed decisions from multiple perspectives.

3. **Integration and Application of Knowledge.** The ability to use information and concepts from studies in multiple disciplines in their intellectual , professional and community lives.

4. **Intellectual Depth, Breath and Adaptiveness.** The ability of students to examine and organize disciplinary ways of knowing and to apply them to specific issues and problems.

5. **Understanding Society and Culture.** The ability to recognize their own cultural traditions and to understand and appreciate the diversity of the human experience, both within the United States and internationally.

6. **Ethics and Values**. The ability of students to make judgments with respect to individual conduct, citizenship and aesthetics

See supplemental Information for more details about PUL Criteria

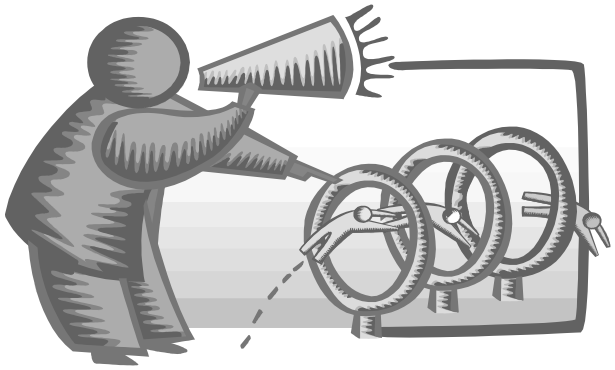
Inside of back cover

OVERVIEW : ASSESSMENT PROCESS

The role of the Department, faculty and students is to work together to understand the process of assessment and participate in the goal of documenting any improvements in student learning. The Construction Technology Department's role is to establish the methodology of assessment and to provide the necessary guidance to all faculty towards each course meeting the PUL and ABET goals for improving student learning. The faculty gather the data from scored (graded or otherwise evaluated) work from their courses and incorporate any improvements (generated from this data) into their courses. The students participate by providing the work or survey data that is assessed.

Teach, Practice, Test and Improve- This process underscores the basic assessment axiom that the instruction process is essential to improving student learning. Students learn best by completing this cycle and having the opportunity to use faculty feedback to improve their understanding of the knowledge and skills they are learning. Assessment data should come from subject matter that is adequately taught, practiced with faculty input, tested as to retention and then evaluated with feedback given so misunderstandings are not repeated.

Clear and useful instructional objectives and evaluative feedback are as important as telling the students what they are learning and why they need to learn it. Students are expected to learn from the evaluation (i.e. scoring) of their work, and be able to apply what they learned (either in this course, the next course or in work-related situations).



3.How do the University, the School and my department help me do assessment in my classroom ?

Overall goals, objectives and assessment strategies and methodologies are discussed and worked out in committees at these various levels. Clarifications of issues and strategies that are working for other schools and departments are discussed and shared. Many of the conceptual strategies and methodologies are developed at these levels so that the assessment work in the classroom can focus on student learning.

4.What is the classroom instructor's role in the assessment process?

It is the job of the classroom instructor to make sure that the ABET a-k learning objectives attributed to that course are appropriately taught and learned by the students and, if not, to refine instruction to increase student learning of those objectives. In order to document this learning the instructor collects data from scored work and saves teaching materials and student work which will be collected from all instructors at the end of the semester.

5.**Doesn't this add more work to an already busy instructor**?

You are already improving student learning with every class you teach. This assessment process will serve to document your good teaching in a way that ABET accepts. You are already providing well thought out instructions for your assignments and giving grades to evaluate student work. The only additional documentation consists of turning in scores (on the checklist pages 5& 6) from specific work items (scoring that you would have already done as part of your grading process) in addition to the final grades. Also with this emphasis on improving student learning, there will be increased discussions and thus dispersal of best practices, tips, and innovative ideas between full time and associate faculty.

CONSTRUCTION TECHNOLOGY ASSESSMENT CHECKLIST

complete this page for each course taught, turn in at end of semester

1 **INDICATE ABET (a-k) or PUL (1-6) Criteria being measured by this work item**
circle criteria (ABET for ART,CET,& CNT; PUL's for INTR) (minimum of one per class)

Mastery of discipline	a	teams	e	Societal and global issues	j	Apply knowledge	3
Apply knowledge)	b	Solve techn. problems	f	Quality & improvement	k	Intellectual Adaptive	4
Analysis and interpret	c	Communicate	g			Society and Culture	5
Apply creativity	d	Lifelong learning	h	Communication skills	1	Ethics and Values	6
		Society responsibilities	i	Critical thinking	2		

2 **INDICATE TYPE OF WORK ITEM** USED TO ASSESS STUDENT WORK
circle the work item (Minimum of one per class) used to measure the learning objective listed above

Computer assignment	**CA**	Lab Report	**LR**	Research Paper	**RP**
Final Exam(Compre)	**FX**	Oral Presentations	**OP**	Service Learning	**SL**
Group Semester Project	**GPJ**	Portfolio	**P**	Text/essay Homework	**TH**
Indiv. Semester Project	**IPJ**	Prob. Solving or Drawing Homework	**PSH**	Text/Essay Quiz	**TQ**
Internship Report	**IR**	Problem Solving or Drafting Quiz	**PSQ**	Text/Essay Exam	**TX**
Lab Group	**LG**	Problem Solving or Drafting Exam	**PSX**		

3 **INDICATE TEACHING METHOD USED for instruction of this work item** [ ]
Circle methods used or write in if not listed: Lab, Lecture, Collaborative, or

4 **SYLABUS PROVIDED** ABET and PUL learning objectives listed

5 **PROVIDE INSTRUCTIONAL OBJECTIVES** for the work item
Attach copy of teaching materials used to assign or review for this work item

6 **PROVIDE SCORING/EVALUATION CRITERIA**
Attach copy of the scoring rubric/criteria used to score the work item

7 **PROVIDE SAMPLE of STUDENT WORK ITEMS**
Attach 3 examples of scored work items (evaluation included); include poor, fair and good

8 **PROVIDE GRADING DATA FOR STUDENT WORK ITEMS & COURSE** average = [ ]
Attach print out of assmt & final course grades from oncourse, roster or
grade book, indicate your pre-grading definition of average if other than a "C+= 79 "

9 **CALCULATE GRADING DATA** as follows as (from work item only) [ ] of [ ]
(no. of students at above ave., (ie usually all
B's and A's) & the total no. of students in class) (from final grades) [ ] of [ ]
#above ave # total

10 **IMPROVEMENTS FOR NEXT TIME YOU TEACH THIS COURSE**
Generate comments/ ideas (write here or on the back) Or attach feedback surveys etc

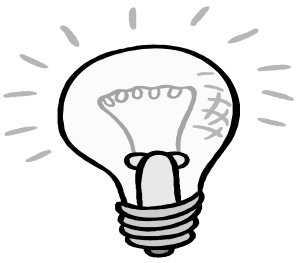
_____**semester as taught by** _____ **Course #**_____

Can you answer these questions about your courses?

1. **"What will Student Smith know and be able to do by the end of your course?**
2. **"How will Student Smith learn these things?"**
3. **"After completing your course, what evidence could you and Student Smith provide the parent or the employer to demonstrate that Student Smith knows and can do the things you told them she would learn?"**
4. **"Have you and your colleagues looked collectively at the work of Student Smith and the entire class to see what, in general, they know and can do? And if so what do your findings imply about your teaching?"**
5. **"Are there additional implications of your findings for assessment at the departmental level?"**

A Beginner's Guide for Associate Faculty in the Department of Construction Technology

ASSESSMENT



MADE SIMPLE

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