Software to Support ABET Criteria 3
Feb. 7 (Friday) 11:00-11:50am
Main 209

Attendees:

Justin Bak, Business Analyst, JBak@mtech.edu
Kaleb Bausch, Business Analyst, KBausch@mtech.edu
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Glen Shaw, Geological Engineering, GShaw@mtech.edu
Jacob Vesco, Business Analyst, JVesco1@mtech.edu

11:00 Review last meeting — Justin Bak

- Business Objectives

Business objectives:

- Produce reports that make it easy for faculty, accreditors and others to see the extent to which ABET criteria 3 is being met and facilitates continuous improvement of our programs.
- Save faculty time by allowing faculty and staff to easily and flexibly input, store, and retrieve assessment information.

It was decided to emphasize continuous improvement by moving it earlier in the first business objective. Here is the new first objective:

- Produce reports to facilitate continuous improvement of engineering programs and make it easy for faculty, accreditors and others to see the extent to which ABET criteria 3 is being met.

- Vision Statement

"For faculty in the School of Mines and Engineering who need to assess student outcomes for ABET, ACID is a software tool that captures, tracks and compiles information related to student outcomes and reports it in a meaningful format for continuous improvement of programs. Unlike the AbOut system that does this but only for the Computer Science and Software Engineering programs, our product does it for everyone."

- Name

"Assessment Continuous Improvement Database", ACID, was chosen as the name of the software tool.

- Vocabulary

It was decided to use the following ABET definitions:

Performance indicator – Concrete, measurable statement of action the student should be able to perform to demonstrate attainment of student outcomes.

Student outcomes – Describes what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge and behaviors that students acquire as they progress through the program.

In addition the following definition for "metric" was accepted.
Metric - Item used to determine the extent to which a student has met a performance indicator or student outcome.

11:10 User characteristics — Jacob Vesco

- Why it's important
- Who?

The following users were suggested:

- Department chairs or ABET coordinators (someone in the department tasked with overseeing continuous improvement and ABET accreditation)
- Faculty members who input data into the system
- Department administrative assistants who many also input data into the system
- System administrator
- API for external applications that interface with the system
- ABET accreditors (optional)

An ABET coordinator is someone in the department tasked with overseeing continuous improvement and ABET accreditation for the department.

A system administrator, who oversees the software, was suggested as a potential user.

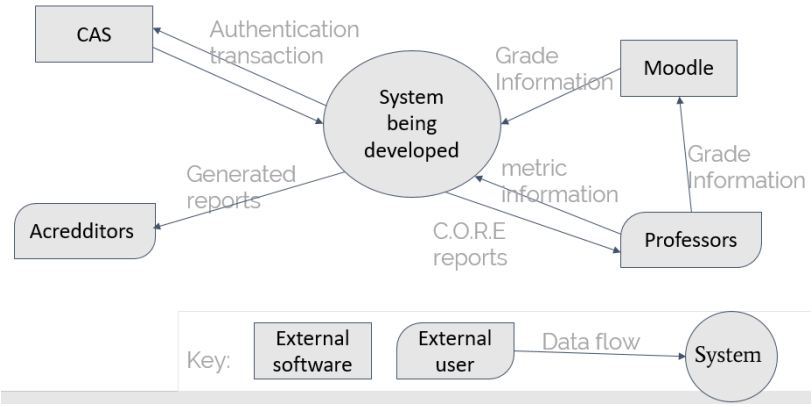
Defining an API (Application Programming Interface) so another system, such as Moodle, has access to the system was suggested.

When asked about ABET accreditors using the software some clients said "no". It was pointed out that reports need to be printed anyway. Sometimes there is not even computer access in the room containing the information for the accreditors. It was suggested that this could be an option determined department by department.

11:20 Environment Marcus Frisbee

- What will interact with the software?

The following context diagram was shown:



Changing "Professors" to "Professors and Administrators" was suggested. The users defined in "User characteristics" above could also be added.

11:30 Features Kaleb Bausch

The following features were suggested:

- Generate reports
- Personalized front-end/dashboard that lists programs and courses for a given semester
- Map old criteria to new criteria
- Change history and generate historical reports
- Audit trails
- Backup/purge old data
- Tracking improvements and remediation model
- Easy data input
- Data annotations/tool tips

Little information was given for "Generate reports" at first since that is the next topic.

A personalized front-end/dashboard was suggested to simplify the interface so the user is only shown information (programs, courses, etc.) that is relevant to them. What is relevant can be determined from the login credentials. Possibly a dashboard could list the programs a user has access to, so the user can switch from program to program.

Mapping old criteria to new criteria was suggested as ABET outcomes change. ABET provided a mapping. The mapping could be recorded in the system, and even used to allow comparisons between old and new outcome results.

Historical reports will need to be generated. Therefore, when course names, outcome descriptions, etc. have been updated, those updates must not permeate into old reports. In other words, reports must appear as they did before the items were updated.

Facilities to record audit trails were suggested. Clients want to be able to tell what was used to score an outcome (the specific exam questions, homework, etc.) and who changed what and when.

Backing up and purging system data was discussed. One client wants backup to be discussed and facilities possibly implemented. He also suggested a policy of never purging data.

Tracking improvements and a remediation model was suggested. The main purpose of this software is for continuous improvement, also called “closing the loop”. That is, using the data to recognize where program/course changes are needed, documenting what changes are put in place, and then collecting data to determine if the intervention was effective. Thus, it is important that the software allows annotations connected with a low score, where faculty can record how this was addressed, and later, see the result of that intervention.

Easy data input was emphasized and applies directly to the 2nd business objective, saving faculty time by allowing faculty and staff to easily and flexibly input, store, and retrieve assessment information, including the sample size for the score. Data annotations which tell what belongs in each field and how data calculations will be performed, and tool tips will simplify data input.

11:40 Generate report user case — Carson Fiechtner

AbOut reports were shown, prompting discussion on the different ways that departments do assessment.

It was mentioned that Dan Trudnowski, Dean of the School of Engineering, recommends collecting assessment data twice (three times would also be acceptable) during the 6 year accreditation cycle. This way the department gets an early warning if an outcome is not being met. Interventions can be developed, implemented and then a second measure can be taken to see if the intervention was successful.

Data could be collected in cycles, so each year some outcomes are being assessed, but not all. For instance, focus on 2-3 outcomes each year, so that in the course of years, all 7 outcomes are assessed twice.

Petroleum counts their sample size by metric/scores. That is, if there is a class of 10 students and a class of 15 students, where the students overlap, the count the sample size as 25.

Safety, Health & Industrial Hygiene collect data every semester and this is done by individual classes.

The clients decided on the following features relating to generating reports:

- Flexibility in the way outcomes are tracked
- Include sample size data and other statistics in the reports

Flexibility is needed to allow different department to collect data different ways and at different frequencies. At least one client suggested having a custom report builder where a user could define their own reports. These definitions could be saved, and used over and over. While the client said they would like this functionality, they said it was low priority.

11:50 Next Meeting – develop use case – Feb. 21 Justin Bak