

A Web-Based Approach to Conducting and Documenting Assessment of Programs

*Jamal F. Nayfeh, Ph.D.¹, Lisa G.M. Chuck¹, Julia Pet-Armacost¹, Ph.D.,
and Denise Young, Ph.D., ¹*

Abstract

In preparation for accreditation visits by ABET TAC/CAC/EAC teams in Fall 2002, the College of Engineering and Computer Science (CECS) at the University of Central Florida integrated the data collection process for program educational objectives and outcomes relating to the ABET *a-k* criteria for the self-studies with that of the institutional effectiveness (IE) process. By combining the data collection process for ABET and IE through web-based submissions, we were able to minimize the impact on a valuable resource—faculty time. This paper will describe the institutional effectiveness process through a web-based approach.

Introduction

Accrediting commissions, such as SACS and ABET, and state and federal funding agencies have focused on ongoing program improvement and documentation of the quality and effectiveness of programs during the past several years; accrediting bodies for the purpose of “quality enhancement” of programs offered to students (SACS, retrieved November 26, 2002), and federal and state agencies, for the purpose of cost ratio/benefit of funding dollars to program outcomes. In response to recommendations from SACS, the University of Central Florida (UCF) established an institutional effectiveness process in 1996, and subsequently implemented a web-based system of data collection, hereafter referred to as the Institutional Effectiveness (IE) website.

In preparation for accreditation visits by ABET TAC/CAC/EAC teams in Fall 2002, the College of Engineering and Computer Science (CECS) integrated the data collection process for program educational objectives and outcomes relating to the ABET *a-k* criteria for the self-studies with that of the IE process. By combining the data collection process for ABET and IE through web-based submissions, we were able to minimize the impact on a valuable resource—faculty time.

This paper will describe (a) institutional and departmental support and resources for IE; (b) the relationship of the IE Divisional Review Committee (DRC) within CECS with the University Assessment Committee (UAC); (c) the organization of the IE process within CECS; (d) the integration of ABET objectives into the IE process; and (e) the IE website as a tool for data collection for program objectives (outcomes), measures, and results. We hope to offer a model for an efficient submission and review process that may be used for (a) process or program improvement, (b) accreditation, (c) program review, and (d) strategic planning.

¹ University of Central Florida.

Support and Resources for the IE Process

To establish an effective assessment system, the institution must commit sufficient resources and support to the process. The institutional effectiveness process at the University of Central Florida has the full support and commitment of the President.

University-Level Support

In 1997, the President established the University Assessment Committee (UAC) to provide quality assurance to the institutional effectiveness process. The roles and responsibilities of the UAC are:

- Review assessment plans and results
- Provide assistance and technical expertise to colleges and administrative units
- Review requests for funds to support assessment
- Promote an assessment culture within the university
- Develop and implement policies to improve the assessment process
- Oversee the Divisional Review Committees (DRCs)

In 2000, resources in the form of funding, staffing, and facilities were dedicated to the support the UAC by establishing the Office of Operational Excellence and Assessment Support (OEAS). The roles and responsibilities of OEAS are:

- Providing support to academic programs and administrative units in the following areas:
 - o Preparation for regional and program accreditation
 - o Survey design and analysis
 - o Process analysis
 - o Environmental scanning
 - o Special studies
- Providing administrative support to the UAC by:
 - o Maintaining the Institutional Effectiveness (IE) website
 - o Coordinating meetings
 - o Preparing minutes
 - o Maintaining records
 - o Coordinating communication to the UAC members
 - o Assisting with the preparation of institutional-level assessment reports
- Providing assessment training through:
 - o Assessment clinics
 - o Consultations
 - o Specialized workshops

College-Level Support (CECS)

In accordance with the University's commitment to the process of continuous evaluation of student performance and satisfaction through the IE process, the College of Engineering and Computer Science (CECS) established two Divisional Review Committees (DRC): one for undergraduate education, and the other for graduate education. The roles and responsibilities of the DRCs are:

- Communicate assessment expectations of the university to the faculty.
- Review and approve assessment plans and results.

The Dean of CECS allocated funds to hire a full-time Assistant Director of Assessment, Accreditation, and Data Administration for continuous program assessment for institutional effectiveness, ABET, and SACS. The roles and responsibilities of the Assistant Director are:

- Develop and implement policies and procedures for continuous program assessment plans for institutional effectiveness, ABET, and SACS.
- Serve on college and university committees as appropriate; communicate information from the UAC and DRC Chair to the faculty; and provide support to the faculty in their assessment process.
- Design and implement analytical and statistical studies for the college.
- Interpret University Academic Affairs policies and directives to contribute to the development of the college's policies and procedures regarding data reporting.
- Prepare internal and external reports for the college.

Organization of the IE Process

Developing efficient lines of communication and establishing formal roles and responsibilities in any complex system are essential. An effective communication system helps to prevent the transmission of inaccurate information and the absence of transmission of information; both factors lead to less frustration on the part of faculty. The chart in Figure 1 shows the interrelationship at the university-level of the UAC, DRCs, and OEAS into a cohesive system of roles and responsibilities for an effective assessment process (OEAS, retrieved November 26, 2002).

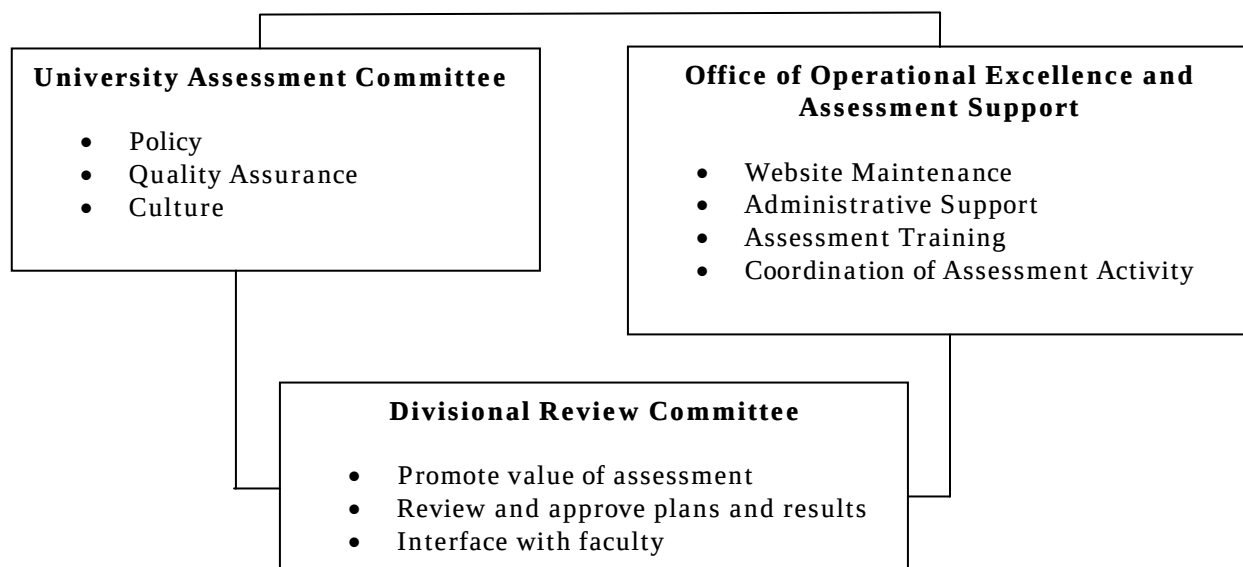
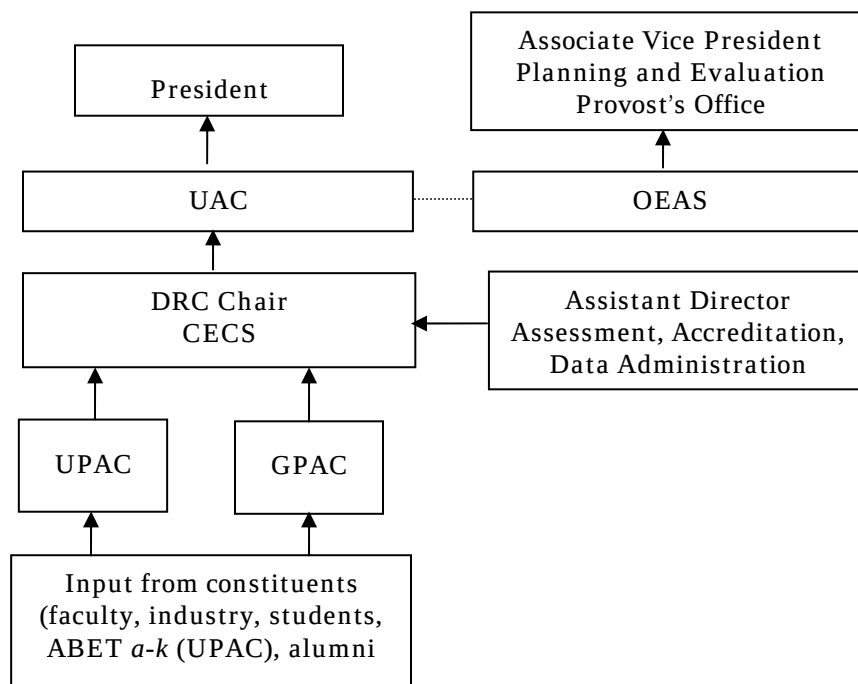


Figure 1. Interrelationship of the UAC, DRCs, and OEAS into a cohesive assessment system.

UAC members are the DRC Chairs of each college or administrative unit, and the UAC is presided over by a Chair, an appointed faculty member. Upon review by the UAC, plans and results are made available on the website for public viewing. OEAS staff provide support to the UAC through coordinating communication to the members, assessment training, technical support, and recording the minutes of the meetings. An OEAS staff member also attends a minimum of one meeting annually of each DRC during Phase I-Review of Assessment Plans and Phase II-Review of Assessment Results.

The IE organizational chart presented in Figure 2 delineates the authority and responsibility at the college-level upward of (a) the relationship of the DRC with the UAC and (b) the organization of the IE process for the College of Engineering and Computer Science (CECS).



Key Terms:

OEAS = Office of Operational Excellence and Assessment Support

UAC = University Assessment Committee

DRC = Divisional Review Committee (college-level Committee)

= UPAC -Undergraduate Performance and Assessment Committee

= GPAC- Graduate Performance and Assessment Committee

Figure 2. Organizational chart for CECS institutional effectiveness.

There are two DRC committees within CECS: the Undergraduate Performance Assessment Committee (UPAC) and the Graduate Performance Assessment Committee (GPAC). UPAC and GPAC members are the assessment program coordinators. The DRC is chaired by the Assistant Dean for Academic Affairs. Program coordinators are responsible for coordinating meetings to obtain input from program constituents. Approval of submitted assessment plans and results resides with the DRC. At the end of each IE phase, the college DRC Chair presents a status report of plans or results before the UAC. Upon review by the UAC, the plans and results are made available for public viewing on the IE website.

Integration of the ABET Objectives into the IE Process

The IE process was established at the University of Central Florida (UCF) in 1996 in response to recommendations from SACS. The assessment model is based on Jim Nichol's model (1995) requiring every program to develop a mission statement, a minimum of three desired student outcomes, methods to assess these outcomes, report on the quantitative and qualitative data collected to measure these outcomes, and document the use of the results for program improvement. UCF initially implemented a three-year quality assurance review cycle, and in 2000-2001 moved to an annual review cycle. At this time, the ABET *a-k* criteria with other desired student outcomes were incorporated into the Bachelor of Science 2001-2002 plans for programs in the College of Engineering and Computer Science.

In preparation for an ABET visit in Fall 2002, the UPAC committee members also served as the ABET committee members, thus combining the IE process and the ABET program improvement documentation process within the same meetings and cycle. UPAC members were already experienced with the assessment process and were able to easily apply the same concepts to map the program plan objectives (outcomes) to the ABET *a-k* criteria. The Industrial Engineering's IE plan objectives for 2001-2002 mapped to the ABET *a-k* criteria are presented in the chart in Figure 3. Measures were developed for the objectives, and results were reported in the ABET self-studies. The results are also available on the IE website. Figure 4 shows a partial sample of the Industrial Engineering's 2001-2002 Plan from the IE website where the outcomes in Figure 3 have been transferred to the plan as objectives.

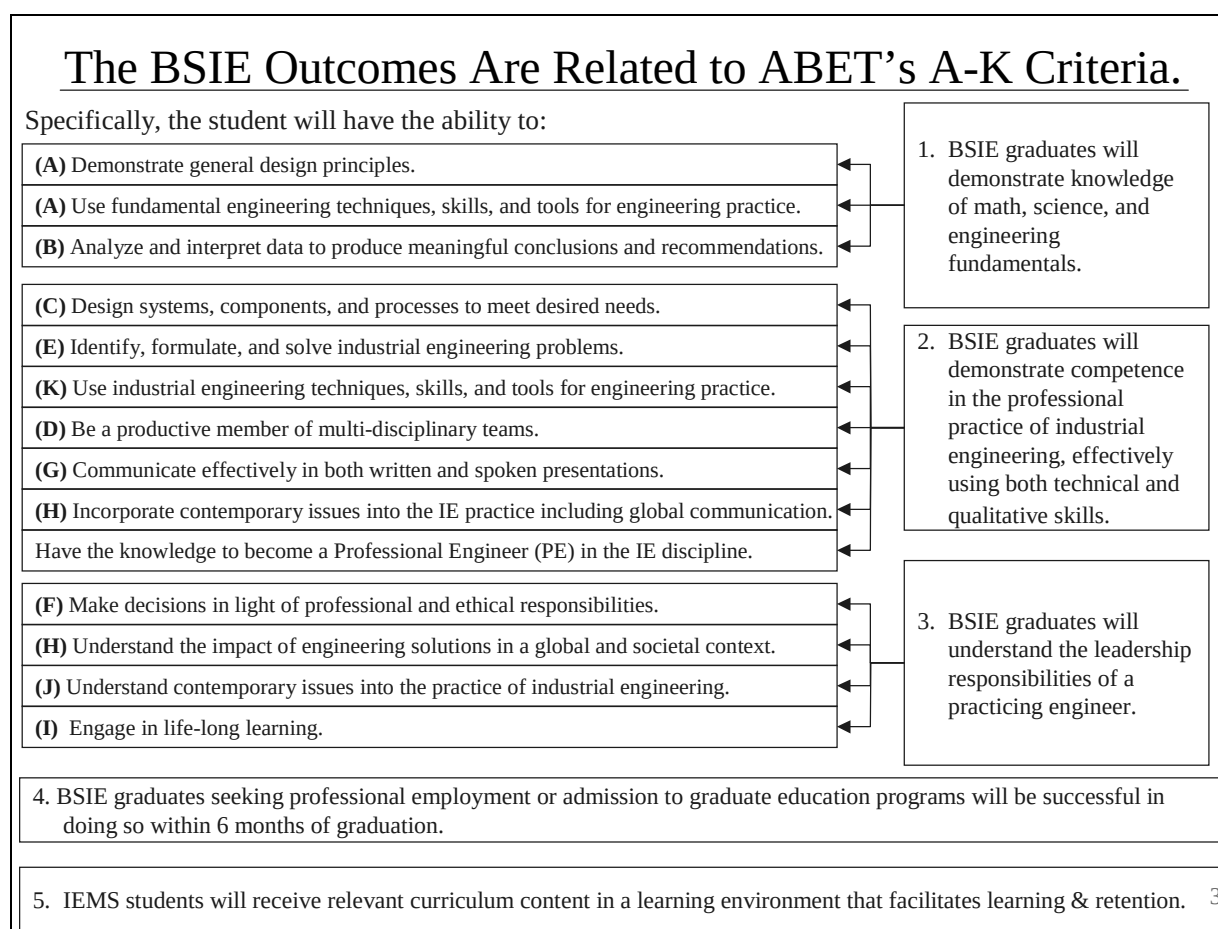


Figure 3. Relationship of Industrial Engineering Program Outcomes to ABET Criteria.

Institutional Effectiveness
2001-2002 Assessment Results

Industrial Engineering - B.S.I.E.
240501

Use this form to enter your review of the Assessment Results for 2001-2002:

Mission

To produce industrial engineering professionals and leaders who, working alongside their coworkers, can design and improve operations in industry, business, and government, making them more productive, more responsive, and producing goods and services of higher value to the customer for the global economy of the 21st century.

Objective 1

BSIE graduates will demonstrate knowledge of math, science, and engineering fundamentals. Specifically, the student will have the ability to:

- Demonstrate general design principles.
- Use fundamental engineering techniques, skills, and tools for engineering practice.
- Analyze and interpret data to produce meaningful conclusions and recommendations.

Figure 4. Example of format of IEMS Program Outcomes on the IE website.

The IE Website

Organization of the Website

There are two phases to the IE process each year: Phase I is conducted in the Spring and Phase II in the Fall. Phase I is the Spring Assessment Plans process; plans for the next academic year are submitted and reviewed by the IE committees. Upon review by the UAC, the plans are published on the website, and the data collection process begins. Phase II is the Fall Assessment Results Process; results, planned use of results, and implemented changes based on results for the plans of the previous year are submitted and reviewed. Upon review by the UAC, the plans with results are published on the website and provide a permanent, easily accessible archive of program and unit plans and results.

The organizational chart of CECS IE process (Figure 2 in the Organization of the IE Process section) aligns with the organization of the IE website. IE Program Coordinators are assigned two unique passwords: (a) a password to submit their program plan(s) and results via the website, and (b) a DRC reviewer password. Figure 5 shows the overall organization of the IE databases for Phase I and Phase II (OEAS, retrieved November 26, 2002).



Figure 5. Organization of the IE database.

Web-Based Submission Process

Submission of plans and results via the website follow the same organizational procedure of the IE process. Plans and results are accessible by password only until reviewed by the UAC. At each step of the review process by the DRC committee, the DRC Chair, and ultimately, the UAC, checklists appear with the plan/results on the website to guide the reviewer. At each step in the review process, the website allows the data to be saved multiple times allowing for continuous revision of the plans, results, and review through the process.

- First, individual program coordinators enter the text/data for their program(s) into a plan template on the website using their assigned password. The final version of the plan or results is then submitted to the DRC Committee for review.
- DRC committees have two options to conducting the review of plans and results via the website. The first option allows for individual review from any location of all plans to which reviewer has privileges. The second option allows for a group review using the DRC Chair's reviewer password which permits access to all plans. CECS finds the second option more efficient. The final plans/results with the consensus reviews of the DRC are then submitted to the DRC Chair for a final review.
- The DRC Chair reviews the plans/results, adds comments, and makes the review available to the DRC to allow for immediate feedback for revision purposes. Once the DRC and Chair are satisfied with the review, the plans/results/reviews are submitted to the UAC.
- The UAC convenes to review the plans (conducted during Phase I) and results (conducted during Phase II) of all programs and units. The DRC Chair reports the status of the plans and results: submission rate, accepted by DRC or accepted with recommendations. The review comments also appear with the plans. OEAS communicates the final review status and feedback to the programs and units via the IE website, and a formal letter is sent to Vice Presidents and Deans, announcing the official completion of the UAC review. The plans and results are subsequently made available for public viewing on the website minus the review comments.

Advantages of Web-based Submission

The advantages of a web-based assessment process are:

- Easy access to assessment plans.
- Flexibility to edit an existing plan instead of creating a new plan every cycle.
- Ability to submit data multiple times.
- Capability to monitor submission rate.
- Accurate and timely data.
- Efficient and flexible review process.
- Effective presentation process.
- Efficient archival system.
- Effective communication tool.

Conclusion

The IE website provides an efficient review process and a central repository to track the trend for university-wide improvements based on assessment efforts. A secondary purpose for the website is to provide support for accreditation, program review, and strategic planning. Documentation of the history of assessment efforts is available for accreditation program evaluators to review. Instantaneous access to accurate and timely data allows for program review at any time individually or in teams. Strategic plans can be submitted as plans and results tracked. The college's strategic plan and results was submitted for the 2001-2002 cycle along with the program plans and results. This process allows for longitudinal tracking of data for the strategic plan. The 2001-2002 program assessment cycle for our college identified areas needing improvement, which lead to curricula changes. These curricula changes were reported in the ABET self-studies for the Fall 2002 visits. The benefits of the on-going IE process will be realized in the next few years when the institution is due for a SACS review. Most importantly, moving from a manual, paper process to a web-based submission process has greatly reduced the time faculty need to dedicate to the assessment process.

References

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