

Lessons Learned During the ABET Readiness Review Process by the Engineering Faculty at Universidad De San Buenaventura in Cali-Colombia

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Abstract

Engineering programs seeking an initial accreditation in an institution with no currently ABET accredited programs must undergo a readiness review process. A key distinctive factor of the ABET accreditation approach is its focus on what is learned rather than what is taught. It is fundamental for achieving a continuous program improvement, but it also may turn an accreditation project into a cumbersome effort for programs with a small number of faculty members. Moreover, although the ABET accreditation process follows the same criteria and procedures regardless of the location of the program, it imposes some additional challenges when is conducted outside of the United States, due mainly to cultural and language barriers. This paper presents and discusses the learned lessons during the initial phase of the ABET accreditation project conducted by the five programs of the Engineering Faculty at the Universidad de San Buenaventura – Cali, in Colombia.

Keywords

ABET, accreditation, readiness review.

Introduction

Readiness Review is a qualification process aiming to ensure that a program is really prepared for the accreditation review process before investing in logistics, and resources for the on-site-visit¹. It takes as inputs, from the ABET perspective, a Preliminary Self-Study Report (SSR) covering required sections as complete as possible, along with one graduate's official transcript from the most recent graduating class per program. It produces as output an official non-binding recommendation regarding the Request for Evaluation (RFE) that falls into the following alternatives: i) a recommendation to submit the RFE in the upcoming accreditation cycle review; ii) a recommendation to postpone the RFE unless substantive changes in the SSR are made; or iii) a recommendation not to submit the RFE in the immediate upcoming accreditation review cycle due to a likely rejection. However, above-mentioned inputs are, from the program perspective, outputs of multiple processes that requires harmonization, orchestration and management. In fact, reaching that initial point of the accreditation cycle has already implied that the program did a considerable investment in logistics and resources. Thus, although the program is free to follow or not the recommendations; certainly a recommendation different than submit may not only be discouraging to the program's faculty, but it also might end the program's required processes to accomplish the ABET accreditation.

A plethora of interesting and useful works regarding the ABET accreditation process can be found in the ASEE and the IEEE literature: lessons learned after ending an accreditation cycle^{2,3}, specific aspects required for demonstrating that a program is systematically closing the loop^{4,5}, challenges for properly assessing student outcomes^{6,7}, educational practices and strategies for devising teaching scenarios and conducting learning experiences in engineering education^{8,9}, among others. Moreover, it was possible to find by an advanced document search in Scopus¹⁰ more than three thousand papers discussing about ABET, as well as more than a hundred discussing about ABET and learned lessons. Nevertheless, a search oriented to ABET and readiness review produced zero results.

The main contribution of this paper is to address issues learned from the program perspective on preparing a Preliminary SSR. Moreover, it has the perspective of a program located outside the United States and with a small number of faculty members, which turns it useful for engineering programs in similar conditions. In the remains of the paper, we will briefly describe our Engineering Faculty, present our own experience in this process, and share a set of suggestions that may be useful for other programs. Presented suggestions aim to achieve a balance between general concerns and specific activities.

Engineering at Universidad de San Buenaventura - Cali

In Latin America, an Engineering School is termed as an Engineering Faculty. The Engineering Faculty at Universidad de San Buenaventura – Cali¹¹ in Colombia offers undergraduate and graduate programs. At undergraduate level, there are five programs. A literal translation of their names is as follows: Systems Engineering, Electronic Engineering, Agro-industrial Engineering, Industrial Engineering, and Multimedia Engineering. Currently, there are thirty-three fulltime faculty who belong to these programs, where five is the lowest number per program, six is the mode, and nine is the highest. Our Engineering Faculty started its international accreditation process since 2014. The preliminary SSRs of these five programs were sent on November 1st, 2016, according to the Engineering Accreditation Commission (EAC) Criteria.

Our Experience on Starting the Accreditation Process

During the second semester of 2014, the Dean of Engineering explored different alternatives for accrediting our programs. Among them, ABET was clearly identified as the most convenient. Several factors were considered in this decision making. The global scope of ABET, its tradition, rigorousness and confidentiality on the process, and the holistic approach of its model were key differentiator factors. With that decision made, a negotiation process for conducting a consulting with the Engineering Faculty at Universidad del Norte was started. The Universidad del Norte was the first university with ABET accredited programs in Colombia. Currently, it holds six accredited engineering programs¹. The consulting process took place during 2015, by periodic meetings. Some of those meetings were virtual, whilst face-to-face meetings were initially dedicated to discuss about the eligibility of programs for accreditation review, how to address some criteria, and finally to provide a basic level of assessment training to our faculty members. A team of faculty members was composed during the second semester of 2015. It was termed the assessment leaders team. It involved at least one faculty member from each program, and one academic coordinator. The academic coordinator attended the training offered by the Institute for the Development of Excellence in Assessment Leadership –IDEAL –, at ABET headquarters in

Baltimore, MD, and received training was shared with the assessment team. This team was responsible for discussing the student's outcomes accordingly to the institutional mission and the Program Educational Objectives, devising the assessment rubrics, planning the assessment in conjunction with respective program directors, as well as for providing guidelines to faculty. They were also responsible for leading the redaction of the chapter devoted to criterion 4 – Continuous Improvement –, in the Preliminary SSR. In fact, a planning for redacting and reviewing all the criteria was elaborated and followed. It was executed by the Dean, program directors, and the assessment leaders team. Among the different criteria, the most challenging was the chapter related to criterion 4. To this end, an active participation of faculty was necessary, periodic meetings of program committees, data gathering and analysis, and brainstorming sessions oriented to develop a continuous quality improvement plan. The continuous quality improvement plan was based on data gathered during the assessment process, and analyzed through the evaluation process. Available information regarding the national accreditation processes was also included and discussed.

The original content of each Preliminary SSR was considered, reviewed, and modified by different teams. At first, it was written mainly in Spanish, translated to English by a faculty member belonging to the Language Center of the university, and then reviewed again after the translation process. That final review looked mainly for clarity and coherence through the whole document. For the sake of clarity, courses' names were presented in an international way. In the proper time, several students' academic history was analyzed in order to choose one per each program for transcript translation. The criterion to choose these students was the simplicity required to understand their respective transcripts. Both Spanish and English versions of the selected transcripts were signed by a university authority. ABET was notified of our intention to seek Readiness Review, more than 30 days before the final submission by its website, and finally the data of each program was sent by email before to the hard deadline.

General Suggestions and Specific Recommendations

In the following section we will share some suggestions and recommendations identified as useful to properly tackle the starting phases of an ABET accreditation process. It reflects the two faces of the same coin, by highlighting those aspects we consider we did well, and identifying those that we should have approached in a different way. Each general suggestion ends with a specific recommendation.

The To-Do List

Apply a program management approach: According to the Project Management Institute¹², program management should be applied coordinately to a group of related projects in order to obtain from them benefits and control not available from managing them individually. That is the case for a continuous improvement effort, where outputs of a process will be inputs for other processes, requiring orchestrated and continuous control. Consequently, such set of projects requires a project manager and a clearly identified list of stakeholders. Elaborate a project charter, and keep it updated as the project phases are moving forward.

Form teams: There is no way that a single person (or even a single group of few people) may be responsible for all the effort required to put in place within a program a sustainable system,

capable of systematically seek for continuous improvement. These teams will require interaction among them, and enough time to do their own work. Having teams, not only within each program, but also among different programs is definitively a good practice. In order to properly conforming those teams, the project sponsor should negotiate with the stakeholders how to achieve a balance between required time for project involvement and required time for their own professional goals.

Qualify the faculty: Faculty must be involved. They require training, not only on ABET criteria, but also in how to try to apply these criteria looking for program improvement. Moreover, they require training in how to harmonize the things that they are already doing, with those required by a continuous improvement model and system. Otherwise they may find such processes as work overload, and may not be willing to participate, or even worse, to participate not in a proper way, without you having a way to notice it. As a long-term goal, it will be very convenient to support the formative process of some faculty members as ABET Program Evaluators.

Gather evidence in a timely manner: As faculty members move forward in understanding ABET criteria, each one of them will realize that he or she are already doing many things related to it. However, since they are aware of what they are doing, and know why they are doing it, most of the time there is not an explicit evidence gathering process involved. The Self-Study Report is a scenario for faculty to demonstrate that they know their job, they are doing it well, and they can prove it. Consequently, evidence from the different processes must be timely gathered. Otherwise, doing it later may be more difficult or even impossible. This goal should be a prioritized concern during the assessment processes. Samples of different levels of students' performance should be gathered and kept, preferably in a digital way. In fact, a sustainable assessment policy will require a system (not entirely or exclusively a software system). Consequently, the sooner the better, you should start planning and devising how such system may take place in your program.

Kept it simple: Although the detailed information of ABET criteria, as well as the Accreditation Policy and Procedure Manual may be overwhelming at first glance, there is no need to answer to that by a complex system in place, or by a highly expensive approach. Each program will discover its own sustainable path to the continuous improvement. It will require time, but definitively it is an achievable challenge. Once in place, such system should always be running with a balanced workload (without depending on peak workloads near to the beginning or the ending of accreditation cycles).

Embrace the uniqueness of your program: Student outcomes are, conceptually, general statements. Thus, each program needs to interpret them in the best interest of their constituencies. A best practice to do it is by devising rubrics¹³. Rubrics can explain in a very concise way performance indicators, and allow making explicit expectations and providing feedback to students during teaching and learning experiences. Encourage faculty to incorporate the use of rubrics within the course, and not exclusively for ABET assessment.

Be aware of the language and cultural barriers: Some words such as assessment, evaluation and faculty, which have a very specific meaning in ABET criteria, can be wrongly translated to Spanish. Moreover, some program names that make sense in a local context may not clearly describe the program's content, nor its focus. This is the case, for instance, with programs named

Systems Engineering in Colombia. To pay special attention to the Program Criteria is highly suggested. Regarding the translation process, if it is the case, it would be very convenient to have multiple translators working in a parallel way.

Read several Self-Study Report documents: Though there is a template for presenting the Self-Study Report, you will find that each program tackles this exercise in a different way. There are several of these documents available on the web. Thus, before you start writing your own document you may download multiple self-study reports and try to identify, among these, approaches that you may consider useful for describing your own program. That search might be not limited to similarly named programs, but should be under the same accreditation commission. Paying special attention to literal G on the Background Information section, which describes previous deficiencies, weaknesses and concerns, will be useful in order to avoid the same mistakes.

The Not-To-Do List

Do not miss the deadlines: Although it may seem pretty obvious, the message to get is that the deadlines are hard. Sometimes in academia we are used to deal with soft deadlines, but this will not be the case. Take into account that executing ABET processes will not be the only responsibility to fulfill, but certainly it requires prioritization. Plan a proper schedule, with slack time, in order to deal with any inconvenience that may arise.

Do not introduce additional student outcomes: A program is free to have any additional outcome that it may consider as relevant. However, we consider that the scope covered by the (a) through (k) outcomes is wide enough to provide a proper technical and professional formation to engineering students, facing the challenges imposed by a globalized world. Perhaps what it would be required is a specific and deeper interpretation of some of them, accordingly to the respective Program Educational Objectives.

Do not use the term soft outcomes: Outcomes can be classified as technical or professional. Sometimes professional outcomes are termed as soft outcomes. On the one hand, this association may be harmful since all outcomes should have the same importance or relevance, and the term soft outcomes may send the wrong message. On the other hand, is not convenient to estimate the attainment of professional and technical outcomes using the same approaches.

Do not hide skeletons in the closet: Embrace the ABET guidelines as well as the accreditation process as a real improvement opportunity. Nobody know better a program than its faculty. If something is not working properly they should know it. Bring it to the light and try to fix it is definitively a better choice than try to deviate the attention from it. Never forget that continuous quality improvement is a process to go through, not a process to show.

Do not plan to start a big data project based on assessment: Assessment is an intentional process, and, more data will not lead to better decision taking¹⁴. In fact, if more and more data is gathered during the assessment process, it will introduce additional complexity to the evaluation process, or it may even ruin the effectiveness of the assessment process. Consequently, decide about data use and purpose, previously to its gathering.

Ending Remarks

Due to the policy associated to the Readiness Review, and the long tradition of ABET inside the United States, it may be difficult to find documented experiences for going through this process from programs located in this country. Consequently, it is more probable that the Readiness Review be a concern for several engineering programs around the world. From the perspective of our Engineering Faculty, we describe the Readiness Review process as an exercise aimed to rise the program self-awareness of the effort involved in seeking an ABET accreditation, as well as a warming-up for it. In this paper, we have presented a set of general suggestions and specific recommendations to this end, that may be very useful to engineering programs already planning or exploring the possibilities for an ABET accreditation. We consider that our learned lessons may have a wide audience. For instance, there are in Colombia approximately 132 engineering faculties, and among them, as far as we know, only eight have at least one engineering program which have already passed through a Readiness Review process. From this eight engineering faculties, there are currently twenty¹ ABET accredited programs. Finally, we would like to highlight that each engineering program is unique, and consequently the goal for a program should not be to exactly follow another program's steps, but to take into account multiple and different experiences in order to try to find its own most convenient path. Otherwise, expectations could be unfulfilled or implemented activities may not be sustainable over time.

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