

Setting Up and Maintaining A Strong Industrial Advisory

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Abstract: We focus on the development and maintenance of a strong industrial advisory board at a small- to medium-size university in the context of accreditation. From creating the advisory board, to faculty involvement, to maximizing the use of the advisory board in the assessment process, to keeping the advisory board fresh, many challenges that a school faces with its advisory board are discussed. Thoughts on how to select advisory board members and maintain a critical mass at meetings are discussed. Typical pitfalls are covered, as are some experiences from the successful development of an advisory board. Examples of how advisory boards can be used in the assessment process are presented.

1. Introduction

This paper discusses *industrial advisory boards (IABs)*, *advisory boards* or *boards* for short, in the context of accreditation. Advisory boards are also referred to as external advisory boards, industrial advisory councils, professional advisory boards, affiliates boards, community advisory boards, and the like. Deans often drive the creation of advisory boards. Although our focus is on the role that advisory boards play in the accreditation process, sometimes the primary purpose of an advisory board may be for fund raising, for gaining political influence, for developing a student internship program, or for placing graduates of the program. We are concerned with advisory boards at the departmental level rather than at the college or university level. Our paper is slanted toward the computing disciplines, but the general ideas carry over to other fields as well. This work is presented with the Accreditation Board for Engineering and Technology's (ABET) accreditation process and requirements in mind.

An advisory board can provide useful feedback to a program, particularly relating to *program educational objectives (PEOs)*, and that domain, rather than say, curriculum development, is the realm of this paper. As we will see in section 4, PEOs are long-term career and professional accomplishments of graduates, so advisory board members are in a good position to provide information about PEOs. Of course, many programs are new to the accreditation process, and, in particular, assessment, so it is a good idea for at least one or two leaders in the department to

become well-versed in these areas. The assessment goals that the department sets for its advisory board should be explained (at least at some level) to the members of the advisory board, and this explanation will likely involve an overview of the overall ABET accreditation process, including the purpose of such accreditation, a general time line about accreditation, and a more-specific time line relating to the overall assessment process.

A great deal of effort is required to setup and to utilize an advisory board effectively in the accreditation process, and the remainder of this paper is organized as follows in order to assist one with having success at this endeavor: section 2 describes an initial planning phase; section 3 talks about the memberships issues of an advisory board; section 4 presents thoughts on how to utilize the advisory board in assessing program educational objectives; section 5 delves into common problems and key challenges; section 6 describes the various perspectives and roles that people at the university hold and play, respectively; section 7 provides concluding remarks.

2. Preparation

No one should form an advisory board simply because it is a “good idea” or because “we need one.” There is much preparation and planning that needs to be done prior to sending out invitations to prospective board members; there is much effort that is needed to keep an advisory board going and successful. In most cases the department should form an internal advisory board committee to lead the efforts concerning the external advisory board. That committee should be chaired by someone who understands the assessment process, and in the context of this paper that means, among other things, ABET’s terminology relating to assessment, for example, the meaning of “program educational objectives,” and ABET’s expectations regarding assessment of these PEOs. It is helpful if someone in the department is a program evaluator for ABET or has gone through the program evaluator training.

In larger schools an advisory board can sometimes be successfully chaired by a board member. Locations of meetings can be rotated from one company location to another with each company hosting an event. Sometimes at larger schools advisory board members may not be locals, and could fly in for a meeting or join a meeting by teleconference. There are many different options depending on the circumstances.

Once the advisory board committee is formed it should meet on a regular basis and document its work. This committee must decide the function of the advisory board with input from others at the university. Much of the remainder of this paper will be devoted to describing issues that this committee will face and to suggesting ways that the committee can accomplish its goals. In fact, one of the next steps is for the committee to write down its goals. Some questions to consider are as follows:

- What type of feedback is the committee expecting the advisory board to provide?
- How can such feedback be obtained?
- How can this information be documented and used in the assessment of

PEOs?

- What level of commitment is needed by a member of the advisory board to provide the desired level of feedback?
- What sort of time commitment is needed by members of the departmental advisory committee to carry out its goals? In view of these time commitments are such goals realistic?
- How can the departmental advisory committee obtain buy in from other members of the department? And, how can the committee distribute its workload, and pass responsibilities on to other members of the department after a 2–3 year period?

The internal advisory committee will need to meet on a regular basis and document its work. To address the questions just listed, to educate new faculty members, and to maintain a strong advisory board, the committee may need to meet two or three times per semester. These meetings are in addition to meeting with the external advisory board.

3. Membership

3.1. *Introduction*

In non-urban settings the development of an advisory board faces its own set of challenges. One key issue is the appropriate size of the advisory board. There is the desired size and then the practical size. According to Olson, one rule of thumb is to have between twenty-five and thirty members with the expectation that about half of the members will show up to any particular event or meeting⁵. In a large city fielding thirty people may be simple, however, in a rural setting achieving this number could be impossible, especially on an ongoing basis. Meetings where there are more institutional representatives than local community members can be awkward.

Important questions to consider in forming the advisory board are as follows:

- (1) Who should be chosen to serve and what credentials should be possessed?
- (2) Where do you meet such people?
- (3) How should they be approached and asked to serve, and for what length term?

The answer to the first question is people who are: reliable (with some knowledge about the program), interested in the program, willing to serve and have the necessary time, (usually) graduates in the same or a related field, and capable of making a contribution to your assessment process. Candidates are alumni, business people, retirees in the local community, colleagues at neighboring institutions, and so on.

In regard to the second question, deans and department heads can often provide introductions to local-industry personnel. Former students working nearby are a good source and are likely willing to serve their alma mater. Technical talks in the

community, fund-raising events, and technocrat meetings are places where good candidates might surface. Adjunct professors often have good contacts. If you already have an IAB, current members can usually provide recommendations for additional members. Sifting through a list of Web sites for local technical companies may also turn up a few names.

It is typically considered an honor to be asked to serve on an IAB. When asking someone to serve, it is often best to have an informal conversation at one of the types of events just noted, and then follow up with a formal letter of invitation. Such a letter should clearly spell-out the responsibilities of an individual, including time commitments and frequency of meetings, the duration of the term, and how grateful you would be if the person were willing to serve and share opinions and expertise. The letter could also include: the names of current members, a hyperlink to the program's advisory board Web site, and recent departmental news. A sample letter is shown in Figure 1. Although it is not always possible, forming an advisory board whose composition percentage-wise approximates the department's student profile may make sense. For more thoughts on membership selection and credentials, see ^{3,4}.

3.2. *Rotation*

Careful planning should go into the selection of advisory board members to maintain diversity, balance, and continuity. With a three-year rotation and thirty members on the advisory board, it might be good to have a distribution of five first-years, ten second-years, and fifteen third-years. If ten of the third-years are willing to serve again as are most of the first- and second-years, only about five new members will be needed each year. (Of course, with such a scheme people end up serving multiple terms, and since they cannot serve forever, periodically a larger first-year class would need to be recruited.) If finding five new members per year is too difficult, more people can be invited to serve another term. Cutlip recommends one-third turnover per year ². Each situation is unique and will require a different set of values for parameters such as number of members, term limits, meeting frequency, and so forth.

3.3. *Agenda*

Meeting times should be announced well in advance. Perhaps two or three months early, as typical IAB members' schedules fill up quickly. An agenda and a reminder about the meeting should be sent out as much as one month in advance, particularly if there is any reading material or forms for the IAB member to fill out. Such reminders can be sent by email, but hard copies may work better. Follow-up phone calls can help to increase attendance at the meeting, and help to let board members know that the program is serious about its IAB. Such private conversations also provide a chance to solicit additional input about the program. Just prior to the meeting, a gentle email reminder may be sent, again reconfirming a person's

Dr. Bladderdash Blah
ABC University
123 North Direction Street
Anywhere, US 45678

Month, date, year

Dear Dr. Blah:

The Department of Computer Science at ABC University would like to invite you to serve on its Industrial Advisory Board for a three-year term beginning in August 2011. We would be honored if you would be willing to accept this invitation.

The Industrial Advisory Board advises the program about such items as industrial trends and provides feedback about our graduates. This information is very important to us for our ongoing assessment efforts, and for our accreditation with the Accreditation Board for Engineering Technology (ABET). We will discuss curriculum issues, internship programs, fund raising, recent technology directions, our program's goals, as well as other pertinent issues.

The Board will convene two times per year. Normally, our meetings (one-to-two hours long) are scheduled in mid-October and early April. Meeting dates are announced at least two months in advance, and agendas sent out at least four weeks in advance. We have an annual survey to collect information about the program. There is also a chance for you to interact with our students. The department will distribute a resume book of all participating graduating seniors at our April meeting. Several students will be present at that meeting.

Our Web site www.cs.blah.edu/iab.html provides a list of our current Industrial Advisory Board activities, and includes a list of our current members. The URL www.csblah.edu contains links to more information about our program, as well as recent news items.

If you are willing to serve, please return the enclosed questionnaire and contact information in the envelope provided. We look forward to having the opportunity to work with you and to benefit from your experience and expertise. If you have any questions, please do not hesitate to contact me:
raygreenlaw@aasu.schoolofcomputing.edu or 912.961.3076.

Thank you for your consideration.

Sincerely,
Raymond Greenlaw

Fig. 1. A sample letter to invite someone to join an industrial advisory board.

commitment to attend. The email may also request that any needed preparations be completed prior to the meeting, for example, surveys returned.

3.4. Meeting Frequency

It is important to establish a regular annual schedule for meetings. Perhaps meeting once per semester is best. Certainly, meetings should not only be held in the year prior to a site visit by ABET. If board members serve a three-year term and are able to make one half of the meetings, then the program would see each member about once per year. This frequency would provide continuity to the board. On the other hand, meeting just once per year would mean seeing some members just once every two years. Table 3.4 shows a sample planning schedule for the fall, and a similar schedule can be developed for the spring. The discussions at the meetings should be documented, and the salient points should be presented to the department as a whole. The information gathered should be analyzed and evaluated. Actions resulting from the evaluation should be documented and assessed.

3.5. Turnout

Attendance of board members should be maintained. Follow-up thank-you letters should be sent to members who were present; a sheet summarizing the items accomplished at the meeting should also be included, as should a reminder about the date of the next meeting. A letter should be sent to the board members who were absent. The letter should provide a synopsis of the meeting, plus a note indicating that the member's presence was missed, for example,

The group missed you at the fall meeting. Everyone is looking forward to seeing you at the spring meeting. Please reserve March 18 at 4 PM. We will have a number of important issues to discuss, and your input would be very valuable to us. An agenda will be sent in early February.

3.6. Follow Through

Periodic correspondence should be sent to board members to keep communication lines open. Departmental newsletters, talk announcements, announcements of homecoming, and so on are a few ways to keep the program on an advisory board member's radar screen.

4. Program Educational Objectives

4.1. Introduction

ABET's Accreditation Policy and Procedure Manual ¹ defines *program education objectives* as follows: "Broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve." For completeness we also include ABET definition of *program outcomes*: "Narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire in the matriculation through the program." The program must define PEOs that

Date	Event	Parties Involved	Person(s) Responsible
August 10	Form Internal Advisory Committee (IAC)	Departmental Faculty	Department Head
August 10	Meeting of IAC: Elect Chair Annual planning Unfinished business Document meeting Draft August 15 meeting announcement Update IAB list	IAC	Chair of IAC
August 15	Announce fall IAB meeting date	IAB members Departmental faculty Administrative assistants Dean	Chair of IAC
August 18	Update IAB Website	IAC	Chair IAC, technical support staff
August 20	Distribute April 10 meeting minutes	Departmental faculty	IAC, administrative assistant
September 1	Solicit agenda items	IAB members (maybe) Departmental faculty	Chair IAC
September 10	Meeting of IAC	IAC	Chair IAC
September 15	Distribute October 15 meeting agenda	IAC, administrative assistant	Chair IAC
October 1–14	IAB meeting preparation	IAC, administrative assistant	Chair of IAC
October 15	IAB meeting: Welcome new members Discuss changes/actions Review goals, plans Document	IAB IAC Dean (maybe) Departmental faculty Chair of IAC Administrative assistant	Chair of IAC Departmental faculty Dean (maybe) IAB members
October 30	Distribute October 15 meeting minutes	Chair of IAC Administrative assistant	Departmental faculty Dean (maybe) IAB members
November 15	Discuss IAB meeting with department	Departmental faculty	Chair of IAC
November 15– December 10	Prepare, review, update IAC survey; another meeting of IAC as needed	IAC Departmental faculty Administrative assistant	Chair of IAC

are measurable. We define two PEOs here in the context of computing (but, these could easily be generalized to other fields).

- (1) Graduates shall work in the computing industry in managerial roles.
- (2) Graduates shall receive advanced degrees and teach computing at the high-school level.

In the remainder of this section we illustrate how the advisory board could be used to assess these two PEOs. The techniques described here can be extended to other scenarios.

For each of these PEOs, the program will have several supporting program outcomes. Our focus is not on the program outcomes, but only on how an advisory board could assist in assessing PEOs 1 and 2.

4.2. Board Selection

To assess PEOs 1 and 2 the board might consist of professors from local universities where students go on to do graduate work, principals from local high schools, and managers or executives from local computing companies. Such a group is well-qualified to assist in assessing and perhaps evaluating the two PEOs.

4.3. Tools

General information about PEOs 1 and 2 could be collected via a short survey. Table 2 provides some possibilities with the survey shown directed primarily at PEO 1. Sample values have been filled in for one large, long-term employer of graduates of the program. Similar completed surveys will come from other board members' companies.

	Employees From University X	In Graduate Program	Non M	M Potential	In M
Bachelors	11	3	9	2	2
Masters	5	1	2	1	3
ABD	3	2	2	2	1
PhD	6	0	0	0	6
Totals	25	6	13	5	12
Percentages	100	24	52	20	48

Table 2 shows that eight out of twenty-five employees were deemed not to have management potential. A rubric could be developed with input from the advisory board to determine what skills graduates are lacking for management positions. This rubric could then be administered. Once the results of the rubric were evaluated, potential changes to the program of study may emerge. Such changes could be proposed, documented, assessed, and then evaluated again to see what impact they had.

An alumni survey could be sent out every two years to gather data relating to PEOs 1 and 2. In addition to basic statistics gathering, the survey could contain questions which provided useful information directly related to PEOs 1 and 2. Such surveys should be carefully constructed by the internal advisory committee, perhaps in conjunction with the program's assessment/accreditation committee, if such a committee exists.

4.4. *Feedback*

As appropriate, assessment data, the evaluation of that data, and changes to the program being driven by this process can be discussed at an advisory board meeting. If the members of the advisory board did not fill out the surveys and questionnaires as one had anticipated, some time can be allotted to them at the end of the meeting to complete their surveys. Surveys and other instruments should be revised if they can be improved. In general, for trend analysis it is useful if some evaluation materials remain unchanged for a few years. The goal is to have high-quality tools rather than a high quantity of tools.

5. Pitfalls and Challenges

Members of an advisory board provide advice. Occasionally, you will run into a board member who wants to dictate policy or change your curriculum. Usually such forceful advice may come from someone who wants, for example, the university to teach a specific hot application that a company needs its employees to be well versed in. A well-written initial invitation letter will stress the *advisory* nature of the board. Two-year terms could be granted to board members initially. Those members who become a hindrance rather than a help will not be renewed, whereas those who make significant contributions can be renewed for another three years.

Key challenges are as follows:

- Maintaining a high-energy level of all involved
- Achieving high attendance and good participation at meetings
- Obtaining useful feedback
- Maintaining continuity
- Educating the board
- Keeping the board engaged
- Having the board work as a team

If the board can be made to feel some ownership for the program, then it will likely become more fully engaged. However, there is a fine line between such owner and their desire to dictate policy. Try to make the board feel engaged and needed, but true advisory rather than policy implementers.

Of course, many people who serve on advisory boards do so because they are interested in hiring new talent. This carrot can be provided by means of a résumé booklet that lists junior and senior students, or perhaps through the development of an internship program. Such efforts may be needed in order to keep board members engaged. The programs can benefit students too.

Another possible carrot is to invite board members to speak on campus, perhaps in a weekly colloquium series or a distinguished-speaker series. Development of a Web site that lists board members and their affiliations is a good idea.

Departments typically struggle with the following items:

- Maintaining a full complement of members on the board
- Scheduling and holding meetings on a periodic basis
- Sending out good agendas in advance
- Developing appropriate surveys and rubrics to obtain feedback from the board
- Documenting, assessing, and evaluating the results of advisory board meetings
- Following through with implementing the recommendations of the board
- Communicating with board members on a regular basis
- Reporting back to the full department about the advisory board meeting

Strong leadership on the department's advisory board committee, and faculty involvement are the keys to overcoming these issues.

6. Perspectives/Roles

6.1. *Students*

It can be useful to have a few (current) students participating in advisory board meetings. This grooming could be for future placement on your board, but also to give advisory board members a chance to interact with the program's students in advance of graduation. At many institutions students welcome the opportunity to meet with local-industry members, so students generally seem to view advisory boards in a positive light.

6.2. *Faculty*

For some faculty serving on an advisory board is just one more chore which they would rather not undertake. For others it is an opportunity to become more engaged, help the program with assessment, and perhaps develop consulting relationships. Year-in and year-out there needs to be at least one faculty leader on the advisory board committee, and, of course, that person could be the department head. If the program is starting an advisory board from scratch or reestablishing a near defunct board, it maybe appropriate to give a faculty member a course release to carry out such an effort. In small communities finding twenty-five to thirty individuals who are capable and willing to serve on an advisory board can be a daunting and time-consuming task. The preparation of surveys, rubrics, invitation letters, agendas (for example, see ²), and the like requires work too, as does email, smail, and telephone correspondence.

6.3. *Department Heads*

Good department heads are knowledgeable about the accreditation process and can guide the faculty in relation to the advisory board. Heads are often well connected and can suggest new board members. Financial support and moral support can be provided as well. Of course, some heads may expect the department to raise funds through the advisory board, but in this work we are mainly interested in the board's contribution to the accreditation process.

6.4. Deans

Deans are likely to be interested in a departmental advisory board from a fund-raising perspective. Many deans would not attend an advisory board meeting at the departmental level; others will occasionally make a courtesy visit. Some deans have advisory boards at the school or college level, and could view a board at the departmental level as competing. Clearly, the department head and dean need to coordinate on such matters, and the department head needs to keep faculty members aware of any important issues.

6.5. Members

The chair of the internal advisory board committee must set expectations and define the roles of the members of the external advisory board. Feedback should be solicited from the external board members about their experience on the committee. Board members should have a chance to make suggestions to improve the process and their experience. If board members are not enjoying their experience, do not feel like they are making a contribution, or do not feel engaged and appreciated, they are not likely to want to attend meetings or to continue serving on the board.

7. Concluding Remarks

Maintaining a strong and a productive advisory board, and utilizing that board in the accreditation process for the assessment of program educational objectives requires steady work. We have presented a number of suggestions as to how to go about this process, and discussed a specific example related to PEOs. In summary, key items are as follows:

- A strong faculty leader for the program's advisory board committee
- At least a couple of faculty who understand the assessment and evaluation process
- An ability to identify and to recruit local people who are energetic and engaged in the program's activities
- A willingness to hold two meetings per year, year-after-year
- A desire to improve the program by assessing, evaluating, documenting, and then repeating this cycle on a periodic basis

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