

AC 2008-1326: BUILDING INDUSTRY RELATIONSHIPS

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Building Industry Relationships

Abstract

In the fall semester of 2005, the author was asked to prepare a proposal for the creation of a Bachelor of Science Degree in Construction Engineering and Management Technology. Up to this point, the program consisted of three Associate degrees (Architectural Engineering Technology, Civil Engineering Technology, and Building Construction Management), which feed into a general Bachelor of Science in Engineering Technology.

The initial write-up was not difficult because there were several other programs that could be used for a template. However, the content of many of the classes was still open for debate and took considerable time to complete. It was at this time that the author decided to look to industry leaders for some suggestions. The first source was the Department's own Advisory Committee. This committee was comprised of designers (both architectural and civil), a County Building Commissioner, a City Engineer, and a Construction Company President. In addition to this, several "Guest Speaker" utilized in various classes by the author were also consulted. These included Construction Project Managers, Estimators, Engineers, and the Secretary of a major trade union. It should be noted that several of the industry personnel consulted graduated from similar programs.

Because of the varied background of all the individuals involved, there was spirited discussion on class content of some of the upper level classes. The final product turned out to be a compilation of more than a dozen people and has, to date, sailed through the approval process. As of today, the proposal has passed the Board of Trustees and has now been sent to the Indiana Commission on Higher Education for state approval. The curriculum has been simultaneously submitted to the Faculty Curriculum Committee and is presently scheduled for formal submission to the Faculty Senate later this year.

Introduction

In December of 2005, the author was asked to write a proposal for the creation of a new Bachelor of Science Degree in Construction to supplement the three Associate of Applied Science degrees that the university currently carried. The journey from that time took many unexpected turns and the old adage "hurry up and wait" seemed to apply (the Board of Trustees approved the program on November 30, 2007). As it would turn out, the approval process by the university was easy in comparison to the organizing of the curriculum.

Because there are an abundance of other construction programs which follow Technology Accreditation Commission (TAC) of Accreditation Board for Engineering and Technology (ABET), (or ABET, Inc) guidelines, there was no point in "reinventing the wheel" when it came to devising a listing of classes. The interesting portion of the process was determining the

curriculum for the classes to be added to the program, and altering the existing ones to achieve the goal of the program.

Industry Input

Input on the new degree program by industry members was substantial and the groundwork had (unknowingly) been laid out over the years. The author has always advocated industry involvement in education. Because of this, industry members had always had a place in the classroom and field. The most common form of involvement has been inviting construction, engineering, and architectural professionals to the classroom as guest speakers. Quite honestly, most of the invited speakers jumped at the chance to talk to the students, and most have been repeat speakers. The students have gained invaluable knowledge from these speakers and some have led to later employment. It should be pointed out that the author had previous professional relationships with these guest speakers prior to asking them to come and speak (which lends credence to the argument regarding maintaining outside consulting jobs).

While industry volunteers have always been a welcome addition to the “teaching arsenal”, it was not until the proposed creation of the new program came that their true worth became apparent. It was decided that instead of starting the new degree program, and then forming an advisory committee, that industry leaders would have an opportunity to be involved in the formation of the program. Meaningful input into the curriculum from a wide variety of industry professionals was thought to be a way to create a program that is relevant to today’s industry needs.

The “Plan”

The initial plan was to involve a wide variety of professionals who would typically hire or work with our graduates. In addition, graduates from our current program, as well as similar programs would also be invited to participate. The Advisory Committee was devised of representatives from the following categories:

- Commercial, Industrial, and Residential General Contracting
- Commercial Subcontractors
- Consulting Engineers
- Government (County Building Commissioner, City Engineer)
- Architectural/Designer
- Developer
- Organized Labor

Please note that all of the above listed personnel have at some time (some multiple times) served as guest speakers in the authors’ class. It is the author’s opinion that because the industry professionals had already been involved with the program that they already felt a “kinship” with the program. It is perhaps because of this that every person asked to participate did so.

As can be seen, the list represents a wide variety of people from what can be seen as all areas of construction management. Because of this, a wide range of ideas and viewpoints was

represented. It should be known that initially the addition of the organized labor representative, Mr. Dave Fagan, was met with resistance. Many at the university were leery of allowing an officer of an organized labor union into a position that advises a professional program. However, it was pointed out that as Financial Secretary, Mr. Fagan is the “Number 4” person in a 23,000 member local (to put it into perspective, Local 150’s funded pension fund currently stands in excess of \$3.5 billion). As such, he would be the equivalent of a Senior Vice President in a major corporation. As it turned out, his input was excellent. As an officer in a major trade union (with strong political ties), he had insight on state budget matters, which play a strong role in the health of the local construction industry. Based on this information, course content was in some cases modified to strengthen the program in these areas.

The multiple (and sometimes contrasting) viewpoints proved to be an absolute necessity because of the broad nature of the content that construction courses (or any technical program) can contain. While the faculty has kept very current on construction means, methods, and codes, the industry members obviously had a wealth of information that was relevant to current practices. They also knew the weaknesses of graduates, as well as those of the other programs in which they had hired personnel. Two of the advisors were graduates of a “rival” construction program and one was a graduate of this institution. They were also able to relate as to their perceived strengths and weaknesses of the respective programs. By taking this information, a curriculum that was a combined effort of more than one dozen people was worked and reworked with input from everyone.

An initial meeting was set (it was the only one to date in which all nine industry and three faculty members were present) and the existing program was reviewed, followed by the proposed classes. In the case of existing classes, course descriptions, syllabus, and examples of students work was examined. Frank and honest discussion on the relevance of the course content was discussed and new ideas were fused into the course. Proposed courses already had course descriptions and syllabus’s written (they had to be submitted to the University’s Curriculum Committee to be submitted to the Faculty Senate). Again, discussion on the proposed content, as well as the intent, of the class was discussed. After the initial meeting, there were other meetings held, however, much of the work was then conducted via e-mail. Revisions, mark-ups, and suggestions went back and forth over the next four months. The end result produced slight revisions to existing courses to better reflect current construction industry trends. The new proposed courses now have better direction without having to be taught “a few times” to get a better feel for how the class should be taught.

It was also decided that the entire committee would work together on the curriculum. Having the entire committee involved in all the discussions was at times cumbersome, but extremely useful in the end. While it was tempting to break the committee down (architects, engineers, contractors) and have them focus on their areas of expertise, it was noted that because in industry all three of the groups interact, input by all three might be best. This did lead to some lively (even testy) communications, but the input from all parties led to suggestions and implementations which should strengthen the courses. How can architectural and structural design courses be fitted to address the needs of the contractor? How can design courses be made to give benefit to students who will not be designing, but rather in the field? How can construction management courses

be made to increase working relationships with architects, engineers and organized labor? By having input from all parties, these questions were addressed.

Short term benefits

The first and most obvious benefit was the creation of a new degree program that appears to be current and relevant with the industry in which it serves. The industry “consultants”, as well as the faculty has put together a package in which everyone played a part and is very proud of. As an added benefit, the entire group of industry volunteers has agreed to stay on and serve on the Department’s Advisory Committee and will continue to monitor the program and the work of the students and graduates.

Because of the increase in class load, additional faculty (full time and part time) will have to be added. Finding willing people to teach as a part time Guest Lecturer (Adjunct Faculty) can sometimes be difficult due to the hours and low pay. Ed Sawa has taken over one of the classes in the current curriculum to help alleviate the workload on the faculty brought on by the additional classes. Several other of the Committee Members have volunteered to teach classes, or at the very least team teach with other member to share the duties.

Also, by using industry members as advisors on the committee, they have been able to use their influence in helping to promote the program and implement some of the ideas. One prime example is the requirement that the students must have at least 800 hours of work experience to graduate. It was suggested that part of their experience be field time (as management or labor). In a highly unionized area, it is not easy to work commercial or industrial projects as a non union tradesman. However, Mr. Fagan was able to work out arrangements with several union locals (Operating Engineers, Laborers, Carpenters, Masons, and Technical Engineers) to allow the students to become temporary apprentices (permit card holders), which allows them to work the summer months.

Long Term Benefits

While many of the individuals who volunteered their time and energy already had a sense of connection to the program, it can be said that after this experience all of them feel a “kinship” with the Department. The student organization has never been very strong (being a commuter campus, it is difficult to get students on campus at the same time for meetings), but has always fared well in the National Association of Home Builders annual competition (twice National Champions). The major problem has always been in raising funds for the trip (sending five students and one advisor). This year, many of the industry members who worked with us have not only donated money, but have taken up the fundraising. As a result, the club is looking to send two teams as well as a team to the Associated General Contractors Annual Convention and Competition. Other members have donated equipment, material, and a connection sculpture used in structural steel instruction. They are also (among themselves) organizing a committee to fund scholarship programs and have started fundraising for additional laboratory equipment and supplies.

It should also be noted that because all of the people have leadership roles in their respective firms or government, they are in a position to recommend the program to others. In construction, it is not uncommon for tradesmen who do not want to continue in the field (for various reasons), to go back to school so that they might move into management positions. In the past year the program has seen an increase in the enrollment of tradesmen who got recommendations from current board members. As a totally unexpected benefit, several professional engineers are currently taking a soils and foundations class to fulfill their continuing education requirements. A committee member suggested this to them, again.

Many of the committee members, wishing to keep building on what has already been started, and now exploring certificate and continuing education programs for their respective companies (and eventually, other firms). Certificate programs are when a certain grouping of classes (six to eight) is made specializing in an area of construction (residential construction, estimating, etc.). These are regular college coursed currently taught in the curriculum so there is no need for additional classes or faculty. Once complete, if the “student” wished to continue, they can seek university acceptance and work towards a degree, with the coursed already completed counting towards it. The continuing education courses has been utilized as one to five Saturday programs in which (or instance), a group of superintendents are taught how to use Excel and the usage is tailored to their needs (estimating, inventory, etc.).

The committee has also continued to provide input into the new program. As mentioned previously, the current program has three Associate programs funneling into the Bachelor’s program. The Bachelor’s program was set up to be able to start quickly, with the existing faculty and facilities. The problem is that the program is devised as a continuation for the Building Construction Management (BCM) program, with no additional classes for the Civil Engineering Technology (CET) or the Architectural Engineering Technology (ARET) programs. The committee is now working on elective classes to allow those students who received CET or ARET Associate degrees more options in the Bachelor’s program so that they might further gain knowledge in their more specialized fields. It is hoped that this will not only better retain those students that we have, but will help to attract new students in the future.

Conclusion

It is often the case that Advisory Committees are formed for existing programs. The formation of the Advisory Committee for the creation of a new degree program allowed for input from a variety of viewpoints. While the courses offered in the program certainly is not unique, their content was tailored to the end users of this regional campus. Because industry is the eventual end user of the product (graduates), it only made sense to include them in setting the direction of the program. Perhaps the best idea that came of this was having the entire committee involved in discussions on course content. By having professionals from different fields, the courses are more well rounded and should better benefit the students “in the real world”. The committee and faculty agreed to continue meeting a minimum of three times per school year to evaluate the new courses, as well as review the impact of the changes made to existing courses.

On a final note, the commitment from the committee, as well as the faculty, described here to complete this cannot be underestimated. All the participants committed untold hours of their

time on a voluntary basis. The author believes that this would not have been possible if the participants did not already feel somewhat of a connection with the program and students. By having them involved in the program (in some cases involved for several years) prior to asking them for this kind of time commitment was essential. Cultivating relationships like this, whether in education or industry, leads to stronger connections. It can be said that all the industry participants, already successes in their chosen fields, felt an additional sense of pride and accomplishment having worked on this project. This was most evident when all of them thanked the faculty and administration for allowing them the privilege of working on this project.