

Review of
Central Washington University
Department of Industrial and Engineering Technology

By

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The following are the findings from the external review conducted by Dr. Donald C. Richter of the department of Industrial and Engineering Technology.

The department offers the following degrees

B. S. in Construction Management accredited by the American Council for Construction Education (ACCE)

B.S. in Electronics Engineering Technology accredited by the TAC of ABET

B.S. in Industrial Technology

B.S. in Mechanical Engineering Technology accredited by the TAC of ABET

B.S. in Safety and Health Management

B.S. in Technology Education

M.S. in Engineering Technology

A binder with the department goals , program descriptions , and faculty vitas was provided to the reviewer prior to the audit. The reviewer conducted a two day “on site” audit of the department that included meetings with the Provost, Dean and faculty members. During the audit the reviewer also attended classes where he interviewed the students of the various degree programs.

Strengths

The department is a very well-run department and the reviewer found the following strengths.

Faculty

As with any good program it must be built upon good qualified faculty as the foundation on which to build the program. The faculty of the department are well qualified and as a whole exhibits an enthusiasm for teaching in programs of the department. Some of the faculty have volunteered to hold extra help sessions for the students at night and even on weekends. This is very remarkable and shows the commitment of the faculty to student success.

The department has invested in student success by the success of recent hires. The students are very excited about the new professors. The new health and safety program professor has really made a positive impact to the program. His students are very positive about the increase in content and rigor that he has brought to the program. Once again it was demonstrated that

students wish to be challenged and feel like they are being prepared for field of study they are pursuing.

The department currently requires prospective faculty to give a short teaching demonstration to help the search committee determine if he/she will be able to be successful as a teacher. This is extremely important for a mainly teaching institution. Not all good researchers can become good teachers.

Faculty have access to professional development money to help them go to conferences and publish papers. Further the department has made other funds available to the faculty when this amount does not cover the entire cost. The department and the university have thus shown a strong commitment to the development of faculty and the need for faculty to maintain currency in the field.

Accreditation

Three of the departments programs are accredited by national external organizations. Accreditation is extremely important for the students' ability to find jobs in these professional fields. Employers of professionals look to ACCE and ABET accredited programs to hire prospective employees in the fields covered by their respective programs. The department is preparing to apply for accreditation from ABET for the B.S. in Safety and Health Management. Accreditation of this program will greatly help the students of this program compete nationally with similar programs. The department should seek to maintain the current accreditations as a means for student success. Students who graduate from a non-accredited program are adversely affected in competing for Jobs.

Student Evaluations

The department currently uses student evaluations of each course including questions on the effectiveness of faculty teaching each course. This is an excellent tool to help judge the success of the course content and the teaching effectiveness of the instructor. Caution should be used to make sure this is not the only measure of teaching effectiveness but rather a component of a multi-faceted program to evaluate faculty. Peer evaluations done by knowledgeable faculty need to also be conducted at regular intervals to determine teaching effectiveness.

Industrial Advisory Committees

Many of the department programs have an Industrial Advisory Committee to help guide the program and provide current relevance to the program. The input of a Industrial Advisory Committee is extremely valuable and should be maintained. The Industrial Advisory

Committees also help form industrial relationships which often help with the needs of a department.

Student Clubs

Student sections of professional organizations help form the lifelong learning habit that is required for all professional occupations in industry. The department openly fosters student participation in these clubs and gives each an office space for the student officers of the clubs to use. This demonstrates, to the students, how important the department views the student participation in the clubs.

Teaching Facility and Laboratories

The new building and the renovated spaces show the university's great commitment to the programs of the department. The teaching facilities are excellent and the laboratory spaces are indeed impressive and will greatly improve the student learning experience. In today's new digital world having up to date teaching spaces is increasingly important. The type of professional programs offered by the department can only be adequately taught with the use of "hands on" laboratory experiences to enhance the classroom learning. There is no better teaching than to "do it" in an instructional laboratory experience. The laboratory spaces and equipment are current and give a fair representation of exposure to needed experiences.

Meeting the Needs of the Region

The department's programs are all important programs to prepare students for industry in the state. The state has a great need for graduates of the programs offered by the department. The department is the only state university offering a degree in Technical Education. This program, in particular, is extremely important to the state. The future teachers that this program produces are often on the front line of instilling young students to enter the STEM fields both at the university level and at the skilled jobs level. A state should not be without such a program.

Lifelong Learning and Ethics

Lifelong learning is introduced to the students in several ways in the class room courses, Faculty membership in professional societies (an example of doing as I do), and the fostering of student sections of professional societies. Ethics is also emphasized in the classes and in the student clubs. These are important facets of becoming a professional that are being taught to the students along with their technical training.

Breath of the Department

The diversity of the programs offered, and the diversity of the type of faculty needed to teach all the programs offered at the department provides a rich opportunity for the department. The students learn diversity of thought and respect for other disciplines and job functions by observing how the department interacts. Not many departments have this great opportunity.

Weakness

All Great programs look for opportunities to improve. The following items are offered in this spirit. They are suggestions on how a great program can become even better.

Replacement of Equipment

The equipment that has been purchased for the new building/renovation are impressive however, there was no evidence of a plan for equipment replacement and repair. A cohesive plan including a revenue/budget plan needs to be created and put into place. The common response received to this question and other revenue items was that “net summer revenues can be used to try to meet this need”. The number of times this statement was used leads one to think that the same dollar is planned to be spent six different times. The administration is very well meaning with these statements, however they are not a substitute for the needed plan.

Technician Needs

The new building and additional laboratory spaces and equipment present new challenges. The laboratories spread out over a larger area present a further challenge. The ability to staff the labs to insure that students have reasonable access to the laboratory equipment outside of scheduled laboratory hours to complete projects is very critical. The rich experience that the new labs offer can only be realized if and only if the students have reasonable access to the lab equipment. There was no written plan to give access to the labs or adequate resources identified to staff the labs during non-formal lab hours. It is unrealistic to expect the students to produce meaningful projects without the ability to access the labs during non-formal lab hours. Again the only explanation offered by the department was “net summer revenues can be used to try to meet this need”. There is a need for a formal plan with needs identified and a plan to meet the needs that budgets actual funds and resources required. Almost all similar programs across the nation have full time technicians as part for this solution. Not having adequate laboratory monitors often leads to a safety problem that comes to light when an injury occurs. Safety should at all times be number one. Students are not seasoned skilled craftsman.

Training needs for faculty

During the student interviews a common theme was articulated. The faculty as a whole is great however, basis the interviews with students, a few faculty may need improvement in teaching skills. The department has a mentoring program for new faculty, however new resources should be brought to bear where teaching evaluations show improvement is needed. A program similar to the EXCEED program to teach engineering professors how to teach by other engineering faculty of excellence would be of value to the department in helping those faculty needing improved techniques in teaching.

All Faculty should attend periodic training on advising. The students felt that not all faculty were helpful as advisors. When these types of statements are articulated it often it means not all of the faculty are fully trained on the latest changes to the university's graduation requirements.

Future Student Success

The future of student success relies on having an adequate number of faculty for the students that are to be taught. A formal plan on when an increase in faculty is triggered is needed. This plan should be developed with the involvement of the faculty of the department who are best equipped to determine when student success will be adversely affected by too high a student to faculty ratio. A plan that involves all stake holders usually results in a superior plan. This plan often includes a 5 year projection of students and then the resources that might be required. The university needs to be able to plan its growth with the use of this document rather than be surprised with a "we need more faculty and/or staff now". This plan should be continuously revised each year.

Laboratory Layout Effectiveness

During the inspection of the department labs, a few Labs seemed to have equipment that was too close together. A safety and effectiveness study should be performed to ensure student safety and teaching effectiveness in a busy lab.

Summary

The department of Industrial and Engineering Technology at Central Washington University is a quality department. Offering well thought out and needed STEM programs. The department is positioned to continue to be a great asset to the University and the State of Washington.