Review of Industrial Maintenance Technology (IMT), Associate of Applied Science

Orianna Carter, Reviewer

Recommendation: Viable

The reviewer held a teleconference on May 6, 2014 with Dean Smith and Assoc. Dean Beckley from Ohio University Lancaster, accessed the latest department self-assessment report and previous reviewer notes from a site visit (2012). This program review makes note of the transition from IMT to a revised program, Engineering Technology (ET) beginning in the year 2013-14.

The IMT was created in 2000 to meet the needs of the community in industrial maintenance and manufacturing fields, including welders, machinists, assemblers, etc.

Faculty Profile

Current faculty size and distribution

According to the IMT Self-Assessment document, as of September 2010, there were one tenure track faculty and two non-tenure track part time faculty. All IMT faculty are males of white Caucasian descent. All IMT faculty have regularly taught overload each quarter, with the full time faculty member teaching 17 different courses since 2005 (some being 1 credit courses, e.g. welding). As of 5/8/14, all IMT faculty have retired.

For the scope and continuation of the new ET program, two new Group II, non-tenure track faculty are in the hiring stages for the 2014-15 academic year.

Research, Scholarship, and Creative Activity

Current department RSCA

The latest information available in the Self-Assessment indicated no RSCA activity other than re-certification for the Group I faculty and student tours of local industry.

External funding

The IMT department has no current external funding. Industry financial support, earmarked for the program, has provided various tooling supplies and materials used to teach the laboratory.

Resources (financial, space, personnel)

Significant concerns regarding financial resources were raised with respect to outdated equipment and equipment maintenance. According to Dean Smith, the equipment is still viable as a mechanism to teach theory and practice with a mastery of the technology.
The new ET program plans to dedicate resources for equipment maintenance and updates as needed to sustain the program as ‘State of the Market’.

Educational Quality

Students

According to the statistics provided, the number of students enrolled in the IMT programs has been ≈15 per year, with one or two females, largely part time individuals expanding their industry skills. Lack of diversity in the student body results from a student populate pool residing in Fairfield County (home of OUL). There are no direct efforts being undertaken to recruit from under represented groups, though the department does participate in campus wide program recruitments activities, such as program brochures.

Faculty Diversity

Faculty members are tightly aligned with industrial needs within the community, having worked as engineers prior to employment at OUL. Future hires from under represented groups may improve the diversity of the department.

Curriculum

The curriculum described in the IMT self-study document were designed to function as a 2+2 program bridge into Russ College tracks in either Biomedical Engineering, Chemical Engineering or the Engineering Technology Management bachelors degree program. Several concerns raised by students and faculty interviewed include inaccurate or unrealistic information on bundling courses and scheduling sequences, such as core STEM courses, and the lack of a systemic approach to the discipline. Excellent outcomes attained from the IMT curriculum were those focused on ‘real world’ experiences relating coursework to the field and excellent job placement with local industry. An interdisciplinary aspect is noted with the BMT and TAS programs through its process management coursework.

The ET program restructuring seeks to restore the industrial aspect of the program, maintaining IMT’s coursework with the addition of repackaging electro/mechanical content toward automation skill sets through a systemic approach.

Internships

IMT offers external field trips, but no internships due to lack of support from local industry to support paid interns at the AS level.

Mentoring and advising of students

According to student comments, there is sufficient mentoring and advising of student progress in the program with opportunities for career enhancement through attainment of bachelor’s degree from Russ College of Engineering. The program coordinator also serves as student advisor and mentor.
Teaching assessment

The program uses the standard student survey tools and seeks input from the Community Advisory Board, which is staffed with several industry leaders. The advisory board assesses program outcomes, compares outcomes to skills required by employers and actively provides feedback to faculty regarding on-the-job training and graduate performance. In 2012-13, the division provided professional development through the Teaching and Learning Center (Tim Vickers) on performing objective peer evaluations and choosing to build a case for innovative teaching to add to their portfolios.

Post graduation career placement

Students commented that upon completing the program, they readily find employment in local industry.

Areas of concern

Curriculum, staffing and funding were all identified as areas of concern for the IMT program.

Recommendations

- Explore ways to raise the profile and visibility of the program at a county and state level
- Seek a more diversified staff
- Provide funds for deferred maintenance and upkeep of equipment to remain current

Commendations

The foresight to evolve IMT into a new program appears to address problems identified with changing times and curricular restructuring necessary to achieve industrial impacts. The revised 2+2 alignment is commendable.

Overall judgment: the IMT program, transitioned into ET, is viable.
September 30, 2014

Dr. David C. Ingram  
Program Review Committee of UCC  
Edwards Accelerator Laboratory – Room 106  
Department of Physics and Astronomy  
University Terrace  
Ohio University  
Athens, Ohio 45701

Dear Dr. Ingram,

I was pleased to receive the results of the academic program review of the Associate of Applied Science degree in Industrial Maintenance Technology (IMT) that finds the program viable. The program’s transition to Engineering Technology in 2013-14 has made the program stronger and will provide meaningful employment and support for employers of our community.

Areas of concern and recommendations noted in the report that I would like to provide an update on include staffing (ideally with more diversity), funding for maintenance and equipment, program visibility in the community and curriculum.

As an update to the faculty profile, the lead senior faculty member has retired and is now participating in the early retirement program. The two early retirees carrying a partial load have fully retired. We have replaced one of the faculty lines with a lecturer with excellent industrial experience as an engineer. As a female in this career field, she will serve as an excellent role model in the recruitment of female students we typically have not drawn into this field of study. A search for an electronics lecturer failed at the offer stage. The exact timing of re-advertising that search is being examined.

Carefully managing our operating expenses in this last fiscal year, we were able to make a large improvement in the lab with a purchase of a computer numerical control (CNC) vertical mill and a 3-D printer to upgrade our lab experiences in the area of
advanced manufacturing. If we are able to make a similar investment for the next two years, we will have addressed the most significant concerns in regards to our labs. CNC and advanced manufacturing is currently of particular interest to economic development professionals in the county that we serve. I wish to note that the program curriculum and resources are excellent for computer-aided design (CAD) content and fully adequate, but with some need for lab upgrades in electronics content including programmable controllers and motors. Thus, not all lab areas have as significant of needs for updating equipment as does advanced manufacturing which is being addressed first.

Efforts are underway to more closely partner with vocational schools to enhance workforce development in advanced manufacturing which is supported by our curriculum with a focus on electro-mechanical engineering technology. These partnership efforts are already adding to program awareness.

While the overall program curriculum has improved, issues existed in course scheduling sequences. In particular, electronics courses were difficult to schedule due to staffing. Also, cross division scheduling conflicts were occurring with math and physics courses depending on where the student started in the math sequence. These issues have been addressed by the associate dean. I understand with adjustments this year, schedule and sequence issues should be fully resolved for Fall 2015 for all students. Further curriculum changes are being considered to enhance program outcomes while retaining associate degree job placements and the ability to continue towards a bachelor’s degree in the Russ College. I look forward to seeing plans for implementing these changes to enhance and grow this program.

If I can be of any assistance in final stages of this program review, please feel free to contact me.

Sincerely,

James M. Smith, Ph.D.
Dean