ACADEMIC PROGRAM REVIEW

Industrial Technology & Management
BAS Program

Perceptions of Overall Quality

Dean Rating – 85%

Rationale:

- This program is designed to allow previously degreed individuals to obtain a BAS Degree in order to move into more challenging and higher paying manufacturing jobs.
- The program flexibility allows multiple student course scheduling options which include non-traditional class hours as well as on-line offerings.
- The program brings together various industrial and manufacturing components with the addition of specialty courses that expand upon the student's background and work experience.
- The foundation courses of the degree provide in-depth knowledge that are applicable to any technology. They include automation, globalization, lean manufacturing, safety, general management, quality statistics, and manufacturing operations.
- Students bring their own industrial and manufacturing experiences from their jobs into the classroom which provides unique perspectives and cross-discipline conversations.
- The program is taught at multiple off-campus sights and can be expanded very easily through the use of proper resources.
- This program demonstrates its value to the university through attracting an abundance of students who represent a high level of academic ability. As such, program retention rate is high. The graduates bring notoriety back to the program, college, and university.
- This notoriety is due to the graduates having a solid technical background which allows them to solve a broad array of problems in areas such as design, testing, and manufacturing. This leads to an increasing amount of students entering the programs.

Improvement Recommendation:

- Create more individualized and specialized courses for the program versus adapting other existing, less rigorous courses which fall short of the ITM Program's academic level.
- Utilize a contemporary and applicable advisory council to evaluate the existing curriculum and upgrade it as required.
- Increase delivery sights to other appropriate community colleges and related sites.
- Continue curriculum improvements and enhancements through the utilization of data and self-studies.

Larry Schult

Dean, College of Engineering Technology

Academic Program Review

Bachelor of Applied Science Degree in

Industrial Technology and Management

June 2015-August 2016

Panel Membership

Ken Clark, Instructor/Program Advisor, Industrial Technology and Management

Program Review Panel

David Baker, Faculty, Digital Animation and Game Design

Catherine Belkowski, Outreach Coordinator-Metro Detroit

Jake Pollack, Assistant Professor, Digital Animation and Game Design

Dawn Schavey, Senior Academic Advisor, EIO Grand Rapids

Joseph Wist, Associate Professor, Manufacturing Engineering Technology

Associates

Brian Bouwman, Director, EIO Metro Detroit

Richard Goosen, Director, School of Design and Manufacturing

Tracy Hilty, Assistant Dean, EIO Grand Rapids

August 15, 2016

Matt T. Wagenheim, Chair
Academic Program Review Counsel and
Associate Professor, Teacher Education
Ferris State University
Big Rapids, MI 49307

Dear Matt T. Wagenheim,

On behalf of the program review panel for the Industrial Technology and Management (ITM) program of the College of Engineering Technology, I am pleased to present to you the resource report for the academic program review process. This report is the second program review, the first covering 2001-2009. The ITM program officially began in Grand Rapids in 2003. This report covers August 15, 2009—August 15, 2016.

Although in the role for less than two years, with the support of folks like Catherine Belkowski, Dawn Schavey, Brian Bouwman, Tracey Hilty, Rich Goosen, and many others, the tradition from 35 years in industry has been relatively smooth. I inherited a very relevant program that continued to grow and thrive. The ultimate recommendation in this report is to continue the process.

The program review process welcomes further discussion and the ITM program is happy to answer any questions that may arise. Thank and the APRC for this opportunity to tell our story!

Sincerely,

Ken Clark
Chair, Program Review Panel and
Instructor/Program Advisor
Industrial Technology and Management

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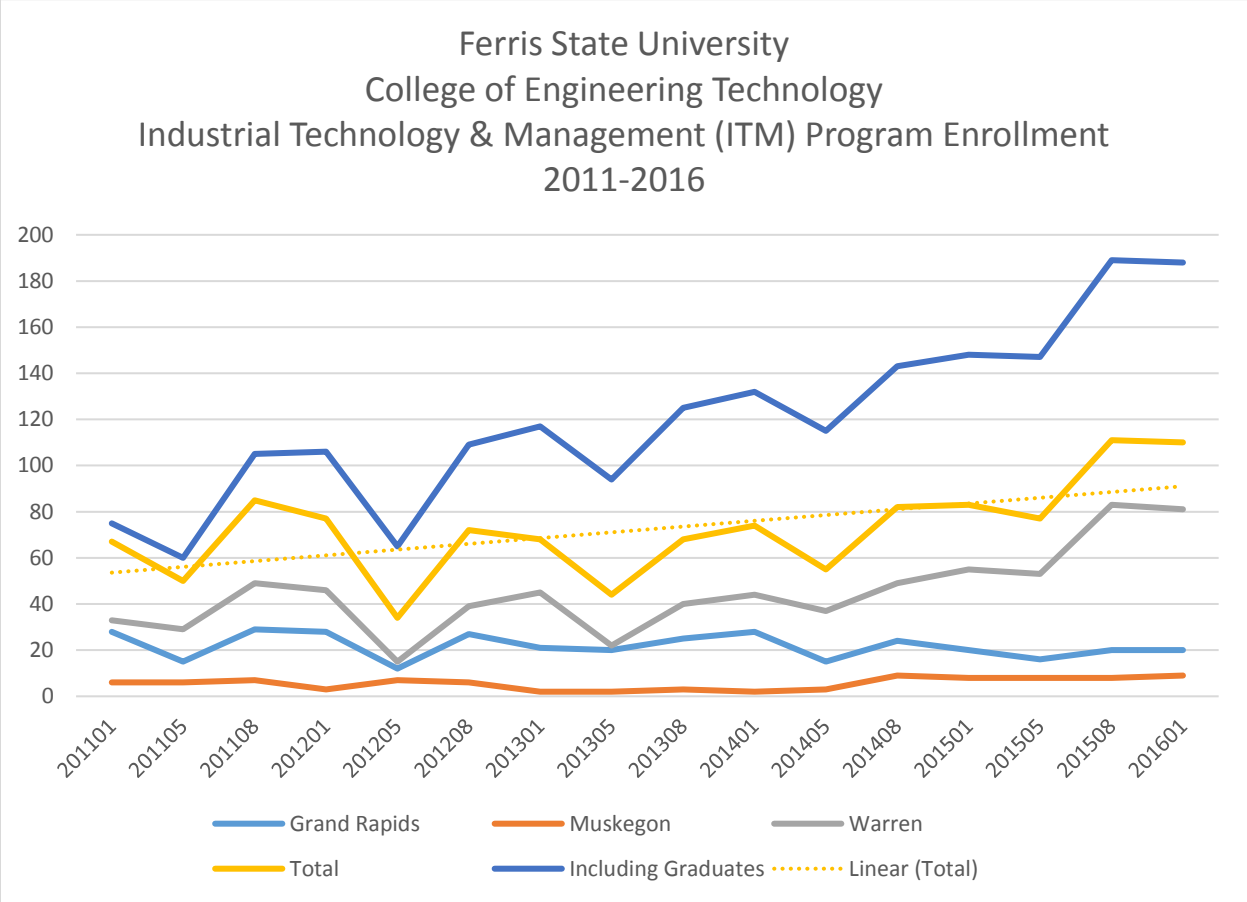
Program Name and History

Established in 2002 as the first academic program of the College of Professional and Technological Studies in Grand Rapids, the Industrial Technology and Management Program offered a unique interdisciplinary degree program for nontraditional students with established employment experience. The program blended technology, manufacturing and business disciplines that resulted in a highly flexible degree-completion option for working adults. Graduates of the program typically enter the management realm of firms with a broad knowledge base, built on previous coursework at the associate's degree level for their chosen field of expertise. Also, acknowledge and reward the effort of potential ITM students for recognized skilled trades apprenticeship programs.

The emphasis of the program lies primarily in decision-making, coupled with technical skills related to improving operations and efficiency of industrial firms. Problem solving skills and teamwork are two of the many areas of consistent emphasis in the sequence of professional courses. Specific areas of topical coverage include those in management of projects, capital outlay and investment, quality improvement, quality systems, and matters involving extensive supply chain networks. Graduates of the program are qualified not only to contribute to substantial improvements for their employers, but ready to take any one of several examinations for professional certification in specific fields to enhance their credentials and overall employability.

Entry into the program requires an associate's degree in a technical or business field, or at least 48 credit hours of prior course work in these disciplines. An overall grade point average of 2.5 is required in prior college courses, and it is highly suggested that applicants have at least five

years' work experience in manufacturing or industrial experience. Graduates of the program must meet all Ferris general education requirements as outlined in the University catalog.



HISTORY

2001: Discussions began to develop an interdisciplinary degree program at the Grand Rapids Campus, centered on the broad topic of manufacturing, combined with elements of business in a flexible '3+1' curriculum model

2001: Adjustments were made to the initial proposed program following consultations with officials from the College of Business and College of Technology

2002: A formal degree program proposal was submitted to the Board of Trustees

2003: Initial students enrolled in the program in Grand Rapids

2003: A cohort of students was enrolled in the program in Dearborn, through the marketing efforts of the University Center for Extended Learning

2004: A cohort of students was enrolled in the program in Muskegon, through the marketing efforts of the University Center for Extended Learning

2005: A full-time faculty member was hired to oversee and coordinate the program

2005: Additional cohorts of students were enrolled in the program in Lansing, and Warren

2005: The Advisory Panel was convened for the first time, giving the directives of developing a concrete skills-matrix for students and graduates of the program

2006: Additional cohorts of students were enrolled in the program in Port Huron and Midland (University Center)

2006: An eighth location for the program was announced for Auburn Hills, on the campus of Oakland Community College

2006: A proposal for adjustments in the curriculum was submitted and passed through the University Curriculum Committee

2006: A second full-time faculty member was hired to service students in the Southeast Michigan Region

2006: The first graduates of the program were awarded their degrees

2007: With guidance from the Advisory Panel the program outcomes were reworked from four vague statements to fourteen measurable items, intertwined with the curriculum

2008: In order to accommodate low enrollments at various off-campus sites, a directive from the Dean of CPTS necessitated the on-line delivery of approximately half the professional sequence courses in the program

2008: Due to low enrollments, cohorts at Auburn Hills, Dearborn, Lansing, Midland (University Center), Muskegon and Port Huron were phased out, affecting approximately 35 part-time and inactive students enrolled in the program

2008: The program becomes the first Grand Rapids based academic program to undergo the Academic Program Review process

2009: Program coordinator leaves

2010: New program coordinator is hired

2011: Program begins to stagnate

2012: Program begins to have suspect integrity. Moves to the College of Engineering Technology for oversight purposes

2013: Program continues to have suspect integrity. **12/31/2013 ITM graduate donates $5,000 to program.***

2014: New Instructor/Program Advisor hired to oversee program. Emphasis on working with Community Colleges and Industry to hone and grow the program. **12/31/2014 ITM graduate donates $10,000 to program.***

2015: Increased recruitment efforts to promote ITM in Grand Rapids, Muskegon, and Metro Detroit. Enrollment jumps

2016: Second Academic Program Review process. Continues to see growth in program.

***ITM students see the value of the program, and show their appreciation through monetary donations to the ITM program.**

Program Mission and Goals

Ferris State University's Mission Statement

Ferris State University prepares students for successful careers, responsible citizenship, and lifelong learning. Through its many partnerships and its career-oriented, broad-based education, Ferris serves our rapidly changing global economy and society.

College of Engineering Technology Mission Statement- Vision Statement

The College of Engineering Technology will be nationally and internationally recognized for academic excellence and technical leadership in applied technology. College of Engineering Technology graduates will demonstrate their preparedness to meet the challenges of an ever evolving society and workplace through their ability to apply theory to real-world applications.

Department Mission Statement

To prepare graduates who have met the high academic standards of our programs for current and future industrial and business needs of the state, the nation, and the global markets.

Program Mission Statement

The Industrial Technology and Management Program will produce graduates, who within two years of graduation, are prepared with the depth of knowledge, breadth of experiences and an attitude of professionalism that will enable them to contribute in a supervisory role and/or managerial capacity within a manufacturing or industrial facility as described in the Objectives and Outcomes of the Program.

Program Goals

The goals of the program can best be described with the objectives and outcomes of the program. These have been developed by program faculty members, with significant assistance from members of the Advisory Panel.

Program Objectives

1. Program graduates will demonstrate competence in not only the Core and Concentration requirements of the degree program, but also in the General Education and distribution requirements of Ferris State University.
2. Program graduates will have the opportunity to pursue their postgraduate studies in a variety of academic fields.
3. Candidates who graduate from the Industrial Technology and Management Program will have demonstrated the skills and knowledge necessary for pursuing a successful career in a variety of settings suited to their interests and prior experience in manufacturing or industrial settings or a professional business environment.
4. Program graduates will develop the skills, both technical and personal, that will allow them to communicate successfully in multicultural, global and rapidly changing external environments, which is sensitive to a broad range of societal concerns including ethical, environmental, political, and regulatory issues in making decisions.

Program Outcomes

Students in the ITM program will gain worthwhile experiences, not only in the classroom, but as a result of applying techniques and knowledge from the program within their professional and personal lives as highly technical professionals. Upon graduation from the ITM program with the requirements for a Bachelor of Applied Science met, graduates will demonstrate competency and will be prepared to:

1. Solve problems and make decisions through thinking logically, critically, and creatively; improve quality in any operational system using one of a number of methods, including but not limited to: business process re-engineering, value stream management, six sigma, theory of constraints and statistical analyses;
2. Perform economic analyses to select alternatives for highest return or lowest cost;
3. Analyze production and administrative systems, machines/methods, and processes using fundamental technical principles and analyses and be able to improve the productivity of these operational systems;
4. Be able to communicate effectively, clearly and precisely in both written and oral formats;
5. Demonstrate leadership and project management skills to lead subordinates and teams;

Program Goals Compared to College Goals

In terms of specific program goals, the faculty members of the program are working to ensure alignment of program goals with those of the College of Engineering Technology. The following addresses each of the notable goals of CET and specific activities from ITM program faculty members as they pertain to those goals.

Enrollment Growth

The College of Engineering Technology has a 'standing' goal of increasing enrollment, as extensive measures are often taken to enable this via marketing and promotional activities. Specific numeric goals have not been dictated by the CET Administration, although it is understood that enrollment growth remains a high priority for all faculty and staff. The specific enrollment of the ITM program has been steady.

Enable Ferris State University to be the Option of Choice for Prospective Students

The nature of the ITM program allows place-bound students to pursue baccalaureate degree credentials in a field relevant to their previous experience and training. By offering the program at various community college locations in a part-time format, students are able to complete their degree requirements while retaining full-time employment. The ITM program is not unique in these respects compared to other program offerings from Ferris State University, but similar programs offered by competitor institutions have additional restrictions, prerequisite fields or courses, and more stringent residency requirements. In this manner, the ITM program fits well with the CET goals and framework to offer a degree completion option that is highly attractive to prospective students.

Delivery of Quality Academic Programs Congruent with the Ferris Mission

The ITM program is career focused, which aligns with the Ferris Mission quite well.

Classroom topics offer case studies, problem solving and real-world situations to give students decision making tools in precisely the fields they expect to encounter in their positions. Classroom assignments and discussions often focus on issues, situations and problems students have experienced or are facing currently, and offer methodologies and steps to resolve a number of these matters. Program faculty members always seek continuous improvement in course offerings, topics, and methods to accomplish these tasks.

Goals Specific to the Program

The program faculty members have set a number of specific goals, and these are listed below.

Mid to Long Term Program Goals

A. Outcome number one (1) of the program indicates preparation for outside certification from a number of organizations. It is the desire of the program faculty and the CET Administration to promote and encourage this from virtually all students in the program. It is not uncommon for certification examinations of this nature too often cost on the order of $500, and it is hoped to allow for a scholarship-like fund that pays the fees for all students wishing to pursue professional certification. It is hoped that promotional literature for the program can be developed which highlights this activity, in order to attract potential students to the program. Although a program scholarship fund has been established for Grand Rapids students, it remains small and it is unknown whether the funds can be used for this purpose.
B. The assessment plan of the program is in place, and continues to evolve. At present, formal assessment activities are taking place each semester.
C. Based on assessment results, it is anticipated that adjustments will be made in the program. The overall plan will include extensive documentation in order to track changes. It is also anticipated that the assessment results will be shared with members of the Advisory Panel, and extensive discussions will remain part of the agenda for each and every meeting of this group.
D. The existing job market is encouraging for both current students and potential students alike. This employment market will require continuous monitoring in order to determine whether or not the program will continue to meet the needs of its customers and students. Matters of significance regarding the employment market of program students and graduates will also remain part of the agenda for every Advisory Panel meeting for the foreseeable future.

E. Efforts for recruiting new students will be an ongoing process. As the program has gained momentum, it will become easier to highlight the success of program graduates. Their success will improve the reputation and visibility of the program in general, and it is anticipated this will become a part of marketing materials for the program. Continued communication with key personnel at community colleges and in certain industrial firms will continue, along with direct classroom visits to offer information about the program.
F. Input from the CET Administration indicates an interest in moving the program to more of a "Technology Management" emphasis, incorporating additional importance in topics such as intellectual property matters, innovation, energy consumption, sustainability and other emerging topics for broad-based technology management degree program.

Program Compatibility, Role and Alignment with the Mission of Ferris State University

The Industrial Technology and Management Program aligns well with the Ferris Mission by providing relevant, career-focused education and training. Like many other programs at Ferris, it is a niche program unlike typical programs offered by peer and competitor institutions. The degree is unique in that it allows for degree completion from a variety of concentrations at the associate's degree level, thereby offering flexibility in both the background and experience of the prospective student. It is recognized that experienced professionals bring a wealth of knowledge to the classroom, and the program seeks to enhance that base of knowledge with coverage in areas beyond that of their area of primary expertise.

Curriculum

The overall goals of the initial ITM program (2002) were stated as follows:

- A program for working adults with prior industrial experience
- A flexible curriculum which respects their knowledge of their prior studies, yet builds on this knowledge in topics relevant to the blend of engineering, business and management
- Evening course offerings which enables minimal conflicts with their current position

The Ideal ITM Student:

- Has an associate's degree in a technical or business related field
- Has at least five years of relevant employment experience in an industrial setting
- Wishes to advance their career and their opportunities by completing a 4-year degree program
- Typically will enroll in 5-6 credit hours per semester

The ITM program was developed as a niche program to serve the needs of working adult professionals, in order to enhance their credentials and offer better opportunities to advance their careers. The underlying philosophy of the approach to develop the degree was very different from that of a traditional student curriculum model. It was felt that with older students who possess a great deal of prior job experience, a more flexible degree program would serve their purposes better than that of a program designed with more rigid requirements for traditional younger students. The reasoning for this was two-fold; first, older non-traditional students already bring a wealth of life experiences at prior job training and experiences to their current positions as well as the to the classroom. In this manner, classroom coverage of topics could proceed deeper than it could for younger traditional students without the related experiences. Secondly, for older, experienced students, it is generally accepted that the precise degree a student obtains is less important than the fact that they obtained a degree. While a degree in 'any' subject would not be prudent, allowing a flexible degree program to enhance their careers with topical coverage for subjects in which they do not have direct textbook knowledge would be very beneficial.

In 2001 discussions ensued regarding specific course content and topical coverage in what would become the ITM program. Early in the process, the program was titled:

Manufacturing Technology – Industrial Controls Technology Concentration. Following several adjustments, including a change in title and emphasis, the current curriculum was devised. Many of the courses in these early stages were developed solely by professionals in industry, without consultation with academic professionals. Although this approach was perhaps novel, it lacked forethought required in the true rigorous development of an academic program and discipline. On consultation with Big Rapids campus personnel on this program, there were a number of concerns that remained unaddressed at the time the program was approved and ultimately launched and offered to prospective students.

Personnel from UCEL played a key role in marketing the ITM program at various off campus locations in these early stages. The program appeared to meet all the needs of specific students with a technical background, while needing baccalaureate level credentials. These efforts were very aggressive, and perhaps slightly premature. Cohorts had been launched at two off-campus sites with only experimental status of certain program courses, leading to a great deal of confusion on the part of students and adjunct instructors. Several adjustments were made in the program to offer a better focus of technology topics, rather than the Industrial Controls emphasis that was the initial thrust of the program. Courses were introduced in Computer Aided Design and Automation Technologies while removing courses specifically in the topic of Industrial Controls. Part of the reason this was performed was that these initial courses in the program were anticipated to be dropped by the Electrical and Electronics Engineering Technology (EEET) department, and the need was present to replace these courses.

In 2005, there was a need to give the program a better image and more focused overall direction. A logical sequence of the program courses was initiated, and prerequisites in the program were eventually adjusted to enable this in a more regular fashion. The suggested

textbooks were adjusted and changed to better reflect the academic nature of the program. To ensure uniform coverage of courses state-wide, extensive 'adjunct packages' were developed and delivered to numerous adjuncts each semester. The vast majority of dedicated program courses were not developed by academic professionals, and required adjustments to meet the needs of both the program and the academic community within Ferris State University. While the assistance sought from industry professionals was well-intended, it would have been more prudent to consult extensively with academic personnel regarding this program earlier in the approval process.

An Advisory Panel was assembled and convened for an initial meeting to introduce the program, along with defining the role of the Advisory Panel. Once the Advisory Panel was assembled, a unified direction was established and the course charted to maintain this direction. The initial program outcomes consisted of four fairly vague statements, and together with input from the Advisory Panel, a skills matrix was developed which evolved into fourteen targeted and measureable Program Outcomes. In early 2006, rapid growth and expansion in the number of locations of the program necessitated the hiring of a second full-time faculty member and prior to the Fall semester in 2006, a second full-time faculty member was hired.

The original CPTS Charter and Omnibus Agreement specified that curriculum matters were to remain somewhat flexible and not subject to customary VPAA and Academic Senate oversight and review. Beginning in the Fall of 2005, this changed when the coordinator of the ITM program was appointed as the CPTS representative to the Academic Senate, and an understanding was attained with the CPTS Dean and VPAA that all future actions within CPTS programs would be subject to typical curriculum review procedures. The Program Coordinator was also appointed to the University Curriculum Committee as the CPTS representative in order

to facilitate changes necessary in not only the ITM program, but other young programs within CPTS offerings. A curriculum adjustment in dropping an existing program course and creating a new course as its replacement was the first curriculum proposal to undergo the normal curriculum approval process through the Academic Senate.

Formal Curriculum Changes in the Program

November, 2004 – Course Replacement Due to Changes in another Department

Two new courses were introduced. A course in three-dimensional computer aided design was developed for the program, APPS 305, entitled 3-D Modeling and Prototyping. The course listed as a prerequisite MFGE 313, Computer Applications for Manufacturing. The goals of the course included introducing students to CAD technologies with parametric modeling, a fairly recent development in this technology which often uses software packages that are far easier to learn and use than more established and traditional CAD software. Another goal was to introduce students to rapid prototype development, a technique commonly in use in manufacturing facilities to create solid model concept components for ease of viewing. It was understood that a single course in this subject would not result in topic experts, but it was important to help the students understand the many concepts and idiosyncrasies of the field, including file formats, manipulations and design elements and the terminology associated with the CAD field. In this way, the student could ultimately communicate better with experts in this field and communicate the nature of

CAD work to executive level management with sufficient knowledge of what is required in CAD drawings and in the discipline.

A second course developed to replace the courses eliminated by the EEET Program was APPS 350. This course was originally entitled “Automation Technology, Electrical and

Mechanical Design." On consultation with assorted personnel with considerable knowledge in this field, it was determined that the topic was too broad to be encompassed in a single course. Following this, the course evolved slightly with more coverage of the business aspects of the automation field and was given a new title; Automation Technologies Management. The goals and focus of this course were to introduce students to the field of automation, along with provide tools and skills for managing automation projects. On completion of the course, the students would have the ability to justify the need for automation, understand and be able to apply existing automation technologies to specific industrial situations and be able to navigate the path for extensive capital investment projects of this nature for a facility.

January, 2007 – Course Change Due to Changes in another Department

A course was replaced in the program core, due in large part to discussions in the Manufacturing Engineering Technology Department regarding the elimination of one of the required ITM courses. The course MFGE 313 was removed from the program due to informal conversations with the Manufacturing Engineering Technology Program. This particular course was targeted for phase out in the manufacturing curriculum as part of a larger curriculum revision. The ITM program replaced this course with a course more suitable to subsequent required courses in the program and very applicable to the eventual careers of the program students. A course in manufacturing standardization and certification numbered APPS 420 provided coverage more suitable to students in the program in their career preparation. The goals and focus of the course were to explore the field of standardization in industry through examination of existing and emerging standards, documentation and accrediting agencies. This quality management course was designed to explore such topics as ISO and TS Certification, standards that exist in the vast majority of manufacturing and industrial firms around the world.

The course also explores the Malcom Baldrige National Quality Award, and investigates the criteria and methodology for the award structure. Firms of both manufacturing and service were targeted for study. In addition, some of the many aspects of international requirements and certification of a far more stringent nature than those found in the United States were to be investigated in this new course.

January 2009 – Prerequisite Changes in Upper-Level Program Courses

A proposal was initiated that dictated a more firm course sequence in the program that was lacking since inception of the program in 2001. A number of prerequisites were dictated in the higher 400-level courses. Virtually all the enrolled students in the program are part-time, non-traditional students, and it was desired to have the more advanced courses in the program be reserved for those established students who have completed a number of the courses. It has been practice to encourage students to enroll in the program courses in a logical sequence of topics, and this proposal will make formal the intended sequence of courses in this program. A title change in the Capstone course will offer clarity for students in their selection of courses without any changes in content. In addition, deletion of ENGL 321 from the program writing options would allow for students to experience the type of writing they will experience in the work force, where this particular course does not fit this expectation as well as ENGL 311 or ENGL 325.

March 2009 – Adjustments in Admissions Criteria

Among the original criteria for program admission were the following:

- A minimum of 56 credit hours of prior college coursework
- An overall grade point average of 2.5 in previous college courses
- A grade point average of 2.5 in prior mathematics courses in college coursework

The program faculty felt that the mathematics GPA requirement was not relevant for students in the program. While other admissions requirements will remain unchanged, the mathematics restriction will be removed. The corresponding graduation requirement of a specific mathematics GPA requirement was also removed. One reason for this adjustment was there appeared to be no other academic program which requires a specific grade point average in topics outside the major or area of expertise, other than the general 2.0 FSU grade point average. In addition, there were two current courses in the program which require mathematics prerequisites, and the restriction made admission criteria consistent with the existing restrictions for these two courses (MFGE 341 and MFGE 423). The recent adjustment in restrictions for transfer credits did not allow credit for grades earned at other institutions lower than a C (2.0), so students who performed poorly in these particular courses would be required to repeat their mathematics sequence in order to complete the program requirements, including the prerequisites to other courses. In terms of whether this decision would jeopardize the success of students, there was no observed trend in current or previous students that previous mathematics grades were a predictor of either success or failure for the courses in question. Finally, the program faculty members wanted to stress the Ferris Mission of opportunity to extend admission to a few additional students who would otherwise qualify for admission to the program. In the case of transfer students, an undeclared status typically disqualified them from all types of financial aid.

October 2014—Program Curriculum Changes

Replaced current course APPS 305 with existing FSU course MKTG 321. Eliminated current alternative course APPS 301, and replace it with PROJ 320. Replaced PSYC 150 with a social awareness elective. Limit core requirement transfer credit so at least two thirds (22 hours) of the ITM core course requirements, including APPS 499 Senior Capstone Project, must be

completed at FSU. Restrict enrollment in the capstone project course APPS 499 to those students that have completed a minimum of 19 hours of the core course requirements including MFGE 352, MFGE 423, ENGL 311/321/325, and MGMT 370. Further information in regards to the program curriculum change can be found here: ITM Curriculum Change

Assessment of Student Learning

Quality of Instruction

From the results obtained from the APR survey instruments, 83% of current students and program alumni indicated a highly favorable rating of instructors in the program. Of the 17% of persons remaining, these individuals cited 1-3 instances where they did not feel the instructor(s) delivered high quality instruction, or a similar matter. In every instance, the students indicated a majority of their instructors were 'good' or better. The only notable matter with these results is that perhaps up to half the courses in the program are delivered by adjunct faculty members. A great deal of time and effort has gone into developing a pool of qualified adjuncts at various sites around the state, but without the luxury of being in the same location as the adjunct instructors at all times, it remains difficult to assess, evaluate, coach and mentor adjunct instructors. In cases where adjuncts have not been a good fit, they have generally not been asked to return to this role.

For Advisory Panel members, 85.7% of the respondents indicated that the ITM program prepared students well to enter the workforce. In related questions, members of the Panel were 100% in agreement that the ITM program allowed students to prepare for multiple career opportunities. In a question related to program strengths, a number of respondents indicated that the faculty members, both full-time and adjunct, were strengths in the program – citing the real-world experience of the faculty in particular. While none of the questions addressed the "quality

of the faculty" specifically, these items do indicate a favorable rating to what is being taught and delivered in the ITM program.

Quality of Instruction Measurements

Evaluations are employed each semester using the Student Assessment of Instruction (SAI) instrument, and faculty members have used additional assessment surveys unique to the program. Exit evaluations of graduating seniors have been used, as well as those pertinent for the Academic Program Review process for current students, alumni and employers.

Quality of Instruction Enhancement-Professional Development

Faculty members are encouraged to attend activities related to teaching improvement on a continuous basis. In addition to seminars offered by Ferris State University within the Faculty Center for Teaching and Learning, faculty members attend seminars and meetings of professional societies, relevant conferences and engage in both formal and informal research activities. These activities are expected to continue as the program matures, allowing for continuous improvement of classroom delivery and outcomes quality for the benefit of both program students and Ferris State University.

Assessment of Student Performance

Students are assessed in a variety of ways in the program. Common classroom techniques, such as examinations, quizzes, research papers, projects, and presentations are used for the program. The Senior Project Capstone project culminates a student's studies and remains a major cumulative assessment of students in the program. A comprehensive assessment plan has been developed for the program, including rubrics for each of the program outcomes.

- Started TracDat implementation
- Program outcomes done

- Curriculum map being developed
- Program level results to be implemented for 2016-2017

Course Content Updates

Feedback is obtained from meetings of the Advisory Panel, from student surveys, industry discussions, community college partners, conferences and exit surveys. Appropriate adjustments in coverage, content or emphasis have been performed once the information is collected and delivered.

Success of Graduates

The success of graduates of the program is measured by their initial employment in the field within six months of graduation. Exit surveys have been a source of this input, and it is anticipated that additional follow-up will occur for graduates in the future. In the information available from the survey instruments of the APR process, almost all of program graduates maintained or received a full-time position within six months of graduation. From additional communication with program graduates, a number of others which did not return surveys are enrolled in other programs of study, including education. Among the institutions these graduates have reported or communicated for their studies include the University of Michigan, Western Michigan University, Michigan State University and Ferris State University.

Program Profile

Student Profile

Gender

The typical student in the program is a nontraditional student with a full time position. The average age of the students reflects this as reports indicate the average age of students as

37 for 2015-2016. In previous years, this value has varied, but only slightly, from 36 to 38 as a total range. The range of ages for students in the program is from about 24 to 60 years of age, although this range has not been verified except through anecdotal evidence and verbal reports. As would be expected, the vast majority of students in the program are male (70), although enrollment includes a small but consistent female gender presence (8) of students in the program.

Race and Ethnic Background

Similarly, race and ethnic background data was also offered from the Office of Institutional Research and Testing. As expected, the vast majority of students in the program list Caucasian as their background (66), although there are notable other categories represented in the student population. Specific actions to level this distribution have not yet been taken, although there are a number of items under consideration including targeted scholarships, promotional materials printed in multiple languages and others.

Student Status

All students in the program are residents of the State of Michigan and for practical purposes; most students are considered part-time students. All students are enrolled in off-campus courses, except for those that are delivered via the Internet. The vast majority of 'ground' courses are offered in the evenings. Every student in the program must enroll in a number of online-delivered and mixed-delivery courses, as there remain several courses that can only be obtained online. Currently (2016), about one third of ITM courses are in-seat, one third are mixed-delivery, and one third fully online.

Student Quality

	Grand Rapids	Muskegon	Warren
# Females	1	1	6
# Males	13	6	51
# Black or African American	0	0	4
# Hispanic or Latino	1	0	0
# American Indian or Alaskan Native	0	0	1
# Multi-Racial	0	0	2
# Asian	0	0	1
# Unknown	0	1	2
# White	13	6	47
Average Age	37.71	34	37.53
Average GPA	3.36	3.67	3.45

Student Grade Point Average

The grade point average of students in the program has been reported from the Office of Institutional Research and Testing. The distribution of grades reported for the past five (5) academic years for students in the program values are seen as a good representation of the student population in the program, with nontraditional students of a more serious nature than younger traditional students, motivated to succeed by their own life experiences. The grade point average values are displayed, which indicate the presence of successful students.

ACT Scores

The average ACT scores of students were provided to the department, but the number of students which either took this examination or required this examination was quite low, given the nature of the program and corresponding university admissions policies. The average reported score to the department ranged from 18.2 to 20.0, with high values of 26 and low values of 14. While these values may appear lower than the average expectations of Ferris State

University, all admitted students exceed the admission criteria established for the program. In addition, with an average age of 37 and having already taken more than 50 credit hours of college coursework, whatever score students may have attained on the ACT examination in previous years are largely irrelevant.

Job Placement

The typical term of job 'placement' does not offer the best information for graduates of the ITM program. Since the vast majority of students already have a full time position, 'placement' becomes almost an irrelevant measure. Salaries of program graduates are among the highest of all baccalaureate level programs offered by Ferris, reported from the survey data at $80,000 annually. In addition, due to the unique nature of the program and its students, promotions to higher levels of responsibility have been common. Work is ongoing regarding comprehensive program assessment, matters of formal accreditation, and faculty enhancement that are a portion of the program focus.

Enrollment

The official enrollment figures are compiled by the Office of Institutional Research and Testing. Along with official enrollment counts from various semesters, additional information is offered, such as full time equivalent faculty, credit hour production, degrees awarded in the program and other information which will be addressed in subsequent sections of this document. The information displayed includes what the program faculty members indicate as 'total' credit hour production. While some service courses in the program also enroll students from programs other than ITM, a large fraction of these courses were offered as dedicated sections for the program students. Including the 'total' credit hours generated by students, the credit hour

production tends to fluctuate, but remains near the average of all programs at Ferris State University.

Program Capacity

The estimated capacity of the program is approximately 150 students. Despite the fact that a student capacity of 150 appears low, it has been common practice to offer continued advising and "servicing" of students who are not enrolled in Ferris courses, as they work to complete their overall degree requirements. The main factor which determines the program capacity is the number of full-time faculty members, currently numbering one. Enrollment in the program appears fairly strong, but classrooms have not been filled to capacity on a consistent basis. For the Fall semester of 2016, indications point to at capacity or overcapacity classrooms at the Warren location.

It should be noted that students in the program require a significant amount of time for academic advising. Typically, full time faculty members (advisors) become the sole source of information and often the primary Ferris contact with these students. It is commonplace for faculty members to address a great number of questions or concerns for students that are often addressed by other dedicated personnel on the Ferris Big Rapids campus. Examples of student questions or concerns addressed include, but are not limited to the following: course selection at a number of community colleges, financial aid matters, registration difficulties, purchasing of textbooks, Blackboard or MyFSU matters, common questions often addressed by the TAC office, student billing discrepancies, financial or other registration holds, career guidance, matters involving adjunct instructors, and others. In addition, the flexible nature of the degree program enables a wide distribution of prior college experiences for individual students in the program.

In trying to service student needs, many of the 'fine-print' items of degree programs require a great deal more attention than those for fulltime student on the Big Rapids campus. Included in these 'fine-print' items which often require significant time and attention are the 30 credit hours to satisfy the residency requirement and a minimum of 40 credit hours taken at the 300 and 400 levels. All these items collectively result in additional time and attention required for each student, especially in cases where the background of any given student might warrant a course substitution, leaving another degree requirement item unsatisfied. Despite enrollment fluctuations, the advising load has continued to grow, due primarily to students seeking to complete their degree requirements, but not enrolling directly in courses from Ferris State University. In addition to the common concerns of enrolled students, when dealing with prospective students, these same faculty members have been responsible for numerous matters of promotion of the program, including speaking with prospects, dealing with key personnel at community colleges, visits to pertinent industry sites, career fairs, and other matters that are often handled by dedicated marketing personnel. The Metro Detroit Regional Office in Warren and the EIO Grand Rapids office have offered assistance in some of these areas, but often common methods of marketing to transfer students have been unsuccessful. The primary reason for this is that the target population for the program does not 'reside' at high schools or community colleges, but typically have full-time positions in industry. The primary method of successful program promotion has been word-of-mouth with assistance from current students in the program. In addition to this being extremely challenging, it is unknown how to properly promote the program beyond this method.

Student Retention and Graduation

Using terminology specific to typical reports in the APR process, "retention" is perhaps not an accurate measure that can or should apply to the ITM program. Virtually all students in the program begin and finish as part-time students. There have been a variety of reasons for which students have dropped-out of the program sequence and these can be communicated to program faculty weeks in advance, or at the last minute before a semester begins. If a student happens to miss a course in the sequence, it is likely that their ultimate degree completion plans will be altered severely, as they will need to wait until a semester well into the future before being given the opportunity to take the missed course. For these reasons, perhaps the term 'retention' is not the best description of students that remain in the program. In the vast majority of cases, students that 'drop' the program have come to finish their requirements at some point in the future. The many reasons why students have not elected to take Ferris courses in any given semester as listed as follows:

- Students have lacked a prerequisite for one or more courses offered, and require delaying continuation of their sequence until the prerequisite course has been completed
- Students have previous college coursework that allows a substitute course for the only course offered that semester and do not enroll in specific Ferris courses during that particular semester
- The employer of the student has plans to send them on an extended assignment for several weeks and extensive travel does not allow them to take a course at that time
- The employer of the student has reduced or cut funding for higher education of its employees and the student is struggling to find ways of paying for their education

- The student has lost their job due to a downsizing effort and has no available funding to continue their education at that specific time

Currently, the ITM program is not following a cohort model. Instead, students take from one course a year to seven courses a semester. Still with an average of about two courses per semester, per student.

Program Value beyond Productivity and Enrollment Numbers

Labor Market Analysis

Information was obtained from the Federal Bureau of Labor Statistics in order to ascertain the anticipated demand from graduates in the program. The best fit for positions generally fell into specific titles; production manager, industrial engineering technician, industrial engineer, operations/general manager and engineering manager. Currently, the employment market is especially promising in the manufacturing sector, regardless of expertise. The data available at the time of this document was compiled from 2014. Nonetheless, it is anticipated that the figures presented are fairly accurate. Concerning the 'engineering' title, it is noted that while formally trained engineers have more rigorous educational requirements, many students and graduates of the ITM program function as engineers. This is more common in smaller firms than larger firms, but nonetheless, this particular job title is worth noting in the labor market analysis of graduates in the ITM program. Within the available data for employment projections, some interpretation was necessary to determine a 'realistic' figure of positions that could be made available for graduates of the ITM program. Overall, it was estimated that approximately 0.5% of the "listed" positions nationwide would be available to graduates of the program, given the location of manufacturing firms within the State of

Michigan in larger metropolitan areas. The data presents a composite total of projected employment figures from the Bureau of Labor Statistics. Specifically for the State of Michigan, projections on various jobs in 'high demand' are available from the Michigan Department of Labor and Economic Growth. Information was compiled and published in 2014, and these fairly realistic figures show slight optimism for available positions within certain fields of expertise.

Despite this projection, it should be noted that many of the students in the program hold positions while they are completing their degree program. A substantial fraction of existing students already have the title of manager, and are looking for additional advancement opportunities. Overall, while employment projections are not positive in all respects, the labor market is not expected to 'absorb' all graduates of the program in new positions. It is generally accepted that manufacturing activity and corresponding employment is highly cyclical, and it is anticipated that the current poor job outlook conditions will continue to improve in the future. Close contact with the Advisory Panel during this time period should enable adequate program adjustments so that demand for graduates remains constant and is positioned for continued growth in the future.

Employment Figures from the Bureau of Labor Statistics
http://www.bls.gov/ooh/management/industrial-production-managers.htm SOC Code: 11-3051 2014: 173,400 2024: 167,100 Change in Number (2014-2024): -6,300 Change in Percent (2014-2024): -4%
http://www.bls.gov/ooh/management/mobile/architectural-and-engineering-managers.htm SOC Code: 11-9041 2014: 182,100 2024: 185,800 Change in Number (2014-2024): 3,700 Change in Percent (2014-2024): 2%
http://www.bls.gov/ooh/management/top-executives.htm SOC Code: 11-1021 2014: 2,467,500

2024: 2,614,500 Change in Number (2014-2024): 147,000 Change in Percent (2014-2024): 6%
http://www.bls.gov/ooh/architecture-and-engineering/industrial-engineers.htm SOC Code: 17-2112 2014: 241,100 2024: 243,200 Change in Number (2014-2024): 2,100 Change in Percent (2014-2024): 1%
http://www.bls.gov/ooh/architecture-and-engineering/industrial-engineering-technicians.htm SOC Code: 17-3026 2014: 66,500 2024: 63,500 Change in Number (2014-2024): -3,000 Change in Percent (2014-2024): -5%

Response to Emerging Trends

The general flexibility in the specific requirements of the degree program allows for adjustment in areas of concentration, course sequences with targeted focus, and other modifications. Many of these have been and will continue to be discussed with the program Advisory Panel as the discipline and conditions evolve. As an example, since these discussions began, program outcomes have been adjusted to include additional formal professional certification. Enabling students and graduates to attain better credentials was viewed as highly beneficial and responsive in order to distinguish the program from those related or similar. It is anticipated that similar adjustments will continue in order to allow the program to remain current and relevant to the needs of students and employers alike.

The Choice of the Program for Prospective Students

As stated previously, the ITM program is a viable choice for prospective students for a number of reasons. While this issue was not addressed specifically in the surveys presented for the self-study, there are a number of common reasons students are drawn to the program, as is

communicated in early advising sessions for prospective students. The specific reasons for students choosing the ITM program are as follows:

1. Students possess an associate's degree and wish to enhance their resume with baccalaureate level credentials
2. Students wish to position themselves for promotional opportunities within their current firm
3. Students understand the recent job market turmoil and wish to give themselves an advantage or similarly qualified persons
4. Students have been released from their positions in a downsizing effort and have no option but to complete their education for positions that are advertised within their expertise

In general, it is apparent that the program is, indeed meeting these goals, as evidenced by results from exit interviews, exit surveys and the various survey instruments developed for the APR process. The overall sentiment of the current students and program alumni are addressed in the question, "What is the likelihood you would enroll in this program again?" The results from this specific question in the survey indicate that 93% of the alumni and current students in the program would enroll in it again if given the opportunity. This result is favorable, but it is hoped that actions taken in the coming years will improve this figure.

Program Flexibility and Access

Access of the Program to Students

At one point over the past five years, it could perhaps be debated that the ITM program was one of the most accessible programs offered at Ferris State University. There were seven active off-campus locations, each offering courses in the program at evening times convenient to the student population. Some of the locations had very few students, namely, Dearborn, Port

Huron and Delta College and as a consequence, very small sections were offered with eight or fewer students in each course. The same problem occurred when a second cohort was launched at the Muskegon location in the Fall of 2007. Despite tireless efforts to improve the student population with marketing and dedicated visits to the various locations, student enrollment at these locations remained low. A directive in March of 2008 from the CPTS Dean instructed the faculty to offer a greater portion of the classes via the Internet, in order to deal with the low enrollment numbers at these off-campus locations. The strategy was to tolerate low enrollments in certain courses, and combine all low cohorts into larger Internet sections to make the program more economically feasible. Including courses from other departments and general education courses, 20 credit hours of the required 34 credit hours of program courses from Ferris State University were available via the Internet. Despite these efforts, student enrollments at certain locations remained low, and in July of 2008, CPTS administrative personnel made a decision to cancel all cohorts except Grand Rapids and Warren, citing economic reasons.

Today (2016), the ITM program is growing rapidly. Muskegon Community College, Grand Rapids Community College, Macomb Community College, Oakland Community College, and other community colleges see the ITM program at Ferris as a logical next step for their technical students. By encouraging students to take 90 credits at the community college level, ITM is not seen as a competitor but a logical next step for their students. The 30 credit residency requirement at Ferris is a key enabler in the success of ITM and other programs as well.

Visibility and Distinctiveness

The ITM program remains a unique offering both within the College of Engineering Technology, as well as Ferris State University. Similar to a number of programs for nontraditional students within Ferris State University, its students bring a wealth of knowledge

and experience to the classroom, which is indeed, unique at the undergraduate level. Each of these students shares their existing knowledge within their primary field of expertise to offer a breadth of topics and coverage. The program offers prospective students the opportunity to advance their credentials and enhance their careers, by allowing them to complete their undergraduate degree without extensive travel or residence on the Big Rapids campus of Ferris State University. The average student in the program enters with an Associate of Applied Science in one of any number of common technical or manufacturing related fields, including computer aided design, welding, electronics technology, industrial maintenance, plastics technology, machining and fabrication, materials technology and many other technical fields. Transfer credits from these programs are accepted into the flexible nature of the degree program, and the general concept is to respect the prior coursework, technical expertise and experience of the student, and build on these areas of prior knowledge with technical disciplines where they do not have direct knowledge or experience. Coupled with the extensive work experience of the student, the knowledge and skills gained while enrolled in the program allows the student to seek significant advancement opportunities or new employment positions related to their prior associate's degree program, while having the advantage of a baccalaureate degree they seek.

The program was designed precisely for the working adult with five or more years of experience in an industrial or manufacturing setting. Until this program was initiated, there were limited options for prospective students wishing to pursue a baccalaureate degree without forfeiting numerous credit hours of their prior course work. An option considered by many of the students was likely the field of engineering; however, unless a student begins college course work in an established pre-engineering program, it is unlikely that a large fraction of the credit

hours attained previously would transfer into an engineering program. As a result, prospective students would get easily discouraged and choose not to pursue the completion of a Bachelor's degree program. The ITM program was initiated in order to give students another option that offers a shorter path than that of engineering, while covering a number of the same topics and concepts of the engineering discipline. The ITM program was not intended to replace an engineering degree program, for the field of engineering is prestigious and offers numerous career paths when completed. But when a student has 10 or more years of full time job experience, the prospects of pursuing a full engineering degree on a part time basis for eight (8) or more years is often daunting. The ITM program was designed with this in mind and offers prospective students another option to complete a degree program that is similar in many ways to engineering, and also has a notable emphasis in the business field. This niche remains unique within Ferris State University, as well as statewide.

For a prospective ITM student, the thought of being able to complete a bachelor's degree program, blended in both the engineering and business fields in less than four years, is very attractive. The professional sequence of courses offered by Ferris State University generally takes about two and one half years to complete when the student enrolls in an average of six credit hours per semester. The program was one of the first "3+1" programs offered by Ferris State University, allowing for a cost-effective degree program in a viable field of interest and experience for prospective students. In addition, by offering courses in the evenings, the student has been able to keep their current position, as well as have limited time for family obligations during this time. This "package" presented to the prospective student has generated a great deal of excitement among the target audience for the program.

With an attractive program to offer students, the ITM program is generally positioned well to

attract students for enrollment. However, difficulties arise in trying to notify prospective students of this opportunity. The traditional transfer student population is enrolled at the community college level when considering transfer programs. The working adult that has been away from higher education for a long period of time is not generally 'available' in this manner. Despite this, career counselors at various community colleges have been invaluable in presenting the ITM degree program within the community college setting, but unless a potential student seeks this opportunity themselves, it remains difficult to reach the target audience of the program. Faculty members have also visited classrooms of community colleges to expose prospective students to the program; however this option remains viable only at those locations where policy allows such visits.

The program faculty and staff members within both CET and Extended and International Operations (EIO) have made tireless efforts in marketing the ITM program. Mailings have been initiated and sent to hundreds of graduates of suitable feeder programs at the associate's degree level, along with the initiation of a number of promotional events at the various community college sites. In addition, CET and EIO personnel have held college fair events which promote various programs offered by Ferris State University, and these have been attended by program faculty members when teaching schedules do not conflict with the events. The promotional activities which have been undertaken for the review reporting period are displayed below.

ITM Program Competitors

The ITM program is unique in that it is designed to serve working adults that have worthwhile employment experience in the industrial field, and are seeking promotional opportunities within their own technical field of expertise. Serving a nontraditional population

such as this has challenges, but also allows for delivery flexibility in the Ferris model of serving off-campus students at the various sites of community college partners. After extensive review of academic programs that could be considered competitors, a number of institutions, their respective programs and some notable highlights of each are listed in the table below.

Institution	Degree	Program Name	Similarities	Differences
State of Michigan Programs				
Saginaw Valley State University	B.S.	Engineering Technology Management	- Evening courses for working adults	- Interdisciplinary program with no dedicated courses or faculty - Engineering course pre-requisites make for greater inflexibility - Place bound to the Saginaw area only
Michigan Technological University	B.S	Engineering Management	-Generous transfer credits	- Place bound to Houghton only - Electrical technology emphasis
Western Michigan University	B.S	Engineering Management Technology	- Similar employment positions	- Available only in Kalamazoo - Emphasis on chemistry, electronics, and accounting
Davenport University	B.S.	Technology Project Management	- Generous transfer credits	- Internship required - Project Management focus
Eastern Michigan University	B.S.	Technology Management	- Evening courses for working adults - Generous transfer credits	- Place bound to the Ypsilanti area only - Business Core is notable - Very little 'technology' emphasis
Online Degree Programs				
Siena Heights University	B.S.	Management		- Business only program
University of Phoenix	B.B.A.	Management		- Business only program
University of Wisconsin – Stout	B.S.	Management	- Technology Management concentration	- Business core and business emphasis
Illinois Institute of Technology	B.S.	Industrial Technology & Mgmt	- Very similar in many respects	- Curriculum is not as flexible - Far more 'resident' credit hours are required
Southeast Missouri State University	B.S.	Industrial Technology	- Content is similar	- Can attain degree with examinations or professional certificates without course enrollment

East Carolina University	B.S.	Industrial Technology	- Content is similar	- Curriculum is not as flexible - Far more 'resident' credit hours are required

For the online-only programs listed in the table, the Bachelor of Business Administration (BBA) programs from University of Phoenix and Siena Heights University are listed primarily because they are strong options for prospective students, due to their convenience. The content of the ITM program is far more unique and offers additional technical emphasis from that of more common BBA programs. In addition, the target audience is far different for the ITM program than that of BBA programs across the state, region or nation. Because of this, not every BBA program will be listed as a competitor, but only these select few programs with a strong marketing presence in the state of Michigan are offered for comparison. Given the job titles of current graduates of the ITM program, Ferris is well positioned for continued success with this program. The specific job titles of program graduates will be addressed in greater detail in another section of this document. It is desired that the program remain viable for technical professionals and not abandon this in favor of more emphasis in the discipline of business. Having the technical component allows the program to remain distinct from the Bachelor of Business Administration program offered by the College of Business, with a different target audience and emphasis. It is anticipated that as long as resources are committed to the program, in the form of faculty, staff and other resources common to other academic programs, that the success of the ITM program will be ensured. The overall situation with enrollment trends, the needs of technical professionals and advice from the Advisory Panel and program graduates will be monitored closely over the next few years and adjusted appropriately to meet the changing needs of its students.

Program Promotional Activity Assignments Involving Faculty Members and Staff of the Industrial Technology & Management Program at Ferris State University from 2010 – 2016 Grand Rapids and Warren Locations

Grand Rapids Location

Date	*Location*	*Purpose/Event*
November 2014-April 2014		
	Grand Rapids Higher Area Higher Education Network	Consortium
	Lacks Industries	
	Hayworth	
	Gentex	
	Grand Rapids Community College Recruitment table	2 semesters/yr 2x/wk for 16 weeks
	GRCC Cruising to College event	
	Michigan Association of Collegiate Registrars & Admissions Offices (MACRAO)	
	KVCC Education Fair	
	Aquinas College Night Fair	
	Thornapple Kellogg	
	Muskegon College Night	
	High School Visits	
	Baldwin HS-AmeriCorps	
December 2014-May 2015		
	Grand Rapids Higher Area Higher Education Network	
	Dematic	
	Grand Rapids Community College Recruitment table	2 semesters/yr 2x/wk for 16 weeks
	GRCC Transfer Fair	
	National Association for College Admissions Counseling	Presentation FSU/GR programs/ITM
	High School Visits	
	Byron Center Edu/Skilled Trades fair	
	Holland New Tech	
	KCTC College Expo	
	New Options Academy	
	Southeast Academy	
	GRCC Learning Center	
December 2015-June 2015		
	Grand Rapids Higher Area Higher Education Network	

	Lacks Industries	
	Michigan Works	
	Job Corps	Presentation FSU/GR
	Grand Rapids Community College Recruitment table	2 semesters/yr 2x/wk for 16 weeks
	Hispanic Chamber Career Expo	Presentation FSU/GR Programs/ITM
	B2B Summer Stop Learning Program	Presentation FSU/GR Programs/ITM
	2015 Latino Youth Conference	Presentation FSU/GR Programs/ITM
	Michigan Association of Collegiate	
	Hope	
	Van Buren	
	Aquinas College Night Fair	
	2015 CareerQuest	Display/Presentation MFG/Tech
January 2016-		
	Grand Rapids Higher Area Higher Education Network	
	Wolverine	
	Kentwood Community Church	
	Hayworth	
	Dematic	
	Herman Miller	
	Lacks Industries	
	High School Visits	
	Baldwin High	
	Byron Center Edu/Skilled Trades fair	
	2016 Latino Youth Conference	Presentation of ITM Industry/program
	2016 CareerQuest	Presentation of ITM industry/program
	Grand Rapids Community College Recruitment table	2 semesters/yr 2x/wk for 16 weeks
	Alternative Schools	
	New Options Academy	
	54th Street Academy	

Warren Location

Date	**Institution**	**Event**
9/10/2013	WCCCD DR	Welcome Week
9/11/2013	WCCCD DT	Welcome Week

9/11/2013	WCCCD Eastern	Welcome Week
9/12/2013	WCCCD NW	Welcome Week
9/19/2013	Macomb S/C	Veterans Stand Down
10/17/2013	Macomb UC	Open House
10/22/2013	OCC Southfield	College Transfer Days
10/23/2013	OCC Auburn Hills	College Transfer Days
10/24/2013	Macomb S/C	Ferris Open House
11/13/2013	WCCCD Eastern	College Days
2/5/2014	WCCCD DT & NW	Welcome Week
2/6/2014	WCCCD UC & E	Welcome Week
2/15/2014	Macomb C/C	Discover Macomb
3/25/2014	OCC Royal Oak	College Transfer Days
3/26/2014	OCC Auburn Hills	College Transfer Days
3/27/2014	Macomb UC	Open House
3/29/2014	Macomb S/C	Discover Macomb
4/1/2014	Ford Van Dyke Plant	Education Fair
5/17/2014	Selfridge ANG	Hiring Our Heroes/Education Fair
8/13/2014	Ford Sterling Axle	Health & Education Fair
8/25/2014	Macomb C/C	Welcome Back
8/26/2014	Macomb S/C	Welcome Back
9/9/2014	WCCCD-DT	Career Exploration Day
9/16/2014	WCCCD W & DR	Welcome Week
9/17/2014	WCCCD DT & E	Welcome Week
9/18/2014	WCCCD NW	Welcome Week
9/19/2014	WCCCD UC	Distance Learning open house
9/23/2014	Macomb S/C	Counselor/Advisor update
9/26/2014	Macomb S/C	Veterans Stand Down
9/30/2014	Macomb S/C	AMGT Open Session w/ Michele Harvey; M-102
10/3/2014	Chrysler Sterling Stamping	Education Fair

10/7/2014	Macomb C/C	Counselor/Advisor update
10/7/2014	WCCCD-DR	College Night
10/16/2014	Macomb UC	Open House
10/21/2014	OCC Southfield	College Transfer Fair
10/22/2014	OCC Auburn Hills	College Transfer Fair
10/23/2014	Macomb S/C	SEMATA
11/13/2014	Macomb S/C	Open House-Warren
11/15/2014	Macomb C/C	Discover Macomb
12/2/2014	Macomb S/C	Explore Careers in Manuf.
1/12/2015	Macomb S/C	Welcome Back
1/13/2015	Macomb C/C	Welcome Back
1/26/2015	WCCCD Downtown	Welcome Week
1/27/2015	WCCCD W & DR	Welcome Week
1/28/2015	WCCCD Eastern	Welcome Week
1/29/2015	WCCCD Northwest	Welcome Week
3/7/2015	Macomb S/C	Discover Macomb
3/24/2015	OCC Royal Oak	College Transfer Days
3/25/2015	WCCCD Eastern	TRiO Open House
3/25/2015	OCC Auburn Hills	College Transfer Days
3/26/2015	OCC Orchard Ridge	College Transfer Days
3/26/2015	MCC UC	UC Open House
4/28/2015	MCC Job Fair	Sports & Expo Center
5/21/2015	Macomb Sports & Expo	Automotive Design & Engineering Career Expo
6/18/2015	UPS	Education Fair
8/24/2015	Macomb CC	Welcome Back S/C
8/25/2015	Macomb CC	Welcome Back S/C
9/14/2015	WCCCD	Welcome Week-Downtown
9/15/2015	WCCCD	Welcome Week-Western
9/15/2015	WCCCD	Welcome Week-Downriver

9/16/2015	WCCCD	Welcome Week-Northwest
9/17/2015	WCCCD	Welcome Week-Eastern
10/13/2015	SC4	Transfer Fair
10/15/2015	Macomb UC	Open House
10/27/2015	OCC CTD	Highland Lakes
10/28/2015	OCC CTD	Auburn Hills
10/28/2015	Ford Romeo Engine	Education Fair
10/29/2015	OCC CTD	Southfield
11/3/2015	Warren Open House	Macomb S/C
12/3/2015	Macomb S/C	RET Evening Expo & Careers in Manufacturing
12/17/2015	MAT2 OCC	ITM Presentation
1/11/2016	Macomb C/C	Welcome Back
1/12/2016	Macomb S/C	Welcome Back
1/19/2016	Ryder Logistics	Education Fair
1/27/2016	WCCCS Eastern	Welcome Week
2/27/2016	Macomb S/C	Discover Macomb
3/14/2016	WCCCD East	Advisor Update-Partners
3/29/2016	OCC Royal Oak	College Transfer Days
3/30/2016	OCC Auburn Hills	College Transfer Days
4/13/2016	Macomb UC	Open House
4/19/2016	Macomb S/C	Job Fair
4/20/2016	Macomb S/C	Life After Graduation
4/27/2016	Utica Adult Education	Ferris Presentation
4/30/2016	Macomb Early College	MISD
Recruiting Tables/Class Visits		
9/24/2013	Class Visit Macomb S/C	AUTO 2210 Roland
9/26/2013	Class Visit Macomb S/C	AUTO 1420 Roland

10/9/2013	Macomb C/C & S/C	Ferris Blitz
10/15/2013	Class Visit Macomb S/C	AUTO 1010 Hart
1/21/2014	Recruiting Table	Macomb S/C G&H building
1/22/2014	Recruiting Table	Macomb C/C A building
1/29/2014	Recruiting Table	Macomb C/C C building
2/4/2014	Recruiting Table	Macomb S/C S building
2/6/2014	Recruiting Table	Macomb C/C A building
2/24/2014	Recruiting Table	Macomb C/C A building
2/25/2014	Recruiting Table	Macomb S/C J building
3/3/2014	Recruiting Table	Macomb C/C A building
3/4/2014	Recruiting Table	Macomb C/C C building
3/5/2014	Class Visit Macomb S/C	ENGR 1000 Sirowatka
3/24/2014	Recruiting Table	Macomb S/C J building
4/7/2014	Recruiting Table	Macomb S/C S building
4/8/2014	Recruiting Table	Macomb C/C A building
4/14/2014	Recruiting Table	Macomb S/C G&H building
9/29/2014	Macomb S/C M-123	Class visit; Gordon Lee AUTO 1000
10/8/2014	OCC Auburn Hills	Recruiting table J building
10/13/2014	OCC Auburn Hills	Recruiting table J building
10/15/2014	Macomb S/C J bldg	Recruiting table
10/27/2014	Macomb C/C A bldg	Recruiting table CJ & BAPT (east side)
11/3/2014	Macomb C/C E bldg	Class visit, Marty Sirowatka ENGR 1000
11/11/2014	Macomb H&G lobby	Recruiting table
11/18/2014	OCC Auburn Hills	Recruiting table J building
11/19/2014	Macomb S/C	Class visit, Gary Flatt ENGR 1000
11/20/2014	Macomb C/C A bldg	Recruiting Table-CJ & BAPT (east side)
2/9/2015	Macomb S/C M bldg	Class visit, Gordon Lee
2/9/2015	Macomb S/C J bldg	Recruiting table all programs

2/11/2015	Macomb C/C A bldg	Recruiting table CJ & BAPT (east side)
2/16/2015	Macomb C/C E bldg	Class visit, Gary Flatt, ENGR 1000
3/2/2015	Macomb C/C A bldg	Recruiting table CJ & BAPT (south side)
4/6/2015	Macomb S/C	Class visit, Lisa Richter, MAT2 Applied Tech Trig
4/7/2015	Macomb S/C J bldg	Recruiting table in Library
4/9/2015	Macomb C/C A bldg	Recruiting table-East side
4/13/2015	Macomb S/C G& H	Recruiting Table
4/22/2015	Macomb C/C C bldg	Recruiting table
7/20/2015	Recruiting Table	Macomb S/C G &H
7/20/2015	Recruiting Table	Macomb C/C H building
9/22/2015	Class Visit-ITM	Macomb S/C Demarino (Welding)
9/22/2015	Class Visit-ITM	Macomb S/C Ranks (PRDE 1010)
10/5/2015	Class Visit-ITM	Macomb S/C Ranks PRDE 1010
10/19/2015	Recruiting Table	Macomb S/C J building
10/26/2015	Recruiting Table	Macomb C/C A building
10/27/2015	Recruiting Table	Macomb C/C H building
11/18/2015	Recruiting Table	Macomb S/C G&H Lobby
2/16/2016	Recruiting Table	Macomb S/C C building
2/29/2016	Class Visit-ITM	Macomb C/C Richter ENGR 1000
2/29/2016	Recruiting Table	C/C A building
3/15/2016	Recruiting Table	Macomb S/C J building
3/21/2016	Recruiting Table	Macomb C/C C building
3/21/2016	Class Visit-ITM	Macomb C/C Richter ENGR 1000
4/11/2016	Recruiting Table	C/C H Building
4/18/2016	Recruiting Table	S/C C building
Meetings/Committees		
6/17/2014	MFG Day meeting	Committee for MFG Day

7/17/2014	MFG Day meeting	Committee for MFG Day
8/19/2014	MFG Day meeting	Committee for MFG Day
9/16/2014	MFG Day meeting	Committee for MFG Day
9/22/2014	Macomb S/C	Vikki Gordon, Ken Clark, myself
10/28/2014	MFG Day meeting	Committee for MFG Day
11/12/2014	Russ Davis	
11/18/2014	MFG Day meeting	Committee for MFG Day
3/30/2015	Chamber meeting	Sterling Hts. Chamber
4/21/2015	MFG Day meeting	Committee for MFG Day
4/21/2015	MFG Day	Committee Meeting
5/19/2015	MFG Day	Committee Meeting
6/16/2015	MFG Day	Committee Meeting
7/21/2015	MFG Day	Committee Meeting
8/18/2015	MFG Day	Committee Meeting
9/11/2015	MFG Day	Committee Meeting
9/28/2015	Macomb S/C	AMTEC Case Study
10/27/2015	MFG Day	Committee Meeting
12/2/2015	MAT2 Macomb	Meeting-review
12/15/2015	MFG Day	Committee Meeting
1/26/2016	MFG Day	Committee Meeting
2/22/2016	ITM	Muskegon CC
5/22/2015	Chamber Network Event	Breakfast and Business @ Detroit Sportsman Congress
6/25/2015	Chamber Network Event	After 5 @ Packard Proving Grounds
7/17/2015	Chamber Network Event	Breakfast and Business @ Outback
7/14/2015	Chamber Orientation	
7/17/2015	Chamber	Breakfast and Business-Outback
8/19/2015	Chamber Network Event	Business Card Exchange
11/20/2015	Chamber Network Event	Breakfast and Business @ Applebee's

2/18/2016	Chamber	Annual Meeting
4/6/2016	Chamber Reps visit	Bill Griffith & Gina Rieck

In the case of the many promotional events, it remains challenging to coordinate the evening teaching assignments of faculty members and the events, and this has led to a lower visibility of the ITM program compared to many other CET and other off-campus programs represented at the occasion. With some success, faculty and staff members have visited manufacturing companies to inform personnel about the program opportunity, but often the Human Resources department has authority over similar matters within a large organization, and the promotional aspects of this may not reach the proper audience. Nonetheless, dedicated visits to select companies are expected to continue indefinitely in order to reach more people of the target program audience.

At present, the most successful method to attract potential students has been by word of mouth from current students. While at their place of employment, current students have often initiated conversations with their coworkers about their experiences, which have generated a great deal of interest in the program. However, for those companies which do not have existing students, it remains difficult to reach this audience, despite numerous marketing efforts. It is hoped that EIO and Big Rapids campus marketing personnel will be able to assist the faculty members in promotion and marketing of the program in the future. To date, there has not been a comprehensive plan developed which addresses the many challenges of this specific program, or other programs which face similar challenges in program visibility. It is hoped this can be addressed with the assistance of EIO marketing personnel.

Demand

See current student, alumni, and advisor board surveys.

Student Achievement

As an off-campus (ONLY) program, ITM student achievement is measured differently than on-campus. A 37 year-old spouse working 50-60 hours a week is a different creature than an 18-22 year-old full-time student on campus.

Employability of Graduates

Currently (2016), all but one ITM student is employed full-time. This is an unfair time to judge the employability of ITM students and graduates. The labor market in the areas ITM serves are at full employment. ITM readies graduates for positions of increasing responsibility.

Faculty Composition and Engagement

Faculty

Ken Clark, Program Coordinator and Instructor, 2014

M.S.A., Central Michigan University

Adjunct Faculty

Arthur Adlam
M.S., Mechanical Engineering, Engineering Design Optimization, Wayne State University

Ramon Banuelos
B.S., Industrial Technology and Management, Ferris State University

Jasen Biczak
B.S. Engineering, Western Michigan University

Hank Bonnah
M.S. Systems Management, Florida Institute of Technology (Florida Tech)

Don Brecken
M.B.A., Strategic Management, Davenport University

Leka Gjolaj
M.S., Finance, Financial Economics, Walsh College, M.A., Economics, Finance, Walsh College

Joseph Joyce, Ph.D. in Engineering Management, Engineering/Industrial Management (2016), Eastern Michigan University, M.B.A., Business Administration, Central Michigan University

John Mola, M.B.A., Business and Finance, University of Michigan

Hriday Prasad
MS, Industrial Engineering, Rutgers University-New Brunswick
M.B.A., Marketing and Finance, University of Detroit Mercy

Michael Raykhinshteyn, M.S. Industrial Operations, Engineering, Business and Technology, Lawrence Technological University

Lisa Richter
M.S., Mechanical Engineering, Wayne State University

Lori Rundall, Masters, Manufacturing Management, Kettering University

Mark Rusco
M.B.A., Central Michigan University

Alicia Schaub
B.S. Industrial Engineering, Kettering University

Sarah Verner
Master of Fine Arts (MFA), Creative Writing, University of Southampton

Joe Wist
M.S. Metallurgical Engineering, Michigan Technological University

Program Administration and Support

Administration

Richard Goosen, Director, School of Design and Manufacturing, P.E., Ph.D., Education, Western Michigan University

Tracy Hilty, Assistant Dean, Extended and International Operations, M.Ed., Career & Technical Education, Ferris State University

Brian Bouwman, Director, Extended and International Operations Metro Detroit, M.B.A., Human Resource Management, Davenport University

Support Staff

Catherine Belkowski, Outreach Coordinator, M.A. Ed., Instruction, Central Michigan University in Warren and staff support in Grand Rapids and Muskegon provide additional ongoing assistance to the ITM program.

Support Services

ITM is offered off-campus only in two physical locations: Grand Rapids and Warren. Support services are utilized as needed. As the program continues to grow, the need for additional support services will be examined.

Facilities and Equipment

The ITM program utilizes classroom space at the community colleges in which the Ferris off-site program is located: Grand Rapids and Warren locations. Cost of the classroom space is dependent on the community college's expense system for partner universities. On occasion, computer lab classrooms are used at an additional cost. The need for additional facilities and equipment requirements will be examined in the future.

Perceptions of Overall Quality

Response coming separately.

Implementation of Findings and Next Steps

Program Strengths

1. There remains a strong presence of students at multiple off-campus locations
2. There is strong interest in the program with potential students and employers of graduates of the program
3. Dedicated and qualified professionals are in place in teaching and advising capacities

4. Strong partnerships exist with members of the Advisory Panel
5. The program curriculum is flexible to meet the needs of employers and students alike
6. The program has a reputation that has gained steady momentum among students and potential employers of graduates
7. Partnerships with some community colleges are strong and gaining

Areas for Concern

Some areas of concern were identified in this report which details a number of challenges facing the program and its faculty members. In most cases, actions have been taken or are under discussion to mitigate or remove the issue. The program advisory board participated in a start-stop-continue exercise that reviewed current curriculum, and the board gave feedback on what aspects we should stop, start, and continue. This information is pertinent to identifying what changes need to be made in order for students to be prepared for current standards in the manufacturing area. The table below is a summary of what was discussed.

ITM Advisory Board Meeting Grand Rapids Stop-Start-Continue Exercise Notes February 18, 2016			
Class	**Stop**	**Start**	**Continue**
APPS 350	▪ Manufacturing improvement mgmt. ▪ Philosophy good, but content needs to be updated. "lights out" ▪ Auto & Tech less management, more hands-on.		▪ Essential, keep the course. ▪ Field trips are very important and key to this class. ▪ It really helps the students see what is being talked about in the class. ▪ Revise ▪ Philosophy good
APPS 351		▪ Break up this course into two course, one Lean and two, Production Flow and Plant Layout. ▪ Bring lean courses into a facility at the beginning of the semester to see a production line to see what kind of waste there	▪ Essential, keep this course. ▪ Continue ▪ Separate content—Intro to Lean and other continuous processes & Production Flow and Plant Layout

		might be and then continue discussions throughout the course. ▪ Lean should be a 400 level class to really be able to dig into the topic. ▪ Lean should be introduction course to the Capstone course. ▪	▪ Beneficial for students to understand issues
APPS 401	▪ Stop	▪ Certifications in their industry	▪ A good course to allow for flexibility in what is happening in the industry. ▪ Possibly make this a 300-level course. ▪ Could replace this to break up APPS 351. ▪ Continue
APPS 420	▪ Manufacturing certification		▪ Should not be a 400-level course. ▪ Could be combined with the OSHA course. ▪ Certifications in their industry
APPS 450	▪ Combine with Auto Tech and Applied Manufacturing	▪ Add some root cause analysis, 5 WHY's, problem solving.	▪ Similar to APPS 351. ▪ TQM and CI, Why is just lean covered more? ▪ This could be the 400-lean if you turn APPS 351 into an Intro to Lean course. Learn concepts in APPS 351 and implement the concepts in this course.
APPS 499		▪ Should be presented to an audience not just to the faculty member or the advisor. ▪ Include individuals from the company involved in the project. ▪ Present to others that are in the capstone course. ▪ Create and/or update resume and include as part of the capstone project.	▪ Keep it as a project base course. ▪ Continue

COHP 330		▪ Create a certificate OSHA course that is more industrial related. ▪ UAW ▪ Add MIOSHA ▪ Environmental	▪ Keep this course. ▪ Continue
MFGE 341			▪ Perfect course and the correct level. ▪ Mark Rusco does a wonderful job.
MFGE 352	▪ Textbooks/Course packs (Review and revise)		▪ Could be combined with APPS 351 (Plant Flow and Plant Layout). ▪ Revise
MFGE 423	▪ This course could be removed/replaced. ▪ Add capital purchases and ROI concepts to another course. Could be added MFGE 352.	▪ Primer for 1 credit	▪ Continue
MGMT 301		UAW	▪ Keep this course.
MGMT 370	▪ Malcolm Baldrige-National Quality Award		▪ Keep this course.
MKTG 321	▪ This course could be removed/replaced. ▪ Bring back 3D modeling or Human Relations	▪ Add CAD requirement	
PROJ 320	▪ Stop	▪	▪ Keep this course.
MGMT 302		▪ Add this course. ▪ Need to learn to deal with different people in an organization. ▪ Add DISC profile. ▪ Add understanding how to motivate others i.e. peer-to-peer, managing a team, etc.	
ENGL 3--		▪ ENGL 311 industry specific writing skills	▪ Technical and/or Business Writing
Computer Course		▪ Add a computer course to specifically add Excel. ▪ Computer-specific course ▪ CAD requirement ▪ Excel/PPT	

Notes:

Start
Tracks—Military, Automotive, Manufacturing
Partner with companies, i.e. GM, Ford, Shape, etc.
Guest speaker/Plant tour (can be broad and/or industry specific)
Where is technology going, i.e. 3D printing, etc?
UAW/Skilled Trades
Design of Experiment/ D.O.E. (DFSS)
More Technician Classes
Inventory Management
Outsource Production (content can be worked into a course)
Presentation/Business Communication/Public Speaking
Human Resource/Relations Management/FMLA/Review System & Labor Relations/HR
Business Law
Practical problem solving

Overall Conclusions

The Program Review Panel of the Industrial Technology and Management Program within the College of Engineering Technology at Ferris State University has reviewed extensively the program, its curriculum and faculty members. From data collected via survey instruments offered to alumni of the program, current students, employers of alumni and members of the Advisory Panel, the results indicate high confidence in the program and its direction. The program offers an option for degree completion to those that hold an associate's degree in a technical or business related field, leading to a Bachelor of Applied Science. The interdisciplinary nature of the program allows for a flexible program which serves a wide audience of nontraditional students who are experienced in their respective workplaces. The program outcomes and goals align well with the expectations and goals of each student, their eventual employers and Ferris State University.

For the reasons stated above, the Program Review Panel recommends to:

CONTINUE THE PROGRAM

For specific items which may require additional details or clarification, the Program Review Panel welcomes further discussion with the Academic Program Review Council of the Ferris State University Academic Senate. It is anticipated the discussions which are to occur in the Fall of 2016 will be mutually beneficial.

_____ _____

Ken Clark, August 15, 2016
Chair, Academic Program Review Panel

Signature Page

X

Ken Clark
PRP Chair, Program Coordinator, Program F...

X

Richard Goosen
Director, School of Design and Manufacturi...

X

Larry Schult
Dean, College of Engineering Technology

Appendices

Surveys

16 ITM APR Current Students Frequencies

Prepared by: Institutional Research & Testing, 07/16

Statistics

	N		Mean	Median	Std. Deviation
	Valid	Missing			
q1a Need regularly: Professional Certification	8	0	3.25	3.00	.707
q1b Need regularly: seeking and using credible sources of scholarly knowledge	8	0	3.50	3.50	.535
q1c Need regularly: problem solving	8	0	3.75	4.00	.707
q1d Need regularly: quality tools	8	0	3.75	4.00	.707
q1e Need regularly: making economic decisions	8	0	3.13	3.00	.991
q1f Need regularly: improving productivity	8	0	3.50	3.50	.535
q1g Need regularly: significant forms of communication	8	0	3.75	4.00	.707
q1h Need regularly: project management and leadership	8	0	3.63	4.00	.744
q1i Need regularly: teamwork	8	0	3.50	4.00	1.069
q1j Need regularly: management skills	8	0	3.50	4.00	.926
q1k Need regularly: global enterprise knowledge	8	0	3.25	3.00	.707
q1l Need regularly: lifelong learning and continued professional development	8	0	3.50	4.00	.756
q1m Need regularly: the application of citizenship and professionalism	8	0	3.38	4.00	.916
q2a Skills: locating credible reference sources	8	0	3.38	3.00	.518
q2b Skills: program solving	8	0	3.63	4.00	.518

q2c Skills: contributing to the quality of improvement initiatives	8	0	3.75	4.00	.463
q2d Skills: making economic decisions	8	0	3.38	3.50	.744
q2e Skills: improving productivity	8	0	3.75	4.00	.463
q2f Skills: communicating effectively	8	0	3.38	3.50	.744
q2g Skills: assuming a leadership role in project management	8	0	3.50	4.00	.756
q2h Skills: recognizing and improving team dynamics	8	0	3.63	4.00	.518
q2i Skills: further professional development	8	0	3.88	4.00	.354
q2j Skills: gaining confidence in my professional citizenship	8	0	3.50	3.50	.535
q3 Have professional certification	8	0	1.63	2.00	.518
q3a Type of certification	8	0			
q4 Intend to seek professional certification when finish	8	0	1.38	1.00	.518
q4a Which kind	8	0			
q5 Primary reason entered ITM program	8	0			
q6 How long enrolled in program	8	0			
q7 Target date for completion/graduation	8	0			
q8 Current job title	8	0			
q9 Employer's name, city, state	8	0			
q10 Current salary range	6	2	4.17	4.00	1.169
q11 How long in position	8	0			
q12 Number of years in industry	8	0			
q13 Gender	8	0	1.13	1.00	.354
q14 Race	8	0	4.50	5.00	1.414
q15 Perform better or worse and why	8	0			

q16 Best course and why	8	0			
q17 Worst/least useful course and why	8	0			
q18 Best instructor and why	8	0			
q19 Overall expertise and value of program instructors	8	0			
q20 I wish we would do more and why	8	0			
q21 I wish we would do less and why	8	0			
q22 Enroll in program again and why/why not	8	0			
q23 Additional comments	8	0			

Frequency Table

q1a Need regularly: Professional Certification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	12.5	12.5	12.5
	Somewhat Agree	4	50.0	50.0	62.5
	Strongly Agree	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

q1b Need regularly: seeking and using credible sources of scholarly knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	4	50.0	50.0	50.0
	Strongly Agree	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

q1c Need regularly: problem solving

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	12.5	12.5	12.5
	Strongly Agree	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

q1d Need regularly: quality tools

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	12.5	12.5	12.5
	Strongly Agree	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

q1e Need regularly: making economic decisions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	12.5	12.5	12.5
	Somewhat Agree	4	50.0	50.0	62.5
	Strongly Agree	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

q1f Need regularly: improving productivity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	4	50.0	50.0	50.0
	Strongly Agree	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

q1g Need regularly: significant forms of communication

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	12.5	12.5	12.5
	Strongly Agree	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

q1h Need regularly: project management and leadership

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	12.5	12.5	12.5
	Somewhat Agree	1	12.5	12.5	25.0
	Strongly Agree	6	75.0	75.0	100.0
	Total	8	100.0	100.0	

q1i Need regularly: teamwork

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	12.5	12.5	12.5
	Somewhat Agree	1	12.5	12.5	25.0
	Strongly Agree	6	75.0	75.0	100.0
	Total	8	100.0	100.0	

q1j Need regularly: management skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	2	25.0	25.0	25.0
	Strongly Agree	6	75.0	75.0	100.0
	Total	8	100.0	100.0	

q1k Need regularly: global enterprise knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	12.5	12.5	12.5
	Somewhat Agree	4	50.0	50.0	62.5
	Strongly Agree	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

q1l Need regularly: lifelong learning and continued professional development

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	12.5	12.5	12.5
	Somewhat Agree	2	25.0	25.0	37.5
	Strongly Agree	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

q1m Need regularly: the application of citizenship and professionalism

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	2	25.0	25.0	25.0
	Somewhat Agree	1	12.5	12.5	37.5
	Strongly Agree	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

q2a Skills: locating credible reference sources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	5	62.5	62.5	62.5
	Strongly Agree	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

q2b Skills: program solving

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	3	37.5	37.5	37.5
	Strongly Agree	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

q2c Skills: contributing to the quality of improvement initiatives

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	25.0	25.0	25.0
	Strongly Agree	6	75.0	75.0	100.0
	Total	8	100.0	100.0	

q2d Skills: making economic decisions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	12.5	12.5	12.5
	Somewhat Agree	3	37.5	37.5	50.0
	Strongly Agree	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

q2e Skills: improving productivity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	25.0	25.0	25.0
	Strongly Agree	6	75.0	75.0	100.0
	Total	8	100.0	100.0	

q2f Skills: communicating effectively

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	12.5	12.5	12.5
	Somewhat Agree	3	37.5	37.5	50.0
	Strongly Agree	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

q2g Skills: assuming a leadership role in project management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	12.5	12.5	12.5
	Somewhat Agree	2	25.0	25.0	37.5
	Strongly Agree	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

q2h Skills: recognizing and improving team dynamics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	3	37.5	37.5	37.5
	Strongly Agree	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

q2i Skills: further professional development

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	12.5	12.5	12.5
	Strongly Agree	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

q2j Skills: gaining confidence in my professional citizenship

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	4	50.0	50.0	50.0
	Strongly Agree	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

q3 Have professional certification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	3	37.5	37.5	37.5
	No	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

q3a Type of certification

		Frequency	Percent	Valid Percent	
Valid		5	62.5	62.5	
	Certified Six Sigma Black Belt, ASQ Certified Quality Engineer, ASQ	1	12.5	12.5	
	I am currently a state licensed master electrician and completed a certificate program from the community college in industrial electrical maintenance. However, in order to advance into an engineering role, I needed to obtain a bachelor's degree. I graduated from the ITM program in May 2016.	1	12.5	12.5	
	Lean Six Sigma Black Belt	1	12.5	12.5	
	Total	8	100.0	100.0	

q3a Type of certification

	Cumulative Percent

Valid		62.5
	Certified Six Sigma Black Belt, ASQ Certified Quality Engineer, ASQ	75.0
	I am currently a state licensed master electrician and completed a certificate program from the community college in industrial electrical maintenance. However, in order to advance into an engineering role, I needed to obtain a bachelor's degree. I graduated from the ITM program in May 2016.	87.5
	Lean Six Sigma Black Belt	100.0
	Total	

q4 Intend to seek professional certification when finish

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	5	62.5	62.5	62.5
	No	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

q4a Which kind

		Frequency	Percent	Valid Percent	
Valid		3	37.5	37.5	
	Certified Quality Auditor, ASQ	1	12.5	12.5	
	Degree; Master's Degree in Project Management Degree; Master's Degree in Industrial Management	1	12.5	12.5	

	I plan on enrolling in Ferris State's MBA program and begin classes in 2017.	1	12.5	12.5	
	PMP	1	12.5	12.5	
	Six Sigma	1	12.5	12.5	
	Total	8	100.0	100.0	

q4a Which kind

		Cumulative Percent
Valid		37.5
	Certified Quality Auditor, ASQ	50.0
	Degree; Master's Degree in Project Management Degree; Master's Degree in Industrial Management	62.5
	I plan on enrolling in Ferris State's MBA program and begin classes in 2017.	75.0
	PMP	87.5
	Six Sigma	100.0
	Total	

q5 Primary reason entered ITM program

		Frequency	Percent	Valid Percent	
Valid	1. Enhance my professional knowledge. 2. Complete master's degree or MBA degree 3. Move my professional career to the next level. 4. Continue me education to stay competitive in ever changing job market.	1	12.5	12.5	

	Advancement	1	12.5	12.5	
	As a full time professional the program offers what I think is the best option to grow within my company	1	12.5	12.5	
	Gain understanding and tools in lean/quality initiatives. Also hoping to build a skill set in leadership.	1	12.5	12.5	
	Most classes from my Associate degree transferred in and the Bachelor degree will help me attain management positions within my field.	1	12.5	12.5	
	My employer required a 4 year degree in engineering or a related field in order to advance into an engineering or management role.	1	12.5	12.5	
	my job position require a degree	1	12.5	12.5	
	Obtaining bachelors degree which compliments my AAS.	1	12.5	12.5	
	Total	8	100.0	100.0	

q5 Primary reason entered ITM program

		Cumulative Percent
Valid	1. Enhance my professional knowledge. 2. Complete master's degree or MBA degree 3. Move my professional career to the next level. 4. Continue me education to stay competitive in ever changing job market.	12.5
	Advancement	25.0
	As a full time professional the program offers what I think is the best option to grow within my company	37.5
	Gain understanding and tools in lean/quality initiatives. Also hoping to build a skill set in leadership.	50.0

	Most classes from my Associate degree transferred in and the Bachelor degree will help me attain management positions within my field.	62.5
	My employer required a 4 year degree in engineering or a related field in order to advance into an engineering or management role.	75.0
	my job position require a degree	87.5
	Obtaining bachelors degree which compliments my AAS.	100.0
	Total	

q6 How long enrolled in program

		Frequency	Percent	Valid Percent	
Valid	1year	1	12.5	12.5	
	2 years	1	12.5	12.5	
	3 years	1	12.5	12.5	
	4 years	1	12.5	12.5	
	6 years	1	12.5	12.5	
	Fall 2014	1	12.5	12.5	
	I enrolled at FSU in 2007 and was duel enrolled at Muskegon CC (all total it took me 10 years to complete the ITM program)	1	12.5	12.5	
	Since 2010	1	12.5	12.5	
	Total	8	100.0	100.0	

q6 How long enrolled in program

	Cumulative Percent

Valid	1year	12.5
	2 years	25.0
	3 years	37.5
	4 years	50.0
	6 years	62.5
	Fall 2014	75.0
	I enrolled at FSU in 2007 and was duel enrolled at Muskegon CC (all total it took me 10 years to complete the ITM program)	87.5
	Since 2010	100.0
	Total	

q7 Target date for completion/graduation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	12/2016	2	25.0	25.0	25.0
	2017	1	12.5	12.5	37.5
	2018	2	25.0	25.0	62.5
	Fall 2016	1	12.5	12.5	75.0
	Graduated May 2016	1	12.5	12.5	87.5
	May 2016	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

q8 Current job title

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Advance Manufacturing	1	12.5	12.5	12.5
	Application Engineer	1	12.5	12.5	25.0
	Inspector	1	12.5	12.5	37.5
	Manufacturing Engineer	1	12.5	12.5	50.0
	Operations Supervisor	1	12.5	12.5	62.5
	Project Manager	1	12.5	12.5	75.0
	Quality Assurance Supervisor	1	12.5	12.5	87.5
	Senior Engineering Associate	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

q9 Employer's name, city, state

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	25.0	25.0	25.0
	Eaton, Southfield, Michigan	1	12.5	12.5	37.5
	General Motors, Pontiac, MI	1	12.5	12.5	50.0
	Novi, MI	1	12.5	12.5	62.5
	Oliver Packaging and Equipment Company Walker, MI	1	12.5	12.5	75.0
	Shape Corp. Grand Haven, MI	1	12.5	12.5	87.5
	Yoplait, Reed City, Michigan	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

q10 Current salary range

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	$40,000-$59,999	2	25.0	33.3	33.3
	$60,000-$79,999	2	25.0	33.3	66.7
	$80,000-$99,999	1	12.5	16.7	83.3
	$100,000 or more	1	12.5	16.7	100.0
	Total	6	75.0	100.0	
Missing	Not Applicable	1	12.5		
	System	1	12.5		
	Total	2	25.0		
Total		8	100.0		

q11 How long in position

		Frequency	Percent	Valid Percent	
Valid	11.5years	1	12.5	12.5	
	15 years	1	12.5	12.5	
	16 years	1	12.5	12.5	
	3 years	2	25.0	25.0	
	6 months	1	12.5	12.5	
	90 days	1	12.5	12.5	
	I've been doing this job for 3 years, but under the title of Engineering Technician.	1	12.5	12.5	

	Total	8	100.0	100.0	

q11 How long in position

		Cumulative Percent
Valid	11.5years	12.5
	15 years	25.0
	16 years	37.5
	3 years	62.5
	6 months	75.0
	90 days	87.5
	I've been doing this job for 3 years, but under the title of Engineering Technician.	100.0
	Total	

q12 Number of years in industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	13	1	12.5	12.5	12.5
	18	1	12.5	12.5	25.0
	18 years	1	12.5	12.5	37.5
	20	1	12.5	12.5	50.0
	20 years	1	12.5	12.5	62.5
	21	1	12.5	12.5	75.0
	25 years	1	12.5	12.5	87.5

	30 years	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

q13 Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	7	87.5	87.5	87.5
	Female	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

q14 Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	African-American/Black	1	12.5	12.5	12.5
	Caucasian-American/White	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

q15 Perform better or worse and why

		Frequency	Percent	Valid Percent	
Valid		1	12.5	12.5	
	Better	1	12.5	12.5	

	Better, I was able to create this position within the company and mold it to benefit the use of cross functional teams.	1	12.5	12.5	
	Better. Drive to succeed. Experience in different roles within manufacturing.	1	12.5	12.5	
	I am motivated & dedicated. I tend to perform better because I am willing to put the time in to do the job right. I am also willing to challenge the status quo & investigate opportunities for improvement instead of sticking with routine just because "that's the way we've always done it".	1	12.5	12.5	
	I perform well because set my professional standards very high (ethics, learning, service, quality). I continuously improve professional skills (education, certificates, workshops). I set my short/long time goals.	1	12.5	12.5	
	I think as a new college graduate I'm way beyond some 22 year old fresh out of college, but much of this has to do with my work experience in manufacturing (18 yrs) and experience working as an industrial electrician. My work history has also made school easier as I was able to immediately apply concepts learn in class directly to work.	1	12.5	12.5	
	Worse. New to position and food industry.	1	12.5	12.5	
	Total	8	100.0	100.0	

q15 Perform better or worse and why

		Cumulative Percent
Valid		12.5
	Better	25.0

	Better, I was able to create this position within the company and mold it to benefit the use of cross functional teams.	37.5
	Better. Drive to succeed. Experience in different roles within manufacturing.	50.0
	I am motivated & dedicated. I tend to perform better because I am willing to put the time in to do the job right. I am also willing to challenge the status quo & investigate opportunities for improvement instead of sticking with routine just because "that's the way we've always done it".	62.5
	I perform well because set my professional standards very high (ethics, learning, service, quality). I continuously improve professional skills (education, certificates, workshops). I set my short/long time goals.	75.0
	I think as a new college graduate I'm way beyond some 22 year old fresh out of college, but much of this has to do with my work experience in manufacturing (18 yrs) and experience working as an industrial electrician. My work history has also made school easier as I was able to immediately apply concepts learn in class directly to work.	87.5
	Worse. New to position and food industry.	100.0
	Total	

q16 Best course and why

		Frequency	Percent	Valid Percent	
Valid		2	25.0	25.0	
	All courses were high quality and taught by professors who had solid theoretical and practical experience.	1	12.5	12.5	
	Capstone, It allowed me to show my advisor that I was able to apply the skills I learned in one comprehensive project presentation	1	12.5	12.5	

	Favorite courses included Production Flow & Plant Layout [APPS-351] because we got to tour other companies & I've been with my current employer since 1998 so my experience outside Shape is very limited. I also do a lot of value stream mapping in my current role (& good instructor & guest speakers). I really liked Safety & Environmental Health [EHSM-330] because at the time I was heavily involved in updating our companies electrical safety program (in particular addressing arc flash). I enjoyed Quality Operations Mgmt [MGMT-370] as it really opened my eyes as to why we do some of things we do & helped me better understand our processes & the requirements. Project Mgmt [PROJ-320]-am considering this focus for my MBA. I took Parametric Design & Part Modeling [CAD-210] at the CC & had a lot of fun while learning about 3D modeling. English 311 was also a very good practical class.	1	12.5	12.5	
	Operations Management. It gave a good overview of the different roles and tools used within operations.	1	12.5	12.5	
	So far general mfg.	1	12.5	12.5	
	The last one needed for completing the program.	1	12.5	12.5	
	Total	8	100.0	100.0	

q16 Best course and why

		Cumulative Percent
Valid		25.0
	All courses were high quality and taught by professors who had solid theoretical and practical experience.	37.5

	Capstone, It allowed me to show my advisor that I was able to apply the skills I learned in one comprehensive project presentation	50.0
	Favorite courses included Production Flow & Plant Layout [APPS-351] because we got to tour other companies & I've been with my current employer since 1998 so my experience outside Shape is very limited. I also do a lot of value stream mapping in my current role (& good instructor & guest speakers). I really liked Safety & Environmental Health [EHSM-330] because at the time I was heavily involved in updating our companies electrical safety program (in particular addressing arc flash). I enjoyed Quality Operations Mgmt [MGMT-370] as it really opened my eyes as to why we do some of things we do & helped me better understand our processes & the requirements. Project Mgmt [PROJ-320]-am considering this focus for my MBA. I took Parametric Design & Part Modeling [CAD-210] at the CC & had a lot of fun while learning about 3D modeling. English 311 was also a very good practical class.	62.5
	Operations Management. It gave a good overview of the different roles and tools used within operations.	75.0
	So far general mfg.	87.5
	The last one needed for completing the program.	100.0
	Total	

q17 Worst/least useful course and why

		Frequency	Percent	Valid Percent	
Valid		2	25.0	25.0	
	OSHA laws, purely from a industry standpoint, does not apply daily	1	12.5	12.5	
	Oshawa laws so far.	1	12.5	12.5	
	Physics.	1	12.5	12.5	

	Program was well designed and I think that all courses touched separate and important subject.	1	12.5	12.5	
	The Calculus classes	1	12.5	12.5	
	The worst class I ever took was Contemporary Issues in Industrial Management [APPS-401]. I took this class in the Fall of 2010 and Joseph Joyce was the instructor; it was also his first time teaching this course. I took it online and honestly felt as if it were a social experiment to discover what happens when students are placed in an online course without an instructor. He was unprepared, exercised zero classroom management & had extremely poor communication. Despite the instructor, I still learned some things in this class and feel this class may be worth while with a good facilitator. The least useful courses I took while completing the ITM program were courses such as Humanities, Art History and Theater.	1	12.5	12.5	
	Total	8	100.0	100.0	

q17 Worst/least useful course and why

		Cumulative Percent
Valid		25.0
	OSHA laws, purely from a industry standpoint, does not apply daily	37.5
	Oshawa laws so far.	50.0
	Physics.	62.5
	Program was well designed and I think that all courses touched separate and important subject.	75.0
	The Calculus classes	87.5

	The worst class I ever took was Contemporary Issues in Industrial Management [APPS-401]. I took this class in the Fall of 2010 and Joseph Joyce was the instructor; it was also his first time teaching this course. I took it online and honestly felt as if it were a social experiment to discover what happens when students are placed in an online course without an instructor. He was unprepared, exercised zero classroom management & had extremely poor communication. Despite the instructor, I still learned some things in this class and feel this class may be worth while with a good facilitator. The least useful courses I took while completing the ITM program were courses such as Humanities, Art History and Theater.	100.0
	Total	

q18 Best instructor and why

		Frequency	Percent	Valid Percent	
Valid		2	25.0	25.0	
	All instructors were highly qualified professionals and possessed solid theoretical and practical knowledge.	1	12.5	12.5	
	Ken Clark, experience in industry.	1	12.5	12.5	
	Ken Clark, Mark Rusco & Joe Wist. Not only are they very knowledgeable in their respective field, but they all have a passion for teaching and you can tell they enjoy their job.	1	12.5	12.5	
	Ken Clark. He was challenging but kept the material relevant and interesting.	1	12.5	12.5	
	Kenneth Clark	1	12.5	12.5	
	No favorites, Ken Clark, Mark Rusco and Mark Dunnbeck we all great...Very practical approach to teaching the material.	1	12.5	12.5	

	Total	8	100.0	100.0	

q18 Best instructor and why

		Cumulative Percent
Valid		25.0
	All instructors were highly qualified professionals and possessed solid theoretical and practical knowledge.	37.5
	Ken Clark, experience in industry.	50.0
	Ken Clark, Mark Rusco & Joe Wist. Not only are they very knowledgeable in their respective field, but they all have a passion for teaching and you can tell they enjoy their job.	62.5
	Ken Clark. He was challenging but kept the material relevant and interesting.	75.0
	Kenneth Clark	87.5
	No favorites, Ken Clark, Mark Rusco and Mark Dunnbeck we all great...Very practical approach to teaching the material.	100.0
	Total	

q19 Overall expertise and value of program instructors

		Frequency	Percent	Valid Percent	
Valid		1	12.5	12.5	
	Excluding Joseph Joyce, I have a very high opinion of all the instructors.	1	12.5	12.5	
	Good.	1	12.5	12.5	
	Great! Industry proven professionals with loads of experience	1	12.5	12.5	

	I enjoyed almost all of my instructors. The fact that they were real working professionals instead of just academics made their material more credible.	1	12.5	12.5	
	In general the instructors had experience and knowledge of the subject matter they were teaching.	1	12.5	12.5	
	So far I love it.	1	12.5	12.5	
	The program is well designed and I believe that it will require changes as the time moves on. It will have to adjust to ever changing/evolving technology and job market requirements.	1	12.5	12.5	
	Total	8	100.0	100.0	

q19 Overall expertise and value of program instructors

		Cumulative Percent
Valid		12.5
	Excluding Joseph Joyce, I have a very high opinion of all the instructors.	25.0
	Good.	37.5
	Great! Industry proven professionals with loads of experience	50.0
	I enjoyed almost all of my instructors. The fact that they were real working professionals instead of just academics made their material more credible.	62.5
	In general the instructors had experience and knowledge of the subject matter they were teaching.	75.0
	So far I love it.	87.5
	The program is well designed and I believe that it will require changes as the time moves on. It will have to adjust to ever changing/evolving technology and job market requirements.	100.0
	Total	

q20 I wish we would do more and why

		Frequency	Percent	Valid Percent	
Valid		1	12.5	12.5	
	corporate tours to see course material in action.	1	12.5	12.5	
	Field trips - it's nice to see how other companies are applying concepts taught.	1	12.5	12.5	
	I believe that the program has to evolve/adjust to ever changing job market requirements (technology, new knowledge, etc.)	1	12.5	12.5	
	Interactive training.	1	12.5	12.5	
	Lower tuition cost, because it's over priced.	1	12.5	12.5	
	on line classes	1	12.5	12.5	
	statistical analysis and economic analysis	1	12.5	12.5	
	Total	8	100.0	100.0	

q20 I wish we would do more and why

		Cumulative Percent
Valid		12.5
	corporate tours to see course material in action.	25.0
	Field trips - it's nice to see how other companies are applying concepts taught.	37.5
	I believe that the program has to evolve/adjust to ever changing job market requirements (technology, new knowledge, etc.)	50.0
	Interactive training.	62.5
	Lower tuition cost, because it's over priced.	75.0

	on line classes	87.5
	statistical analysis and economic analysis	100.0
	Total	

q21 I wish we would do less and why

		Frequency	Percent	Valid Percent	
Valid		3	37.5	37.5	
	discussion boards in the online courses.	1	12.5	12.5	
	Don't know.	1	12.5	12.5	
	I don't think there was really anything I loathed.	1	12.5	12.5	
	I think that the program in its current state is well designed but it will require changes as the time moves on, to keep up with advances/changes in the industry/management field.	1	12.5	12.5	
	Physics.	1	12.5	12.5	
	Total	8	100.0	100.0	

q21 I wish we would do less and why

		Cumulative Percent
Valid		37.5
	discussion boards in the online courses.	50.0
	Don't know.	62.5
	I don't think there was really anything I loathed.	75.0

	I think that the program in its current state is well designed but it will require changes as the time moves on, to keep up with advances/changes in the industry/management field.	87.5
	Physics.	100.0
	Total	

q22 Enroll in program again and why/why not

		Frequency	Percent	Valid Percent	
Valid		1	12.5	12.5	
	probably not I would be looking a degree with more on-line courses.	1	12.5	12.5	
	After I finish then I won't need it.	1	12.5	12.5	
	I would enroll again in this program for the following reasons: 1. Great support of program advisers. 2. Program's classes are specific and job related. 3. Program can be completed in the reasonable amount of time. 4. Instructors are very supportive & knowledgeable. 5. Solid and high quality program.	1	12.5	12.5	
	I would, it compliment seems many AAS programs.	1	12.5	12.5	
	Likely. I have picked up a significant number of skills and concepts that help me daily in my current position and will open the door to new possibilities in the future.	1	12.5	12.5	

	Very high. After I completed my apprenticeship I decided to keep going to school to pursue a bachelor's degree because my employer has a good tuition assistance program. At the time I didn't really know what I wanted to do with my education other than to have a fall back should I become unable to meet the physical demands of being an electrician. I wanted a degree that would build on my past manufacturing experience and was pleased that this program was sort of a mish-mosh of engineering and management leaving future career options open. I only recently made the leap into engineering because I was worried a degree without any experience might not be worth much if I later needed it, and I felt I had enough experience as an electrician that I could always fall back to the trade.	1	12.5	12.5	
	Very likely. The program gives a good introduction to different subjects relevant to technical and manufacturing fields.	1	12.5	12.5	
	Total	8	100.0	100.0	

q22 Enroll in program again and why/why not

		Cumulative Percent
Valid		12.5
	probably not I would be looking a degree with more on-line courses.	25.0
	After I finish then I won't need it.	37.5
	I would enroll again in this program for the following reasons: 1. Great support of program advisers. 2. Program's classes are specific and job related. 3. Program can be completed in the reasonable amount of time. 4. Instructors are very supportive & knowledgeable. 5. Solid and high quality program.	50.0

	I would, it compliment seems many AAS programs.	62.5
	Likely. I have picked up a significant number of skills and concepts that help me daily in my current position and will open the door to new possibilities in the future.	75.0
	Very high. After I completed my apprenticeship I decided to keep going to school to pursue a bachelor's degree because my employer has a good tuition assistance program. At the time I didn't really know what I wanted to do with my education other than to have a fall back should I become unable to meet the physical demands of being an electrician. I wanted a degree that would build on my past manufacturing experience and was pleased that this program was sort of a mish-mosh of engineering and management leaving future career options open. I only recently made the leap into engineering because I was worried a degree without any experience might not be worth much if I later needed it, and I felt I had enough experience as an electrician that I could always fall back to the trade.	87.5
	Very likely. The program gives a good introduction to different subjects relevant to technical and manufacturing fields.	100.0
	Total	

q23 Additional comments

		Frequency	Percent	Valid Percent	
Valid		4	50.0	50.0	
	Drop the physics requirement.	1	12.5	12.5	
	Go bulldogs!	1	12.5	12.5	
	I think the only thing I would change about the program is the name. Most times when I tell people I am getting an Industrial Technology & Mgmt degree they have no idea what that means. Maybe something as simple as Industrial Mgmt or Operations Mgmt?	1	12.5	12.5	

	None.	1	12.5	12.5	
	Total	8	100.0	100.0	

q23 Additional comments

		Cumulative Percent
Valid		50.0
	Drop the physics requirement.	62.5
	Go bulldogs!	75.0
	I think the only thing I would change about the program is the name. Most times when I tell people I am getting an Industrial Technology & Mgmt degree they have no idea what that means. Maybe something as simple as Industrial Mgmt or Operations Mgmt?	87.5
	None.	100.0
	Total	

16 ITM APR Alumni Frequencies

Prepared by: Institutional Research & Testing, 07/16

Notes

Output Created		15-JUL-2016 09:10:59
Comments		
Input	Data	J:\IRE\Department\Starr3\INSTUD\SHARED\Snap Surveys (That AO copied to here)\ITM APR-Dawn Schavey\2016 Files\ITM APR Alumni Data 7-15-2016.sav
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Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.

Syntax		FREQUENCIES VARIABLES=q1a q1b q1c q1d q1e q1f q1g q1h q1i q1j q1k q2a q2b q2c q2d q2e q2f q2g q2h q2i q2j q2k q2l q2m q3 q4 q4a q5 q6 q7 q8 q9 q10 q11 q12 q13 q14 q15 q16 q17 q18 q19 q20 q21 q22 /STATISTICS=STDDEV MEAN MEDIAN /ORDER=ANALYSIS.
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	Elapsed Time	00:00:00.06

Statistics

	N		Mean	Median	Std. Deviation
	Valid	Missing			
q1a Skills: pertinent Professional Certification	10	1	3.50	4.00	.707
q1b Skills: locating credible reference sources	10	1	3.50	3.50	.527
q1c Skills: program solving	10	1	3.70	4.00	.483
q1d Skills: contributing to the quality of improvement initiatives	10	1	3.80	4.00	.422
q1e Skills: making economic decisions	10	1	3.50	4.00	.707
q1f Skills: improving productivity	10	1	3.90	4.00	.316
q1g Skills: communicating effectively	9	2	3.78	4.00	.441
q1h Skills: recognizing/dealing with challenges of global enterprises	10	1	3.50	3.50	.527
q1i Skills: assuming a leadership role in project management	10	1	3.60	4.00	.516

q1j Skills: further professional development	10	1	3.60	4.00	.516
q1k Skills: gaining confidence in my professional citizenship	10	1	3.80	4.00	.422
q2a Need regularly: Professional Certification	10	1	2.80	3.00	1.033
q2b Need regularly: seeking and using credible sources of scholarly knowledge	10	1	3.00	3.00	1.054
q2c Need regularly: problem solving	10	1	3.70	4.00	.483
q2d Need regularly: quality tools	10	1	3.40	3.00	.516
q2e Need regularly: making economic decisions	10	1	3.50	3.50	.527
q2f Need regularly: improving productivity	10	1	3.60	4.00	.516
q2g Need regularly: significant forms of communication	10	1	3.60	4.00	.516
q2h Need regularly: project management and leadership	10	1	3.50	4.00	.707
q2i Need regularly: teamwork	10	1	3.40	3.00	.516
q2j Need regularly: management skills	10	1	3.40	4.00	.843
q2k Need regularly: global enterprise knowledge	10	1	3.10	3.00	.568
q2l Need regularly: lifelong learning and continued professional development	10	1	2.90	3.00	.994
q2m Need regularly: the application of citizenship and professionalism	10	1	3.20	3.00	.919
q3 Serve on Advisory Board	10	1	1.70	2.00	.483
q4 Have professional certification	10	1	1.60	2.00	.516
q4a Type of certification	11	0			
q5 Perform better or worse and why	11	0			
q6 Best course and why	11	0			
q7 Worst/least useful course and why	11	0			
q8 Best instructor and why	11	0			

q9 Overall expertise and value of program instructors	11	0			
q10 I wish we had done less and why	11	0			
q11 Enroll in program again and why/why not	11	0			
q12 Obtain/retain employment 6 months after graduation	10	1	1.10	1.00	.316
q13 Job title	11	0			
q14 May we contact employer	10	1	1.20	1.00	.422
q15 Attended grad school	11	0			
q16 Year got degree	11	0			
q17 Salary range	8	3	4.50	4.00	.756
q18 How long in position	11	0			
q19 Years working in industry	11	0			
q20 Gender	9	2	1.11	1.00	.333
q21 Race	9	2	4.78	5.00	.667
q22 Additional comments	11	0			

Frequency Table

q1a Skills: pertinent Professional Certification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	9.1	10.0	10.0
	Somewhat Agree	3	27.3	30.0	40.0
	Strongly Agree	6	54.5	60.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q1b Skills: locating credible reference sources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	5	45.5	50.0	50.0
	Strongly Agree	5	45.5	50.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q1c Skills: program solving

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	3	27.3	30.0	30.0

	Strongly Agree	7	63.6	70.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q1d Skills: contributing to the quality of improvement initiatives

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	18.2	20.0	20.0
	Strongly Agree	8	72.7	80.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q1e Skills: making economic decisions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	9.1	10.0	10.0
	Somewhat Agree	3	27.3	30.0	40.0
	Strongly Agree	6	54.5	60.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q1f Skills: improving productivity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	9.1	10.0	10.0
	Strongly Agree	9	81.8	90.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q1g Skills: communicating effectively

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	18.2	22.2	22.2
	Strongly Agree	7	63.6	77.8	100.0
	Total	9	81.8	100.0	
Missing	System	2	18.2		
Total		11	100.0		

q1h Skills: recognizing/dealing with challenges of global enterprises

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	5	45.5	50.0	50.0
	Strongly Agree	5	45.5	50.0	100.0

	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q1i Skills: assuming a leadership role in project management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	4	36.4	40.0	40.0
	Strongly Agree	6	54.5	60.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q1j Skills: further professional development

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	4	36.4	40.0	40.0
	Strongly Agree	6	54.5	60.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q1k Skills: gaining confidence in my professional citizenship

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	18.2	20.0	20.0
	Strongly Agree	8	72.7	80.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2a Need regularly: Professional Certification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	9.1	10.0	10.0
	Somewhat Disagree	3	27.3	30.0	40.0
	Somewhat Agree	3	27.3	30.0	70.0
	Strongly Agree	3	27.3	30.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2b Need regularly: seeking and using credible sources of scholarly knowledge

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Strongly Disagree	1	9.1	10.0	10.0
	Somewhat Disagree	2	18.2	20.0	30.0
	Somewhat Agree	3	27.3	30.0	60.0
	Strongly Agree	4	36.4	40.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2c Need regularly: problem solving

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	3	27.3	30.0	30.0
	Strongly Agree	7	63.6	70.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2d Need regularly: quality tools

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	6	54.5	60.0	60.0
	Strongly Agree	4	36.4	40.0	100.0
	Total	10	90.9	100.0	

Missing	System	1	9.1		
Total		11	100.0		

q2e Need regularly: making economic decisions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	5	45.5	50.0	50.0
	Strongly Agree	5	45.5	50.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2f Need regularly: improving productivity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	4	36.4	40.0	40.0
	Strongly Agree	6	54.5	60.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2g Need regularly: significant forms of communication

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	4	36.4	40.0	40.0
	Strongly Agree	6	54.5	60.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2h Need regularly: project management and leadership

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	9.1	10.0	10.0
	Somewhat Agree	3	27.3	30.0	40.0
	Strongly Agree	6	54.5	60.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2i Need regularly: teamwork

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	6	54.5	60.0	60.0
	Strongly Agree	4	36.4	40.0	100.0

	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2j Need regularly: management skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	2	18.2	20.0	20.0
	Somewhat Agree	2	18.2	20.0	40.0
	Strongly Agree	6	54.5	60.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2k Need regularly: global enterprise knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	9.1	10.0	10.0
	Somewhat Agree	7	63.6	70.0	80.0
	Strongly Agree	2	18.2	20.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2l Need regularly: lifelong learning and continued professional development

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	9.1	10.0	10.0
	Somewhat Disagree	2	18.2	20.0	30.0
	Somewhat Agree	4	36.4	40.0	70.0
	Strongly Agree	3	27.3	30.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q2m Need regularly: the application of citizenship and professionalism

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	9.1	10.0	10.0
	Somewhat Agree	5	45.5	50.0	60.0
	Strongly Agree	4	36.4	40.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q3 Serve on Advisory Board

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	3	27.3	30.0	30.0
	No	7	63.6	70.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q4 Have professional certification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	4	36.4	40.0	40.0
	No	6	54.5	60.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q4a Type of certification

		Frequency	Percent	Valid Percent	
Valid		7	63.6	63.6	
	FMP - Facility Management Professional	1	9.1	9.1	
	Journeyman Machinist journeyman Patternmaker	1	9.1	9.1	

	Journeyman tool & die maker	1	9.1	9.1	
	Quality Tech Quality Engineer Quality Auditor Six Sigma Black Belt	1	9.1	9.1	
	Total	11	100.0	100.0	

q4a Type of certification

		Cumulative Percent
Valid		63.6
	FMP - Facility Management Professional	72.7
	Journeyman Machinist journeyman Patternmaker	81.8
	Journeyman tool & die maker	90.9
	Quality Tech Quality Engineer Quality Auditor Six Sigma Black Belt	100.0
	Total	

q5 Perform better or worse and why

		Frequency	Percent	Valid Percent	
Valid		3	27.3	27.3	
	Better. I am highly organized and motivated individual. I feel a lot of professionals in my field get mired in the day to day 'firefighting' and are not long term, goal driven individuals. However, I am looked upon by some as not one of them. I am emphasizing the need of Lean Manufacturing and One Piece Flow. My plant has implemented one piece flow and is in process of creating teams and cells.	1	9.1	9.1	

	Better. I am more professional.	1	9.1	9.1	
	Better. I seem to be more driven and do not expect everything to be handed to me like other recent graduates.	1	9.1	9.1	
	I am currently a Manufacturing Engineer position. I work with degree engineers to which I am not. I am learning the job but I do not have the training to be an engineer at this level. I have made strides to learn what is required to fulfilled my position.	1	9.1	9.1	
	I perform about average with my peers, as the company I work for does not utilize much of my knowledge & skills.	1	9.1	9.1	
	Moving into a management role, the skills that I obtained were and are useful with managing the Maintenance team. I have gained the respect of my co-workers with the way that I manage the day to day functions of the maintenance department.	1	9.1	9.1	
	Yes, my emotional maturity is better than most thanks to my degree training.	1	9.1	9.1	
	Yes. I have the desire to excel in everything i do.	1	9.1	9.1	
	Total	11	100.0	100.0	

q5 Perform better or worse and why

		Cumulative Percent
Valid		27.3
	Better. I am highly organized and motivated individual. I feel a lot of professionals in my field get mired in the day to day 'firefighting' and are not long term, goal driven individuals. However, I am looked upon by some as not one of them. I am emphasizing the need of Lean Manufacturing and One Piece Flow. My plant has implemented one piece flow and is in process of creating teams and cells.	36.4
	Better. I am more professional.	45.5

	Better. I seem to be more driven and do not expect everything to be handed to me like other recent graduates.	54.5
	I am currently a Manufacturing Engineer position. I work with degree engineers to which I am not. I am learning the job but I do not have the training to be an engineer at this level. I have made strides to learn what is required to fulfilled my position.	63.6
	I perform about average with my peers, as the company I work for does not utilize much of my knowledge & skills.	72.7
	Moving into a management role, the skills that I obtained were and are useful with managing the Maintenance team. I have gained the respect of my co-workers with the way that I manage the day to day functions of the maintenance department.	81.8
	Yes, my emotional maturity is better than most thanks to my degree training.	90.9
	Yes. I have the desire to excel in everything i do.	100.0
	Total	

q6 Best course and why

		Frequency	Percent	Valid Percent	
Valid		3	27.3	27.3	
	All of the courses that dealt with Lean Manufacturing. With todays industry, companies that use this philosophy seem to operate smoother and more efficiently.	1	9.1	9.1	
	I do not remember	1	9.1	9.1	

	Lean Manufacture class that taught the Toyota House of Lean. This course taught the basic of Lean Principles and how to implement them. At the end of this program should provide an opportunity to take the certification on Lean Manufacturing Brown Belt.	1	9.1	9.1	
	Lean manufacturing course - I don't really remember the course number; it's been a few years. The knowledge Mr. Purvis provided to that course was top notch. Everything he covered, and demonstrated is something I have seen over and over again.	1	9.1	9.1	
	Lean Manufacturing. Help to change the culture of the typical worker and lend knowledge to there may be a better way to do the job.	1	9.1	9.1	
	Technical Writing. This class taught how to Research, Write and Communicate with others professionally.	1	9.1	9.1	
	The engineering economics because it helped me learn the process to write out detailed reports for buying and selling equipment, along with providing accurate ROI's.	1	9.1	9.1	
	Tied between Project Mgmt & Statistics. Project management helps allow the organized thinking, while statistics helps determine which direction to follow.	1	9.1	9.1	
	Total	11	100.0	100.0	

q6 Best course and why

		Cumulative Percent
Valid		27.3

	All of the courses that dealt with Lean Manufacturing. With todays industry, companies that use this philosophy seem to operate smoother and more efficiently.	36.4
	I do not remember	45.5
	Lean Manufacture class that taught the Toyota House of Lean. This course taught the basic of Lean Principles and how to implement them. At the end of this program should provide an opportunity to take the certification on Lean Manufacturing Brown Belt.	54.5
	Lean manufacturing course - I don't really remember the course number; it's been a few years. The knowledge Mr. Purvis provided to that course was top notch. Everything he covered, and demonstrated is something I have seen over and over again.	63.6
	Lean Manufacturing. Help to change the culture of the typical worker and lend knowledge to there may be a better way to do the job.	72.7
	Technical Writing. This class taught how to Research, Write and Communicate with others professionally.	81.8
	The engineering economics because it helped me learn the process to write out detailed reports for buying and selling equipment, along with providing accurate ROI's.	90.9
	Tied between Project Mgmt & Statistics. Project management helps allow the organized thinking, while statistics helps determine which direction to follow.	100.0
	Total	

q7 Worst/least useful course and why

		Frequency	Percent	Valid Percent	
Valid		3	27.3	27.3	
	Cant think of it now.	1	9.1	9.1	

	Engineering Economics. This class was poorly structure in the classroom. The instructor didn't have problems completely worked out before class. The examples used in class had error in the formulas & instructor didn't provide the proper text books for the class. The text book that was required was the primer for the State board exam for an Accounting. This book assumes that you a accounting major & understand the formulas & vague instructions. Furthermore, once section in the text has the formula wrong in the book. When I brought this to the instructors attention, he said I hope you didn't notice. This text was the 7th printing since 1984. This class was very frustrating.	1	9.1	9.1	
	For myself, the Designing course was the least useful. I already had considerable knowledge of GD&T & drafting, and I don't use the drawing program (Catia) at work.	1	9.1	9.1	
	I believe the process improvement class could be updated to use more current curriculum.	1	9.1	9.1	
	I do not remember	1	9.1	9.1	
	I enjoyed every course that was needed for the program.	1	9.1	9.1	
	I really don't have one	1	9.1	9.1	
	The OSHA class. Although safety is important, I feel this class is not relevant to this degree.	1	9.1	9.1	
	Total	11	100.0	100.0	

q7 Worst/least useful course and why

		Cumulative Percent
Valid		27.3

	Cant think of it now.	36.4
	Engineering Economics. This class was poorly structure in the classroom. The instructor didn't have problems completely worked out before class. The examples used in class had error in the formulas & instructor didn't provide the proper text books for the class. The text book that was required was the primer for the State board exam for an Accounting. This book assumes that you a accounting major & understand the formulas & vague instructions. Furthermore, once section in the text has the formula wrong in the book. When I brought this to the instructors attention, he said I hope you didn't notice. This text was the 7th printing since 1984. This class was very frustrating.	45.5
	For myself, the Designing course was the least useful. I already had considerable knowledge of GD&T & drafting, and I don't use the drawing program (Catia) at work.	54.5
	I believe the process improvement class could be updated to use more current curriculum.	63.6
	I do not remember	72.7
	I enjoyed every course that was needed for the program.	81.8
	I really don't have one	90.9
	The OSHA class. Although safety is important, I feel this class is not relevant to this degree.	100.0
	Total	

q8 Best instructor and why

		Frequency	Percent	Valid Percent	
Valid		3	27.3	27.3	
	Andy Purvis - his practical, real life knowledge	1	9.1	9.1	

	I really enjoyed Ken Clark. He brought a real-world atmosphere to the class and made it more group based which is very helpful.	1	9.1	9.1	
	John Mola. Many Instructors were helpful and knowledgeable, but I had Joh for several classes and he was user friendly.	1	9.1	9.1	
	Ken Clark. He was always able to make your studies and projects apply to real work situations.	1	9.1	9.1	
	Ken Clark. Ken is very knowledgeable with the industry and holds nothing back with what is needed. He is very helpful in many ways and wants his students to excel and succeed.	1	9.1	9.1	
	Lean Manufacturing- This class is what I have always been interested in, process improvement.	1	9.1	9.1	
	Mike Hood was very good at teaching how to communicate eloquently yet succinctly.	1	9.1	9.1	
	Saleh Karsou was the most passionate instructor who provided the information I found the most useful.	1	9.1	9.1	
	Total	11	100.0	100.0	

q8 Best instructor and why

		Cumulative Percent
Valid		27.3
	Andy Purvis - his practical, real life knowledge	36.4
	I really enjoyed Ken Clark. He brought a real-world atmosphere to the class and made it more group based which is very helpful.	45.5
	John Mola. Many Instructors were helpful and knowledgeable, but I had Joh for several classes and he was user friendly.	54.5

	Ken Clark. He was always able to make your studies and projects apply to real work situations.	63.6
	Ken Clark. Ken is very knowledgeable with the industry and holds nothing back with what is needed. He is very helpful in many ways and wants his students to excel and succeed.	72.7
	Lean Manufacturing- This class is what I have always been interested in, process improvement.	81.8
	Mike Hood was very good at teaching how to communicate eloquently yet succinctly.	90.9
	Saleh Karsou was the most passionate instructor who provided the information I found the most useful.	100.0
	Total	

q9 Overall expertise and value of program instructors

		Frequency	Percent	Valid Percent	
Valid		4	36.4	36.4	
	All of the instructors have had some industry experience. They teach with the experience that they have gained through their work experience rather than directly from the text.	1	9.1	9.1	
	Great program for industrial-minded management candidates or already practicing managers.	1	9.1	9.1	
	I believe they add a lot. I took classes in Grand Rapids and the instructors seemed to have a good amount of experience and offered many life experiences to the classes.	1	9.1	9.1	

	I found them to be knowledgeable of the material they were instructing.	1	9.1	9.1	
	I liked the program. It covered a lot of aspects that a Manager would have to do in his/hers daily activities.	1	9.1	9.1	
	I think the overall expertise and professionalism of the instructors is excellent.	1	9.1	9.1	
	They all were good, and became better by the end of the courses they taught. All had the basic knowledge but not all had the teaching skills to begin with to couple with the resources provided.	1	9.1	9.1	
	Total	11	100.0	100.0	

q9 Overall expertise and value of program instructors

		Cumulative Percent
Valid		36.4
	All of the instructors have had some industry experience. They teach with the experience that they have gained through their work experience rather than directly from the text.	45.5
	Great program for industrial-minded management candidates or already practicing managers.	54.5
	I believe they add a lot. I took classes in Grand Rapids and the instructors seemed to have a good amount of experience and offered many life experiences to the classes.	63.6
	I found them to be knowledgeable of the material they were instructing.	72.7
	I liked the program. It covered a lot of aspects that a Manager would have to do in his/hers daily activities.	81.8
	I think the overall expertise and professionalism of the instructors is excellent.	90.9

	They all were good, and became better by the end of the courses they taught. All had the basic knowledge but not all had the teaching skills to begin with to couple with the resources provided.	100.0
	Total	

q10 I wish we had done less and why

		Frequency	Percent	Valid Percent	
Valid		4	36.4	36.4	
	driving back and forth to Grand Rapids.	1	9.1	9.1	
	Group projects. I am not a fan of group projects. I understand the philosophy behind it with gaining the knowledge on how to work with others, but some of the students in the program have worked with these styles of projects at their own work place. I have been in the maintenance industry for approximately 30 years and group projects was not one of my highlights of the program.	1	9.1	9.1	
	I wish we had done less English work, only because I had already had what I required, even if the credit did not transfer from my previous college due to the passing years.	1	9.1	9.1	
	Manual process layouts	1	9.1	9.1	
	On-line classes. The only class I though was a good on-line class was the OSHA class. All the other on-line classes I missed the class discussions and for the most part felt like I was teaching myself.	1	9.1	9.1	
	statistics. I have used none of this in my career path.	1	9.1	9.1	

	Way less Blackboard Postings. I found this to be totally useless. The instructors in several classes made it clear that the initial postings were to be submitted by a certain date which allowed other students time to constructively respond. It turned into most people waited until the last day & made a posting then randomly picked a short posting to quickly respond to, thus not allowing enough time to properly invest into thoughtful interaction. The whole idea was to learn from others & possibly see another side & to be structured, but most chose to procrastinate which is a bad way to do business.	1	9.1	9.1	
	Total	11	100.0	100.0	

q10 I wish we had done less and why

		Cumulative Percent
Valid		36.4
	driving back and forth to Grand Rapids.	45.5
	Group projects. I am not a fan of group projects. I understand the philosophy behind it with gaining the knowledge on how to work with others, but some of the students in the program have worked with these styles of projects at their own work place. I have been in the maintenance industry for approximately 30 years and group projects was not one of my highlights of the program.	54.5
	I wish we had done less English work, only because I had already had what I required, even if the credit did not transfer from my previous college due to the passing years.	63.6
	Manual process layouts	72.7
	On-line classes. The only class I though was a good on-line class was the OSHA class. All the other on-line classes I missed the class discussions and for the most part felt like I was teaching myself.	81.8
	statistics. I have used none of this in my career path.	90.9

	Way less Blackboard Postings. I found this to be totally useless. The instructors in several classes made it clear that the initial postings were to be submitted by a certain date which allowed other students time to constructively respond. It turned into most people waited until the last day & made a posting then randomly picked a short posting to quickly respond to, thus not allowing enough time to properly invest into thoughtful interaction. The whole idea was to learn from others & possibly see another side & to be structured, but most chose to procrastinate which is a bad way to do business.	100.0
	Total	

q11 Enroll in program again and why/why not

		Frequency	Percent	Valid Percent	
Valid		3	27.3	27.3	
	At this point in my life I would not re-enroll. I considered continuing for my Masters, but felt that my health would not allow it at this time.	1	9.1	9.1	
	Definitely would. The transferability of credits from other programs and the focus on real life learning.	1	9.1	9.1	
	I would at the Master Level	1	9.1	9.1	
	I would do it again in a heartbeat. I believe it has set me up for a great amount of success.	1	9.1	9.1	
	I would enroll in this again. My degree has served me well.	1	9.1	9.1	
	I would take the program again and highly recommend it to anyone.	1	9.1	9.1	

	Moderate. This degree would be useful for someone who wanted to pursue a career in Management, But my purpose honestly for choosing it was it aligned with the majority of my previous classes that I have taken over the years, which allowed me to obtain a degree.	1	9.1	9.1	
	Very likely. I thought it was good overall training for an industrial manager.	1	9.1	9.1	
	Total	11	100.0	100.0	

q11 Enroll in program again and why/why not

		Cumulative Percent
Valid		27.3
	At this point in my life I would not re-enroll. I considered continuing for my Masters, but felt that my health would not allow it at this time.	36.4
	Definitely would. The transferability of credits from other programs and the focus on real life learning.	45.5
	I would at the Master Level	54.5
	I would do it again in a heartbeat. I believe it has set me up for a great amount of success.	63.6
	I would enroll in this again. My degree has served me well.	72.7
	I would take the program again and highly recommend it to anyone.	81.8
	Moderate. This degree would be useful for someone who wanted to pursue a career in Management, But my purpose honestly for choosing it was it aligned with the majority of my previous classes that I have taken over the years, which allowed me to obtain a degree.	90.9
	Very likely. I thought it was good overall training for an industrial manager.	100.0

	Total	

q12 Obtain/retain employment 6 months after graduation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	9	81.8	90.0	90.0
	No	1	9.1	10.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q13 Job title

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		3	27.3	27.3	27.3
	General Manager	1	9.1	9.1	36.4
	Machine Shop Manager	1	9.1	9.1	45.5
	Maintenance Manager	1	9.1	9.1	54.5
	Manufacturing Engineer	1	9.1	9.1	63.6
	Operations Manager	1	9.1	9.1	72.7
	Quality Supervisor	1	9.1	9.1	81.8
	Skilled Trades Machinist	1	9.1	9.1	90.9
	Tooling engineer/ consultant	1	9.1	9.1	100.0

	Total	11	100.0	100.0	

q14 May we contact employer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	8	72.7	80.0	80.0
	No	2	18.2	20.0	100.0
	Total	10	90.9	100.0	
Missing	System	1	9.1		
Total		11	100.0		

q15 Attended grad school

		Frequency	Percent	Valid Percent	
Valid		6	54.5	54.5	
	I am 2 classes away from finishing my MBA.	1	9.1	9.1	
	no	1	9.1	9.1	
	No	1	9.1	9.1	
	Not as of yet.	1	9.1	9.1	
	Per the previous question, no I did not due to health and age reasons	1	9.1	9.1	
	Total	11	100.0	100.0	

q15 Attended grad school

		Cumulative Percent
Valid		54.5
	I am 2 classes away from finishing my MBA.	63.6
	no	72.7
	No	81.8
	Not as of yet.	90.9
	Per the previous question, no I did not due to health and age reasons	100.0
	Total	

q16 Year got degree

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	18.2	18.2	18.2
	2010	1	9.1	9.1	27.3
	2011	3	27.3	27.3	54.5
	2012	1	9.1	9.1	63.6
	2013	1	9.1	9.1	72.7
	2014	1	9.1	9.1	81.8
	2015	2	18.2	18.2	100.0
	Total	11	100.0	100.0	

q17 Salary range

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	$60,000-$79,999	5	45.5	62.5	62.5
	$80,000-$99,999	2	18.2	25.0	87.5
	$100,000 or more	1	9.1	12.5	100.0
	Total	8	72.7	100.0	
Missing	Not Applicable	1	9.1		
	System	2	18.2		
	Total	3	27.3		
Total		11	100.0		

q18 How long in position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		3	27.3	27.3	27.3
	2 years	1	9.1	9.1	36.4
	3 months	1	9.1	9.1	45.5
	3 years	1	9.1	9.1	54.5
	3 years.	1	9.1	9.1	63.6
	4	1	9.1	9.1	72.7
	4 years	1	9.1	9.1	81.8
	8 yrs	1	9.1	9.1	90.9
	not quite 2 years	1	9.1	9.1	100.0
	Total	11	100.0	100.0	

q19 Years working in industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		3	27.3	27.3	27.3
	15	1	9.1	9.1	36.4
	28	1	9.1	9.1	45.5
	3 years	1	9.1	9.1	54.5
	30	1	9.1	9.1	63.6
	33 yrs	1	9.1	9.1	72.7
	4	2	18.2	18.2	90.9
	not quite 2 years	1	9.1	9.1	100.0
	Total	11	100.0	100.0	

q20 Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	8	72.7	88.9	88.9
	Female	1	9.1	11.1	100.0
	Total	9	81.8	100.0	
Missing	System	2	18.2		
Total		11	100.0		

q21 Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Native American/Inuit	1	9.1	11.1	11.1
	Caucasian-American/White	8	72.7	88.9	100.0
	Total	9	81.8	100.0	
Missing	System	2	18.2		
Total		11	100.0		

q22 Additional comments

		Frequency	Percent	Valid Percent	
Valid		9	81.8	81.8	
	I enjoyed the program and met a bunch of great people, instructors and fellow students. I would highly recommend the ITM program to anyone who would like to pursue a management position in the industry world.	1	9.1	9.1	
	Thank you.	1	9.1	9.1	
	Total	11	100.0	100.0	

q22 Additional comments

		Cumulative Percent
Valid		81.8
	I enjoyed the program and met a bunch of great people, instructors and fellow students. I would highly recommend the ITM program to anyone who would like to pursue a management position in the industry world.	90.9

	Thank you.	100.0
	Total	

ITM APR Alumni Survey Dashboard

16 ITM APR Advisory Board Frequencies

Prepared by: Institutional Research & Testing, 07/16

Statistics

	N				
	Valid	Missing	Mean	Median	
q1a Prog mission consistent with university mission	5	0	3.80	4.00	
q1b ITM students are well prepared to enter the workforce	5	0	3.60	4.00	
q1c Prepares students to enter industry better than other schools w/ similar program	4	1	3.50	3.50	
q1d Grads contribute as much as grads from similar programs in 1st 8 months	4	1	3.50	3.50	
q1e ITM program provides a foundation for multiple career possibilities	5	0	4.00	4.00	
q1f Job opportunities available to ITM graduates	5	0	3.80	4.00	
q2a Professional certification	4	1	1.75	1.50	
q2b Seek technical references	5	0	2.60	3.00	
q2c Problem solving/Decision making	5	0	3.00	3.00	
q2d Quality improvement initiatives	5	0	2.40	2.00	
q2e Perform economic analysis	5	0	2.00	2.00	
q2f Productivity improvement	5	0	2.60	3.00	

q2g Improve industrial systems	4	1	2.50	3.00	
q2h Effective communication	5	0	3.00	3.00	
q2i Management skills	5	0	2.40	2.00	
q2j International enterprises and strategy	4	1	1.25	1.00	
q2k Personal growth and assessment	5	0	2.60	3.00	
q2l Citizenship and professionalism	4	1	2.75	3.00	
q2m Computer Aided Design & Drafting (CAD)	5	0	2.40	3.00	
q2n General Automation Technologies	4	1	2.00	2.00	
q2o Lean Manufacturing Methods	4	1	2.75	3.00	
q2p Management Fundamentals	5	0	2.60	3.00	
q2q Engineering Topics in Management	5	0	2.40	3.00	
q2r Project Management	5	0	2.40	2.00	
q2s ISO/TS/QS Certification	4	1	1.25	1.00	
q2t Statistics and Statistical Methods	4	1	2.00	2.00	
q2u Manufacturing Processes	4	1	2.75	3.00	
q2v Manufacturing Improvement Methods	4	1	2.50	3.00	
q2w Engineering Economics	4	1	2.00	2.00	
q2x Operations Management	5	0	2.60	3.00	
q2y Marketing	4	1	1.25	1.00	
q2z Business Law	5	0	1.40	1.00	
q2aa Other	1	4	1.00	1.00	
q2ab Other, specified	5	0			
q3 Strengths of ITM program	5	0			
q4 Qualities/skills, if any, do you feel are lacking in grads	5	0			

q5 Areas needing improvement/more extensive coverage	5	0			
q6 Identify/share emerging trends or directions where should focus efforts	5	0			
q7 Additional comments/suggestions	5	0			

Statistics

	Std. Deviation
q1a Prog mission consistent with university mission	.447
q1b ITM students are well prepared to enter the workforce	.548
q1c Prepares students to enter industry better than other schools w/ similar program	.577
q1d Grads contribute as much as grads from similar programs in 1st 8 months	.577
q1e ITM program provides a foundation for multiple career possibilities	.000
q1f Job opportunities available to ITM graduates	.447
q2a Professional certification	.957
q2b Seek technical references	.894
q2c Problem solving/Decision making	.000
q2d Quality improvement initiatives	.548
q2e Perform economic analysis	.707
q2f Productivity improvement	.548
q2g Improve industrial systems	1.000
q2h Effective communication	.000
q2i Management skills	.548
q2j International enterprises and strategy	.500
q2k Personal growth and assessment	.548

q2l Citizenship and professionalism	.500
q2m Computer Aided Design & Drafting (CAD)	.894
q2n General Automation Technologies	.816
q2o Lean Manufacturing Methods	.500
q2p Management Fundamentals	.548
q2q Engineering Topics in Management	.894
q2r Project Management	.548
q2s ISO/TS/QS Certification	.500
q2t Statistics and Statistical Methods	.000
q2u Manufacturing Processes	.500
q2v Manufacturing Improvement Methods	1.000
q2w Engineering Economics	.000
q2x Operations Management	.548
q2y Marketing	.500
q2z Business Law	.548
q2aa Other	
q2ab Other, specified	
q3 Strengths of ITM program	
q4 Qualities/skills, if any, do you feel are lacking in grads	
q5 Areas needing improvement/more extensive coverage	
q6 Identify/share emerging trends or directions where should focus efforts	
q7 Additional comments/suggestions	

Frequency Table

q1a Prog mission consistent with university mission

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	20.0	20.0	20.0
	Strongly Agree	4	80.0	80.0	100.0
	Total	5	100.0	100.0	

q1b ITM students are well prepared to enter the workforce

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	40.0	40.0	40.0
	Strongly Agree	3	60.0	60.0	100.0
	Total	5	100.0	100.0	

q1c Prepares students to enter industry better than other schools w/ similar program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	40.0	50.0	50.0
	Strongly Agree	2	40.0	50.0	100.0

	Total	4	80.0	100.0	
Missing	Unable to Judge	1	20.0		
Total		5	100.0		

q1d Grads contribute as much as grads from similar programs in 1st 8 months

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	40.0	50.0	50.0
	Strongly Agree	2	40.0	50.0	100.0
	Total	4	80.0	100.0	
Missing	Unable to Judge	1	20.0		
Total		5	100.0		

q1e ITM program provides a foundation for multiple career possibilities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	5	100.0	100.0	100.0

q1f Job opportunities available to ITM graduates

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	20.0	20.0	20.0

	Strongly Agree	4	80.0	80.0	100.0
	Total	5	100.0	100.0	

q2a Professional certification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	2	40.0	50.0	50.0
	Somewhat Needed	1	20.0	25.0	75.0
	Greatly Needed	1	20.0	25.0	100.0
	Total	4	80.0	100.0	
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2b Seek technical references

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	1	20.0	20.0	20.0
	Greatly Needed	4	80.0	80.0	100.0
	Total	5	100.0	100.0	

q2c Problem solving/Decision making

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Greatly Needed	5	100.0	100.0	100.0

q2d Quality improvement initiatives

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Needed	3	60.0	60.0	60.0
	Greatly Needed	2	40.0	40.0	100.0
	Total	5	100.0	100.0	

q2e Perform economic analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	1	20.0	20.0	20.0
	Somewhat Needed	3	60.0	60.0	80.0
	Greatly Needed	1	20.0	20.0	100.0
	Total	5	100.0	100.0	

q2f Productivity improvement

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Somewhat Needed	2	40.0	40.0	40.0
	Greatly Needed	3	60.0	60.0	100.0
	Total	5	100.0	100.0	

q2g Improve industrial systems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	1	20.0	25.0	25.0
	Greatly Needed	3	60.0	75.0	100.0
	Total	4	80.0	100.0	
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2h Effective communication

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Greatly Needed	5	100.0	100.0	100.0

q2i Management skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Needed	3	60.0	60.0	60.0

	Greatly Needed	2	40.0	40.0	100.0
	Total	5	100.0	100.0	

q2j International enterprises and strategy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	3	60.0	75.0	75.0
	Somewhat Needed	1	20.0	25.0	100.0
	Total	4	80.0	100.0	
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2k Personal growth and assessment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Needed	2	40.0	40.0	40.0
	Greatly Needed	3	60.0	60.0	100.0
	Total	5	100.0	100.0	

q2l Citizenship and professionalism

		Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Somewhat Needed	1	20.0	25.0	25.0
	Greatly Needed	3	60.0	75.0	100.0
	Total	4	80.0	100.0	
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2m Computer Aided Design & Drafting (CAD)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	1	20.0	20.0	20.0
	Somewhat Needed	1	20.0	20.0	40.0
	Greatly Needed	3	60.0	60.0	100.0
	Total	5	100.0	100.0	

q2n General Automation Technologies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	1	20.0	25.0	25.0
	Somewhat Needed	2	40.0	50.0	75.0
	Greatly Needed	1	20.0	25.0	100.0
	Total	4	80.0	100.0	
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2o Lean Manufacturing Methods

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Needed	1	20.0	25.0	25.0
	Greatly Needed	3	60.0	75.0	100.0
	Total	4	80.0	100.0	
Missing	System	1	20.0		
Total		5	100.0		

q2p Management Fundamentals

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Needed	2	40.0	40.0	40.0
	Greatly Needed	3	60.0	60.0	100.0
	Total	5	100.0	100.0	

q2q Engineering Topics in Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	1	20.0	20.0	20.0
	Somewhat Needed	1	20.0	20.0	40.0
	Greatly Needed	3	60.0	60.0	100.0
	Total	5	100.0	100.0	

q2r Project Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Needed	3	60.0	60.0	60.0
	Greatly Needed	2	40.0	40.0	100.0
	Total	5	100.0	100.0	

q2s ISO/TS/QS Certification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	3	60.0	75.0	75.0
	Somewhat Needed	1	20.0	25.0	100.0
	Total	4	80.0	100.0	
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2t Statistics and Statistical Methods

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Needed	4	80.0	100.0	100.0
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2u Manufacturing Processes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Needed	1	20.0	25.0	25.0
	Greatly Needed	3	60.0	75.0	100.0
	Total	4	80.0	100.0	
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2v Manufacturing Improvement Methods

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	1	20.0	25.0	25.0
	Greatly Needed	3	60.0	75.0	100.0
	Total	4	80.0	100.0	
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2w Engineering Economics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Needed	4	80.0	100.0	100.0
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2x Operations Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Needed	2	40.0	40.0	40.0
	Greatly Needed	3	60.0	60.0	100.0
	Total	5	100.0	100.0	

q2y Marketing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	3	60.0	75.0	75.0
	Somewhat Needed	1	20.0	25.0	100.0
	Total	4	80.0	100.0	
Missing	Does Not Apply	1	20.0		
Total		5	100.0		

q2z Business Law

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	3	60.0	60.0	60.0
	Somewhat Needed	2	40.0	40.0	100.0
	Total	5	100.0	100.0	

q2aa Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Needed	1	20.0	100.0	100.0
Missing	Does Not Apply	1	20.0		
	System	3	60.0		
	Total	4	80.0		
Total		5	100.0		

q2ab Other, specified

		Frequency	Percent	Valid Percent	
Valid		4	80.0	80.0	
	Writing skills are extremely important & experience with Basis of Estimates, Statement of Works & understanding how to budget human resources & work efforts. Human resource experience as well, understanding different motivation techniques & personal development processes.	1	20.0	20.0	
	Total	5	100.0	100.0	

q2ab Other, specified

		Cumulative Percent
Valid		80.0

	Writing skills are extremely important & experience with Basis of Estimates, Statement of Works & understanding how to budget human resources & work efforts. Human resource experience as well, understanding different motivation techniques & personal development processes.	100.0
	Total	

q3 Strengths of ITM program

		Frequency	Percent	Valid Percent	
Valid		1	20.0	20.0	
	Broad general background of current manufacturing/technical processes	1	20.0	20.0	
	Good blend of theory and actual application. We desire students that are hands on and have applied their learnings.	1	20.0	20.0	
	The ITM degree prepares students with all the basics to be successful in many job opportunities. Such as planning, purchasing, quality engineering, supervision, production control, project manager and Green Belt or Black Belt positions.	1	20.0	20.0	
	The ITM program has a good mixture of classes, it does seem like it is loaded towards manufacturing.	1	20.0	20.0	
	Total	5	100.0	100.0	

q3 Strengths of ITM program

		Cumulative Percent
Valid		20.0

	Broad general background of current manufacturing/technical processes	40.0
	Good blend of theory and actual application. We desire students that are hands on and have applied their learnings.	60.0
	The ITM degree prepares students with all the basics to be successful in many job opportunities. Such as planning, purchasing, quality engineering, supervision, production control, project manager and Green Belt or Black Belt positions.	80.0
	The ITM program has a good mixture of classes, it does seem like it is loaded towards manufacturing.	100.0
	Total	

q4 Qualities/skills, if any, do you feel are lacking in grads

		Frequency	Percent	Valid Percent	
Valid		1	20.0	20.0	
	Forward looking into expanding current knowledge, not just getting the degree as an easier path to getting a box checked in their resume.	1	20.0	20.0	
	I have not been in contact with many ITM graduates, but from my activity as an ITM student, I felt the students were simply going thru the motions to earn a degree. Even the online classes, you could tell were not exciting to all students. In the future I would like to see students in the ITM program excited and looking for new technologies and global economic trends that effect our working environment.	1	20.0	20.0	
	None come to mind.	1	20.0	20.0	
	Public speaking.	1	20.0	20.0	

	Total	5	100.0	100.0	

q4 Qualities/skills, if any, do you feel are lacking in grads

		Cumulative Percent
Valid		20.0
	Forward looking into expanding current knowledge, not just getting the degree as an easier path to getting a box checked in their resume.	40.0
	I have not been in contact with many ITM graduates, but from my activity as an ITM student, I felt the students were simply going thru the motions to earn a degree. Even the online classes, you could tell were not exciting to all students. In the future I would like to see students in the ITM program excited and looking for new technologies and global economic trends that effect our working environment.	60.0
	None come to mind.	80.0
	Public speaking.	100.0
	Total	

q5 Areas needing improvement/more extensive coverage

		Frequency	Percent	Valid Percent	
Valid		1	20.0	20.0	
	Additional coverage of visualization, modeling, and simulation technologies in design and manufacturing processes	1	20.0	20.0	
	I would like to see a class on hazardous materials and green production technologies.	1	20.0	20.0	
	Leadership development Communication ability	1	20.0	20.0	

	Lean manufacturing and manufacturing improvements.	1	20.0	20.0	
	Total	5	100.0	100.0	

q5 Areas needing improvement/more extensive coverage

		Cumulative Percent
Valid		20.0
	Additional coverage of visualization, modeling, and simulation technologies in design and manufacturing processes	40.0
	I would like to see a class on hazardous materials and green production technologies.	60.0
	Leadership development Communication ability	80.0
	Lean manufacturing and manufacturing improvements.	100.0
	Total	

q6 Identify/share emerging trends or directions where should focus efforts

		Frequency	Percent	Valid Percent	
Valid		1	20.0	20.0	
	Additive manufacturing, advance materials & virtual reality technologies applied to program development processes.	1	20.0	20.0	
	Automation, Statistical process controls.	1	20.0	20.0	

	I feel that universities do not focus enough on Leadership development. With the generation of students entering the workforce there has been a shift in their desire to be leaders & understanding the importance of this skill. Additionally dependency on non verbal communication methods has created more introverted styles of problem solving. Continue to place emphasis on the communication skills of engineering students entering the work place.	1	20.0	20.0	
	New technologies are emerging all the time, as well as manufacturing processes. In my opinion an ITM graduate must be able to withstand the pressure of project management, lead a team of people, and be very comfortable with public speaking.	1	20.0	20.0	
	Total	5	100.0	100.0	

q6 Identify/share emerging trends or directions where should focus efforts

		Cumulative Percent
Valid		20.0
	Additive manufacturing, advance materials & virtual reality technologies applied to program development processes.	40.0
	Automation, Statistical process controls.	60.0
	I feel that universities do not focus enough on Leadership development. With the generation of students entering the workforce there has been a shift in their desire to be leaders & understanding the importance of this skill. Additionally dependency on non verbal communication methods has created more introverted styles of problem solving. Continue to place emphasis on the communication skills of engineering students entering the work place.	80.0

	New technologies are emerging all the time, as well as manufacturing processes. In my opinion an ITM graduate must be able to withstand the pressure of project management, lead a team of people, and be very comfortable with public speaking.	100.0
	Total	

q7 Additional comments/suggestions

		Frequency	Percent	Valid Percent	
Valid		1	20.0	20.0	
	In stilling. Life long learning to enable discovery and self improvement	1	20.0	20.0	
	See previous comments. Overall I feel Ferris does a great job versus other instate universities. The key will be to continue to keep the finger on the pulse of the hiring companies as well as investing in relevant technology labs. This will create more efficient transitions into the work place for the students.	1	20.0	20.0	

	The name Industrial Technologies and Management should be synonymous with the latest technical capabilities in various disciplines. Understanding how to take very advantage or determine solutions using these technologies would be important. I always use a term “be comfortable with being uncomfortable”, this can apply to public speaking such as delivering powerpoint presentations, introducing yourself to a working team, or just engaging in daily communications. Mgmt is much more than just making sure goals are met or not. Managing people, professionals is a learned process and can only be realized thru actual personal experience. I would like to see a coursework where students have the opportunity to lead a class and achieve various goals. This will provide planning and getting to know your classmates.	1	20.0	20.0	
	Visits to more manufacturing plants or small internships for students not currently working.	1	20.0	20.0	
	Total	5	100.0	100.0	

q7 Additional comments/suggestions

		Cumulative Percent
Valid		20.0
	In stilling. Life long learning to enable discovery and self improvement	40.0
	See previous comments. Overall I feel Ferris does a great job versus other instate universities. The key will be to continue to keep the finger on the pulse of the hiring companies as well as investing in relevant technology labs. This will create more efficient transitions into the work place for the students.	60.0

	The name Industrial Technologies and Management should be synonymous with the latest technical capabilities in various disciplines. Understanding how to take very advantage or determine solutions using these technologies would be important. I always use a term “be comfortable with being uncomfortable”, this can apply to public speaking such as delivering powerpoint presentations, introducing yourself to a working team, or just engaging in daily communications. Mgmt is much more than just making sure goals are met or not. Managing people, professionals is a learned process and can only be realized thru actual personal experience. I would like to see a coursework where students have the opportunity to lead a class and achieve various goals. This will provide planning and getting to know your classmates.	80.0
	Visits to more manufacturing plants or small internships for students not currently working.	100.0
	Total	

Syllabi for Applied Science Courses

APPS 350 Automation & Technology Management

APPS 351 Lean Thinking Production Flow & Plant Layout

APPS 401 Contemporary Issues in Industrial Management

APPS 420 Manufacturing Certification & Standardization

APPS 450 Manufacturing Improvement Management

APPS 499 Senior Project Capstone

Checksheet

Industrial Technology and Management Checksheet